City of Arvada
City Council Agenda
MARCH 7, 2022
CITY COUNCIL CHAMBERS
Regular Business

Councilmembers:
Marc Williams, Mayor
David Jones, Mayor Pro-Tem
Bob Fifer, At large
John Marriott, District 3
Randy Moorman, District 1
Lauren Simpson, District 2
Lisa Smith, At large

Staff Members Usually Present:
Mark Deven, City Manager
Lorie Gillis, Deputy City Manager
Rachel Morris, City Attorney
Don Wick, Director of Public Works
Sharon Israel, Director of Utilities
Ryan Stachelski, Dir. of Community & Economic Development
Bryan Archer, Director of Finance
Rob Smetana, Manager of City Planning & Development
Ben Irwin, Chief Communications Manager
Kristen Rush, City Clerk

Info: 720-898-7550

THIRD FLOOR CONFERENCE ROOM
EXECUTIVE SESSION
5:00 P.M.

Security Arrangements, Pursuant to CRS 24-6-402(4)(d) Relating to Emergency Operation Plan and Legal Advice, Pursuant to CRS 24-6-402(4)(b) regarding Broomfield's Notice of Withdrawal from JPPHA

CITY COUNCIL MEETING – CITY COUNCIL CHAMBERS
6:00 PM

1. Call to Order - 6:00 PM
2. Moment of Reflection and Pledge of Allegiance - Councilmember Fifer
3. Roll Call of Councilmembers
4. Approval of Minutes
   A. February 7, 2022 City Council Meeting
5. Recognitions and Communications - None
6. Presentations - None
7. Public Comment on Issues not Scheduled on Agenda - Three Minute Limit
8. New Business
   A. Consent Agenda

1. R22-014, A Resolution Authorizing a Purchase Order #Q-367607-44599.774AS By and Between the City of Arvada and Axon Enterprise, Inc. for Body Worn Camera Equipment and Related Services in an Amount Not to Exceed $549,735.49 in the First Year
2. R22-015, A Resolution Accepting Donations of Ballistic Armor and Monetary Donations to the Arvada Police Department
3. R22-016, A Resolution Authorizing an Agreement By and Between the City of Arvada and SEMA Construction, Inc. for Construction Manager/General Contractor (CM/GC) Services, Construction Package 2, West 72nd Avenue - Kipling Street to Simms Street in the amount of $22,636,539.43

B. Resolutions

1. R22-017, A Resolution Reviving and Approving the First Amendment to an Intergovernmental Agreement By and Between the City of Arvada, The County of Jefferson, and the City of Lakewood Authorizing the Severe Weather Shelter Network (SWSN) to be a Subrecipient of Community Development Block Grant (CDBG) Funds for Emergency Overnight Shelter Services, CFDA #14.218
2. R22-018, A Resolution Approving the Contract to Buy Real Estate for the Properties Located at 6630 W 51st Avenue and 5045 Marshall Street, Arvada, CO 80002 for $2,750,000.000 Plus Closing Costs

C. Ordinances (First Reading)

1. CB22-045, An Ordinance Authorizing A Loan Agreement Between the City of Arvada and the Arvada Urban Renewal Authority to Support Redevelopment Projects in the Ralston Fields Urban Renewal Area (Public Hearing to be set for March 21, 2022 at 6:15 p.m.)
2. CB22-046, An Ordinance Amending The Land Development Code, of The City of Arvada Code (Public Hearing to be set for March 21, 2022 at 6:15 p.m.)

9. Other

10. Public Hearings - 6:15 PM - None

11. Workshop

A. State of Retail with Katy Press

12. Public Comment - Five Minute Limit

13. Reports from City Council

A. Council Committee Reports

14. Reports from City Manager

A. Review of Future Workshops and Presentations

15. Reports from City Attorney

16. Adjournment

CITY OF ARVADA

SUMMARY OF MINUTES OF THE MEETING OF THE ARVADA CITY COUNCIL HELD FEBRUARY 7, 2022

1. Executive Session – 5:00 p.m.
   A. Instructions to Negotiators, Pursuant to CRS 24-6-402(4)(e), Relating to Site for Homeless Navigation Center and Instructions to Negotiators, Pursuant to CRS 24-6-402(4)(e), Relating to Police Compensation

   Councilmember Simpson moved to go into Executive Session for Instructions to Negotiators, Pursuant to CRS 24-6-402(4)(e), Relating to Site for Homeless Navigation Center and Instructions to Negotiators, Pursuant to CRS 24-6-402(4)(e), Relating to Police Compensation

   The following votes were cast on the Motion:
   Those voting Yes: Williams, Jones, Fifer, Marriott, Moorman, Simpson, Smith
   The Motion was Approved

1. Call to Order - 6:25 p.m.

   This Arvada City Council meeting was a hybrid meeting using webinar technology. Mayor Williams, Mayor Pro Tem Jones, Councilmember Fifer, Councilmember Moorman, Councilmember Simpson; Councilmember Smith were all present in chambers.

   Councilmember Marriott was virtual.

   Members of the public were given notice with instructions on how to participate with public comment.

2. Moment of Reflection and Pledge of Allegiance

3. Roll Call of Councilmembers

   Those Present: Mayor Marc Williams, Mayor Pro Tem David Jones, Councilmember Bob Fifer, Councilmember John Marriott, Councilmember Randy Moorman, Councilmember Lauren Simpson, Councilmember Lisa Smith

   Also Present: Mark Deven, City Manager; Rachel Morris, City Attorney; Lorie Gillis, Deputy City Manager; Bryan Archer, Director of Finance and Kristen Rush, City Clerk.

4. Approval of Minutes – January 24, 2022 City Council Meeting

   The minutes stand approved as amended.

5. Recognition and Communication – none

6. Presentations - none

7. Public Comment -
   A. Rebecca Hernandez, Arvada resident, presented a letter from Arvadans for Progressive Action (APA).
   B. Robert McGrath, Arvada resident, addressed council regarding affordable housing.
   C. Robert Duerr, Arvada resident, addressed council regarding the 80th and Kipling townhomes.
   D. Joan Howard, Arvada resident, addressed council regarding the 80th and Kipling townhomes.
   E. Georgia Duncan, Arvada resident, addressed council regarding environmental issues.
   F. Mindy Mohr, Arvada resident, addressed council regarding affordable housing.
   G. Dar Long Chang, Arvada resident, addressed council regarding a Sustainability Coordinator.
   H. Tom Carney, Arvada resident, addressed council regarding tennis courts and pickle ball courts.
   I Bruce Morrison, Arvada resident, addressed council regarding letter submitted by APA
   J. Joyce Richardson, Arvada resident, addressed council regarding the Urban Renewal Authority.
   K. Chelsea Canda, Arvada resident, addressed council regarding the Contract for DEI.
   L. Robin Kupernik, Arvada resident, addressed council regarding affordable housing.
   K Kathleen Flynn, Arvada resident, addressed council regarding the APA Letter.
   L. Pat Malone, Arvada resident, addressed council regarding affordable housing.
   M. Taylor Jarnagin, Arvada resident, addressed council regarding, regarding the APA letter
   N. Madhvi Chittoor, Arvada resident, addressed council regarding support of APA letter

8. New Business
   A. Consent Agenda –

1.	R22-010	A Resolution Authorizing an Agreement By and Between the City of Arvada and Sturgeon Electric Company, Inc. for CSB-20-TC-02 (CDOT Project No. M040-034, SA 22278) in an Amount Not to Exceed $741,750.00
2.	R22-011	A Resolution Authorizing A License Agreement Between the City of Arvada and Public Service Company of Colorado (D/B/A Xcel Energy) for a Revocable License to Install, Operate, and Maintain Underground Power Lines Across Tract S of Arvada Owned Property in the Sabell Subdivision
3.	R22-012	A Resolution Adopting the City of Arvada's 2022 Legislative Agenda

Councilmember Fifer moved that R22-010, A Resolution Authorizing an Agreement By and Between the City of Arvada and Sturgeon Electric Company, Inc. for CSB-20-TC-02 (CDOT Project No. M040-034, SA 22278) in an Amount Not to Exceed $741,750.00; R22-011, A Resolution Authorizing A License Agreement Between the City of Arvada and Public Service Company of Colorado (D/B/A Xcel Energy) for a Revocable License to Install, Operate, and Maintain Underground Power Lines Across Tract S of Arvada Owned Property in the Sabell Subdivision; R22-012, A Resolution Adopting the City of Arvada's 2022 Legislative Agenda, be approved.

The following votes were cast on the Motion:
Those voting Yes: Williams, Jones, Fifer, Marriott, Moorman, Simpson, Smith
The Motion was Approved

B. Resolutions –

1. R22-013 A Resolution Authorizing an Intergovernmental Agreement By and Between the City of Arvada and the Jefferson Center Metropolitan District No. 1 for Financing of the Design and Bid Phase Engineering Services for Improvements to the Alkire Lift Station in the Amount of $89,790.00

Mark Deven, City Manager, reviewed this resolution with council.

Councilmember Simpson moved that R22-013, A Resolution Authorizing an Intergovernmental Agreement By and Between the City of Arvada and the Jefferson Center Metropolitan District No. 1 for Financing of the Design and Bid Phase Engineering Services for Improvements to the Alkire Lift Station in the Amount of $89,790.00, be approved.

The following votes were cast on the Motion:
Those voting Yes: Williams, Jones, Fifer, Marriott, Moorman, Simpson, Smith
The Motion was Approved

C. Ordinances (First Reading) - None

9. Other – none

10. Public Hearings - none

11. Workshops

A. Update on Colorado Demographics from the State Demography Office

Elizabeth Garner, representing the State of Colorado, Department of Local Affairs (DOLA), State Demography Office. This office is the primary source of population and demographic information within the state government. Local governments, regional organizations and the private sector also utilize the State Demography Office as a resource in order to forecast population estimates, demographic trends, housing needs and similar information.

State Demographer Elizabeth Garner presented updated demographics for Colorado to the Metro Mayor Caucus in November, 2021, and Mayor Williams asked the Arvada team to schedule a presentation from Ms. Garner to the Arvada City Council. This presentation has been scheduled in advance of the City Council's March 4 Strategic Plan Retreat in order to provide relevant data associated with growth, the economy and other critical trends.

Ms. Garner presented data from the initial Census 2020. This data shows a rapidly changing US population in terms of its characteristics as well as its geographic shifts. The data reveals critical trends impacting Colorado's labor force, housing, economy, and service demands for the next few years and decades. Ms. Garner presented key findings from Census 2020 for the United States, Colorado, and Arvada and discussed the short and long term implications which are intended to support the City Council's consideration of issues and challenges in preparation for the Strategic Plan Retreat.

Next Steps: Council will use this information at the upcoming council retreat.

12. Public Comment - Five Minute Limit - none

13. City Council Reports - none

13. City Manager Reports –

A. Lorie Gillis, Deputy City Manager, discussed the upcoming retreat.

14. City Attorney Reports – none

15. Adjournment at 8:00 p.m.

_____
Marc Williams, Mayor

SEAL:

_____
Kristen R. Rush, City Clerk

CITY OF ARVADA

REPORT TO CITY COUNCIL

AGENDA ITEM 8.A.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: Consent Agenda

Report in Brief

1. R22-014, A Resolution Authorizing a Purchase Order #Q-367607-44599.774AS By and Between the City of Arvada and Axon Enterprise, Inc. for Body Worn Camera Equipment and Related Services in an Amount Not to Exceed $549,735.49 in the First Year
2. R22-015, A Resolution Accepting Donations of Ballistic Armor and Monetary Donations to the Arvada Police Department
3. R22-016, A Resolution Authorizing an Agreement By and Between the City of Arvada and SEMA Construction, Inc. for Construction Manager/General Contractor (CM/GC) Services, Construction Package 2, West 72nd Avenue - Kipling Street to Simms Street in the amount of $22,636,539.43

Suggested Motion: Moved by: _____

I move that the Consent Item(s), Number(s) R_____ be (Removed from the Consent Agenda and Heard Upon Item _____) (Referred to a Workshop) (Postponed Indefinitely).

YES _____ NO _____ ABSENT _____

That All/Remaining Consent Items be (Approved) (Rejected).

YES _____ NO _____ ABSENT _____

Prepared by:
Chris Koch, CCO Admin

Reviewed by:

Approved by:

Enclosure, exhibits & attachments required to support the report

REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM 8.A.1.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: R22-014, A Resolution Authorizing a Purchase Order #Q-367607-44599.774AS By and Between the City of Arvada and Axon Enterprise, Inc. for Body Worn Camera Equipment and Related Services in an Amount Not to Exceed $549,735.49 in the First Year

Report in Brief

The Arvada Police Department (APD) is required by law to implement a body worn camera (BWC) program by July 1, 2023. The APD has identified Axon Enterprise, Inc. ("Axon") as its BWC equipment vendor. The APD will purchase its BWC equipment and related services including Taser integration equipment, BWC mounts, and ongoing BWC data storage, technology upgrades, and maintenance, by participating in a public cooperative purchasing agreement administered by the State of Colorado and the National Association of State Procurement Officers (NASPO).

The Arvada team recommends that the City Council approve R22-014, A Resolution Authorizing a Purchase Order #Q-367607-44599.774AS by and between the City of Arvada and Axon Enterprise, Inc. for Body Worn Camera Equipment and Related Services in an Amount Not to Exceed $549,735.49 in the First Year.

Financial Impact

The costs associated with the APD's BWC program are budgeted within account #01.600000. The APD's cost for Axon BWC products and services is fixed at $549,735.49 each year for a five-year term, subject to annual appropriations. All terms of the NASPO cooperative agreement comply with applicable fiscal appropriation requirements under Colorado law.

Background

In 2020, the State legislature passed SB 20-217 (SB217) into law. Among other things, SB217 requires that all law enforcement agencies in Colorado must implement a BWC program no later than July 1, 2023. The APD determined that it would begin implementation of its BWC program well before the 2023 deadline to allow time to test and otherwise ensure that the program is fully functional across all APD units before the mandatory compliance date.

SB217 requires that officers will wear and activate a BWC any time they are in contact with the public for any law enforcement investigative purpose. The law further requires that BWC footage be retained and released to the public upon request as a public record, subject to certain limited redactions to protect the privacy interests of community members who may appear in BWC footage. In order to meet the various statutory BWC mandates, the APD determined it required a BWC vendor with the ability to provide the camera equipment and a comprehensive BWC solution including sophisticated search and redaction tools, and the large amount of data storage required for high-definition BWC video footage.

During 2020 and 2021, the APD conducted BWC program research including a previous APD study on BWC issues, a number of site visits, and discussions with agencies that currently have a BWC program. The APD worked with Purchasing to identify a cooperative public agreement between the State of Colorado, NASPO, and Axon, under which the APD can purchase BWC products and related services. Such cooperative agreements are helpful as they leverage advantageous pre-negotiated contract terms and pricing on behalf of government entities and streamline contracting processes.

The APD determined that Axon BWC products and services fit its needs. Further, they can be integrated with the Axon digital evidence platform Evidence.com, which is already in use by the APD.

Discussion

The APD must implement its BWC program in accordance with State law. Axon will provide the APD with the BWC equipment, ongoing maintenance and replacement, and cloud-based BWC recording storage capacity necessary for the APD to meet its statutory obligations. APD field testing has already demonstrated that BWC footage can be a valuable tool when reviewing critical incidents involving APD officers.

Under the NASPO agreement, the APD found that it is able to "bundle" BWC equipment and services to include upgraded integration with the APD's existing Taser equipment, data storage, training, redaction and video footage management tools, and ongoing BWC/Taser equipment upgrades into a comprehensive program. By purchasing Axon equipment and services in this way, the APD realizes net savings of nearly one million dollars during the term of the purchase agreement.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A.

Strategic Alignment

The APD BWC program aligns with the Safe Community Priority Area within the City Council Strategic Plan. The APD's BWC program will comply with applicable law, while also supporting its efforts to provide a high level of police service to the community with transparency and in accordance with best practices.

Alternative Courses of Action

N/A.

Recommendation for Action

The Arvada team recommends that the City Council approve R22-014, A Resolution Authorizing a Purchase Order #Q-367607-44599.774AS by and between the City of Arvada and Axon Enterprise, Inc. for Body Worn Camera Equipment and Related Services in an Amount Not to Exceed $549,735.49 in the First Year.

Suggested Motion:

I move that R22-014, A Resolution Authorizing a Purchase Order #Q-367607-44599.774AS By and Between the City of Arvada and Axon Enterprise, Inc. for Body Worn Camera Equipment and Related Services in an Amount Not to Exceed $549,735.49 in the First Year, be (approved) (rejected).

Prepared by:
Aaron Jacks, Assistant City Attorney

Reviewed by:
Alyssa Gleinn, Legal Specialist-Prosecution 2/10/2022

Approved by:

Aaron Jacks, Assistant City Attorney	2/8/2022
Bridgette Roberts, Executive Assistant	2/10/2022
Link Strate, Chief of Police	2/10/2022
Nora Steenson, Deputy City Attorney	2/10/2022
Rachel Morris, City Attorney	2/11/2022
Lorie Gillis, Deputy City Manager	2/17/2022
Mark Deven, City Manager	2/22/2022

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R22-014

A RESOLUTION AUTHORIZING A PURCHASE ORDER #Q-367607-44599.774AS BY AND BETWEEN THE CITY OF ARVADA AND AXON ENTERPRISE, INC. FOR BODY WORN CAMERA EQUIPMENT AND RELATED SERVICES IN AN AMOUNT NOT TO EXCEED $549,735.49 IN THE FIRST YEAR

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is authorized to sign and the City Clerk to attest, in form approved by the City Attorney, a purchase order #Q-367607-44599.774AS, which is in substantially the same form as that attached hereto, by and between the City of Arvada and Axon Enterprise, Inc. for body worn camera equipment and related services in an amount not to exceed $549,735.49 in the first year.

Section 2. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 7th day of March, 2022.

_____
Marc Williams, Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:
Rachel A. Morris, City Attorney

By: _____

Axon Enterprise, Inc.
17800 N 85th St.
Scottsdale, Arizona 85255
United States
VAT: 86-0741227
Domestic: (800) 978-2737
International: +1.800.978.2737

Q-367607-44599.774AS

Issued: 02/07/2022
Quote Expiration: 03/31/2022
EST Contract Start Date: 05/15/2022
Account Number: 110160
Payment Terms: N30
Delivery Method: Fedex - Ground

SHIP TO	BILL TO
Business;Delivery;Invoice-8101 Ralston Rd 8101 Ralston Rd Arvada, CO 80002-2439 USA	Arvada Police Dept.- CO 8101 Ralston Rd Arvada, CO 80002-2439 USA Email:

SALES REPRESENTATIVE	PRIMARY CONTACT
Allen Sliper Phone: Email: asliper@axon.com Fax:	Phone: (720) 898-6931 Email: ebrady@arvada.org Fax: (720) 898-6801

Program Length	60 Months
TOTAL COST	$2,782,677.41
ESTIMATED TOTAL W/ TAX	$2,782,677.41

Bundle Savings	$891,133.65
Additional Savings	$98,144.24
TOTAL SAVINGS	$989,277.89

PAYMENT PLAN

PLAN NAME	INVOICE DATE	AMOUNT DUE
Year 1	Apr, 2022	$549,735.49
Year 2	Apr, 2023	$549,735.48
Year 3	Apr, 2024	$549,735.48
Year 4	Apr, 2025	$549,735.48
Year 5	Apr, 2026	$549,735.48

BILLED ON FULFILLMENT		
PLAN NAME	**INVOICE DATE**	**AMOUNT DUE**
None	As Fulfilled	$34,000.00

Quote Details

Bundle Summary		
Item	**Description**	**QTY**
OSP7+	2021 - OFFICER SAFETY PLAN 7 PLUS (Formerly SKU 73811)	203
T7Dock	2021 T7 Dock	1
AB3C	AB3 Camera Bundle	203
AB3MBD	AB3 Multi Bay Dock Bundle	27
BWCamMBDTAP	Body Worn Camera Multi-Bay Dock TAP Bundle	1
AB31BD	AB3 1-Bay Dock Bundle	15
BWCamSBDTAP	Body Worn Camera Single-Bay Dock TAP Bundle	15
DynamicBundle	Dynamic Bundle	1
ProLicense	Pro License Bundle	10

Bundle: 2021 - OFFICER SAFETY PLAN 7 PLUS (Formerly SKU 73811) Quantity: 203 Start: 5/15/2022 End: 5/14/2027 Total: 2545620 USD

Category	Item	Description	QTY	List Unit Price	Discount	Net Unit Price	Total(USD)
Holsters	20160	TASER 7 HOLSTER - SAFARILAND, RH+CART CARRIER	203	$84.24	25.82%	$62.49	$12,685.06
HALT Suit	20050	HOOK-AND-LOOP TRAINING (HALT) SUIT	4	$789.75	25.82%	$585.83	$2,343.30
Handle License	20248	TASER 7 EVIDENCE.COM LICENSE	203	$5.00	25.82%	$3.71	$45,174.73
Live Cartridges	22175	TASER 7 LIVE CARTRIDGE, STANDOFF (3.5-DEGREE) NS	609	$38.95	25.82%	$28.89	$17,595.56
Live Cartridges	22176	TASER 7 LIVE CARTRIDGE, CLOSE QUARTERS (12-DEGREE) NS	609	$38.95	25.82%	$28.89	$17,595.56
Handles	20008	TASER 7 HANDLE, YLW, HIGH VISIBILITY (GREEN LASER), CLASS 3R	203	$1,810.00	25.82%	$1,342.63	$272,554.22
Inert Cartridges	22179	TASER 7 INERT CARTRIDGE, STANDOFF (3.5-DEGREE) NS	50	$50.23	25.82%	$37.26	$1,862.99
Inert Cartridges	22181	TASER 7 INERT CARTRIDGE, CLOSE	50	$50.23	25.82%	$37.26	$1,862.99

		QUARTERS (12-DEGREE) NS					
Admin License	20248	TASER 7 EVIDENCE.COM LICENSE	2	$5.00	25.82%	$3.71	$445.07
Taser 7 Target	80087	TASER 7 TARGET, CONDUCTIVE, PROFESSIONAL (RUGGEDIZED)	3	$157.95	25.82%	$117.17	$351.50
Spare Handles	20008	TASER 7 HANDLE, YLW, HIGH VISIBILITY (GREEN LASER), CLASS 3R	6	$1,810.00	25.82%	$1,342.63	$8,055.79
Taser 7 Target Frame	80090	TARGET FRAME, PROFESSIONAL, 27.5 IN. X 75 IN., TASER 7	3	$78.98	25.82%	$58.59	$175.76
Training Live Cartridges	22175	TASER 7 LIVE CARTRIDGE, STANDOFF (3.5-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22175	TASER 7 LIVE CARTRIDGE, STANDOFF (3.5-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22175	TASER 7 LIVE CARTRIDGE, STANDOFF (3.5-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22175	TASER 7 LIVE CARTRIDGE, STANDOFF (3.5-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22175	TASER 7 LIVE CARTRIDGE, STANDOFF (3.5-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22176	TASER 7 LIVE CARTRIDGE, CLOSE QUARTERS (12-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22176	TASER 7 LIVE CARTRIDGE, CLOSE QUARTERS (12-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22176	TASER 7 LIVE CARTRIDGE, CLOSE QUARTERS (12-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22176	TASER 7 LIVE CARTRIDGE, CLOSE QUARTERS (12-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Live Cartridges	22176	TASER 7 LIVE CARTRIDGE, CLOSE QUARTERS (12-DEGREE) NS	406	$38.95	25.82%	$28.89	$11,730.37
Batteries	20018	TASER 7 BATTERY PACK, TACTICAL	243	$90.56	25.82%	$67.18	$16,323.79
Master Instructor Course Vouchers	20119	TASER 7 MASTER INSTRUCTOR SCHOOL VOUCHER	1	$1,495.00	25.82%	$1,108.97	$1,108.97
Master Instructor Course Vouchers	20119	TASER 7 MASTER INSTRUCTOR SCHOOL VOUCHER	1	$1,495.00	25.82%	$1,108.97	$1,108.97
Master Instructor Course Vouchers	20119	TASER 7 MASTER INSTRUCTOR SCHOOL VOUCHER	1	$1,495.00	25.82%	$1,108.97	$1,108.97
Master Instructor Course Vouchers	20119	TASER 7 MASTER INSTRUCTOR SCHOOL VOUCHER	1	$1,495.00	25.82%	$1,108.97	$1,108.97
Master Instructor Course Vouchers	20119	TASER 7 MASTER INSTRUCTOR SCHOOL VOUCHER	1	$1,495.00	25.82%	$1,108.98	$1,108.98
Training Halt Cartridges	22177	TASER 7 HOOK-AND-LOOP TRN (HALT) CARTRIDGE, STANDOFF NS	406	$38.95	25.82%	$28.89	$11,730.37

Training Halt Cartridges	22177	TASER 7 HOOK-AND-LOOP TRN (HALT) CARTRIDGE, STANDOFF NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Halt Cartridges	22178	TASER 7 HOOK-AND-LOOP TRN (HALT) CARTRIDGE, CLOSE QUART NS	406	$38.95	25.82%	$28.89	$11,730.37
Training Halt Cartridges	22178	TASER 7 HOOK-AND-LOOP TRN (HALT) CARTRIDGE, CLOSE QUART NS	406	$38.95	25.82%	$28.89	$11,730.37
Instructor Course Vouchers	20120	TASER 7 INSTRUCTOR COURSE VOUCHER	2	$375.00	25.82%	$278.17	$556.34
Instructor Course Vouchers	20120	TASER 7 INSTRUCTOR COURSE VOUCHER	2	$375.00	25.82%	$278.17	$556.34
Instructor Course Vouchers	20120	TASER 7 INSTRUCTOR COURSE VOUCHER	2	$375.00	25.82%	$278.17	$556.34
Instructor Course Vouchers	20120	TASER 7 INSTRUCTOR COURSE VOUCHER	2	$375.00	25.82%	$278.17	$556.34
Instructor Course Vouchers	20120	TASER 7 INSTRUCTOR COURSE VOUCHER	2	$375.00	25.82%	$278.17	$556.34
Docks	74200	TASER 7 6-BAY DOCK AND CORE	3	$1,500.00	25.82%	$1,112.68	$3,338.03
Dock Mount	70033	WALL MOUNT BRACKET, ASSY, EVIDENCE.COM DOCK	3	$43.90	25.82%	$32.56	$97.69
Dock Power Cord	71019	NORTH AMER POWER CORD FOR AB3 8-BAY, AB2 1-BAY / 6-BAY DOCK	3	$10.45	25.82%	$7.75	$23.25
Duty Cartridge Replenishment Program	20246	TASER 7 DUTY CARTRIDGE REPLACEMENT LICENSE	203	$2.50	25.82%	$1.85	$22,587.37
E.com License	73746	PROFESSIONAL EVIDENCE.COM LICENSE (Formerly SKU 73746)	203	$39.00	25.82%	$28.93	$352,362.91
Viewer License	73687	EVIDENCE.COM VIEWER LICENSE	2	$5.00	25.82%	$3.71	$445.07
Device Storage	73686	EVIDENCE.COM UNLIMITED AXON DEVICE STORAGE-	203	$24.00	25.82%	$17.80	$216,838.72
A La Carte Storage	73683	10 GB EVIDENCE.COM A-LA-CART STORAGE-	2030	$0.40	25.82%	$0.30	$36,139.79
Respond Plus	73680	RESPOND DEVICE PLUS LICENSE-	203	$19.00	25.82%	$14.09	$171,663.98
Records	73681	AXON RECORDS FULL	203	$29.00	25.82%	$21.51	$262,013.45
Citizen	73618	CITIZEN FOR COMMUNITIES USER LICENSE	203	$9.00	25.82%	$6.68	$81,314.52
Redaction	73478	REDACTION ASSISTANT USER LICENSE	203	$9.00	25.82%	$6.68	$81,314.52
Auto Tagging	73682	AUTO TAGGING LICENSE	203	$9.00	25.82%	$6.68	$81,314.52
Performance	73739	PERFORMANCE LICENSE	203	$9.00	25.82%	$6.68	$81,314.52
3rd Party Video	11642	THIRD-PARTY VIDEO SUPPORT LICENSE	203	$9.00	25.82%	$6.68	$81,314.52
Auto Tagging Implementation	79999	AUTO TAGGING / PERFORMANCE IMPLEMENTATION SERVICE	1	$0.00	0.00%	$0.00	$0.00
Signal Sidearm Kit	75015	SIGNAL SIDEARM KIT	203	$249.00	25.82%	$184.70	$37,495.03
Signal Sidearm Batteries	71044	BATTERY, SIGNAL SIDEARM, CR2430 SINGLE PACK	406	$1.00	25.82%	$0.74	$301.16
Camera Warranty	80464	EXT WARRANTY, CAMERA (TAP)	203	$11.67	25.82%	$8.66	$86,107.56
Camera Refresh 1 with Spares	73309	AXON CAMERA REFRESH ONE	209	$755.00	25.82%	$560.05	$117,050.03
Camera Refresh 2 with Spares	73310	AXON CAMERA REFRESH TWO	209	$790.00	25.82%	$586.01	$122,476.19

Warranty	80465	EXT WARRANTY, MULTI-BAY DOCK (TAP)	26	$21.00	25.82%	$15.58	$19,845.73
Multi-bay Dock Refresh 1	73689	MULTI-BAY BWC DOCK 1ST REFRESH	26	$1,610.00	25.82%	$1,194.27	$31,051.14
Multi-bay Dock Refresh 2	73688	MULTI-BAY BWC DOCK 2ND REFRESH	26	$1,685.00	25.82%	$1,249.91	$32,497.62
Spare Camera Warranty	80464	EXT WARRANTY, CAMERA (TAP)	6	$11.67	25.82%	$8.66	$2,545.05
Other	80395	EXT WARRANTY, TASER 7 HANDLE	203	$6.58	25.82%	$4.88	$48,550.79
Other	80395	EXT WARRANTY, TASER 7 HANDLE	6	$6.58	25.82%	$4.88	$1,435.00
Other	80374	EXT WARRANTY, TASER 7 BATTERY PACK	243	$0.44	25.82%	$0.33	$3,886.27
Other	80396	EXT WARRANTY, TASER 7 SIX BAY DOCK	3	$6.58	25.82%	$4.88	$717.50

Bundle: 2021 T7 Dock Quantity: 1 Start: 5/15/2022 End: 5/14/2027 Total: 1866.32 USD

Category	Item	Description	QTY	List Unit Price	Discount	Net Unit Price	Total(USD)
Dock Options	74200	TASER 7 6-BAY DOCK AND CORE	1	$1,500.00	0.00%	$1,500.00	$1,500.00
Dock Power Cord	71019	NORTH AMER POWER CORD FOR AB3 8-BAY, AB2 1-BAY / 6-BAY DOCK	1	$0.00	0.00%	$0.00	$0.00
Dock Mount	70033	WALL MOUNT BRACKET, ASSY, EVIDENCE.COM DOCK	1	$43.90	0.00%	$43.90	$43.90
Other	80396	EXT WARRANTY, TASER 7 SIX BAY DOCK	1	$6.58	0.00%	$6.58	$322.42

Bundle: AB3 Camera Bundle Quantity: 203 Start: 5/15/2022 End: 5/14/2027 Total: 127707.3 USD

Category	Item	Description	QTY	List Unit Price	Discount	Net Unit Price	Total(USD)
Camera	73202	AXON BODY 3 - NA10 - US - BLK - RAPIDLOCK	203	$699.00	10.00%	$629.10	$127,707.30
Spare Camera	73202	AXON BODY 3 - NA10 - US - BLK - RAPIDLOCK	6	$0.00	0.00%	$0.00	$0.00
Camera Mount	74028	WING CLIP MOUNT, AXON RAPIDLOCK	224	$0.00	0.00%	$0.00	$0.00
USB	11534	USB-C to USB-A CABLE FOR AB3 OR FLEX 2	224	$0.00	0.00%	$0.00	$0.00

Bundle: AB3 Multi Bay Dock Bundle Quantity: 27 Start: 5/15/2022 End: 5/14/2027 Total: 37513.8 USD

Category	Item	Description	QTY	List Unit Price	Discount	Net Unit Price	Total(USD)
Dock	74210	AXON BODY 3 - 8 BAY DOCK	27	$1,495.00	10.00%	$1,345.50	$36,328.50
Power Cord	71019	NORTH AMER POWER CORD FOR AB3 8-BAY, AB2 1-BAY / 6-BAY DOCK	27	$0.00	0.00%	$0.00	$0.00
Wall Mount	70033	WALL MOUNT BRACKET, ASSY, EVIDENCE.COM DOCK	27	$43.90	0.00%	$43.90	$1,185.30

Bundle: Body Worn Camera Multi-Bay Dock TAP Bundle	Quantity: 1	Start: 5/15/2022	End: 5/14/2027	Total: 1769.99 USD			
Category	**Item**	**Description**	**QTY**	**List Unit Price**	**Discount**	**Net Unit Price**	**Total(USD)**
Dock Warranty	80465	EXT WARRANTY, MULTI-BAY DOCK (TAP)	1	$21.00	59.07%	$8.60	$421.21
Multi-Bay Dock Refresh 1	73689	MULTI-BAY BWC DOCK 1ST REFRESH	1	$1,610.00	59.07%	$659.04	$659.04
Multi-Bay Dock Refresh 2	73688	MULTI-BAY BWC DOCK 2ND REFRESH	1	$1,685.00	59.07%	$689.74	$689.74

Bundle: AB3 1-Bay Dock Bundle	Quantity: 15	Start: 5/15/2022	End: 5/14/2027	Total: 2700 USD			
Category	**Item**	**Description**	**QTY**	**List Unit Price**	**Discount**	**Net Unit Price**	**Total(USD)**
1-Bay Dock	74211	AXON BODY 3 - 1 BAY DOCK	15	$200.00	10.00%	$180.00	$2,700.00
1-Bay Power Cord	71104	NORTH AMER POWER CORD FOR AB3 1-BAY DOCK	15	$0.00	0.00%	$0.00	$0.00

Bundle: Body Worn Camera Single-Bay Dock TAP Bundle	Quantity: 15	Start: 5/15/2022	End: 5/14/2027	Total: 8100.01 USD			
Category	**Item**	**Description**	**QTY**	**List Unit Price**	**Discount**	**Net Unit Price**	**Total(USD)**
Dock Warranty	80466	EXT WARRANTY, SINGLE-BAY DOCK (TAP)	15	$5.50	23.24%	$4.22	$3,102.99
Single-bay Dock Refresh 1	73313	1-BAY DOCK AXON CAMERA REFRESH ONE	15	$209.00	23.24%	$160.43	$2,406.40
Single-bay Dock Refresh 2	73314	1-BAY DOCK AXON CAMERA REFRESH TWO	15	$225.00	23.24%	$172.71	$2,590.62

Bundle: Dynamic Bundle	Quantity: 1	Start: 5/15/2022	End: 5/14/2027	Total: 34000 USD			
Category	**Item**	**Description**	**QTY**	**List Unit Price**	**Discount**	**Net Unit Price**	**Total(USD)**
Other	85168	CEW FULL SERVICE WITH INSTRUCTOR TRAINING	1	$17,000.00	0.00%	$17,000.00	$17,000.00
Other	85055	AXON FULL SERVICE	1	$17,000.00	0.00%	$17,000.00	$17,000.00
Other	74020	MAGNET MOUNT, FLEXIBLE, AXON RAPIDLOCK	203	$31.30	100.00%	$0.00	$0.00
Other	11508	MOLLE MOUNT, DOUBLE, AXON RAPIDLOCK	223	$41.75	100.00%	$0.00	$0.00
Other	11507	MOLLE MOUNT, SINGLE, AXON RAPIDLOCK	203	$31.30	100.00%	$0.00	$0.00

Bundle: Pro License Bundle	Quantity: 10	Start: 5/15/2022	End: 5/14/2027	Total: 23400 USD			
Category	**Item**	**Description**	**QTY**	**List Unit Price**	**Discount**	**Net Unit Price**	**Total(USD)**
E.com License	73746	PROFESSIONAL EVIDENCE.COM LICENSE (Formerly SKU 73746)	10	$39.00	0.00%	$39.00	$23,400.00

A La Carte Storage	73683	10 GB EVIDENCE.COM A-LA-CART STORAGE-	30	$0.00	0.00%	$0.00	$0.00

INDIVIDUAL ITEMS

Category	Item	Description	QTY	List Price	Discount	Tax	Net Price	Total(USD)
Other	12022	AXON AIR, CLASS 1 UAS LICENSE	3	$167.00	100.00%		$0.00	$0.00
Other	12023	AXON AIR, CLASS 2 UAS LICENSE	1	$279.00	100.00%		$0.00	$0.00
Other	100112	AXON AIR, E.COM PILOT DATA LIC	6	$30.00	100.00%		$0.00	$0.00
							Total:	**$0.00**

Tax is estimated based on rates applicable at date of quote and subject to change at time of invoicing. If a tax exemption certificate should be applied, please submit prior to invoicing.

Standard Terms and Conditions

Axon Enterprise Inc. Sales Terms and Conditions

~~Axon Master Services and Purchasing Agreement:~~

~~This Quote is limited to and conditional upon your acceptance of the provisions set forth herein and Axon's Master Services and Purchasing Agreement (posted at www.axon.com/legal/sales-terms-and-conditions), as well as the attached Statement of Work (SOW) for Axon Fleet and/or Axon Interview Room purchase, if applicable. In the event you and Axon have entered into a prior agreement to govern all future purchases, that agreement shall govern to the extent it includes the products and services being purchased and does not conflict with the Axon Customer Experience Improvement Program Appendix as described below.~~

~~ACEIP:~~

~~The Axon Customer Experience Improvement Program Appendix, which includes the sharing of de-identified segments of Agency Content with Axon to develop new products and improve your product experience (posted at www.axon.com/legal/sales-terms-and-conditions), is incorporated herein by reference. By signing below, you agree to the terms of the Axon Customer Experience Improvement Program.~~

Acceptance of Terms:

Any purchase order issued in response to this Quote is subject solely to the above referenced terms and conditions. By signing below, you represent that you are lawfully able to enter into contracts. If you are signing on behalf of an entity (including but not limited to the company, municipality, or government agency for whom you work), you represent to Axon that you have legal authority to bind that entity. If you do not have this authority, please do not sign this Quote.

The City of Arvada is authorized to participate in public cooperative purchasing agreements in accordance with Arvada City Code section 82-32(d).
This Axon order #Q-367607-44599.774AS ("Order") is subject to, and governed by, the following public cooperative purchasing agreement: the State of Colorado Participating Addendum, Contract #163683 dated September 18, 2020, ("Colorado Addendum") to the NASPO ValuePoint Public Safety Video Systems Administered by the State of Oklahoma with Axon Enterprises Inc. Master Agreement No. OK-MA-145-015, dated January 25, 2017 ("NASPO Agreement") (collectively, the "Master Agreement").
The City of Arvada shall be deemed a "Purchasing Entity" as defined in the Colorado Addendum for all purposes related to this Order. For the avoidance of doubt, the terms of this Order shall control to the extent that they may conflict with any terms of the Master Agreement.
This Quote is limited to and conditional upon your acceptance of the provisions set forth in he following public cooperative purchasing agreement: the State of Colorado Participating Addendum, Contract #163683 dated September 18, 2020, ("Colorado Addendum") to the NASPO ValuePoint Public Safety Video Systems Administered by the State of Oklahoma with Axon Enterprises Inc. Master Agreement No. OK-MA-145-015, dated January 25, 2017 ("NASPO Agreement") (collectively, the "Master Agreement").
2/7/2022

_____ _____

Marc Williams, Mayor Date Signed

Approved as to Form:

Rachel A. Morris, City Attorney

By: _____

Sr. Asst. City Attorney

Attest:

_____

City Clerk

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PARTICIPATING ADDENDUM
to NASPO ValuePoint
Public Safety Video Systems
Administered by the State of Oklahoma
with Axon Enterprises Inc.
Master Agreement No. OK-MA-145-015
And
The State of Colorado
Contract # 163683

1. PARTIES AND SCOPE

This Participating Addendum, including all of its attached exhibits and other documents incorporated by reference (the "Participating Addendum"), is entered into by and between **Axon Enterprises Inc.** (the "Contractor"), and the State of Colorado (the "State"). This Participating Addendum covers participation in the **Public Safety Video Systems** Master Agreement led by the State of **Oklahoma** (the "Master Agreement"), for use by State agencies and other entities located in Colorado which are authorized by law to utilize State contracts with the prior approval of the State Purchasing Director. The specific Goods and Services provided under the Master Agreement are listed in **Exhibit C Products and Price List** of this agreement.

2. PARTICIPATION

Agencies, political subdivisions and other entities (including cooperatives) authorized by the State's statutes to use State contracts may make purchases under this Participating Addendum as of its Effective Date. Issues of interpretation and eligibility for participation are solely within the authority of the Chief Procurement Officer.

3. STATE MODIFICATIONS TO MASTER AGREEMENT AND APPLICABILITY

To the extent not modified by this Participating Addendum and all its exhibits, the Master Agreement and all its terms and conditions shall apply to this Participating Addendum. If any term of this Participating Addendum conflicts with the Master Agreement, then this Participating Addendum shall control for all transactions between the State and the Contractor under this Participating Addendum. All terms defined in the Master Agreement shall have the meaning given to them in the Master Agreement, except for those terms specifically defined differently in this **PARTICIPATING ADDENDUM.**

4. LEASE AGREEMENTS

5. PRIMARY CONTACTS AND PERSONNEL RESPONSIBILITIES

The primary contacts for this Participating Addendum are the individuals named in this section. Either Party may change its primary contacts or primary contacts contact information by notice submitted to the other party in writing no later than 5 days following the date on which the change occurs, without a formal amendment to this Participating Addendum. The Contractor's primary

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contact shall be ultimately responsible for ensuring that all Goods are delivered and all Services are completed in accordance with this Participating Addendum.

Primary Contact for the State:
Brian Swift
Colorado State Purchasing & Contracts Office
1525 Sherman Street, 3rd Floor
Denver, CO 80203
303-866-6146
Brian.swift@state.co.us

Primary Contact for the Contractor:
Emily Iverson
Axon Enterprises Inc.
17800 N 85th Street
Scottsdale, AZ 85255
800-978-2737
contracts@axon.com

Each individual identified in this **§5** of the Participating Addendum shall be the primary contact of the designating Party. All notices required or permitted to be given under this Participating Addendum shall be in writing and shall be delivered **(A)** by hand with receipt required, **(B)** by certified or registered mail to such Party's primary contact at the address set forth above or **(C)** as an email with read receipt requested to the primary contact at the email address, if any, set forth above. If a Party delivers a notice to another through email and the email is undeliverable then, unless the Party has been provided with an alternate email contact, the Party delivering the notice shall deliver the notice by hand with receipt required or by certified or registered mail to such Party's primary contact at the address set forth above. Unless otherwise provided in this Participating Addendum, notices shall be effective upon delivery of the written notice.

In addition to the primary contact in this section, the Contractor shall also provide an individual who is ultimately responsible for the creation and submission of the quarterly volume report described in **Exhibit A** of this Participating Addendum. This individual, as named in this section, shall ensure that all required quarterly volume reports are accurate and delivered by the appropriate due date for that quarterly volume report. The Contractor may change this individual or their contact information by notice submitted to the other party in writing no later than 5 days following the date on which the change occurs, without a formal amendment to this Participating Addendum.

Individual Responsible for Quarterly Volume Report Creation and Submission:

Axon Enterprises Inc.
Emily Iverson
17800 N 85th Street
Scottsdale, AZ 85255
800-978-2737
contracts@axon.com

6. SUBCONTRACTORS

The Contractor may only use Subcontractors, as defined in **Exhibit A. §4**, under this Participating Addendum if the State has provided written approval for the Contractor to use that Subcontractor. All such approved Subcontractors authorized in the State of Colorado, as shown on the dedicated Contractor website, are approved to provide sales and service support to the State and any Purchasing Entity in the State. The Contractor's Subcontractor's participation shall be in accordance with the terms and conditions set forth in the Master Agreement and this Participating Addendum, as appropriate.

7. ORDERS

Any Order placed by a Purchasing Entity in the State of Colorado for a Good or Service available under this Participating Addendum shall be deemed to be a sale (and governed by the prices and

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other terms and conditions) under the Master Agreement and this Participating Addendum unless the parties to the Order agree in writing that another contract or agreement applies to such Order or the terms of that Order control to the extent that they conflict with the terms of the Master Agreement or this Participating Addendum.

8. ORDER OF PRECEDENCE AND ATTACHED EXHIBITS

All of the exhibits listed in this section are attached to this Participating Addendum and are incorporated herein by reference. In the event of a conflict or inconsistency between this Participating Addendum and any exhibits or attachment such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

A. Colorado Special Provisions in **§20** of **Exhibit A**, State Specific Terms

B. **Exhibit D**, HIPAA Business Associate Agreement

C. The provisions of this Participating Addendum

D. All other sections of **Exhibit A**, State Specific Terms

E. **Exhibit B** Statement of Work

F. **Exhibit C** Products and Price List

G. **Exhibit D** HIPAA Business Associate Agreement

H. **Exhibit E** Information Technology Specific Terms

Notwithstanding anything to the contrary herein, the State and Purchasing Entities shall not be subject to any provision incorporated in any terms and conditions appearing on Contractor's or Subcontractor's website, any provision incorporated into any click-through or online agreements, or any provisions incorporated into any other document or agreement between the Parties that **(i)** requires the State to indemnify or hold harmless Contractor or any other party, **(ii)** is in violation of State law as, regulations, rules, fiscal rules, policies, or other State requirements as deemed solely by the State or **(iii)** is contrary to any of the provisions incorporated into **Exhibit A**, **§19** or the main body of this Participating Addendum.

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THE PARTIES HERETO HAVE EXECUTED THIS PARTICIPATING ADDENDUM

CONTRACTOR Axon Enterprises, Inc. By: Chris Kirby Title: VP, Axon Sales By: DocuSigned by: Chris Kirby 1E3BCAC17D4C412... *Signature Date: 8/18/2020 | 8:08 PM PDT	**STATE OF COLORADO** **Jared S. Polis, Governor** Department of Personnel & Administration State Purchasing and Contracts Office Kara Veitch, Executive Director By: John Chapman **Sherri Maxwell**, Chief Procurement Officer, or **John Chapman**, State Purchasing Manager Date: 9/11/2020

STATE OF COLORADO
Governor's Office of Information Technology
Theresa M. Szczurek, Ph.D., Chief Information Officer and Executive Director
By: _____
□ Laura Calder, Chief Financial Officer Laura Calder

Date: 9/18/2020

ALL CONTRACTS REQUIRE APPROVAL BY THE STATE CONTROLLER

§24-30-202 C.R.S. requires the State Controller to approve all State Contracts. This Participating Addendum is not valid until signed and dated below by the State Controller or an authorized delegate.

STATE CONTROLLER
Robert Jaros, CPA, MBA, JD

By: Clark Bolser

Name: Clark Bolser

Date: 9/18/2020

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PARTICIPATING ADDENDUM
EXHIBIT A
STATE SPECIFIC TERMS

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1. AUTHORITY

Authority to enter into this Participating Addendum exists in the Colorado Procurement Code, §24-102-202, C.R.S. and 1 CCR 101-9 R-24-102-202-01., and its associated rules.

2. PURPOSE

The Parties are entering into this Participating Addendum for the Contractor to provide **Public Safety Video Systems** to Purchasing Entities. The Contractor was selected as a result of **OK-MA-145**.

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3. TERM

A. Initial Term - Work Commencement

The Parties' respective performances under this Participating Addendum shall commence on the Effective Date or September 1, 2020, whichever is later and shall be co-terminus with NASPO ValuePoint Master Agreement OK-MA-145-015. Unless this Participating Addendum is terminated earlier, as described herein, or the State cancels its participation as described in the Master Agreement (the "Term"), the term of the Participating Addendum shall follow the Master Agreement initial term and will be automatically extended beyond the initial term if the Master Agreement term is extended (See Section 3.B.).

B. Extension of Term

If the term of NASPO ValuePoint Master Agreement is extended for any reason, the Term of this Participating Addendum shall be automatically modified to account for that extension, so long as such extension complies with the Colorado Procurement Code.

C. End of Term Extension

If this Participating Addendum approaches the end of its Initial Term, or any Extension Term then in place, the State, at its discretion, upon written notice to Contractor's primary contact listed in **§5** of the Participating Addendum and in accordance with **§5** of this Participating Addendum**,** may unilaterally extend such Initial Term or Extension Term for a period not to exceed 2 months (an "End of Term Extension"), regardless of whether additional Extension Terms are available or not. The provisions of this Participating Addendum in effect when such notice is given shall remain in effect during the End of Term Extension. The End of Term Extension shall automatically terminate upon execution of a replacement contract or modification extending the total term of this Participating Addendum.

D. Order Term

Orders may only be placed prior to the expiration or earlier termination of this Participating Addendum, but may have a delivery date or performance period that extends no longer than 120 calendar days following that expiration or earlier termination date. Regardless of whether this Participating Addendum has expired or has been terminated, the Contractor shall comply with all Orders that extend past the expiration or termination, as described in this section, and all requirements of this Participating Addendum necessary to complete outstanding Orders shall survive the expiration or termination of this Participating Addendum until all Orders are complete.

E. Early Termination in the Public Interest

The State is entering into this Participating Addendum to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. A determination that this Contract should be terminated in the public interest shall not be equivalent to a State right to terminate for convenience. This subsection shall not apply to a termination of this Participating Addendum by the State for breach by Contractor, which shall be governed by **§14.A.i**.

i. Method and Content

The State shall notify Contractor of such termination in accordance with §5 of this Participating Addendum**.** The notice shall specify the effective date of the termination

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and whether it affects all or a portion of this Participating Addendum, and shall include, to the extent practicable, the public interest justification for the termination.

ii. Obligations and Rights

Upon receipt of notice for termination in the public interest, Contractor shall be subject to the rights and obligations set forth in **§**Error! Reference source not found..

iii. Payments

If the State terminates this Participating Addendum in the public interest, the Purchasing Entities shall pay Contractor according to their orders with the Contractor. The sum of any and all payments shall not exceed the maximum amount payable to Contractor under each order.

4. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. **"Administration Fee"** means the fee that is due to the State for the administration of this Participating Addendum, as described in **§7. A**. of this **Exhibit A**.

B. "**Breach of Contract**" means the failure of a Party to perform any of its obligations in accordance with this Contract, in whole or in part or in a timely or satisfactory manner. The institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Contractor, or the appointment of a receiver or similar officer for Contractor or any of its property, which is not vacated or fully stayed within thirty (30) days after the institution of such proceeding, shall also constitute a breach. If Contractor is debarred or suspended under §24-109-105, C.R.S. at any time during the term of this Contract, then such debarment or suspension shall constitute a breach.

C. "**Business Day**" means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1), C.R.S.

D. **"Ceiling Price"** means the maximum price a Contractor or a Subcontractor may charge for a Good or Service under this Participating Addendum.

E. "**Chief Procurement Officer**" means the individual to whom the Executive Director of the Department of Personnel & Administration has delegated his or her authority pursuant to §24-102-202, C.R.S. to procure or supervise the procurement of all supplies and services needed by the state.

F. "**CJI**" means criminal justice information collected by criminal justice agencies needed for the performance of their authorized functions, including, without limitation, all information defined as criminal justice information by the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy, as amended, and all Criminal Justice Records as defined under §24-72-302, C.R.S.

G. **"Confidential Information"** means any and all information that is normally considered confidential in nature, and includes, but is not limited to, all State Records not subject to disclosure under the Colorado Open Records Act, §§24-72-200.1, *et seq*., C.R.S. ("CORA").

H. "**Contract**" means this Participating Addendum, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future modifications thereto.

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I. "**Contract Funds**" means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by a Purchasing Entity for Orders placed under this Participating Addendum.

J. **"CORA"** means the Colorado Open Records Act, §§24-72-200.1, *et. seq.*, C.R.S.

K. "**Effective Date**" means the date Contract is signed by the State Controller or their designee.

L. **"End of Term Extension"** means the time period defined in **§3. C.** of this Exhibit A.

M. **"Environmentally Preferable Products"** means products that have a lesser or reduced adverse effect on human health and the environment when compared with competing products that serve the same purpose, as defined in §24-103-904, C.R.S.

N. **"Effective Date"** means the date on which this Participating Addendum is approved and signed by the Colorado State Controller or designee, as shown on the Signature Page for this Participating Addendum. If this Contract is for a Major Information Technology Project, as defined in §24-37.5-102(2.6), C.R.S., then the Effective Date of this Contract shall be the later of the date on which this Contract is approved and signed by the State's Chief Information Officer or authorized delegate or the date on which this Contract is approved and signed by the State Controller or authorized delegate, as shown on the Signature Page for this Contract.

O. "**Exhibits**" means the following exhibits attached to this Contract:

   i. **Exhibit A**, State Specific Terms.

   ii. **Exhibit B**, Statement of Work.

   iii. **Exhibit C**, Products and Price List

   iv. **Exhibit D,** HIPAA Business Associate Agreement

P. **"Extension Term"** means the time period defined in **§3. B.**

Q. **"Goods"** means any movable material acquired, produced, or delivered by Contractor as set forth in this Participating Addendum and shall include any movable material acquired, produced, or delivered by Contractor in connection with the Services.

R. **"Incident"** means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access, loss, disclosure, modification, disruption, or destruction of any communications or information resources of the State, which are included as part of the Work, as described in §§24-37.5-401, *et. seq.*, C.R.S. Incidents include, without limitation **(i)** successful attempts to gain unauthorized access to a State system or State Information regardless of where such information is located; **(ii)** unwanted disruption or denial of service; **(iii)** the unauthorized use of a State system for the processing or storage of data; or **(iv)** changes to State system hardware, firmware, or software characteristics without the State's knowledge, instruction, or consent.

S. **"Initial Term"** means the time period defined in **§3.A** of this **Exhibit A**.

T. **"Order"** means any delivery order, purchase order, contract, agreement or other binding document used by a Purchasing Entity to order the Goods and Services described in this Participating Addendum from the Contractor, and shall include any modification to such a document.

U. "**Party**" means the State or Contractor, and **"Parties"** means both the State and Contractor.

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V. **"Purchasing Entity"** means any entity or organization that has been authorized by the State to place Orders with the Contractor, and may include, without limitation, agencies of the State, government supported institution of higher education within the State, political subdivisions of the State, authorized non-profit organizations and other authorized entities.

W. "**PCI**" means payment card information including any data related to credit card holders' names, credit card numbers, or the other credit card information as may be protected by state or federal law.

X. "**PII**" means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101, C.R.S.

Y. "**PHI**" means any protected health information, including, without limitation any information whether oral or recorded in any form or medium: **(i)** that relates to the past, present or future physical or mental condition of an individual; the provision of health care to an individual; or the past, present or future payment for the provision of health care to an individual; and **(ii)** that identifies the individual or with respect to which there is a reasonable basis to believe the information can be used to identify the individual. PHI includes, but is not limited to, any information defined as Individually Identifiable Health Information by the federal Health Insurance Portability and Accountability Act.

Z. "**Services**" means the services to be performed by Contractor as set forth in this Participating Addendum, and shall include any services to be rendered by Contractor in connection with the Goods.

AA. **"State Confidential Information"** means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, PCI, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Contractor which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Contractor without restrictions at the time of its disclosure to Contractor; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Contractor to the State; (iv) is disclosed to Contractor, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

BB. **"State Fiscal Rules"** means that fiscal rules promulgated by the Colorado State Controller pursuant to §24-30-202(13) (a), C.R.S.

CC. **"State Fiscal Year"** means a 12-month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

DD. **"State Records"** means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

EE. "**Subcontractor**" means third-parties, if any, engaged by Contractor pursuant to §18.B. to aid in performance of the Work. The term "Subcontractor" includes, without limitation, any

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dealers, distributors, partners or resellers engaged by the Contractor to perform the Work.

FF. "**Tax Information**" means federal and State of Colorado tax information including, without limitation, federal and State tax returns, return information, and such other tax-related information as may be protected by federal and State law and regulation. Tax Information includes, but is not limited to all information defined as federal tax information in Internal Revenue Service Publication 1075.

GG. "**Work**" means the Goods delivered and Services performed pursuant to this Contract.

HH. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work, to the extent such Work is developed for the State's sole and exclusive use. "Work Product" does not include any material that was developed prior to the Effective Date that is used, without modification, in the performance of the Work.

Any other term used in this Participating Addendum that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

5. STATEMENT OF WORK

Contractor shall complete the Work as described in this Participating Addendum and in accordance with the provisions of Exhibits A, B, C and D, and with any Purchasing Entity's Order. Contractor personnel shall work cooperatively with State and Purchasing Entity staff to ensure the completion of the Work.

A. Ordering and Order Fulfillment

i. Ordering

a. Contractor shall provide a complete and accurate Internal Revenue Service form W9 to the State prior to accepting an Order from any Purchasing Entity. Upon a request by a Purchasing Entity, Contractor shall provide a complete and accurate Internal Revenue Service form W9 to that Purchasing Entity.

b. Each Purchasing Entity may complete an Order in accordance with its own rules and policies, as available to Contractor, using the appropriate documentation for that organization to issue an Order.

c. Contractor shall communicate directly with each Purchasing Entity related to that Purchasing Entity's Orders.

d. Contractor shall ensure that all Orders it accepts have the proper information contained in them for Contractor to be able to comply with all reporting requirements of this Exhibit A.

e. If Contractor provides for Ordering through an internet-based portal or electronic catalog, Contractor shall maintain all of Contractor's necessary hardware, software, backup-capacity and network connections required to operate that internet-based portal or electronic catalog.

f. Contractor's internet-based portal and electronic catalogs shall clearly designate that they are part of this Participating Addendum and shall have a link to the

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State's designated web location, as determined by the State. Contractor shall ensure that all Environmentally Preferable Products are clearly listed on internet-based portal and electronic catalogs.

g. If Contractor provides an internet-based portal or electronic catalog, Contractor shall also provide paper catalogs or catalogs on other digital media upon request by a Purchasing Entity.

h. If Contractor's catalog will be either hosted on or accessed through the State's eCommerce system, when available, then Contractor shall comply with all policies, procedures and directions from the State in relation to hosting its catalog on or making its catalog accessible through that system. Contractor shall ensure that all information made available through the State's eCommerce system is accurate and complies with this Participating Addendum.

6. PAYMENTS TO CONTRACTOR

A. Payments Under Orders

i. Contractor shall allow the State and Purchasing Entities to use a procurement card or other credit card to make payments under any Order, in addition to any other payment procedure available to the State or Purchasing Entity.

ii. The State shall not pay any amount to Contractor under this Participating Addendum unless the State issues an Order, at which time it shall pay Contractor in accordance with that Order. The State shall not be responsible for payment under any Order that is issued by a Purchasing Entity that is not the State, and the Contractor shall seek no payment or other compensation from the State for any Work performed under any Order issued by a Purchasing Entity that is not the State.

B. Payment Procedures

i. Invoices

Contractor shall invoice each Purchasing Entity in accordance with that Purchasing Entity's Order. Contractor shall not invoice the State under any Order unless the State issued that Order. Contractor shall allow 45 days for the State and Purchasing Entities to pay an invoice following the receipt of the invoice, unless the State or a Purchasing Entity specifically agrees to a shorter time in an Order. State law and regulations provide that State payments made within 45 days are not considered delinquent, and unless otherwise agreed, State Purchasing Entities will pay interest on any unpaid balance beginning on the 45th day at the rate of 1% per month until paid in full; provided, however, that interest shall not accrue on unpaid amounts that are the subject of a good faith dispute regarding the obligation to pay all or a portion of the liability. Contractor shall invoice State Ordering Entities separately for accrued interest on delinquent amounts due. The billing shall reference the delinquent payment, the number of day's interest to be paid, and the applicable interest rate. (§ 24-30-202(24), C.R.S., as amended.)

ii. Payment Disputes

Unless different procedures are specified in an Order, if Contractor disputes any calculation, determination or amount of any payment, Contractor shall notify the Purchasing Entity issuing the Order in writing of its dispute within 30 days following the earlier to occur of Contractor's receipt of the payment or notification of the

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determination or calculation of the payment by that Purchasing Entity. The Purchasing Entity will review the information presented by Contractor and may make changes to its determination based on this review. The calculation, determination or payment amount that results from the Purchasing Entity's review shall not be subject to additional dispute under this subsection. No payment subject to a dispute under this subsection shall be due until after the Purchasing Entity has concluded its review, and the Purchasing Entity shall not pay any interest on any amount during the period it is subject to dispute under this subsection.

iii. Available Funds-Contingency-Termination of Order

Purchasing Entities, except for authorized non-profit entities, are prohibited by law from making commitments beyond the term of the current Purchasing Entity's Fiscal Year. Payment to Contractor beyond the current Purchasing Entity's Fiscal Year is contingent on the appropriation and continuing availability of Contract Funds in any subsequent year (See Colorado Special Provision). If federal funds, non-State funds or funds from any other source constitute all or some of the Contract Funds, the Purchasing Entity's obligation to pay Contractor shall be contingent upon such funding continuing to be made available for payment. Orders under this Participating Addendum shall be made only from Contract Funds, and the Purchasing Entity's liability for such payments shall be limited to the amount remaining of such Contract Funds. If State, federal or other Purchasing Entity funds are not appropriated, or otherwise become unavailable to fund an Order under this Participating Addendum, the Purchasing Entity may, upon written notice, terminate the Order, in whole or in part, without incurring further liability. The Purchasing Entity shall, however, remain obligated to pay for Services and Goods that are delivered and accepted prior to the effective date of notice of termination of Order. A State Purchasing Entity Order termination shall otherwise be treated as if the Order was terminated in the public interest as described in §3. E. of this Exhibit A.

The Purchasing Entity may effect such termination by giving Contractor a written notice of termination, to the Contractor's primary contact in accordance with **§5** of the Participating Addendum, and by paying to Contractor any amounts which are due and have not been paid through the last day of the Fiscal Year for which appropriated funds are available. The Purchasing Entity shall endeavor to give notice of such termination not less than 30 days prior to the day of non-availability of funds, and shall notify Contractor of any anticipated termination.

iv. Discount and Delinquency Period

Any applicable cash discount period or delinquency period for the amounts shown on an invoice shall begin on the date the Purchasing Entity's approves of the invoice, or from the date of receipt of acceptable Goods or Services at the specified destination by an authorized Purchasing Entity representative, whichever is later.

7. PAYMENTS TO STATE

Administrative Fees

A. Each State Fiscal Year quarter, Contractor shall, using a form as directed by the State, calculate an Administrative Fee equal to 1% of the total sales made under Orders during that State Fiscal Year quarter. Contractor shall pay the State the Administrative Fee for each State Fiscal Year quarter within 45 days following the end of that State Fiscal Year quarter.

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B. Contractor shall remit all administrative fees to the State's primary contact identified in **§5** of the Participating Addendum and with the payee as "State of Colorado".

8. REPORTING – NOTIFICATION

A. Volume Reporting

The State will use a centralized method of tracking volume. Contractor shall provide a quarterly volume report to the State's primary contact identified in **§5** of this Participating Addendum within 30 calendar days following the end of the State Fiscal Year quarter that the report covers. The quarterly volume report shall be submitted in a form as directed by the State, which may be modified by the State from time to time. The quarterly volume report shall contain, at a minimum, all of the following:

i. A summary volume report that includes, but is not limited to, all of the following for the quarter that the report covers:

a. The total spent by each type of Purchasing Entity under this Participating Addendum.

b. The total of the list price of all items purchased by each type of Purchasing Entity under this Participating Addendum.

c. The total estimated price savings for each type of Purchasing Entity under this Participating Addendum, calculated as the total list price of all items purchased by each type of Purchasing Entity minus the total spent for that type of Purchasing Entity.

d. The total paid through the use of a procurement card or credit card for each Purchasing Entity under this Participating Addendum.

e. The total sales of environmentally preferable products, as defined in the State's Environmentally Preferable Purchasing Policy, for each Purchasing Entity under this Participating Addendum.

f. The amount of the total administrative fee due to the State.

g. Any additional summary information as requested by the State.

ii. A detail report that includes, but is not limited to, all of the following for each sale that occurred during the quarter that the report covers:

a. The name of the Purchasing Entity who the sale was made to.

b. The date of the sale.

c. A listing of each item purchased in the sale, including the name of the item, the quantity of the item, the unit price for the item, the extended price for the item calculated by multiplying the unit price by the quantity, the list price per unit for the item, the extended list price for the item calculated by multiplying the quantity by the list price, and the savings on the item calculated by subtracting the extended cost from the extended list price.

d. Any other detail information as requested by the State.

B. Additional Operational Reporting

Upon request by the State, the Contractor shall provide operational reporting that includes all detailed and summary transaction, historical or payment information related to the State or

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any of the Participating Entities as requested by the State. The Contractor shall provide all such additional reports within 10 Business Days following the State's request for that information, unless the State agrees to a longer period of time in writing.

C. Environmentally Preferable Product Reporting

Upon request by the State, the Contractor shall provide detailed reporting on environmentally preferable products, as defined in the State's Environmentally Preferable Purchasing Policy, that are purchased or made available under this Participating Addendum. The scope and detail of such reports shall be agreed upon by the State and the Contractor. The Contractor shall provide all such additional reports within 10 Business Days following the State's request for that information, unless the State agrees to a longer period of time in writing.

D. Litigation Reporting

If Contractor is served with a pleading or other document in connection with an action before a court or other administrative decision making body, and such pleading or document relates to this Participating Addendum or may affect Contractor's ability to perform its obligations under this Participating Addendum, Contractor shall, within 10 days after being served, notify the State of such action and deliver copies of such pleading or document to the State's primary contact identified in **§5** of the Participating Addendum .

E. Performance Outside the State of Colorado or the United States, §24-102-206, C.R.S.

To the extent not previously disclosed in accordance with §24-102-206, C.R.S., Contractor shall provide written notice to the State's primary contact in accordance with **§5** of the Participating Addendum and in a form designated by the State, within 20 days following the earlier to occur of Contractor's decision to perform Services outside of the State of Colorado or the United States, or its execution of an agreement with a Subcontractor to perform Services outside the State of Colorado or the United States. Such notice shall specify the type of Services to be performed outside the State of Colorado or the United States and the reason why it is necessary or advantageous to perform such Services at such location or locations, and such notice shall be a public record. Knowing failure by Contractor to provide notice to the State under this section shall constitute a breach of this Participating Addendum. This section shall not apply if the Participating Addendum Funds include any federal funds.

9. CONTRACTOR RECORDS

A. Maintenance

Contractor shall maintain a file of all documents, records, communications, notes and other materials relating to the Work (the "Contractor Records") performed by the Contractor and any Subcontractors, that are required to ensure proper performance of that Work. Contractor shall maintain Contractor Records until the last to occur of: **(i)** the date 3 years after the date this Participating Addendum expires or is terminated, **(ii)** final payment under this Participating Addendum is made, **(iii)** the resolution of any pending Contract matters, or **(iv)** if an audit is occurring, or Contractor has received notice that an audit is pending, the date such audit is completed and its findings have been resolved (the "Record Retention Period").

B. Inspection

Contractor shall permit the State to audit, inspect, examine, excerpt, copy and transcribe Contractor Records during the Record Retention Period. Contractor shall make Contractor Records available during normal business hours at Contractor's office or place of business, or at other mutually agreed upon times or locations, upon no fewer than 2 Business Days'

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notice from the State, unless the State determines that a shorter period of notice, or no notice, is necessary to protect the interests of the State.

C. Monitoring

The State, in its discretion, may monitor Contractor's performance of its obligations under this Participating Addendum using procedures as determined by the State. The State shall monitor Contractor's performance in a manner that does not unduly interfere with Contractor's performance of the Work.

D. Final Audit Report

Contractor shall promptly submit to the State a copy of any final audit report of an audit performed on Contractor's records that relates to or affects this Participating Addendum or the Work, whether the audit is conducted by Contractor or a third party.

E. Periodic Business Reviews

i. The State may schedule periodic business reviews to review Contractor's performance under this Participating Addendum.

ii. Contractor shall ensure personnel assigned to the Participating Addendum are available for these meetings with the State as scheduled by the State.

iii. Contractor's primary contact designated in **§5** of this the Participating Addendum shall be available for all regularly scheduled meetings between Contractor and the State, unless the State has granted prior, written approval otherwise.

10. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Contractor shall k**e**ep confidential, and cause all Subcontractors to keep confidential, all State Records, unless those State Records are publicly available. Contractor shall not, without prior written approval of the State, use, publish, copy, disclose to any third party, or permit the use by any third party of any State Records, except as otherwise stated in this Participating Addendum, permitted by law or approved in Writing by the State. Contractor shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Contractor or any of its Subcontractors will or may receive the following types of data, Contractor or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Contract as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Contract , if applicable. Contractor shall immediately forward any request or demand for State Records to the State's primary contact as identified in §5 of the Participating Addendum.

B. Other Entity Access and Nondisclosure Agreements

Contractor may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information

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to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Participating Addendum. Contractor shall ensure all such agents, employees, assigns, and Subcontractors sign agreements containing nondisclosure provisions at least as protective as those in this Participating Addendum, and that the nondisclosure provisions are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Contractor shall provide copies of those signed nondisclosure provisions to the State upon execution of the nondisclosure provisions.

C. Use, Security, and Retention

Contractor shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Contractor shall provide the State with access, subject to Contractor's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Participating Addendum, Contractor shall return State Records provided to Contractor or destroy such State Records and certify to the State that it has done so, as directed by the State. If Contractor is prevented by law or regulation from returning or destroying State Confidential Information, Contractor warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Contractor becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. Unless Contractor can establish that neither Contractor nor any of Contractor's agents, employees, assigns or Subcontractors are the cause or source of the Incident, Contractor shall be responsible for the cost of notifying each person who may have been impacted by the Incident. After an Incident, Contractor shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State. The State may, in its sole discretion and at Contractor's sole expense, require Contractor to engage the services of an independent, qualified, State-approved third party to conduct a security audit. Contractor shall provide the State with the results of such audit and evidence of Contractor's planned remediation in response to any negative findings.

E. Data Protection and Handling

Contractor shall ensure that all State Records and Work Product in the possession of Contractor or any Subcontractors are protected and handled in accordance with the requirements of this Contract, including the requirements of any Exhibits hereto, at all times.

F. Safeguarding PII

If Contractor or any of its Subcontractors will or may receive PII under this Contract, Contractor shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Contractor shall be a "Third-Party Service Provider" as defined in §24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with §§24-73-101 *et seq.*, C.R.S.

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11. CONFLICTS OF INTEREST

A. Actual Conflicts of Interest

Contractor shall not engage in any business or activities, or maintain any relationships that conflict in any way with the full performance of the obligations of Contractor under this Participating Addendum. Such a conflict of interest would arise when a Contractor or Subcontractor's employee, officer or agent were to offer or provide any tangible personal benefit to an employee of the State, or any member of his or her immediate family or his or her partner, related to the award of, entry into or management or oversight of this Participating Addendum.

B. Apparent Conflicts of Interest

Contractor acknowledges that, with respect to this Participating Addendum, even the appearance of a conflict of interest shall be harmful to the State's interests. Absent the State's prior written approval, Contractor shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Contractor's obligations under this Participating Addendum.

C. Disclosure to the State

If a conflict or the appearance of a conflict arises, or if Contractor is uncertain whether a conflict or the appearance of a conflict has arisen, Contractor shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Failure to promptly submit a disclosure statement or to follow the State's direction in regard to the actual or apparent conflict constitutes a breach of this Participating Addendum.

12. INSURANCE

Contractor shall obtain and maintain, and ensure that each Subcontractor shall obtain and maintain, insurance as specified in this section at all times during the term of this Participating Addendum and until all orders for goods or Services or both have been delivered and accepted, regardless of whether this Participating Addendum has expired or has been terminated. All insurance policies required by this Participating Addendum shall be issued by insurance companies as approved by the State.

A. Workers' Compensation

Workers' Compensation insurance as required by state statute, and employers' liability insurance covering all Contractor or Subcontractor employees acting within the course and scope of their employment. Insurance must stay in place and in effect even if the contract terms expires, until all product or terms of the contract are completed and satisfied up to 120 days after contract term expires.

B. General Liability

Commercial general liability insurance covering premises operations, fire damage, independent contractors, products and completed operations, blanket contractual liability, personal injury, and advertising liability with minimum limits as follows:

i. $1,000,000 each occurrence;

ii. $2,000,000 general aggregate;

iii. $1,000,000 products and completed operations aggregate; and

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iv. $50,000 any 1 fire.

C. Automobile Liability

Automobile liability insurance covering any auto (including owned, hired and non-owned autos) with a minimum limit of $1,000,000 each accident combined single limit.

D. Protected Information

Liability insurance covering all loss of State Confidential Information, such as PII, PCI, PHI, Tax Information, and CJI, and claims based on alleged violations of privacy rights through improper use or disclosure of protected information with minimum limits as follows:

i. $1,000,000 each occurrence; and

ii. $2,000,000 general aggregate.

E. Professional Liability Insurance

Professional liability insurance covering any damages caused by an error, omission or any negligent act with minimum limits as follows:

i. $1,000,000 each occurrence; and

ii. $1,000,000 general aggregate.

F. Crime Insurance

Crime insurance including employee dishonesty coverage with minimum limits as follows:

i. $1,000,000 each occurrence; and

ii. $1,000,000 general aggregate.

G. Additional Insured

The State shall be named as additional insured on all commercial general liability policies (leases and construction contracts require additional insured coverage for completed operations) required of Contractor and Subcontractors.

H. Primacy of Coverage

Coverage required of Contractor and each Subcontractor shall be primary over any insurance or self-insurance program carried by Contractor or the State.

I. Cancellation

The above insurance policies shall include provisions preventing cancellation or non-renewal, except for cancellation based on non-payment of premiums, without at least 30 days prior notice to Contractor and Contractor shall forward such notice to the State in accordance with **§5** of the Participating Addendum within 7 days of Contractor's receipt of such notice.

J. Subrogation Waiver

All insurance policies secured or maintained by Contractor or its Subcontractors in relation to this Participating Addendum shall include clauses stating that each carrier shall waive all rights of recovery under subrogation or otherwise against Contractor or the State, its agencies, institutions, organizations, officers, agents, employees, and volunteers.

K. Public Entities

If Contractor is a "public entity" within the meaning of the Colorado Governmental Immunity

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Act, §§24-10-101, *et seq.*, C.R.S. (the "GIA"), Contractor shall maintain, in lieu of the liability insurance requirements stated above, at all times during the term of this Participating Addendum such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the GIA. If a Subcontractor is a public entity within the meaning of the GIA, Contractor shall ensure that the Subcontractor maintain at all times during the terms of this Participating Addendum, in lieu of the liability insurance requirements stated above, such liability insurance, by commercial policy or self-insurance, as is necessary to meet the Subcontractor's obligations under the GIA.

L. Certificates

Contractor shall provide to the State certificates evidencing Contractor's insurance coverage required in this Participating Addendum within 7 Business Days following the Effective Date. Contractor shall provide to the State certificates evidencing Subcontractor insurance coverage required under this Participating Addendum within 7 Business Days following the Effective Date, except that, if Contractor's subcontract is not in effect as of the Effective Date, Contractor shall provide to the State certificates showing Subcontractor insurance coverage required under this Participating Addendum within 7 Business Days following Contractor's execution of the subcontract. No later than 15 days before the expiration date of Contractor's or any Subcontractor's coverage, Contractor shall deliver to the State certificates of insurance evidencing renewals of coverage. At any other time during the term of this Participating Addendum, upon request by the State, Contractor shall, within 7 Business Days following the request by the State, supply to the State evidence satisfactory to the State of compliance with the provisions of this **§12**.

13. BREACH OF CONTRACT

In the event of a Breach of Contract, the aggrieved Party shall give written notice of breach to the other Party. If the notified Party does not cure the Breach of Contract, at its sole expense, within 30 days after the delivery of written notice, the Party may exercise any of the remedies as described in **§14** for that Party. Notwithstanding any provision of this Participating Addendum to the contrary, the State, in its discretion in order to protect the public interest of the State, need not provide notice or a cure period and may immediately terminate this Participating Addendum in whole or in part or institute any other remedy in this Participating Addendum; or if Contractor is debarred or suspended under §24-109-105, C.R.S., the State, in its discretion, need not provide notice or cure period and may terminate this Contract in whole or in part or institute any other remedy in this Contract as of the date that the debarment or suspension takes effect.

14. REMEDIES

A. State's Remedies

If Contractor is in breach under any provision of this Participating Addendum and fails to cure such breach, the State, following the notice and cure period set forth in **§13,** shall have all of the remedies listed in this section in addition to all other remedies set forth in this Participating Addendum or at law. The State may exercise any or all of the remedies available to it, in its discretion, concurrently or consecutively.

i. Termination for Breach

In the event of Contractor's uncured breach, the State may terminate this entire Participating Addendum or any part of this Participating Addendum. Contractor shall

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continue performance of this Participating Addendum to the extent not terminated, if any.

If after termination by the State, the State agrees that Contractor was not in breach or that Contractor's action or inaction was excusable, such termination shall be treated as a termination in the public interest, and the rights and obligations of the Parties shall be as if this Participating Addendum had been terminated in the public interest under **§3. E.**

ii. Remedies Not Involving Termination

The State, in its discretion, may exercise one or more of the following additional remedies:

a. Suspend Performance

Suspend Contractor's performance with respect to all or any portion of the Work pending corrective action as specified by the State without entitling Contractor to an adjustment in price or cost or an adjustment in the performance schedule. Contractor shall promptly cease performing Work and incurring costs in accordance with the State's directive, and neither the State nor any Purchasing Entity shall be liable for costs incurred by Contractor after the suspension of performance.

b. Removal

Demand immediate removal of any of Contractor's employees, agents, or Subcontractors from the Work whom the State deems incompetent, careless, insubordinate, unsuitable, or otherwise unacceptable or whose continued relation to this Participating Addendum is deemed by the State to be contrary to the public interest or the State's best interest.

c. Intellectual Property

If any Work infringes, or if the State in its sole discretion determines that any Work is likely to infringe, a patent, copyright, trademark, trade secret or other intellectual property right, Contractor shall, at the option of and as approved by the State or Purchasing Entity **(i)** secure that right to use such Work for the State, Purchasing Entity and Contractor; **(ii)** replace the Work with noninfringing Work or modify the Work so that it becomes noninfringing; or, **(iii)** remove any infringing Work and refund the amount paid for such Work to the Purchasing Entity.

B. Contractor's Remedies

If the State is in breach of any provision of this Participating Addendum and does not cure such breach, Contractor, following the notice and cure period in **§13** and the dispute resolution process in **§15** shall have all remedies available at law and equity. If a Purchasing Entity is in breach of a provision of an Order, Contractor shall have all remedies available to it under that Order and available at law and equity.

C. Purchasing Entity's Remedies

i. If Contractor is in breach under any provision of an Order by a Purchasing Entity, the Purchasing Entity shall have all of the remedies listed in that Order, all remedies listed in §14. A. ii above, all remedies listed here in §14.C and all other remedies available

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by law or equity. The Purchasing Entity may exercise any or all of the remedies available to it, in its discretion, concurrently or consecutively.

ii. If a Purchasing Entity gives Contractor notice of breach or terminates an Order because of Contractor's breach of that Order, Contractor shall provide notice to the State of that breach or termination within 5 Business Days following Contractor's receipt of that notice of breach or termination.

iii. Payments and Damages

a. Notwithstanding anything to the contrary, Purchasing Entities shall only pay Contractor for accepted Work received as of the date of termination. A Purchasing Entity may withhold any amount that may be due Contractor as the Purchasing Entity deems necessary until Contractor corrects its Work or to protect itself against loss including, without limitation, loss as a result of outstanding liens and costs incurred by the Purchasing Entity in procuring from third parties replacement Work as cover.

b. Notwithstanding any other remedial action by the State, Contractor shall remain liable to the State or appropriate Purchasing Entity for any damages sustained by the State or Purchasing Entity in connection with any breach by Contractor, and the Purchasing Entity may withhold payment to Contractor for the purpose of mitigating the Purchasing Entity's damages.

A Purchasing Entity may deny payment to Contractor for Work not performed, or that due to Contractor's actions or inactions, cannot be performed or if they were performed are reasonably of no value to the state; provided, that any denial of payment shall be equal to the value of the obligations not performed.

15. DISPUTE RESOLUTION

A. Order Disputes, Termination and Resolution

i. If a dispute related to an Order arises between Contractor and a Purchasing Entity, Contractor shall meet with the Purchasing Entity to attempt to resolve the issue. If Contractor is unable to resolve the issue with the Purchasing Entity, then Contractor may request assistance from the State by submitting a request in writing, which includes the pertinent information about the dispute and the assistance sought by Contractor, in accordance with **§5** of the Participating Addendum. Nothing in this section shall be interpreted as limiting the rights or obligations of Contractor, the State or any Purchasing Entity under this Contract of any Order.

ii. A Purchasing Entity may terminate an Order if it determines that Contractor was in breach of that Order. Termination of an Order shall not terminate any other Order or this Participating Addendum.

iii. If a Purchasing Entity gives Contractor notice of breach or terminates an Order because of Contractor's breach of that Order, Contractor shall provide notice to the State of that breach or termination within 5 Business Days following Contractor's receipt of that notice of breach or termination.

B. Initial Resolution

Except as herein specifically provided otherwise, disputes concerning the performance of this Participating Addendum which cannot be resolved by the designated Participating

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Addendum primary contacts, as identified in **§5** of the Participating Addendum**,** or through a dispute on an Order shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager designated by Contractor for resolution.

C. Resolution of Controversies arising under this Participating Addendum

If the initial resolution described in **§15.B**. fails to resolve the dispute within ten (10) Business Days, Contractor shall submit any alleged breach of this Participating Addendum by the State to the Procurement Official of the State Purchasing and Contracts Office as described in in §24-102-202(3), C.R.S. for resolution in accordance with the provisions of §§24-109-101.1 through 24-109-505, C.R.S., (the "Resolution Statutes"), except that if Contractor wishes to challenge any decision rendered by the Procurement Official, Contractor's challenge shall be an appeal to the Executive Director of the Department of Personnel and Administration, or their delegate, under the Resolution Statutes before Contractor pursues any further action as permitted by such statutes. Except as otherwise stated in this Section, all requirements of the Resolution Statutes shall apply including, without limitation, time limitations.

16. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

A. Work Product

Contractor assigns to the Purchasing Entity and its successors and assigns, the entire right, title, and interest in and to all causes of action, either in law or in equity, for past, present, or future infringement of intellectual property rights related to the Work Product and all works based on, derived from, or incorporating the Work Product under an Order. Whether or not Contractor is under contract with the State at the time, Contractor shall execute applications, assignments, and other documents, and shall render all other reasonable assistance requested by the State, to enable the Purchasing Entity to secure patents, copyrights, licenses and other intellectual property rights related to the Work Product. To the extent that Work Product would fall under the definition of "works made for hire" under 17 U.S.C.S. §101, the parties intend the Work Product to be a work made for hire.

i. Copyrights

To the extent that the Work Product (or any portion of the Work Product) would not be considered works made for hire under applicable law, Contractor hereby assigns to the Purchasing Entity, the entire right, title, and interest in and to copyrights in all Work Product and all works based upon, derived from, or incorporating the Work Product; all copyright applications, registrations, extensions, or renewals relating to all Work Product and all works based upon, derived from, or incorporating the Work Product; and all moral rights or similar rights with respect to the Work Product throughout the world. To the extent that Contractor cannot make any of the assignments required by this section, Contractor hereby grants to the Purchasing Entity a perpetual, irrevocable, royalty-free license to use, modify, copy, publish, display, perform, transfer, distribute, sell, and create derivative works of the Work Product created under that Purchasing Entity's Order and all works based upon, derived from, or incorporating the Work Product by all means and methods and in any format now known or invented in the future. The Purchasing Entity may assign and license its rights under this license.

ii. Patents

In addition, Contractor grants to the Purchasing Entity (and to recipients of Work Product distributed by or on behalf of the State) a perpetual, worldwide, no-charge,

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royalty-free, irrevocable patent license to make, have made, use, distribute, sell, offer for sale, import, transfer, and otherwise utilize, operate, modify and propagate the contents of the Work Product created under an Order. Such license applies only to those patent claims licensable by Contractor that are necessarily infringed by the Work Product alone, or by the combination of the Work Product with anything else used by the Purchasing Entity.

B. Exclusive Property of the State

Except to the extent specifically provided elsewhere in this Participating Addendum, any pre-existing State Records, State software, research, reports, studies, photographs, negatives or other documents, drawings, models, materials, data and information shall be the exclusive property of the State (collectively, "State Materials"). Contractor shall not use, willingly allow, cause or permit Work Product or State Materials to be used for any purpose other than the performance of Contractor's obligations in this Participating Addendum without the prior written consent of the State. Upon termination of this Participating Addendum for any reason, Contractor shall provide all Work Product and State Materials to the State in a form and manner as directed by the State.

C. Exclusive Property of Contractor

Contractor retains the exclusive rights, title, and ownership to any and all pre-existing materials owned or licensed to Contractor including, but not limited to, all pre-existing software, licensed products, associated source code, machine code, text images, audio and/or video, and third-party materials, delivered by Contractor under the Contract, whether incorporated in a Deliverable or necessary to use a Deliverable (collectively, "Contractor Property"). Contractor Property shall be licensed to the State as set forth in this Contract or a State approved license agreement: **(i)** entered into as exhibits to this Contract; **(ii)** obtained by the State from the applicable third-party vendor; or **(iii)** in the case of open source software, the license terms set forth in the applicable open source license agreement.

17. OBLIGATIONS AND RIGHTS IN THE EVENT OF TERMINATION OF ORDER OR CONTRACT

To the extent specified in any termination notice, Contractor shall not incur further obligations or render further performance past the effective date of such notice, and shall terminate outstanding orders and subcontracts with third parties. However, Contractor shall complete and deliver to Purchasing Entities all Work not cancelled by the termination notice, and may incur obligations as necessary to do so within this Participating Addendum's terms. At the request of the State, Contractor shall assign to the appropriate Purchasing Entity all of Contractor's rights, title, and interest in and to such terminated orders or subcontracts. Upon termination, Contractor shall take timely, reasonable and necessary action to protect and preserve property in the possession of Contractor in which the appropriate Purchasing Entity has an interest. At the State or Purchasing Entity's request, Contractor shall return materials owned by the Purchasing Entity that Contractor possesses at the time of any termination. Contractor shall deliver all completed Work Product to the appropriate Purchasing Entity at the State or Purchasing Entity's request.

18. STATEWIDE CONTRACT MANAGEMENT SYSTEM

If the maximum amount payable to Contractor under this Contract is $100,000 or greater, either on the Effective Date or at any time thereafter, this section shall apply. Contractor agrees to be governed by and comply with the provisions of §§24-102-206, 24-106-103, 24-106-106, and 24-

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106-107, C.R.S. regarding the monitoring of vendor performance and the reporting of contract information in the State's contract management system ("Contract Management System" or "CMS"). Contractor's performance shall be subject to evaluation and review in accordance with the terms and conditions of this Contract, Colorado statutes governing CMS, and State Fiscal Rules and State Controller policies.

19. GENERAL PROVISIONS

A. Assignment

Contractor's rights and obligations under this Participating Addendum are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Contractor's rights and obligations approved by the State shall be subject to the provisions of this Participating Addendum.

B. Subcontracts

Contractor shall not enter into any subcontract in connection with its obligations under this Contract without the prior, written approval of the State. Contractor shall submit to the State a copy of each subcontract upon request by the State. All subcontracts entered into by Contractor in connection with this Participating Addendum shall comply with all applicable federal and state laws and regulations, shall provide that they are governed by the laws of the State of Colorado, and shall be subject to all provisions of this Participating Addendum.

C. Binding Effect

Except as otherwise provided in **§19.A.**, all provisions of this Participating Addendum, including the benefits and burdens, shall extend to and be binding upon the Parties' respective successors and assigns.

D. Authority

Each Party represents and warrants to the other that the execution and delivery of this Participating Addendum and the performance of such Party's obligations have been duly authorized.

E. Captions and References

The captions and headings in this Participating Addendum are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Participating Addendum to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

F. Counterparts

This Participating Addendum may be executed in multiple, identical, original counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

G. Entire Understanding

This Participating Addendum represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Participating Addendum. Prior or

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contemporaneous additions, deletions, or other changes to this Participating Addendum shall not have any force or effect whatsoever, unless embodied herein.

H. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Contract by reference.

I. Modification

Except as otherwise provided in this Participating Addendum, any modification to this Participating Addendum shall only be effective if agreed to in a formal amendment to this Participating Addendum, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules. Modifications permitted under this Participating Addendum, other than contract amendments, shall conform to the policies issued by the Colorado State Controller.

J. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Participating Addendum to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Effective Date of this Participating Addendum.

K. Severability

The invalidity or unenforceability of any provision of this Participating Addendum shall not affect the validity or enforceability of any other provision of this Participating Addendum, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under this Participating Addendum in accordance with the intent of this Participating Addendum.

L. Survival of Certain Contract Terms

Any provision of this Participating Addendum that imposes an obligation on the Contractor or a Purchasing Entity after termination or expiration of this Participating Addendum shall survive the termination or expiration of this Participating Addendum and shall be enforceable by the other Party.

M. Taxes

The State is exempt from federal excise taxes under I.R.C. Chapter 32 (26 U.S.C., Subtitle D, Ch. 32) (Federal Excise Tax Exemption Certificate of Registry No. 84-730123K) and from State and local government sales and use taxes under §§39-26-704(1), *et seq.*, C.R.S. (Colorado Sales Tax Exemption Identification Number 98-02565). The State shall not be liable for the payment of any excise, sales, or use taxes, regardless of whether any political subdivision of the State imposes such taxes on Contractor. Contractor shall be solely responsible for any exemptions from the collection of excise, sales or use taxes that Contractor may wish to have in place in connection with this Participating Addendum. Contractor shall honor any tax exemption that any Purchasing Entity has, and shall not charge any Purchasing Entity any excise, sales, or use taxes from which that Purchasing Entity is exempt.

N. Third Party Beneficiaries

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Except for a Purchasing Entity and/or the Parties' respective successors and assigns described in **§19.A,** this Participating Addendum does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Enforcement of this Participating Addendum and all rights and obligations hereunder are reserved solely to the Parties. Any services or benefits which third parties receive as a result of this Participating Addendum are incidental to this Participating Addendum, and do not create any rights for such third parties.

O. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Participating Addendum, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

P. CORA Disclosure

To the extent not prohibited by federal law, this Participating Addendum and the performance measures and standards required under §24-106-107, C.R.S., if any, are subject to public release through the CORA.

Q. Standard and Manner of Performance

Contractor shall perform its obligations under this Participating Addendum in accordance with the highest standards of care, skill and diligence in Contractor's industry, trade, or profession.

R. Licenses, Permits, and Other Authorizations.

Contractor shall secure, prior to the Effective Date, and maintain at all times during the term of this Participating Addendum, at its sole expense, all licenses, certifications, permits, and other authorizations required to perform its obligations under this Participating Addendum, and shall ensure that all employees, agents and Subcontractors secure and maintain at all times during the term of their employment, agency or subcontract, all license, certifications, permits and other authorizations required to perform their obligations in relation to this Participating Addendum.

S. Indemnification

i. General Indemnification

Contractor shall indemnify, save, and hold harmless the State, its employees, agents and assignees (the "Indemnified Parties"), against any and all costs, expenses, claims, damages, liabilities, court awards and other amounts (including attorneys' fees and related costs) incurred by any of the Indemnified Parties in relation to any act or omission by Contractor, or its employees, agents, Subcontractors, or assignees in connection with this Participating Addendum.

ii. Confidential Information Indemnification

Disclosure or use of State Confidential Information by Contractor in violation of **§10** may be cause for legal action by third parties against Contractor, the State, or their respective agents. Contractor shall indemnify, save, and hold harmless the Indemnified Parties, against any and all claims, damages, liabilities, losses, costs, expenses (including attorneys' fees and costs) incurred by the State in relation to any act or omission by Contractor, or its employees, agents, assigns, or Subcontractors in violation of **§10**.

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iii. Intellectual Property Indemnification

Contractor shall indemnify, save, and hold harmless the Indemnified Parties, against any and all costs, expenses, claims, damages, liabilities, and other amounts (including attorneys' fees and costs) incurred by the Indemnified Parties in relation to any claim that any Work infringes a patent, copyright, trademark, trade secret, or any other intellectual property right.

20. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

These Special Provisions apply to all contracts except where noted in italics.

A. STATUTORY APPROVAL. §24-30-202(1), C.R.S.

This Contract shall not be valid until it has been approved by the Colorado State Controller or designee. If this Contract is for a Major Information Technology Project, as defined in §24-37.5-102(2.6), then this Contract shall not be valid until it has been approved by the State's Chief Information Officer or designee.

B. FUND AVAILABILITY. §24-30-202(5.5), C.R.S.

Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. GOVERNMENTAL IMMUNITY.

Liability for claims for injuries to persons or property arising from the negligence of the State, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, et seq. C.R.S. No term or condition of this Contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. INDEPENDENT CONTRACTOR

Contractor shall perform its duties hereunder as an independent contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be deemed to be an agent or employee of the State. Contractor shall not have authorization, express or implied, to bind the State to any agreement, liability or understanding, except as expressly set forth herein. Contractor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Contractor or any of its agents or employees. Contractor shall pay when due all applicable employment taxes, income taxes and local head taxes incurred pursuant to this Contract. Contractor shall **(i)** provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, **(ii)** provide proof thereof when requested by the State, and **(iii)** be solely responsible for its acts and those of its employees and agents.

E. COMPLIANCE WITH LAW.

Contractor shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

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F. **CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Contract. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Contract shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **PROHIBITED TERMS.**

Any term included in this Contract that requires the State to indemnify or hold Contractor harmless; requires the State to agree to binding arbitration; limits Contractor's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Contract shall be construed as a waiver of any provision of §24-106-109 C.R.S. Any term included in this Contract that limits Contractor's liability that is not void under this section shall apply only in excess of any insurance to be maintained under this Contract, and no insurance policy shall be interpreted as being subject to any limitations of liability of this Contract.

H. **SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Contract shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Contractor hereby certifies and warrants that, during the term of this Contract and any extensions, Contractor has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Contractor is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Contract, including, without limitation, immediate termination of this Contract and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§24-18-201 and 24-50-507, C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Contract. Contractor has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Contractor's services and Contractor shall not employ any person having such known interests.

J. **VENDOR OFFSET AND ERRONEOUS PAYMENTS. §§24-30-202(1) and 24-30-202.4, C.R.S.**

[*Not applicable to intergovernmental agreements*] Subject to §24-30-202.4(3.5), C.R.S., the State Controller may withhold payment under the State's vendor offset intercept system for debts owed to State agencies for: **(i)** unpaid child support debts or child support arrearages; **(ii)** unpaid balances of tax, accrued interest, or other charges specified in §§39-21-101, *et seq.*, C.R.S.; **(iii)** unpaid loans due to the Student Loan Division of the Department of Higher Education; **(iv)** amounts required to be paid to the Unemployment Compensation Fund; and **(v)** other unpaid debts owing to the State as a result of final agency determination or judicial action. The State may also recover, at the State's discretion, payments made to Contractor in error for any reason, including, but not limited to, overpayments or improper payments, and unexpended or excess funds received by Contractor by deduction from subsequent payments under this Contract, deduction from any payment due under any other contracts,

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grants or agreements between the State and Contractor, or by any other appropriate method for collecting debts owed to the State.

K. **PUBLIC CONTRACTS FOR SERVICES. §§8-17.5-101, *et seq.*, C.R.S.**

[Not applicable to agreements relating to the offer, issuance, or sale of securities, investment advisory services or fund management services, sponsored projects, intergovernmental agreements, or information technology services or products and services] Contractor certifies, warrants, and agrees that it does not knowingly employ or contract with an illegal alien who will perform work under this Contract and will confirm the employment eligibility of all employees who are newly hired for employment in the United States to perform work under this Contract, through participation in the E-Verify Program or the State verification program established pursuant to §8-17.5-102(5)(c), C.R.S., Contractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract or enter into a contract with a Subcontractor that fails to certify to Contractor that the Subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract. Contractor **(i)** shall not use E-Verify Program or the program procedures of the Colorado Department of Labor and Employment ("Department Program") to undertake pre-employment screening of job applicants while this Contract is being performed, **(ii)** shall notify the Subcontractor and the contracting State agency or institution of higher education within 3 days if Contractor has actual knowledge that a Subcontractor is employing or contracting with an illegal alien for work under this Contract, **(iii)** shall terminate the subcontract if a Subcontractor does not stop employing or contracting with the illegal alien within 3 days of receiving the notice, and **(iv)** shall comply with reasonable requests made in the course of an investigation, undertaken pursuant to §8-17.5-102(5), C.R.S., by the Colorado Department of Labor and Employment. If Contractor participates in the Department program, Contractor shall deliver to the contracting State agency, Institution of Higher Education or political subdivision, a written, notarized affirmation, affirming that Contractor has examined the legal work status of such employee, and shall comply with all of the other requirements of the Department program. If Contractor fails to comply with any requirement of this provision or §§8-17.5-101, *et seq.*, C.R.S., the contracting State agency, institution of higher education or political subdivision may terminate this Contract for breach and, if so terminated, Contractor shall be liable for damages.

L. **PUBLIC CONTRACTS WITH NATURAL PERSONS. §§24-76.5-101, *et seq.*, C.R.S.**

Contractor, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that Contractor **(i)** is a citizen or otherwise lawfully present in the United States pursuant to federal law, **(ii)** shall comply with the provisions of §§24-76.5-101, *et seq*., C.R.S., and **(iii)** has produced one form of identification required by §24-76.5-103, C.R.S. prior to the Effective Date of this Contract.

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EXHIBIT B STATEMENT OF WORK

1. GOODS AND/OR SERVICES

For a description of what the Participating Addendum will provide, see Exhibit B of the Master Agreement OK-MA-145-015**,** "Description of Products, Price, and Services"

2. OTHER PROJECT REQUIREMENTS

A. Delivery of Goods and Performance of Services

i. Contractor shall provide all Goods and perform all Services described in each Order.

ii. Unless specifically agreed to otherwise in an Order, Contractor shall deliver all Goods under an Order in good, working and undamaged condition. All Goods shall be free on board ("F.O.B.") destination to the location specified in the Order.

iii. If a good in an Order is out of stock, Contractor may only provide a substitute good if it has notified the Purchasing Entity for that Order, in writing, that the good is out of stock and has received the Purchasing Entity's approval to provide the substitute good. Purchasing Entities may request additional information comparing the substitute good with the original good in the Purchasing Entity's sole discretion.

B. Additional Terms

Any additional terms and conditions on any invoice, statement, Contractor time sheet, website, electronic license or use agreement or any other form, including, without limitation, terms regarding indemnification, limitation of liability, cancellation fees, choice of law and binding arbitration shall be void and unenforceable except to the extent that they are specifically included in this Participating Addendum or an Order. The signature of any employee of a Purchasing Entity on any such form shall be effective to establish receipt of Goods or completion of Services and shall not make any term of that form enforceable.

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EXHIBIT C PRODUCTS AND PRICE LIST

1. Contractor has been awarded the following categories:

- PUBLIC SAFETY VIDEO SYSTEMS

2. The products and price list is located on the Contractor's dedicated State website, hosted and maintained by the Contractor, and is incorporated into this Participating Addendum by reference. Changes in product and pricing must be approved by the lead state and shall be effective when published on the dedicated state website.

3. Pricing

A. Price Lists
The State may publish any pricing information under this Participating Addendum, including, without limitation the pricing information shown in this Exhibit C, Products and Price List, on the State's website and any other website as the State determines is necessary or efficient to facilitate the use of this Participating Addendum by Purchasing Entities.

B. Price Decreases and Ceiling Prices
The prices listed in this Exhibit C are Ceiling Prices, and Contractor may offer lower prices to Purchasing Entities, and Purchasing Entities may negotiate lower prices with Contractor, without the review or approval of the State. Contractor shall not allow a Subcontractor to charge an amount greater than the Ceiling Price for any Order.

C. Environmentally Preferable Purchasing

i. Contractor shall provide training regarding the environmentally preferable products, as defined in the State's Environmentally Preferable Purchasing Policy, that are purchased or made available under this Participating Addendum. This training shall be provided at no additional cost, unless otherwise agreed upon by the Parties, and shall be presented at a time and in a manner as agreed upon by the Parties.

ii. The State reserves the right to request additional provisions and requirements to ensure this Participating Addendum is in compliance with all State regulations and policies, including all sustainable purchasing and environmentally preferable purchasing policies or executive orders.

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EXHIBIT D - HIPAA BUSINESS ASSOCIATE AGREEMENT

This HIPAA Business Associate Agreement ("Agreement") between the State and Contractor is agreed to in connection with, and as an exhibit to, the Contract. For purposes of this Agreement, the State is referred to as "Covered Entity" and the Contractor is referred to as "Business Associate". Unless the context clearly requires a distinction between the Contract and this Agreement, all references to "Contract" shall include this Agreement.

1. PURPOSE

Covered Entity wishes to disclose information to Business Associate, which may include Protected Health Information ("PHI"). The Parties intend to protect the privacy and security of the disclosed PHI in compliance with the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), Pub. L. No. 104-191 (1996) as amended by the Health Information Technology for Economic and Clinical Health Act ("HITECH Act") enacted under the American Recovery and Reinvestment Act of 2009 ("ARRA") Pub. L. No. 111–5 (2009), implementing regulations promulgated by the U.S. Department of Health and Human Services at 45 C.F.R. Parts 160, 162 and 164 (the "HIPAA Rules") and other applicable laws, as amended. Prior to the disclosure of PHI, Covered Entity is required to enter into an agreement with Business Associate containing specific requirements as set forth in, but not limited to, Title 45, Sections 160.103, 164.502(e) and 164.504(e) of the Code of Federal Regulations ("C.F.R.") and all other applicable laws and regulations, all as may be amended.

2. DEFINITIONS

The following terms used in this Agreement shall have the same meanings as in the HIPAA Rules: Breach, Data Aggregation, Designated Record Set, Disclosure, Health Care Operations, Individual, Minimum Necessary, Notice of Privacy Practices, Protected Health Information, Required by Law, Secretary, Security Incident, Subcontractor, Unsecured Protected Health Information, and Use.

The following terms used in this Agreement shall have the meanings set forth below:

a. Business Associate. "Business Associate" shall have the same meaning as the term "business associate" at 45 C.F.R. 160.103, and shall refer to Contractor.

b. Covered Entity. "Covered Entity" shall have the same meaning as the term "covered entity" at 45 C.F.R. 160.103, and shall refer to the State.

c. Information Technology and Information Security. "Information Technology" and "Information Security" shall have the same meanings as the terms "information technology" and "information security", respectively, in §24-37.5-102, C.R.S.

Capitalized terms used herein and not otherwise defined herein or in the HIPAA Rules shall have the meanings ascribed to them in the Contract.

3. OBLIGATIONS AND ACTIVITIES OF BUSINESS ASSOCIATE

a. Permitted Uses and Disclosures.

i. Business Associate shall use and disclose PHI only to accomplish Business Associate's obligations under the Contract.

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i. To the extent Business Associate carries out one or more of Covered Entity's obligations under Subpart E of 45 C.F.R. Part 164, Business Associate shall comply with any and all requirements of Subpart E that apply to Covered Entity in the performance of such obligation.

ii. Business Associate may disclose PHI to carry out the legal responsibilities of Business Associate, provided, that the disclosure is Required by Law or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that:

A. the information will remain confidential and will be used or disclosed only as Required by Law or for the purpose for which Business Associate originally disclosed the information to that person, and;

B. the person notifies Business Associate of any Breach involving PHI of which it is aware.

iii. Business Associate may provide Data Aggregation services relating to the Health Care Operations of Covered Entity. Business Associate may de-identify any or all PHI created or received by Business Associate under this Agreement, provided the de-identification conforms to the requirements of the HIPAA Rules.

b. Minimum Necessary. Business Associate, its Subcontractors and agents, shall access, use, and disclose only the minimum amount of PHI necessary to accomplish the objectives of the Contract, in accordance with the Minimum Necessary Requirements of the HIPAA Rules including, but not limited to, 45 C.F.R. 164.502(b) and 164.514(d).

c. Impermissible Uses and Disclosures.

i. Business Associate shall not disclose the PHI of Covered Entity to another covered entity without the written authorization of Covered Entity.

ii. Business Associate shall not share, use, disclose or make available any Covered Entity PHI in any form via any medium with or to any person or entity beyond the boundaries or jurisdiction of the United States without express written authorization from Covered Entity.

d. Business Associate's Subcontractors.

i. Business Associate shall, in accordance with 45 C.F.R. 164.502(e)(1)(ii) and 164.308(b)(2), ensure that any Subcontractors who create, receive, maintain, or transmit PHI on behalf of Business Associate agree in writing to the same restrictions, conditions, and requirements that apply to Business Associate with respect to safeguarding PHI.

ii. Business Associate shall provide to Covered Entity, on Covered Entity's request, a list of Subcontractors who have entered into any such agreement with Business Associate.

iii. Business Associate shall provide to Covered Entity, on Covered Entity's request, copies of any such agreements Business Associate has entered into with Subcontractors.

e. Access to System. If Business Associate needs access to a Covered Entity Information Technology system to comply with its obligations under the Contract or this Agreement, Business Associate shall request, review, and comply with any and all policies applicable to Covered Entity regarding such

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system including, but not limited to, any policies promulgated by the Office of Information Technology and available at http://oit.state.co.us/about/policies.

f. Access to PHI. Business Associate shall, within ten days of receiving a written request from Covered Entity, make available PHI in a Designated Record Set to Covered Entity as necessary to satisfy Covered Entity's obligations under 45 C.F.R. 164.524.

g. Amendment of PHI.

i. Business Associate shall within ten days of receiving a written request from Covered Entity make any amendment to PHI in a Designated Record Set as directed by or agreed to by Covered Entity pursuant to 45 C.F.R. 164.526, or take other measures as necessary to satisfy Covered Entity's obligations under 45 C.F.R. 164.526.

ii. Business Associate shall promptly forward to Covered Entity any request for amendment of PHI that Business Associate receives directly from an Individual.

h. Accounting Rights. Business Associate shall, within ten days of receiving a written request from Covered Entity, maintain and make available to Covered Entity the information necessary for Covered Entity to satisfy its obligations to provide an accounting of Disclosure under 45 C.F.R. 164.528.

i. Restrictions and Confidential Communications.

i. Business Associate shall restrict the Use or Disclosure of an Individual's PHI within ten days of notice from Covered Entity of:

A. a restriction on Use or Disclosure of PHI pursuant to 45 C.F.R. 164.522; or

B. a request for confidential communication of PHI pursuant to 45 C.F.R. 164.522.

ii. Business Associate shall not respond directly to an Individual's requests to restrict the Use or Disclosure of PHI or to send all communication of PHI to an alternate address.

iii. Business Associate shall refer such requests to Covered Entity so that Covered Entity can coordinate and prepare a timely response to the requesting Individual and provide direction to Business Associate.

j. Governmental Access to Records. Business Associate shall make its facilities, internal practices, books, records, and other sources of information, including PHI, available to the Secretary for purposes of determining compliance with the HIPAA Rules in accordance with 45 C.F.R. 160.310.

k. Audit, Inspection and Enforcement.

i. Business Associate shall obtain and update at least annually a written assessment performed by an independent third party reasonably acceptable to Covered Entity, which evaluates the Information Security of the applications, infrastructure, and processes that interact with the Covered Entity data Business Associate receives, manipulates, stores and distributes. Upon request by Covered Entity, Business Associate shall provide to Covered Entity the executive summary of the assessment.

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ii. Business Associate, upon the request of Covered Entity, shall fully cooperate with Covered Entity's efforts to audit Business Associate's compliance with applicable HIPAA Rules. If, through audit or inspection, Covered Entity determines that Business Associate's conduct would result in violation of the HIPAA Rules or is in violation of the Contract or this Agreement, Business Associate shall promptly remedy any such violation and shall certify completion of its remedy in writing to Covered Entity.

l. Appropriate Safeguards.

i. Business Associate shall use appropriate safeguards and comply with Subpart C of 45 C.F.R. Part 164 with respect to electronic PHI to prevent use or disclosure of PHI other than as provided in this Agreement.

ii. Business Associate shall safeguard the PHI from tampering and unauthorized disclosures.

iii. Business Associate shall maintain the confidentiality of passwords and other data required for accessing this information.

iv. Business Associate shall extend protection beyond the initial information obtained from Covered Entity to any databases or collections of PHI containing information derived from the PHI. The provisions of this section shall be in force unless PHI is de-identified in conformance to the requirements of the HIPAA Rules.

m. Safeguard During Transmission.

i. Business Associate shall use reasonable and appropriate safeguards including, without limitation, Information Security measures to ensure that all transmissions of PHI are authorized and to prevent use or disclosure of PHI other than as provided for by this Agreement.

ii. Business Associate shall not transmit PHI over the internet or any other insecure or open communication channel unless the PHI is encrypted or otherwise safeguarded with a FIPS-compliant encryption algorithm.

n. Reporting of Improper Use or Disclosure and Notification of Breach.

i. Business Associate shall, as soon as reasonably possible, but immediately after discovery of a Breach, notify Covered Entity of any use or disclosure of PHI not provided for by this Agreement, including a Breach of Unsecured Protected Health Information as such notice is required by 45 C.F.R. 164.410 or a breach for which notice is required under §24-73-103, C.R.S.

ii. Such notice shall include the identification of each Individual whose Unsecured Protected Health Information has been, or is reasonably believed by Business Associate to have been, accessed, acquired, or disclosed during such Breach.

iii. Business Associate shall, as soon as reasonably possible, but immediately after discovery of any Security Incident that does not constitute a Breach, notify Covered Entity of such incident.

iv. Business Associate shall have the burden of demonstrating that all notifications were made as required, including evidence demonstrating the necessity of any delay.

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o. Business Associate's Insurance and Notification Costs.

i. Business Associate shall bear all costs of a Breach response including, without limitation, notifications, and shall maintain insurance to cover:

A. loss of PHI data;

B. Breach notification requirements specified in HIPAA Rules and in §24-73-103, C.R.S.; and

C. claims based upon alleged violations of privacy rights through improper use or disclosure of PHI.

ii. All such policies shall meet or exceed the minimum insurance requirements of the Contract or otherwise as may be approved by Covered Entity (e.g., occurrence basis, combined single dollar limits, annual aggregate dollar limits, additional insured status, and notice of cancellation).

iii. Business Associate shall provide Covered Entity a point of contact who possesses relevant Information Security knowledge and is accessible 24 hours per day, 7 days per week to assist with incident handling.

iv. Business Associate, to the extent practicable, shall mitigate any harmful effect known to Business Associate of a Use or Disclosure of PHI by Business Associate in violation of this Agreement.

p. Subcontractors and Breaches.

i. Business Associate shall enter into a written agreement with each of its Subcontractors and agents, who create, receive, maintain, or transmit PHI on behalf of Business Associate. The agreements shall require such Subcontractors and agents to report to Business Associate any use or disclosure of PHI not provided for by this Agreement, including Security Incidents and Breaches of Unsecured Protected Health Information, on the first day such Subcontractor or agent knows or should have known of the Breach as required by 45 C.F.R. 164.410.

ii. Business Associate shall notify Covered Entity of any such report and shall provide copies of any such agreements to Covered Entity on request.

q. Data Ownership.

i. Business Associate acknowledges that Business Associate has no ownership rights with respect to the PHI.

ii. Upon request by Covered Entity, Business Associate immediately shall provide Covered Entity with any keys to decrypt information that the Business Association has encrypted and maintains in encrypted form, or shall provide such information in unencrypted usable form.

r. Retention of PHI. Except upon termination of this Agreement as provided in Section 5 below, Business Associate and its Subcontractors or agents shall retain all PHI throughout the term of this Agreement,

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and shall continue to maintain the accounting of disclosures required under Section 3.h above, for a period of six years.

4. OBLIGATIONS OF COVERED ENTITY

a. Safeguards During Transmission. Covered Entity shall be responsible for using appropriate safeguards including encryption of PHI, to maintain and ensure the confidentiality, integrity, and security of PHI transmitted pursuant to this Agreement, in accordance with the standards and requirements of the HIPAA Rules.

b. Notice of Changes.

i. Covered Entity maintains a copy of its Notice of Privacy Practices on its website. Covered Entity shall provide Business Associate with any changes in, or revocation of, permission to use or disclose PHI, to the extent that it may affect Business Associate's permitted or required uses or disclosures.

ii. Covered Entity shall notify Business Associate of any restriction on the use or disclosure of PHI to which Covered Entity has agreed in accordance with 45 C.F.R. 164.522, to the extent that it may affect Business Associate's permitted use or disclosure of PHI.

5. TERMINATION

a. Breach.

i. In addition to any Contract provision regarding remedies for breach, Covered Entity shall have the right, in the event of a breach by Business Associate of any provision of this Agreement, to terminate immediately the Contract, or this Agreement, or both.

ii. Subject to any directions from Covered Entity, upon termination of the Contract, this Agreement, or both, Business Associate shall take timely, reasonable, and necessary action to protect and preserve property in the possession of Business Associate in which Covered Entity has an interest.

b. Effect of Termination.

i. Upon termination of this Agreement for any reason, Business Associate, at the option of Covered Entity, shall return or destroy all PHI that Business Associate, its agents, or its Subcontractors maintain in any form, and shall not retain any copies of such PHI.

ii. If Covered Entity directs Business Associate to destroy the PHI, Business Associate shall certify in writing to Covered Entity that such PHI has been destroyed.

iii. If Business Associate believes that returning or destroying the PHI is not feasible, Business Associate shall promptly provide Covered Entity with notice of the conditions making return or destruction infeasible. Business Associate shall continue to extend the protections of Section 3 of this Agreement to such PHI, and shall limit further use of such PHI to those purposes that make the return or destruction of such PHI infeasible.

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6. INJUNCTIVE RELIEF

Covered Entity and Business Associate agree that irreparable damage would occur in the event Business Associate or any of its Subcontractors or agents use or disclosure of PHI in violation of this Agreement, the HIPAA Rules or any applicable law. Covered Entity and Business Associate further agree that money damages would not provide an adequate remedy for such Breach. Accordingly, Covered Entity and Business Associate agree that Covered Entity shall be entitled to injunctive relief, specific performance, and other equitable relief to prevent or restrain any Breach or threatened Breach of and to enforce specifically the terms and provisions of this Agreement.

7. LIMITATION OF LIABILITY

Any provision in the Contract limiting Contractor's liability shall not apply to Business Associate's liability under this Agreement, which shall not be limited.

8. DISCLAIMER

Covered Entity makes no warranty or representation that compliance by Business Associate with this Agreement or the HIPAA Rules will be adequate or satisfactory for Business Associate's own purposes. Business Associate is solely responsible for all decisions made and actions taken by Business Associate regarding the safeguarding of PHI.

9. CERTIFICATION

Covered Entity has a legal obligation under HIPAA Rules to certify as to Business Associate's Information Security practices. Covered Entity or its authorized agent or contractor shall have the right to examine Business Associate's facilities, systems, procedures, and records, at Covered Entity's expense, if Covered Entity determines that examination is necessary to certify that Business Associate's Information Security safeguards comply with the HIPAA Rules or this Agreement.

10. AMENDMENT

a. Amendment to Comply with Law. The Parties acknowledge that state and federal laws and regulations relating to data security and privacy are rapidly evolving and that amendment of this Agreement may be required to provide procedures to ensure compliance with such developments.

i. In the event of any change to state or federal laws and regulations relating to data security and privacy affecting this Agreement, the Parties shall take such action as is necessary to implement the changes to the standards and requirements of HIPAA, the HIPAA Rules and other applicable rules relating to the confidentiality, integrity, availability and security of PHI with respect to this Agreement.

ii. Business Associate shall provide to Covered Entity written assurance satisfactory to Covered Entity that Business Associate shall adequately safeguard all PHI, and obtain written assurance satisfactory to Covered Entity from Business Associate's Subcontractors and agents that they shall adequately safeguard all PHI.

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iii. Upon the request of either Party, the other Party promptly shall negotiate in good faith the terms of an amendment to the Contract embodying written assurances consistent with the standards and requirements of HIPAA, the HIPAA Rules, or other applicable rules.

iv. Covered Entity may terminate this Agreement upon 30 days' prior written notice in the event that:

A. Business Associate does not promptly enter into negotiations to amend the Contract and this Agreement when requested by Covered Entity pursuant to this Section; or

B. Business Associate does not enter into an amendment to the Contract and this Agreement, which provides assurances regarding the safeguarding of PHI sufficient, in Covered Entity's sole discretion, to satisfy the standards and requirements of the HIPAA, the HIPAA Rules and applicable law.

b. Amendment of Appendix. The Appendix to this Agreement may be modified or amended by the mutual written agreement of the Parties, without amendment of this Agreement. Any modified or amended Appendix agreed to in writing by the Parties shall supersede and replace any prior version of the Appendix.

11. ASSISTANCE IN LITIGATION OR ADMINISTRATIVE PROCEEDINGS

Covered Entity shall provide written notice to Business Associate if litigation or administrative proceeding is commenced against Covered Entity, its directors, officers, or employees, based on a claimed violation by Business Associate of HIPAA, the HIPAA Rules or other laws relating to security and privacy or PHI. Upon receipt of such notice and to the extent requested by Covered Entity, Business Associate shall, and shall cause its employees, Subcontractors, or agents assisting Business Associate in the performance of its obligations under the Contract to, assist Covered Entity in the defense of such litigation or proceedings. Business Associate shall, and shall cause its employees, Subcontractor's and agents to, provide assistance, to Covered Entity, which may include testifying as a witness at such proceedings. Business Associate or any of its employees, Subcontractors or agents shall not be required to provide such assistance if Business Associate is a named adverse party.

12. INTERPRETATION AND ORDER OF PRECEDENCE

Any ambiguity in this Agreement shall be resolved in favor of a meaning that complies and is consistent with the HIPAA Rules. In the event of an inconsistency between the Contract and this Agreement, this Agreement shall control. This Agreement supersedes and replaces any previous, separately executed HIPAA business associate agreement between the Parties.

13. SURVIVAL

Provisions of this Agreement requiring continued performance, compliance, or effect after termination shall survive termination of this contract or this agreement and shall be enforceable by Covered Entity.

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APPENDIX TO HIPAA BUSINESS ASSOCIATE AGREEMENT

This Appendix ("Appendix") to the HIPAA Business Associate Agreement ("Agreement") is s an appendix to the Contract and the Agreement. For the purposes of this Appendix, defined terms shall have the meanings ascribed to them in the Agreement and the Contract.

Unless the context clearly requires a distinction between the Contract, the Agreement, and this Appendix, all references to "Contract" or "Agreement" shall include this Appendix.

1. PURPOSE

This Appendix sets forth additional terms to the Agreement. Any sub-section of this Appendix marked as "Reserved" shall be construed as setting forth no additional terms.

2. ADDITIONAL TERMS

a. Additional Permitted Uses. In addition to those purposes set forth in the Agreement, Business Associate may use PHI for the following additional purposes:

    i. Reserved.

b. Additional Permitted Disclosures. In addition to those purposes set forth in the Agreement, Business Associate may disclose PHI for the following additional purposes:

    i. Reserved.

c. Approved Subcontractors. Covered Entity agrees that the following Subcontractors or agents of Business Associate may receive PHI under the Agreement:

    i. Reserved.

d. Definition of Receipt of PHI. Business Associate's receipt of PHI under this Contract shall be deemed to occur, and Business Associate's obligations under the Agreement shall commence, as follows:

    i. Reserved.

e. Additional Restrictions on Business Associate. Business Associate agrees to comply with the following additional restrictions on Business Associate's use and disclosure of PHI under the Contract:

    i. Reserved.

f. Additional Terms. Business Associate agrees to comply with the following additional terms under the Agreement:

    i. Reserved.

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EXHIBIT E, INFORMATION TECHNOLOGY PROVISIONS

This Exhibit regarding **Information Technology Provisions** (the "Exhibit") is an essential part of the agreement between the State and Contractor as described in the Contract to which this Exhibit is attached. Unless the context clearly requires a distinction between the Contract and this Exhibit, all references to "Contract" shall include this Exhibit.

1. PROTECTION OF SYSTEM DATA

A. In addition to the requirements of the main body of this Contract, if Contractor or any Subcontractor is given access to State Information Technology resources or State Records by the State or its agents in connection with Contractor's performance under the Contract, Contractor shall protect such Information Technology resources and State Records in accordance with this Exhibit. All provisions of this Exhibit that refer to Contractor shall apply equally to any Subcontractor performing work in connection with the Contract.

B. The terms of this Exhibit shall apply to the extent that Contractor's obligations under this Contract include the provision of Information Technology goods or services to the State. Information Technology is computer-based equipment and related services designed for the storage, manipulation, and retrieval of data, and includes, without limitation:

i. Any technology, equipment, or related services described in §24-37.5-102(2), C.R.S.;

ii. The creation, use, processing, disclosure, transmission, or disposal of State Records, including any data or code, in electronic form; and

iii. Other existing or emerging technology, equipment, or related services that may require knowledge and expertise in Information Technology.

C. Contractor shall, and shall cause its Subcontractors to meet all of the following:

i. Provide physical and logical protection for all hardware, software, applications, and data that meets or exceeds industry standards and the requirements of this Contract.

ii. Maintain network, system, and application security, which includes, but is not limited to, network firewalls, intrusion detection (host and network), annual security testing, and improvements or enhancements consistent with evolving industry standards.

iii. Comply with State and federal rules and regulations related to overall security, privacy, confidentiality, integrity, availability, and auditing.

iv. Provide that security is not compromised by unauthorized access to workspaces, computers, networks, software, databases, or other physical or electronic environments.

v. Promptly report all Incidents, including Incidents that do not result in unauthorized disclosure or loss of data integrity, to a designated representative of the State's Office of Information Security ("OIS").

vi. Comply with all rules, policies, procedures, and standards issued by the Governor's Office of Information Technology ("OIT"), including change

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management, project lifecycle methodology and governance, technical standards, documentation, and other requirements posted at www.oit.state.co.us/about/policies.

D. Subject to Contractor's reasonable access security requirements and upon reasonable prior notice, Contractor shall provide the State with scheduled access for the purpose of inspecting and monitoring access and use of State Records, maintaining State systems, and evaluating physical and logical security control effectiveness.

E. Contractor shall perform current background checks in a form reasonably acceptable to the State on all of its respective employees and agents performing services or having access to State Records provided under this Contract, including any Subcontractors or the employees of Subcontractors. A background check performed within 30 days prior to the date such employee or agent begins performance or obtains access to State Records shall be deemed to be current.

i. Upon request, Contractor shall provide notice to a designated representative for the State indicating that background checks have been performed. Such notice will inform the State of any action taken in response to such background checks, including any decisions not to take action in response to negative information revealed by a background check.

ii. If Contractor will have access to Federal Tax Information under the Contract, Contractor shall agree to the State's requirements regarding Safeguarding Requirements for Federal Tax Information and shall comply with the background check requirements defined in IRS Publication 1075 and §24-50-1002, C.R.S.

2. DATA HANDLING

A. Contractor may not maintain or forward these State Records to or from any other facility or location, except for the authorized and approved purposes of backup and disaster recovery purposes, without the prior written consent of the State. Contractor may not maintain State Records in any data center or other storage location outside the United States for any purpose without the prior express written consent of OIS.

B. Contractor shall not allow remote access to State Records from outside the United States, including access by Contractor's employees or agents, without the prior express written consent of OIS. Contractor shall communicate any request regarding non-U.S. access to State Records to the Security and Compliance Representative for the State. The State shall have sole discretion to grant or deny any such request.

C. Upon request by the State made any time prior to 60 days following the termination of this Contract for any reason, whether or not the Contract is expiring or terminating, Contractor shall make available to the State a complete download file of all State data.

i. This download file shall be made available to the State within 10 Business Days of the State's request, shall be encrypted and appropriately authenticated, and shall contain, without limitation, all State Records, Work Product, and system

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schema and transformation definitions, or delimited text files with documents, detailed schema definitions along with attachments in its native format.

ii. Upon the termination of Contractor's provision of data processing services, Contractor shall, as directed by the State, return all State Records provided by the State to Contractor, and the copies thereof, to the State or destroy all such State Records and certify to the State that it has done so. If any legal obligation imposed upon Contractor prevents it from returning or destroying all or part of the State Records provided by the State to Contractor, Contractor shall guarantee the confidentiality of all State Records provided by the State to Contractor and will not actively process such data anymore. Contractor shall not interrupt or obstruct the State's ability to access and retrieve State Records stored by Contractor.

D. The State retains the right to use the established operational services to access and retrieve State Records stored on Contractor's infrastructure at its sole discretion and at any time. Upon request of the State or of the supervisory authority, Contractor shall submit its data processing facilities for an audit of the measures referred to in this Exhibit in accordance with the terms of this Contract.

3. DELIVERY AND ACCEPTANCE

A. Contractor shall provide and maintain a quality assurance system acceptable to the State for any Work or Deliverables under this Contract and shall provide to the State only such Work or Deliverables that have been inspected and found to conform to the specifications identified in this Contract and any applicable solicitation, bid, offer, or proposal from which this Contract results.

B. Contractor's delivery of any Work or Deliverables to the State shall constitute certification that such Work or Deliverable has been determined to conform to the applicable specifications, and Contractor shall make records of such quality assurance available to the State upon request during the term of the Contract or at any time within three years following expiration or termination of the Contract.

C. For any Work or Deliverables other than the purchase or license of commercially available goods or software, acceptance of the Work or Deliverable shall require affirmative written communication from the State to the Contractor that such Work or Deliverable has been accepted by the State. Such communication shall be provided within a reasonable time period from the delivery of the Work or Deliverable and shall not be unreasonably delayed or withheld. Acceptance by the State shall be final, except in cases of Contractor's failure to conduct proper quality assurance, latent defects that could not reasonably have been detected upon delivery, or Contractor's gross negligence or willful misconduct.

4. WARRANTY

A. Notwithstanding the acceptance of any Work or Deliverable, or the payment of any invoice for such Work or Deliverable, Contractor warrants that any Work or Deliverable provided by Contractor under this Contract shall be free from material defects and shall function in material accordance with the applicable specifications. Contractor warrants that any Work or Deliverable shall be, at the time of delivery, free from any harmful or

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malicious code, including without limitation viruses, malware, spyware, ransomware, or other similar function designed to interfere with or damage the normal operation of Information Technology resources. Contractor's warranties under this section shall apply to any defects or material nonconformities discovered within 180 days following delivery of any Work or Deliverable.

B. Upon notice during the warranty term of any defect or material nonconformity, Contractor shall submit to the State in writing within 10 business days of the notice one or more recommendations for corrective action with sufficient documentation for the State to ascertain the feasibility, risks, and impacts of each recommendation. The State's remedy for such defect or material non-conformity shall be:

i. Contractor shall re-perform, repair, or replace such Work or Deliverable in accordance with any recommendation chosen by the State. Contractor shall deliver, at no additional cost to the State, all documentation required under the Contract as applicable to the corrected Work or Deliverable; or

ii. Contractor shall refund to the State all amounts paid for such Work or Deliverable, as well as pay to the State any additional amounts reasonably necessary for the State to procure alternative goods or services of substantially equivalent capability, function, and performance.

C. Any Work or Deliverable delivered to the State as a remedy under this section shall be subject to the same quality assurance, acceptance, and warranty requirements as the original Work or Deliverable. The duration of the warranty for any replacement or corrected Work or Deliverable shall run from the date of the corrected or replacement Work or Deliverable.

5. COMPLIANCE

A. In addition to the compliance obligations imposed by the main body of the Contract, Contractor shall comply with:

i. All Colorado Office of Information Security (OIS) policies and procedures which OIS has issued pursuant to §§24-37.5-401 through 406, C.R.S. and 8 CCR §1501-5 and posted at http://oit.state.co.us/ois

ii. All information security and privacy obligations imposed by any federal, state, or local statute or regulation, or by any specifically incorporated industry standards or guidelines, as applicable based on the classification of the data relevant to Contractor's performance under the Contract. Such obligations may arise from:

a. Health Information Portability and Accountability Act (HIPAA)

b. IRS Publication 1075

c. Payment Card Industry Data Security Standard (PCI-DSS)

d. FBI Criminal Justice Information Service Security Addendum

e. CMS Minimum Acceptable Risk Standards for Exchanges

f. Electronic Information Exchange Security Requirements and Procedures For State and Local Agencies Exchanging Electronic Information With

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iii. Contractor shall comply with and adhere to Section 508 of the U.S. Rehabilitation Act of 1973, as amended, and §§24-85-101, et seq., C.R.S. Contractor shall comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards and available at https://www.w3.org/TR/WCAG21/.

B. Contractor shall implement and maintain all appropriate administrative, physical, technical, and procedural safeguards necessary and appropriate to ensure compliance with the standards and guidelines applicable to Contractor's performance under the Contract.

C. Contractor shall allow the State reasonable access and shall provide the State with information reasonably required to assess Contractor's compliance. Such access and information shall include:

i. An annual SOC2 Type II audit including, at a minimum, the Trust Principles of Security, Confidentiality, and Availability, or an alternative audit recommended by OIS; or

ii. The performance of security audit and penetration tests, as requested by OIS.

D. To the extent Contractor controls or maintains information systems used in connection with State Records, Contractor will provide OIS with the results of all security assessment activities when conducted on such information systems, including any code-level vulnerability scans, application level risk assessments, and other security assessment activities as required by this Contract or reasonably requested by OIS. Contractor will make reasonable efforts to remediate any vulnerabilities or will request a security exception from the State. The State will work with Contractor and OIS to prepare any requests for exceptions from the security requirements described in this Contract and its Exhibits, including mitigating controls and other factors, and OIS will consider such requests in accordance with their policies and procedures referenced herein.

6. TRANSITION OF SERVICES

Upon request by the State prior to expiration or earlier termination of this Contract or any Services provided in this Contract, Contractor shall provide reasonable and necessary assistance to accomplish a complete transition of the Services from Contractor to the State or any replacement provider designated solely by the State without any interruption of or adverse impact on the Services. Contractor shall cooperate fully with the State or any successor provider and shall promptly take all steps required to assist in effecting a complete transition of the Services designated by the State. All services related to such transition shall be performed at no additional cost beyond what would be paid for the Services in this Contract.

7. LICENSE OR USE AUDIT RIGHTS

A. To the extent that Contractor, through this Contract or otherwise as related to the subject matter of this Contract, has granted to the State any license or otherwise limited permission to use any Contractor Property, the terms of this section shall apply.

B. Contractor shall have the right, at any time during and throughout the Contract Term, but

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not more than once per Fiscal Year, to request via written notice in accordance with the notice provisions of the Contract that the State audit its use of and certify as to its compliance with any applicable license or use restrictions and limitations contained in this Contract (an "Audit Request"). The Audit Request shall specify the time period to be covered by the audit, which shall not include any time periods covered by a previous audit. The State shall complete the audit and provide certification of its compliance to Contractor ("Audit Certification") within 120 days following the State's receipt of the Audit Request.

C. If upon receipt of the State's Audit Certification, the Parties reasonably determine that: (i) the State's use of licenses, use of software, use of programs, or any other use during the audit period exceeded the use restrictions and limitations contained in this Contract ("Overuse") and (ii) the State would have been or is then required to purchase additional maintenance and/or services ("Maintenance"), Contractor shall provide written notice to the State in accordance with the notice provisions of the Contract identifying any Overuse or required Maintenance and request that the State bring its use into compliance with such use restrictions and limitations.

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EXHIBIT E.1 TO EXHIBIT E, SAFEGUARDING REQUIREMENTS FOR FEDERAL TAX INFORMATION

This Addendum regarding Safeguarding Requirements for Federal Tax Information ("Addendum")[1] is an essential part of the agreement between the State and Contractor as described in the Contract to which this Addendum is attached. Unless the context clearly requires a distinction between the Contract and this Addendum, all references to "Contract" shall include this Addendum.

1. PERFORMANCE

In performance of this Contract, the Contractor agrees to comply with and assume responsibility for compliance by Contractor's employees with the following requirements:

1.1. All work will be done under the supervision of the Contractor or the Contractor's employees.

1.2. The Contractor and the Contractor's employees with access to or who use FTI must meet the background check requirements defined in IRS Publication 1075 and Colorado Revised Statutes 24-50-1002.

1.3. Any return or return information made available in any format shall be used only for the purpose of carrying out the provisions of this Contract. Information contained in such material will be treated as confidential and will not be divulged or made known in any manner to any person except as may be necessary in the performance of this Contract. Disclosure to anyone other than an officer or employee of the Contractor will be prohibited.

1.4. All returns and return information will be accounted for upon receipt and properly stored before, during, and after processing. In addition, all related output will be given the same level of protection as required for the source material.

1.5. The Contractor certifies that the data processed during the performance of this Contract will be completely purged from all data storage components of Contractor's computer facility, and no output will be retained by the Contractor at the time the work is completed. If immediate purging of all data storage components is not possible, the Contractor certifies that any FTI remaining in any storage component will be safeguarded to prevent unauthorized disclosures.

1.6. Any spoilage or any intermediate hard copy printout that may result during the processing of FTI will be given to the State or the State's designee. When this is not possible, the Contractor will be responsible for the destruction of the spoilage or any intermediate hard copy printouts, and will provide the State or the State's designee with a statement containing the date of destruction, description of material destroyed, and the method used.

[1] The language of this Addendum is derived from IRS Publication 1075, *Tax Information Security Guidelines For Federal, State and Local Agencies,* Exhibit 7 – Safeguarding Contract Language, "Contract Language for Technology Services." This Addendum is not exhaustive of all requirements contained in Publication 1075. By agreeing to this Addendum, Contractor agrees to comply with all applicable requirements in Publication 1075 or described on the website of the IRS Safeguards Program, located at www.irs.gov/privacy-disclosure/safeguards-program.

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1.7. All computer systems receiving, processing, storing or transmitting FTI must meet the requirements defined in IRS Publication 1075. To meet functional and assurance requirements, the security features of the environment must provide for the managerial, operational, and technical controls. All security features must be available and activated to protect against unauthorized use of and access to FTI.

1.8. No work involving FTI furnished under this Contract will be subcontracted without prior written approval of the State, by and through the contracting agency and the Office of Information Technology, and the IRS.[2]

1.9. The Contractor will maintain a list of employees' authorized access. Such list will be provided to the State and, upon request, to the IRS reviewing office.

1.10. The Contractor will not use live FTI in a test environment or utilize a cloud computing model that receives processes, stores, or transmits FTI without express written authorization from the State.[3]

1.11. The Contractor will maintain the confidentiality of all taxpayer information provided by the State or learned in the course of Contractor's duties under this Contract in accordance with safeguards set forth under Colorado Revised Statutes § 39-21-113(4), as amended.

1.12. The Contractor agrees to comply with the following additional requirements in performance of this Contract:

None

1.13. The State will have the right to void the Contract if the Contractor fails to provide the safeguards described above.

2. CRIMINAL/CIVIL SANCTIONS

2.1. Each officer or employee of any person[4] to whom returns or return information is or may be disclosed will be notified in writing by such person that returns or return information disclosed to such officer or employee can be used only for a purpose and to the extent authorized herein, and that further disclosure of any such returns or return information for a purpose or to an extent unauthorized herein constitutes a felony punishable upon conviction by a fine of as much as $5,000 or imprisonment for as long as 5 years, or both, together with the costs of prosecution. Such person shall also notify each such officer and employee that any such unauthorized further disclosure of returns or return information may also result in an award of civil damages against the officer or employee in an amount not less than $1,000 with respect to each instance of unauthorized disclosure. These penalties are prescribed by IRCs 7213 and 7431 and set forth at 26 CFR 301.6103(n)-1.

2.2. Each officer or employee of any person to whom returns or return information is or may be disclosed shall be notified in writing by such person that any return or return information made available in any format shall be used only for the purpose of carrying out the provisions of this Contract. Information

[2] *see* IRS Publication 1075, Exhibit 6 – Contractor 45-Day Notification Procedures.
[3] *see* IRS Publication 1075, Section 9 and https://www.irs.gov/privacy-disclosure/use-of-live-fti-in-system-testing .
[4] The term "person" is used in this Section 2 as it is used in Title 26 of the United States Code and related regulations. The term "person" means a person or entity, including "an individual, a trust, estate, partnership, association, company or corporation." 26 U.S.C. § 7701(a)(1).

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contained in such material shall be treated as confidential and shall not be divulged or made known in any manner to any person except as may be necessary in the performance of the Contract. Inspection by or disclosure to anyone without an official need to know constitutes a criminal misdemeanor punishable upon conviction by a fine of as much as $1,000 or imprisonment for as long as 1 year, or both, together with the costs of prosecution. Such person shall also notify each such officer and employee that any such unauthorized inspection or disclosure of returns or return information may also result in an award of civil damages against the officer or employee in an amount equal to the sum of the greater of $1,000 for each act of unauthorized inspection or disclosure with respect to which such defendant is found liable or the sum of the actual damages sustained by the plaintiff as a result of such unauthorized inspection or disclosure plus in the case of a willful inspection or disclosure which is the result of gross negligence, punitive damages, plus the costs of the action. These penalties are prescribed by IRC 7213A and 7431 and set forth at 26 CFR 301.6103(n)-1.

2.3. Additionally, Contractor shall inform its officers and employees of the penalties for improper disclosure imposed by the Privacy Act of 1974, 5 U.S.C. 552a. Specifically, 5 U.S.C. 552a(i)(1), which is made applicable to Contractor by 5 U.S.C. 552a(m)(1), provides that any officer or employee of a Contractor, who by virtue of his/her employment or official position, has possession of or access to State records which contain individually identifiable information, the disclosure of which is prohibited by the Privacy Act or regulations established thereunder, and who knowing that disclosure of the specific material is prohibited, willfully discloses the material in any manner to any person or agency not entitled to receive it, shall be guilty of a misdemeanor and fined not more than $5,000.

2.4. Granting a Contractor access to FTI must be preceded by certifying that each individual understands the State's security policy and procedures for safeguarding FTI. Contractors must maintain their authorization to access FTI through annual recertification. The initial certification and recertification must be documented and placed in the State's files for review. As part of the certification and at least annually afterwards, Contractors must be advised of the provisions of IRCs 7431, 7213, and 7213A (see *Exhibit 4, Sanctions for Unauthorized Disclosure*, and *Exhibit 5, Civil Damages for Unauthorized Disclosure*). The training provided before the initial certification and annually thereafter must also cover the incident response policy and procedure for reporting unauthorized disclosures and data breaches.[5] For both the initial certification and the annual certification, the Contractor must sign, either with ink or electronic signature, a confidentiality statement certifying their understanding of the security requirements.

3. INSPECTION

The IRS and the State, with 24-hour notice, shall have the right to send its inspectors into the offices and plants of the Contractor to inspect facilities and operations performing any work with FTI under this Contract for compliance with requirements defined in IRS Publication 1075. The IRS's right of inspection shall include the use of manual and/or automated scanning tools to perform compliance and vulnerability assessments of information technology (IT) assets that access, store, process, or transmit FTI. On the basis of such inspection, corrective actions may be required in cases where the Contractor is found to be noncompliant with Contract safeguards.

[5] *see* IRS Publication 1075, Section 10 or www.irs.gov/privacy-disclosure/reporting-improper-inspections-or-disclosures.

OKLAHOMA NASPO VALUEPOINT MASTER AGREEMENT AWARD FOR PUBLIC SAFETY VIDEO EQUIPMENT

(Body Worn Video, In Car Video, and Related Storage Solutions)

Office of Management and Enterprise Services

Central Purchasing Division

5005 North Lincoln Boulevard

Oklahoma City, OK 73105

And

TASER International, Inc.

17800 North 85th Street

Scottsdale, AZ 85255

Master Agreement Number: OK-MA-145-015

You are hereby notified that your response to Solicitation OK-MA-145, which opened April 20, 2016, is accepted. The following documents, are incorporated herein by reference and constitute the entire Contract between you and the State: 1) A Participating Entity's Participating Addendum ("PA"); 2) This NASPO ValuePoint Master Agreement Award which includes Exhibit A Terms, Conditions and Exhibit B Service Level Agreement and Exhibit C Price and Cost Proposal; 3) The Request for Proposal; and 4) The Contractors response to the Request for Proposal.

NOW, THEREFORE, in consideration of the foregoing and mutual promises set forth herein, the receipt and sufficiency of which are hereby acknowledged the parties have caused this Contract to be duly executed intending to be bound thereby.

STATE OF OKLAHOMA **Office of Management and Enterprise Services**	**CONTRACTOR** **TASER International, Inc.**
By:	By:
Date: 1/25/17	Date: 1/24/17
Title: State Purchasing Director	Title: VP, Sales & Support Ops

Persons signing for Contractor hereby swear and affirm that they are authorized to act on Contractor's behalf and acknowledge that the Lead State is relying on their representations to that effect.

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OKLAHOMA NASPO VALUEPOINT MASTER AGREEMENT AWARD

SUMMARY

1. Scope of Work Defined. The goal of this Master Agreement is to provide State(s) requirements for competitive proposals along with value-added solutions which allow State and Local Governments to easily equip their public safety transportation equipment and employees with the best competitive pricing, cutting edge technology, and superior customer services without the need for individual competitive proposals.

   With the volatile speed of technology designs, growing demands and unique customizable configurations, these bands shall remain flexible and may be redefined during the life of this contract.

   It is the intent upon award to have an offering of Good, Better, and Best to allow for utilization for both small and large public safety organizations.

   Note: the following items will not be included in this contract award: *Body Armor, LED Light Bars, Public Safety Radios, Radar, and Lidar Equipment.* These items are on separate NASPO ValuePoint Master Agreements.

   There are 3 Product Bands included in this Master Agreement. Each band is awarded equally, and end user may purchase from either or all bands referenced.

   BAND 1: Body Worn Video Cameras and Recording Devices

   To include, but not limited to: Mobile Camera and Recording Equipment which is not permanently installed on a fixed surface. This may be attached to a person, mounted on the chest, belt, hat, or glasses etc. Equipment shall be able to capture video from the Officer's perspective and store the recorded video on a secure hosted website, or secure local storage solution.

   BAND 2: Vehicle Mounted Video and Recording Devices

   Includes permanently mounted video equipment. Intended use is for police vehicles, public transit, school buses, and other public safety vehicles. Additional, products can be proposed and available for use by a variety of law enforcement applications, which may also include state police, marine police, corrections, game and inland fisheries, forestry, border surveillance, educational campuses, as well as local fire departments and other emergency first responder needs.

   BAND 3: Video Storage, Data Security, Software, and Peripherals

   This band will include all supporting equipment and/or services for video storage, including Government cloud services or local secured storage systems. Data management tools, software with

related maintenance and/or license fees, related peripherals. Band 3 is not considered to be a hardware category without the purchase of bundled video products and/or accessories.

BAND 4: Intentionally Omitted and while included in the Solicitation OK-MA-145, it is not included in the scope of this Master Agreement.

***** If applicable, each Participating State/Entity is responsible to ensure its own compliance with CJIS security requirements *****

2. Master Agreement Order of Precedence. Any Order placed under this Master Agreement shall consist of the following documents:

(1) Participating Entity's Participating Addendum ("PA")
(2) Oklahoma NASPO Valuepoint Master Agreement Award
    a. Summary
    b. Oklahoma Terms and Conditions
    c. NASPO ValuePoint Master Agreement Terms and Conditions
    d. Service Level Agreement
    e. Price and Cost Proposal
(3) A Purchase Order issued against the Master Agreement
(4) The Solicitation; and
(5) Contractor's response to the Solicitation, including but not limited to Contractor's Terms and Conditons Contained in Response, as revised and accepted by the Lead State.

These documents shall be read to be consistent and complementary. Any conflict among these documents shall be resolved by giving priority to these documents in the order listed above. Contractor terms and conditions that apply to this Master Agreement are only those that are expressly accepted by the Lead State and must be in writing and attached to this Master Agreement as an Exhibit or Attachment.

OKLAHOMA NASPO VALUEPOINT MASTER AGREEMENT AWARD

EXHIBIT A – TERMS AND CONDITIONS

A. GENERAL TERMS, CONDITIONS & INSTRUCTIONS

1. Period of Performance

The initial term of the master agreement shall be 2 (two) years with renewal provisions as outlined in Section 7.3 of the NASPO ValuePoint Master Terms and conditions (Attachment A) which typically extend the original contract period for three (3) additional years.

2. Definitions

"Acceptance" is defined by the applicable commercial code, except Acceptance shall not occur before the completion of delivery in accordance with the Order, installation if required, and a reasonable time for inspection of the Product.

"Addendum" and its plural "Addenda" refer to changes to the contract.

"Amendment(s)" refer to changes made to the original solicitation.

"CJIS" means Criminal Justice Information Services

"Contractor" means the person or entity delivering Products or performing services under the terms and conditions set forth in this Master Agreement.

"Embedded Software" means one or more software applications which permanently reside on a computing device.

"Intellectual Property" means any and all patents, copyrights, service marks, trademarks, trade secrets, trade names, patentable inventions, or other similar proprietary rights, in tangible or intangible form, and all rights, title, and interest therein.

"Lead State" means the State conducting this cooperative procurement, evaluation, and award and centrally administering any resulting Master Agreement(s)

"Market basket" means a representative sample of items which are being sourced and are directly related to volume or dollar amount activity, and to be used as a baseline for evaluation and/or award purposes.

"Master Agreement" means the underlying agreement executed by and between the Lead State, acting on behalf of the NASPO ValuePoint program, and the Contractor, as now or hereafter amended.

"NASPO ValuePoint" is the NASPO Cooperative Purchasing Organization LLC, doing business as NASPO ValuePoint, a 501(c) (3) limited liability company that is a subsidiary organization the National Association of State Procurement Officials (NASPO), the sole member of NASPO ValuePoint. NASPO ValuePoint facilitates administration of the NASPO cooperative group contracting consortium of state chief procurement officials for the benefit of state departments, institutions, agencies, and political subdivisions and other eligible entities (i.e., colleges, school districts, counties, cities, some nonprofit organizations, etc.) for all states and the District of Columbia. NASPO ValuePoint is identified in the Master Agreement as the recipient of reports and may perform contract administration functions relating to collecting and receiving reports as well as other contract administration functions as assigned by the Lead State.

"Order or Purchase Order" means any purchase order, sales order, contract or other document used by a Purchasing Entity to order the Products.

"Participating Addendum" means a bilateral agreement executed by a Contractor and a Participating Entity incorporating this Master Agreement and any other additional Participating Entity specific language or other requirements, e.g. ordering procedures specific to the Participating Entity, other terms and conditions.

"Participating Entity" means a state, or other legal entity, properly authorized to enter into a Participating Addendum.

"Participating State" means a state, the District of Columbia, or one of the territories of the United States that is listed in the Request for Proposal as intending to participate. A Participating State is not required to participate through execution of a Participating Addendum. Upon execution of the Participating Addendum, a Participating State becomes a Participating Entity; however, a Participating State listed in the Request for Proposals is not required to participate through execution of a Participating Addendum.

"Product" means any equipment, software (including embedded software), documentation, service or other deliverable supplied or created by the Contractor pursuant to this Master Agreement. The term Products, supplies and services, and products and services are used interchangeably in these terms and conditions.

"Purchasing Entity" means a state (as well as the District of Columbia and U.S. territories), city, county, district, other political subdivision of a State, and a nonprofit organization under the laws of some states if authorized by a Participating Addendum, who issues a Purchase Order against the Master Agreement and becomes financially committed to the purchase.

"Offeror" means the company or firm who submits a proposal in response to this Request for Proposal.

"Proposal" means the official written response submitted by an Offeror in response to this Request for Proposal.

"Request for Proposals" or "RFP" means the entire solicitation document, including all parts, sections, exhibits, attachments, and Amendments.

3. Certification of Non-Debarment

By submitting a response to this solicitation the prospective primary participant and any other subcontract certifies to the best of their knowledge and belief, that they and their principals or participants:

Participants:

3.1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal, State or local department or agency;

3.2. Have not within a three-year period preceding this proposal been convicted or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) contract; or for violation of Federal or State antitrust statues or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

3.3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses listed above this certification; and

3.4. Have not with a three-year period preceding this application/proposal had one or more public (Federal, State or local) contracts terminated for cause or default.
Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to its solicitation response.

4. Insurance

The Contractor agrees to acquire insurance from an insurance carrier or carriers licensed to conduct business in each Participating Entity's state at the prescribed levels set forth in Section 7.17 of the NASPO ValuePoint Master Agreement Terms and Conditions.

5. Quality Assurance and Warranty Guarantee

Contractor should guarantee its products to be free from defects in materials and workmanship, given normal use and care, over a minimum of the standard manufacturer's warranty period, not less than a 12 month period. Contractor should agree to repair and/or immediately replace without charge (including freight both ways) to Authorized Users any product or part thereof that proves to be defective or fails within the warranty period as specified. Please describe your industry standard warranty.

6. Product Availability

The Lead State should not allow any cancellation of products without an equal and acceptable replacement approved by the Contracting Officer. Contractors should communicate discontinuation of any products to the Contracting Officer in writing within five (5) business days. Contractors shall work with the Contracting Officer to identify and implement alternative options that will maintain or reduce costs associated with the replacements. Contractors should offer suggested replacements of discontinued products at least 30 business days prior to substitution, including replacement product number, description, specifications, and final price.

7. Emergency Product Substitutions and Out of Stock Items

If necessary to complete a shipment on time, Contractor may request a product substitution. The product substituted should be of equal or better quality and/or grade, at no additional cost, and the Authorized User

shall accept the substitution in writing (email is acceptable) prior to delivery. Invoices shall denote all items and quantities as order. Any shorted items shall be noted as "out of stock"

8. Additional Fees

Contractor will not invoice services fees or additional costs to the Authorized Users during the term of the contract. There shall be no small order, minimum order, special order, shipping (Except Rush delivery as specified in Attachment D, Pricing) pallet, or fuel charges or surcharges.

9. Rebates and Special Offers

Contractor shall offer all rebates and special offers (including commercial and consumer offers) in additional to contracted pricing.

10. Disaster Recovery

The State(s) expect the Contractor to have robust disaster recovery capabilities and procedures, to continue service in all aspects of its operations. Contractor shall provide a copy of such plan in response. A more detailed disaster/emergency plan must be completed and approved by the Lead State within thirty (30) days of Contract Award.

In the event of a disaster or other emergency at an Authorized User location, Contractor should provide delivery as soon as possible, or within 24 hours after of receipt of order of the affected facilities, including weekends, except where Contractor's ability to perform is impaired by same disaster or emergency, in which delivery schedule will be mutually agreed upon.

11. Professional and Technical Special Insurance Requirements

Contractors will provide professional and technical, Errors and Omissions, including Network Security and Privacy Liability Insurance, written as a standalone policy or on another form of liability coverage. This policy will provide coverage for all claims the Contractor may face legal obligations to pay resulting from any actual or alleged negligent act, error, or omission related to Contractor professional services required under the contract. Upon award, Supplier is required to carry the following minimum limits:

$2,000,000.00 – per claim or event

$2,000,000.00 – annual aggregate

Any deductible will be the sole responsibility of the Contractor. Date of coverage shall not be after the effective date of this Contract and Contractor shall maintain such insurance for a period of at least three (3) years, following completion of contract. If such insurance is discontinued, extended reporting period coverage must be obtained. Upon notification of award, and within seven (7) days of notification, the awarded vendor(s) must provide a Certificate of Insurance with the coverage and amounts mentioned above. Any contract awarded will not be fully executed until the Certificate of Insurance has been received and

approved by the Lead State. The State(s) reserve the right to rescind the contract award if certificate of insurance has not been received within the required time.

12. Response Time

Contractor should respond to all communications no later than one business day.

13. Delivery Standards

The Contractor should deliver the products by the delivery date specified on any executed Attachment, Appendix, or Order referencing this Agreement. The Contractor should ensure Delivery Date standards are met no less than 97% of the time.

14. Shipping

All hazardous materials should be shipped per all Federal and State regulations. The State(s) are committed to recycling and reuse of packaging materials. Some Authorized Users may also require shrink wrapping. Authorized Users will inform Contractor of any such requirements.

All products should be shipped in a matter which enables the receiver to easily check shipment with the invoice. All individual units of measure (cases, rolls, pallets, etc.) should have a clearly visible "vendor product label" containing the following fields:

a. Manufacturer Product Number
b. Item Description
c. Quantity per Unit of Measure

15. Freight Policy

All shipments should be F.O.B. Destination to the specified location, with inside delivery if requested. Contractor is responsible for filing and expediting all freight claims with the carrier. The Contractor should pay title and risk of loss or damage charges.

16. Invoice Accuracy

Contractor should strive to achieve invoice accuracy of 100% as measured by SKUs ordered.

17. Fill Rate

Contractor should maintain a Fill Rate of 98%. The fill rate is calculated for each Authorized User, dividing line items delivered on time by line items ordered during that month and multiplied by 100 to receive percent (%) rate.

18. Ordering Methods

Each Authorized User will be responsible for placing its own orders, by written purchase order, telephone, fax, and computer online systems.

19. Payment Options

Authorized Users will pay the Contractor by check, electronic funds transfer, or the State(s) authorized P-Card (Government credit card).

20. Invoice Requirements

All invoices should reflect the prices and discounts established for the items on this contract for all orders placed by Authorized Users. Before payment is made, Authorized Users will verify that all invoiced charges are correct per the Contract. Only properly submitted invoices will be officially processed for payment.

21. Return of Product

Any materials delivered in poor condition, in excess of the amount authorized, at the discretion of the Authorized User, will be returned to the Contractor at Contractor's expense within 30 days. Credit for returned goods shall be made immediately upon Contractor's receipt of the returned goods.

Any product which has been returned for failure of performance, the Contractor will, at the Authorized Users discretion, refund all amounts paid to the Contractor for product or replace the product.

Within twenty (20) days of written notification by Authorized User, Contractor should make arrangements for return of the product.

Contractor should bear all shipping and insurance costs.

Contractor should be liable for damages to the product, unless caused by fault or negligence of the Authorized User that occur during the return process.

22. Returns Due to User Error

Contractor should provide for return of unopened items ordered in error for up to thirty (30) calendar days from delivery. All returns of unopened items should be provided free-of-charge as long as scheduled at a normal delivery schedule. Otherwise, Authorized Users should be responsible for all costs associated with the preparation and shipment to Contractor's nearest location. No additional charges are allowed, including restocking fees.

23. Overall Customer Satisfaction

Contractor should develop a plan to conduct a quarterly survey of end users to determine the level of customer service satisfaction experienced by Authorized Users, and should conduct such a survey upon request from the Contracting Officer. Both the raw and analyzed survey results should be provided to the Contracting Officer. The following includes some of the areas to be measured on the survey: Responsiveness, Communication, Courtesy, Competence, Effectiveness, and Overall Satisfaction.

24. Governing Laws and Regulations.

This procurement is conducted by the laws of Oklahoma, in accordance with the Oklahoma Central Purchasing Act. This Act is available to view: www.ok.gov/dcs/central_purchasing/index.html

Venue for any administrative or judicial action relating to this procurement, evaluation, and award shall be in Oklahoma County, Oklahoma. The provisions governing choice of law and venue for issues arising after award and during contract performance are specified in section 7.35 of the NASPO ValuePoint Master Agreement Terms and Conditions.

25. NASPO ValuePoint Administrative Fee and Reporting Requirements

Contractor agrees to pay a NASPO ValuePoint administrative fee as specified Section 7.26 of the NASPO ValuePoint Master Agreement Terms and Conditions. Moreover, specific summary and detailed usage reporting requirements are prescribed by Section 7.27 of NASPO ValuePoint Master Agreement Terms and Conditions.

Contractor shall identify the person responsible for providing the mandatory usage reports. (This information must be kept current during the contract period). Contractor will be required to provide reporting contact within 15 days of Master Agreement execution.

26. NASPO ValuePoint eMarket Center

Contractor agrees to cooperate with NASPO ValuePoint and SciQuest (and any authorized agent or successor entity to SciQuest) to integrate its presence in the NASPO ValuePoint eMarket Center either through an electronic catalog (hosted or punchout site) or unique ordering instructions. Refer to Attachment A, Section 7.36, NASPO ValuePoint Master Agreement Terms and Conditions for the prescribed requirements. Those terms and conditions require as a minimum that the Offeror agree to participate in development of ordering instructions. Proposer shall respond how they can support the eMarket Center in the Proposal through either a hosted catalog or punchout solution.

27. Account Manager

Contractor has named individual who will be the Account Manager for the term of the Contract. The Account Manager will be responsible for operation and administration of the Contract by the Contractor. The Account Manager must respond in a timely manner and in writing unless instructed otherwise, to all information requests from the Contracting Officer.

The Account Manager shall, upon request attend meetings as requested and determined by the Contracting Officer. The Account Manager will be responsible for reports required by the contract and to serve as liaison between the Contractor and Contracting Officer and any other eligible participant. The Contracting Officer may require the Contractor to relieve the Account Manager from work on this contract, if in its opinion, it is apparent that the Account Manager does not deliver work that conforms to performance standards.

Introduce to the Contracting Officer and to the Facilities' staff new products available on the market within the scope of this contract.

- Maintain and update master price lists/catalogs and review with and distribute to the different Facilities on an ongoing basis.
- Handle all facility/agency complaints and maintain a log of the complaints and resolutions. Handle all requests from facility/agency/Contracting Officer for inquiries about products.
- Issue credit memos and arrange for return of incorrectly shipped or deficient products.
- Resolve any problems and/or discrepancies with the order/delivery schedules.
- Coordinate with the Contracting Officer any rebate programs or special pricing promotions.
- Work in conjunction with the Contracting Officer in doing research and making recommendations for product changes to better meet the needs and challenges for all authorized users.
- Attend annual review meetings as scheduled with Contracting Officer and Sourcing Team.

28. Pricing

Pricing will remain fixed for the first twelve (12) months of the contract. Requests for additional increases in pricing for contract terms will be limited to once a year. All requests must be made in writing to Contracting Officer a minimum of 30 days prior to request initiation.

Documentation justification regarding any increases must be provided. No price increase will be approved without 30 days written notice and written approval from Contracting Officer.

29. Time of Order

If any prices fluctuate between the time of order and delivery, Contractor shall charge the prices in effect as of the order date.

30. Criminal Justice Information Services (CJIS)

If applicable, Contractor agrees to comply with all revelent CJIS requirements, including but not limited to Attachment F – CJIS Security Policy V5.4 as identified in the Request for Proposal.

B. OKLAHOMA TERMS AND CONDITIONS

1. Definitions

("Acquisition") means items, products, materials, supplies, services, and equipment a state agency acquires by purchase, lease purchase, lease with option to purchase, or rental pursuant to the Oklahoma Central Purchasing Act.

("Addendum or Addenda") means a document used to effect a contract change or modification in or more provisions of an existing a contract.

("Lead State") means the State centrally administering any resulting Master Agreement. The State of Oklahoma is the Lead State for this Master Agreement.

2. Master Agreement Modification

The terms of this Master Agreement shall not be waived, altered, modified, supplemented or amended in any manner whatsoever without prior written approval of the State Purchasing Director of the Lead State.

3. Indemnification

In connection with indemnification under the Master Agreement, when the Lead State or any Lead state agency is a named defendant in any filed or threatened lawsuit, the defense of the Lead State or Lead State agency shall be coordinated by the Attorney General of Oklahoma or, in the alternative, the Attorney General of Oklahoma may authorize the Vendor to control the defense and any related settlement negotiations; provided, however, Contractor shall not agree to any settlement of claims against the Lead State or Lead State agency without obtaining advance written concurrence from the State Attorney General. If the Attorney General of Oklahoma does not authorize sole control of the defense and settlement negotiations to Contractor, Contractor shall have authorization to equally participate in any proceeding related to the indemnity obligation under the Master Agreement and shall remain responsible to indemnify the applicable Indemnified Parties.

4. Audits and Records Clause

For transactions between the Lead State and the Contractor, the Contractor shall maintain books, records, documents, and other evidence pertaining to this Master Agreement and orders placed by Purchasing Entities under it to the extent and in such detail as shall adequately reflect performance and administration of payments and fees. Contractor shall permit the Lead State, a Participating Entity, a Purchasing Entity, the federal government (including its grant awarding entities and the U.S. Comptroller General), and any other duly authorized agent of a governmental agency, to audit, inspect, examine, copy and/or transcribe Contractor's books, documents, papers and records directly pertinent to this Master Agreement or orders placed by a Purchasing Entity under it for the purpose of making audits, examinations, excerpts, and transcriptions. This right shall survive for a period of seven (7) years following termination of this Agreement or final payment for any order placed by a Purchasing Entity against this Agreement, whichever is later, to assure compliance with the terms hereof or to evaluate performance hereunder. If an audit, litigation, or other action involving the above-referenced documents, required to be maintained for two (2) years from the date that all issues arising out of the action are resolved, or until the end of the seven (7) year retention period, whichever is later.

Without limiting any other remedy available to any governmental entity, the Contractor shall reimburse the applicable Lead State, Participating Entity, or Purchasing Entity for any overpayments inconsistent with the

terms of the Master Agreement or orders or underpayment of fees found as a result of the examination of the Contractor's records.

The rights and obligations herein exist in addition to any quality assurance obligation in the Master Agreement requiring the Contractor to self-audit contract obligations and that permits the Lead State to review compliance with those obligations.

5. Assignment/Subcontracts

Contractor shall not assign, sell, transfer, subcontract or sublet rights, or delegate responsibilities under this Master Agreement, in whole or in part, without the prior written approval of the State Purchasing Director of the Lead State.

6. Payment

For transactions between the Lead State and the Contractor, invoices are to be paid in arrears after products have been delivered and accepted or services provided and accepted pursuant to 74 O.S. § 85.44(B). Payment by the Lead State will be made within no more than forty-five (45) days from the date a proper invoice is received and the goods have been delivered and accepted or services provided and accepted pursuant to 62 O.S. § 34.71. Interest on late payments made by the Lead State is governed by 62 O.S. § 34.72.

7. Changes in Contractor Representation

The Contractor must notify the State Purchasing Director of the Lead State of changes in the Contractor's key administrative personnel, in writing within 10 calendar days of the change. The State Purchasing Director of the Lead State reserves the right to approve changes in key personnel, as identified in the Contractor's proposal. The Contractor agrees to propose replacement key personnel having substantially equal or better education, training, and experience as was possessed by the key person proposed and evaluated in the Contractor's proposal.

8. Right to Publish

Throughout the duration of this Master Agreement, Contractor must secure from the State Purchasing Director of the Lead State prior approval for the release of any information that pertains to the potential work or activities covered by the Master Agreement. The Contractor shall not make any representations of NASPO Value Point's opinion or position as to the quality or effectiveness of the services that are the subject of this Master Agreement without prior written consent. Failure to adhere to this requirement may result in termination of the Master Agreement for cause.

9. Certification Regarding Debarment, Suspension, and Other Responsibility

The Contractor certifies that the Contractor and it principals:

A. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any federal, state or local department or agency;

B. Have not within a three-year period preceding the Contract been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) contract; for violation of federal or state antitrust statutes; commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements or receiving stolen property;

C. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any of the foregoing offenses enumerated in this certification; and

D. Have not within a three-year period preceding this Contract had one or more public (federal, state or local) contracts terminated for cause or default.

If the Contractor cannot certify this statement, attach a written explanation for review by the Lead State.

10. Choice of Venue

Unless otherwise specified in the RFP, the venue for any protest, claim, dispute or action relating to the procurement, evaluation, and award is in Oklahoma County, Oklahoma. Venue for any claim, dispute or action concerning the terms of the Master Agreement shall be in Oklahoma County, Oklahoma. Venue for any claim, dispute, or action concerning any Order placed against the Master Agreement or the effect of a Participating Addendum shall be in the Purchasing Entity's State.

If a claim is brought in a federal forum, then it must be brought and adjudicated solely and exclusively within the United States District Court for (in decreasing order of priority): the Lead State for claims relating to the procurement, evaluation, award, or contract performance or administration if the Lead State is a party; the Participating State if a named party; the Participating Entity state if a named party; or the Purchasing Entity state if a named party. Where the claim is adjudicated in the United States District Court of the Lead State, it must be brought and adjudicated in the Western District.

11. Extension of the Master Agreement

The Lead State may extend the term of this Master Agreement for up to ninety (90) day intervals if mutually agreed upon by the State Purchasing Director of the Lead State and the Contractor.

12. Gratuities

The right of the Contractor to perform under this Master Agreement may be terminated by written notice if the Procurement Official as specified in E.4. of the Solicitation determines that the Contractor, or its agent or another representative offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Central Purchasing Division of the Lead State.

13. Pricing

For transactions between the Lead State and the Contractor, In accordance with 74 O.S. § 85.40, all travel expenses to be incurred by the Contractor in the performance of the Master Agreement shall be included in the total price/ amount.

14. Type of Contract

This is a firm fixed price contract for indefinite delivery and indefinite quantity for the supplies/services specified.

15. Open Records Act

Vendor acknowledges that all Oklahoma State agencies and certain other Oklahoma-based entities are subject to the Oklahoma Open Records Act. Vendor also acknowledges that such Customers will comply with the Oklahoma Open Records Act and with all opinions of the Oklahoma Attorney General concerning this Act. Except for a provision of the Contract specifically designated as confidential in a writing executed by both parties or a provision protected from disclosure in the Open Records Act, no Contract provision is confidential information and, therefore, any provision is subject to disclosure under the Open Records Act.

16. Patents and Copyrights

Without exception, a Product price shall include all royalties or costs owed by the Vendor to any third party arising from the use of a patent, intellectual property or copyright. Should any third party threaten or make a claim that any portion of a Product or Services provided by Vendor under the Contract infringes that party's

patent or copyright, Vendor shall enable Customers to legally continue to use, or modify for use, the portion of the Product or Services at issue or replace such potentially infringing Product, or re-perform in the case of Services, with at least a functional non-infringing equivalent. Vendor's duty under this section shall extend to include other Products or Services rendered materially unusable as intended due to replacement or modification of the Products or Services at issue.

17. Compliance and Electronic and Information Technology Accessibility

Vendor shall comply with federal and State laws, rules and regulations related to information technology accessibility, as applicable, including but not limited to Oklahoma Information Technology Accessibility Standards ("Standards") set forth at http://www.ok.gov/cio/documents/isd-_itas.pdf and shall provide a Voluntary Product Accessibility Template ("VPAT") describing such compliance, which may be provided via a URL linking to the VPAT. If Products require development or customization, additional requirements and documentation may be required and compliance shall be necessary by Vendor. Such requirements may be stated in appropriate documents including but not limited to a statement of work, riders, agreement, purchase order or Addendum. Accordingly, in each statement of work or similar document issued pursuant to the Contract, Vendor shall describe such compliance and identify, if and as applicable, (i) which exception to the Standards applies or (ii) a description of the tasks and estimated cost to make the proposed products and/or services compliant with applicable Standards.

18. Media Ownership (Disk Drive and/or Memory Chip Ownership)

Any disk drives and memory cards purchased with or included for use in leased or purchased Products under the Contract remain the property of the State or Customer, as applicable.

Personal information may be retained within electronic media devices and components; therefore, the State shall not allow the release of electronic media either between Customers or for the resale of refurbished equipment that has been in use by a Customer, by the Vendor to the general public or other entities. This provision applies to replacement devices and components, whether purchased or leased, supplied by Vendor, its agents or subcontractors during the downtime (repair) of Products purchased or leased through the Contract. If a device is removed from a location for repairs, the Customer shall have sole discretion, prior to removal, to determine and implement sufficient safeguards (such as a record of hard drive serial numbers) to protect personal information that may be stored within the hard drive or memory of the device.

19. Offshore Services

No offshore services are provided for under the Contract. State data shall not be used or accessed internationally, for troubleshooting or any other use not specifically provided for herein without the prior written permission, which may be withheld in the State's sole discretion, from the appropriate authorized representative of the State.

20. High Technology System Performance and Upgrades

i. Pursuant to 62 O.S. § 34.12.1, if an Acquisition pursuant to the Contract includes a "high technology system" as defined at 62 O.S. 34.11.1(O) the Vendor shall provide documentation of the projected schedule of recommended or required system upgrades or improvements to such system for the three (3) year period following the purchase date. If Vendor does not plan such system upgrades or improvements, the Vendor shall provide documentation that no system upgrades or improvements to the high technology system are planned for the three (3) year period following the purchase date.

ii. Any Acquisition pursuant to the Contract of an upgrade or enhancement to a high technology system shall be conditioned upon one of the following: the Acquisition being provided at no charge to the State; the Acquisition being provided to the State at no additional charge pursuant to a previous agreement with the Vendor; the Vendor providing documentation that any required or recommended upgrade will enhance or is

necessary for performance of the applicable State agency duties and responsibilities; or the Vendor providing documentation that it will no longer supply maintenance assistance to the applicable State agency and the applicable State agency documenting that the functions performed by the high technology system are necessary for performance of the State agency duties and responsibilities.

21. Emerging Technologies

The State of Oklahoma reserves the right to enter into an Addendum to the Contract at any time to allow for emerging technologies not identified elsewhere in the Contract Documents if there are repeated requests for such emerging technology or the State determines it is warranted to add such technology.

C. NASPO VALUEPOINT TERMS AND CONDITIONS

1. Definitions

Acceptance is defined by the applicable commercial code, except Acceptance shall not occur before the completion of delivery in accordance with the Order, installation if required, and a reasonable time for inspection of the Product.

Contractor means the person or entity delivering Products or performing services under the terms and conditions set forth in this Master Agreement.

Embedded Software means one or more software applications which permanently reside on a computing device.

Intellectual Property means any and all patents, copyrights, service marks, trademarks, trade secrets, trade names, patentable inventions, or other similar proprietary rights, in tangible or intangible form, and all rights, title, and interest therein.

Lead State means the State centrally administering any resulting Master Agreement(s).

Master Agreement means the underlying agreement executed by and between the Lead State, acting on behalf of the NASPO ValuePoint program, and the Contractor, as now or hereafter amended.

NASPO ValuePoint is the NASPO Cooperative Purchasing Organization LLC, doing business as NASPO ValuePoint, a 501(c) (3) limited liability company that is a subsidiary organization the National Association of State Procurement Officials (NASPO), the sole member of NASPO ValuePoint. NASPO ValuePoint facilitates administration of the NASPO cooperative group contracting consortium of state chief procurement officials for the benefit of state departments, institutions, agencies, and political subdivisions and other eligible entities (i.e., colleges, school districts, counties, cities, some nonprofit organizations, etc.) for all states and the District of Columbia. NASPO ValuePoint is identified in the Master Agreement as the recipient of reports and may perform contract administration functions relating to collecting and receiving reports as well as other contract administration functions as assigned by the Lead State.

Order or Purchase Order means any purchase order, sales order, contract or other document used by a Purchasing Entity to order the Products. Participating Addendum means a bilateral agreement executed by a Contractor and a Participating Entity incorporating this Master Agreement and any other additional Participating Entity specific language or other requirements, e.g. ordering procedures specific to the Participating Entity, other terms and conditions.

Participating Entity means a state, or other legal entity, properly authorized to enter into a Participating Addendum.

Participating State means a state, the District of Columbia, or one of the territories of the United States that is listed in the Request for Proposal as intending to participate. A Participating State is not required to participate through execution of a Participating Addendum. Upon execution of the Participating Addendum, a Participating State becomes a Participating Entity; however, a Participating State listed in the Request for Proposals is not required to participate through execution of a Participating Addendum.

Product means any equipment, software (including embedded software), documentation, service or other deliverable supplied or created by the Contractor pursuant to this Master Agreement. The term Products, supplies and services, and products and services are used interchangeably in these terms and conditions.

Purchasing Entity means a state (as well as the District of Columbia and U.S. territories), city, county, district, other political subdivision of a State, and a nonprofit organization under the laws of some states if authorized by a Participating Addendum, who issues a Purchase Order against the Master Agreement and becomes financially committed to the purchase.

3. Term of the Master Agreement

The initial term of this Master Agreement is for two (2) years. This Master Agreement may be extended beyond the original contract period for three (3) additional years at the Lead State's discretion and by mutual agreement and upon review of requirements of Participating Entities, current market conditions, and Contractor performance.

4. Amendments

The terms of this Master Agreement shall not be waived, altered, modified, supplemented or amended in any manner whatsoever without prior written approval of the Lead State.

5. Assignment/Subcontracts

a. Contractor shall not assign, sell, transfer, subcontract or sublet rights, or delegate responsibilities under this Master Agreement, in whole or in part, without the prior written approval of the Lead State.

b. The Lead State reserves the right to assign any rights or duties, including written assignment of contract administration duties to NASPO Cooperative Purchasing Organization LLC, doing business as NASPO ValuePoint.

6. Price and Rate Guarantee Period

All prices and rates must be guaranteed for the first twelve (12) months of the Master Agreement term. Thereafter, requests for additional increases in pricing for contract terms will be limited to once a year. All requests must be made in writing to Lead State Contracting Officer a minimum of 30 days prior to request initiation. Documentation justification regarding any increases must be provided. No price increase will be approved without 30 days written notice and written approval from Lead State Contracting Officer. Any adjustment or amendment to the Master Agreement shall not be effective unless approved by the Lead State. No retroactive adjustments to prices or rates will be allowed.

7. Cancellation

Unless otherwise stated, this Master Agreement may be canceled by either party upon 60 days written notice prior to the effective date of the cancellation. Further, any Participating Entity may cancel its participation upon 30 days written notice, unless otherwise limited or stated in the Participating Addendum. Cancellation may be in whole or in part. Any cancellation under this provision shall not affect the rights and obligations attending orders outstanding at the time of cancellation, including any right of and Purchasing Entity to indemnification by the Contractor, rights of payment for Products delivered and accepted, rights attending any warranty or default in performance in association with any Order, and requirements for records administration and audit. Cancellation of the Master Agreement due to Contractor default may be immediate.

8. Confidentiality, Non-Disclosure, and Injunctive Relief

8.1 **Confidentiality.** Contractor acknowledges that it and its employees or agents may, in the course of providing a Product under this Master Agreement, be exposed to or acquire information that is confidential to Purchasing Entity's or Purchasing Entity's clients. Any and all information of any form that is marked as confidential or would by its nature be deemed confidential obtained by Contractor or its employees or agents in the performance of this Master Agreement, including, but not necessarily limited to (1) any Purchasing Entity's records, (2) personnel records, and (3) information concerning individuals, is confidential information of Purchasing Entity ("Confidential Information"). Any reports or other documents or items (including software) that result from the use of the Confidential Information by Contractor shall be treated in the same manner as the Confidential Information. Confidential Information does not include information that (1) is or becomes (other than by disclosure by Contractor) publicly known; (2) is furnished by Purchasing Entity to others without restrictions similar to those imposed by this Master Agreement; (3) is rightfully in Contractor's possession without the obligation of nondisclosure prior to the time of its disclosure under this Master Agreement; (4) is obtained from a source other than Purchasing Entity without the obligation of confidentiality, (5) is disclosed with the written consent of Purchasing Entity or; (6) is independently developed by employees, agents or subcontractors of Contractor who can be shown to have had no access to the Confidential Information.

8.2 **Non-Disclosure.** Contractor shall hold Confidential Information in confidence, using at least the industry standard of confidentiality, and shall not copy, reproduce, sell, assign, license, market, transfer or otherwise dispose of, give, or disclose Confidential Information to third parties or use Confidential Information for any purposes whatsoever other than what is necessary to the performance of Orders placed under this Master Agreement. Contractor shall advise each of its employees and agents of their obligations to keep Confidential Information confidential. Contractor shall use commercially reasonable efforts to assist Purchasing Entity in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limiting the generality of the foregoing, Contractor shall advise Purchasing Entity, applicable Participating Entity, and the Lead State immediately if Contractor learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Master Agreement, and Contractor shall at its expense cooperate with Purchasing Entity in seeking injunctive or other equitable relief in the name of Purchasing Entity or Contractor against any such person. Except as directed by Purchasing Entity, Contractor will not at any time during or after the term of this Master Agreement disclose, directly or indirectly, any Confidential Information to any person, except in accordance with this Master Agreement, and that upon termination of this Master Agreement or at Purchasing Entity's request, Contractor shall turn over to Purchasing Entity all documents, papers, and other matter in Contractor's possession that embody Confidential Information. Notwithstanding the foregoing, Contractor may keep one copy of such

Confidential Information necessary for quality assurance, audits and evidence of the performance of this Master Agreement.

8.3 **Injunctive Relief.** Contractor acknowledges that breach of this section, including disclosure of any Confidential Information, will cause irreparable injury to Purchasing Entity that is inadequately compensable in damages. Accordingly, Purchasing Entity may seek and obtain injunctive relief against the breach or threatened breach of the foregoing undertakings, in addition to any other legal remedies that may be available. Contractor acknowledges and agrees that the covenants contained herein are necessary for the protection of the legitimate business interests of Purchasing Entity and are reasonable in scope and content.

8.4 **Purchasing Entity Law.** These provisions shall be applicable only to extent they are not in conflict with the applicable public disclosure laws of any Purchasing Entity.

9. Right to Publish

Throughout the duration of this Master Agreement, Contractor must secure from the Lead State prior approval for the release of any information that pertains to the potential work or activities covered by the Master Agreement. The Contractor shall not make any representations of NASPO Value Point's opinion or position as to the quality or effectiveness of the services that are the subject of this Master

Agreement without prior written consent. Failure to adhere to this requirement may result in termination of the Master Agreement for cause.

10. Defaults and Remedies

10.1 The occurrence of any of the following events shall be an event of default under this Master Agreement:

(1) Nonperformance of contractual requirements; or

(2) A material breach of any term or condition of this Master Agreement; or

(3) Any certification, representation or warranty by Contractor in response to the solicitation or in this Master Agreement that proves to be untrue or materially misleading; or

(4) Institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Contractor, or the appointment of a receiver or similar officer for Contractor or any of its property, which is not vacated or fully stayed within thirty (30) calendar days after the institution or occurrence thereof; or

(5) Any default specified in another section of this Master Agreement.

10.2 Upon the occurrence of an event of default, Lead State shall issue a written notice of default, identifying the nature of the default, and providing a period of 15 calendar days in which Contractor shall have an opportunity to cure the default. The Lead State shall not be required to provide advance written notice or a cure period and may immediately terminate this Master Agreement in whole or in part if the Lead State, in its sole discretion, determines that it is reasonably necessary to preserve public safety or prevent immediate public crisis. Time allowed for cure shall not diminish or eliminate Contractor's liability for damages, including liquidated damages to the extent provided for under this Master Agreement.

10.3 If Contractor is afforded an opportunity to cure and fails to cure the default within the period specified in the written notice of default, Contractor shall be in breach of its obligations under this Master Agreement and Lead State shall have the right to exercise any or all of the following remedies:

10.3.1 Exercise any remedy provided by law; and

10.3.2 Terminate this Master Agreement and any related Contracts or portions thereof; and

10.3.3 Impose liquidated damages as provided in this Master Agreement; and

10.3.4 Suspend Contractor from being able to respond to future bid solicitations; and

10.3.5 Suspend Contractor's performance; and

10.3.6 Withhold payment until the default is remedied.

10.4 Unless other specified in the Participating Addendum, in the event of a default under a Participating Addendum, a Participating Entity shall provide a written notice of default as described in this section and have all of the rights and remedies under this paragraph regarding its participation in the Master Agreement, in addition to those set forth in its Participating Addendum. Unless otherwise specified in a Purchase Order, a Purchasing Entity shall provide written notice of default as described in this section and have all of the rights and remedies under this paragraph and any applicable Participating Addendum with respect to an Order placed by the Purchasing Entity. Nothing in these Master Agreement Terms and Conditions shall be construed to limit the rights and remedies available to a Purchasing Entity under the applicable commercial code.

11. Shipping and Delivery

11.1.1 The prices are the delivered price to any Purchasing Entity. All deliveries shall be F.O.B. destination, freight pre-paid, with all transportation and handling charges paid by the Contractor. Responsibility and liability for loss or damage shall remain the Contractor's until final inspection and acceptance when responsibility shall pass to the Buyer except as to latent defects, fraud and Contractor's warranty obligations. The minimum shipment amount, if any, will be found in the special terms and conditions. Any order for less than the specified amount is to be shipped with the freight prepaid and added as a separate item on the invoice. Any portion of an order to be shipped without transportation charges that is back ordered shall be shipped without charge.

11.1.2 All deliveries will be "Inside Deliveries" as designated by a representative of the Purchasing Entity placing the Order. Inside Delivery refers to a delivery to other than a loading dock, front lobby, or reception area. Specific delivery instructions will be noted on the order form or Purchase Order. Any damage to the building interior, scratched walls, damage to the freight elevator, etc., will be the responsibility of the Offeror. If damage does occur, it is the responsibility of the Offeror to immediately notify the Purchasing Entity placing the Order.

11.1.3 All products must be delivered in the manufacturer's standard package. Costs shall include all packing and/or crating charges. Cases shall be of durable construction, good condition, properly labeled and suitable in every respect for storage and handling of contents. Each shipping carton shall be marked with the item description, brand and manufacturer product number, quantity, and the Ordering Entity's Purchase Order number.

12. Changes in Contractor Representation

The Contractor must notify the Lead State of changes in the Contractor's key administrative personnel, in writing within 10 calendar days of the change. The Lead State reserves the right to approve changes in key personnel, as identified in the Contractor's proposal. The Contractor agrees to propose replacement key personnel having substantially equal or better education, training, and experience as was possessed by the key person proposed and evaluated in the Contractor's proposal.

13. Force Majeure

Neither party to this Master Agreement shall be held responsible for delay or default caused by fire, riot, acts of God and/or war which is beyond that party's reasonable control. The Lead State may terminate this Master Agreement after determining such delay or default will reasonably prevent successful performance of the Master Agreement.

14. Indemnification

The Contractor shall defend, indemnify and hold harmless NASPO, NASPO Cooperative Purchasing Organization LLC (doing business as NASPO ValuePoint), the Lead State, Participating Entities, and Purchasing Entities, along with their officers, agents, and employees as well as any person or entity for which they may be liable, from and against third-party claims, damages or causes of action including reasonable attorneys' fees and related costs for any death, injury, or damage to tangible property arising from act(s), error(s), or omission(s) of the Contractor, its employees or subcontractors or volunteers, at any tier, relating to the performance under the Master Agreement. b. Indemnification – Intellectual Property. The Contractor shall defend, indemnify and hold harmless NASPO, NASPO Cooperative Purchasing Organization LLC (doing business as NASPO ValuePoint), the Lead State, Participating Entities, Purchasing Entities, along with their officers, agents, and employees as well as any person or entity for which they may be liable ("Indemnified Party"), from and against claims, damages or causes of action including reasonable attorneys' fees and related costs arising out of the claim that the Product or its use, infringes Intellectual Property rights ("Intellectual Property Claim") of another person or entity.

(1) The Contractor's obligations under this section shall not extend to any combination of the Product with any other product, system or method, unless the Product, system or method is:

(a) provided by the Contractor or the Contractor's subsidiaries or affiliates;

(b) specified by the Contractor to work with the Product; or

(c) reasonably required, in order to use the Product in its intended manner, and the infringement could not have been avoided by substituting another reasonably available product, system or method capable of performing the same function; or

(d) It would be reasonably expected to use the Product in combination with such product, system or method.

(2) The Indemnified Party shall notify the Contractor within a reasonable time after receiving notice of an Intellectual Property Claim. Even if the Indemnified Party fails to provide reasonable notice, the Contractor shall not be relieved from its obligations unless the Contractor can demonstrate that it was prejudiced in defending the Intellectual Property Claim resulting in increased expenses or loss to the Contractor. If the Contractor promptly and reasonably investigates and defends any Intellectual Property Claim, it shall have control over the defense and settlement of it. However, the Indemnified Party must consent in writing for any money damages or obligations for which it may be responsible. The Indemnified Party shall furnish, at the Contractor's reasonable request and expense, information and assistance necessary for such defense. If the

Contractor fails to vigorously pursue the defense or settlement of the Intellectual Property Claim, the Indemnified Party may assume the defense or settlement of it and the Contractor shall be liable for all costs and expenses, including reasonable attorneys' fees and related costs, incurred by the Indemnified Party in the pursuit of the Intellectual Property Claim. Unless otherwise agreed in writing, this section is not subject to any limitations of liability in this Master Agreement or in any other document executed in conjunction with this Master Agreement.

15. Independent Contractor

The Contractor shall be an independent contractor. Contractor shall have no authorization, express or implied, to bind the Lead State, Participating States, other Participating Entities, or Purchasing Entities to any agreements, settlements, liability or understanding whatsoever, and agrees not to hold itself out as agent except as expressly set forth herein or as expressly agreed in any Participating Addendum.

16. Individual Customers

Except to the extent modified by a Participating Addendum, each Purchasing Entity shall follow the terms and conditions of the Master Agreement which include the Oklahoma Terms and Conditions and NASPO ValuePoint Master Agreement Terms and Conditions, and applicable Participating Addendum and will have the same rights and responsibilities for their purchases as the Lead State has in the Master Agreement, including but not limited to, any indemnity or right to recover any costs as such right is defined in the Master Agreement and applicable Participating Addendum for their purchases. Each Purchasing Entity will be responsible for its own charges, fees, and liabilities. The Contractor will apply the charges and invoice each Purchasing Entity individually.

17. Insurance

a. This section requires insurance in addition to the insurance required by RFP section 4.1.18, Professional and Technical Special Insurance Requirements. Unless otherwise agreed in a Participating Addendum, Contractor shall, during the term of this Master Agreement, maintain in full force and effect, the insurance described in this section. Contractor shall acquire such insurance from an insurance carrier or carriers licensed to conduct business in each Participating Entity's state and having a rating of A-, Class VII or better, in the most recently published edition of A.M. Best's Insurance Reports. Failure to buy and maintain the required insurance may result in this Master Agreement's termination or, at a Participating Entity's option; result in termination of its Participating Addendum.

b. Coverage shall be written on an occurrence basis. The minimum acceptable limits shall be as indicated below:

(1) Commercial General Liability covering premises operations, independent contractors, products and completed operations, blanket contractual liability, personal injury (including death), advertising liability, and property damage, with a limit of not less than $1 million per occurrence/$2 million general aggregate;

(2) Contractor must comply with any applicable State Workers Compensation or Employers Liability Insurance requirements.

c. Contractor shall pay premiums on all insurance policies. Contractor shall provide notice to a Participating Entity who is a state within five (5) business days after Contractor is first aware of expiration, cancellation or

nonrenewal of such policy or is first aware that cancellation is threatened or expiration, nonrenewal or expiration otherwise may occur.

d. Prior to commencement of performance, Contractor shall provide to the Lead State a written endorsement to the Contractor's general liability insurance policy or other documentary evidence acceptable to the Lead State that (1) names the Participating States identified in the Request for Proposal as additional insureds, (2) provides for written notice of cancellation shall be delivered in accordance with the policy provisions, and (3) provides that the Contractor's liability insurance policy shall be primary, with any liability insurance of any Participating State as secondary and noncontributory. Unless otherwise agreed in any Participating Addendum, other state Participating Entities' rights and Contractor's obligations are the same as those specified in the first sentence of this subsection except the endorsement is provided to the applicable state.

e. Contractor shall furnish to the Lead State copies of certificates of all required insurance in a form sufficient to show required coverage within thirty (30) calendar days of the execution of this Master Agreement and prior to performing any work. Copies of renewal certificates of all required insurance shall be furnished within thirty (30) days after any renewal date to the applicable state Participating Entity. Failure to provide evidence of coverage may, at the sole option of the Lead State, or any Participating Entity, result in this Master Agreement's termination or the termination of any Participating Addendum.

f. Coverage and limits shall not limit Contractor's liability and obligations under this Master Agreement, any Participating Addendum, or any Purchase Order.

18. Laws and Regulations

Any and all Products offered and furnished shall comply fully with all applicable Federal and State laws and regulations.

19. License of Pre-Existing Intellectual Property

Contractor grants to the Purchasing Entity a nonexclusive, perpetual, royalty-free, irrevocable, license to use, publish, translate, reproduce, transfer with any sale of tangible media or Product, perform, display, and dispose of the Intellectual Property, and its derivatives, used or delivered under this Master Agreement, but not created under it ("Pre-existing Intellectual Property"). The Contractor shall be responsible for ensuring that this license is consistent with any third party rights in the Pre-existing Intellectual Property.

20. No Waiver of Sovereign Immunity

In no event shall this Master Agreement, any Participating Addendum or any contract or any Purchase Order issued thereunder, or any act of the Lead State, a Participating Entity, or a Purchasing Entity be a waiver of any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court.

This section applies to a claim brought against the Participating State only to the extent Congress has appropriately abrogated the Participating State's sovereign immunity and is not consent by the Participating State to be sued in federal court. This section is also not a waiver by the Participating State of any form of immunity, including but not limited to sovereign immunity and immunity based on the Eleventh Amendment to the Constitution of the United States.

21. Ordering

a. Master Agreement order and purchase order numbers shall be clearly shown on all acknowledgments, shipping labels, packing slips, invoices, and on all correspondence.

b. The resulting Master Agreements permit Purchasing Entities to define project-specific requirements and informally compete the requirement among companies having a Master Agreement on an "as needed" basis. This procedure may also be used when requirements are aggregated or other firm commitments may be made to achieve reductions in pricing. This procedure may be modified in Participating Addenda and adapted to the Purchasing Entity's rules and policies. The Purchasing Entity may in its sole discretion determine which Master Agreement Contractors should be solicited for a quote. The Purchasing Entity may select the quote that it considers most advantageous, cost and other factors considered.

c. Each Purchasing Entity will identify and utilize its own appropriate purchasing procedure and documentation. Contractor is expected to become familiar with the Purchasing Entities' rules, policies, and procedures regarding the ordering of supplies and/or services contemplated by this Master Agreement.

d. Contractor shall not begin work without a valid Purchase Order or other appropriate commitment document compliance with the law of the Purchasing Entity.

e. Orders may be placed consistent with the terms of this Master Agreement during the term of the Master Agreement.

f. All Orders pursuant to this Master Agreement, at a minimum, shall include:

(1) The services or supplies being delivered;

(2) The place and requested time of delivery;

(3) A billing address;

(4) The name, phone number, and address of the Purchasing Entity representative;

(5) The price per hour or other pricing elements consistent with this Master Agreement and the contractor's proposal;

(6) A ceiling amount of the order for services being ordered; and

(7) The Master Agreement identifier.

g. All communications concerning administration of Orders placed shall be furnished solely to the authorized purchasing agent within the Purchasing Entity's purchasing office, or to such other individual identified in writing in the Order.

h. Orders must be placed pursuant to this Master Agreement prior to the termination date thereof, but may have a delivery date or performance period up to 120 days past the then-current termination date of this Master Agreement. Contractor is reminded that financial obligations of Purchasing Entities payable after the current applicable fiscal year are contingent upon agency funds for that purpose being appropriated, budgeted, and otherwise made available.

i. Notwithstanding the expiration or termination of this Master Agreement, Contractor agrees to perform in accordance with the terms of any Orders then outstanding at the time of such expiration or termination.

Contractor shall not honor any Orders placed after the expiration or termination of this Master Agreement, or otherwise inconsistent with its terms. Orders from any separate indefinite quantity, task orders, or other form of indefinite delivery order arrangement priced against this Master Agreement may not be placed after the expiration or termination of this Master Agreement, notwithstanding the term of any such indefinite delivery order agreement.

22. Participants and Scope

a. Contractor may not deliver Products under this Master Agreement until a Participating Addendum acceptable to the Participating Entity and Contractor is executed. The Oklahoma Terms and Conditions and NASPO ValuePoint Master Agreement Terms and Conditions are applicable to any Order by a Participating Entity (and other Purchasing Entities covered by their Participating Addendum), except to the extent altered, modified, supplemented or amended by a Participating Addendum. By way of illustration and not limitation, this authority may apply to unique delivery and invoicing requirements, confidentiality requirements, defaults on Orders, governing law and venue relating to Orders by a Participating Entity, indemnification, and insurance requirements. Statutory or constitutional requirements relating to availability of funds may require specific language in some Participating Addenda in order to comply with applicable law. The expectation is that these alterations, modifications, supplements, or amendments will be addressed in the Participating Addendum or, with the consent of the Purchasing Entity and Contractor, may be included in the ordering document (e.g. purchase order or contract) used by the Purchasing Entity to place the Order.

b. Use of specific NASPO ValuePoint cooperative Master Agreements by state agencies, political subdivisions and other Participating Entities (including cooperatives) authorized by individual state's statutes to use state contracts are subject to the approval of the respective State Chief Procurement Official. Issues of interpretation and eligibility for participation are solely within the authority of the respective State Chief Procurement Official.

c. Obligations under this Master Agreement are limited to those Participating Entities who have signed a Participating Addendum and Purchasing Entities within the scope of those Participating Addenda. Financial obligations of Participating States are limited to the orders placed by the departments or other state agencies and institutions having available funds. Participating States incur no financial obligations on behalf of other Purchasing Entities. Contractor shall email a fully executed PDF copy of each Participating Addendum to PA@naspovaluepoint.org to support documentation of participation and posting in appropriate data bases.

d. NASPO Cooperative Purchasing Organization LLC, doing business as NASPO ValuePoint, is not a party to the Master Agreement. It is a nonprofit cooperative purchasing organization assisting states in administering the NASPO cooperative purchasing program for state government departments, institutions, agencies and political subdivisions (e.g., colleges, school districts, counties, cities, etc.) for all 50 states, the District of Columbia and the territories of the United States.

e. State Participating Addenda or other Participating Addenda shall not be construed to amend the terms of this Master Agreement between the Lead State and Contractor that prescribe NASPO ValuePoint Program requirements: Term of the Master Agreement; Amendments; Participants and Scope; Administrative Fee; NASPO ValuePoint Summary and Detailed Usage Reports; NASPO ValuePoint Cooperative Program Marketing and Performance Review; NASPO ValuePoint eMarketCenter; Right to Publish; Price and Rate Guarantee Period; and Individual Customers. Any such language shall be void and of no effect.

f. Participating Entities who are not states may under some circumstances sign their own Participating Addendum, subject to the approval of participation by the Chief Procurement Official of the state where the Participating Entity is located. Coordinate requests for such participation through NASPO ValuePoint. Any permission to participate through execution of a Participating Addendum is not a determination that procurement authority exists in the Participating Entity; they must ensure that they have the requisite procurement authority to execute a Participating Addendum.

g. Resale. "Resale" means any payment in exchange for transfer of tangible goods, software, or assignment of the right to services. Subject to any specific conditions included in the solicitation or Contractor's proposal as accepted by the Lead State, or as explicitly permitted in a Participating Addendum, Purchasing Entities may not resell Products (the definition of which includes services that are deliverables). Absent any such condition or explicit permission, this limitation does not prohibit: payments by employees of a Purchasing Entity for Products; sales of Products to the general public as surplus property; and fees associated with inventory transactions with other governmental or nonprofit entities and consistent with a Purchasing Entity's laws and regulations. Any sale or transfer permitted by this subsection must be consistent with license rights granted for use of intellectual property.

23. Payment

Payment for completion of a contract order is normally made within 30 days following the date the entire order is delivered or the date a correct invoice is received, whichever is later. After 45 days the Contractor may assess overdue account charges up to a maximum rate of one percent per month on the outstanding balance. Payments will be remitted by mail. Payments may be made via a State or political subdivision "Purchasing Card" with no additional charge.

24. Public Information

This Master Agreement and all related documents are subject to disclosure pursuant to the Purchasing Entity's public information laws.

25. Records Administration and Audit

a. The Contractor shall maintain books, records, documents, and other evidence pertaining to this Master Agreement and orders placed by Purchasing Entities under it to the extent and in such detail as shall adequately reflect performance and administration of payments and fees. Contractor shall permit the Lead State, a Participating Entity, a Purchasing Entity, the federal government (including its grant awarding entities and the U.S. Comptroller General), and any other duly authorized agent of a governmental agency, to audit, inspect, examine, copy and/or transcribe Contractor's books, documents, papers and records directly pertinent to this Master Agreement or orders placed by a Purchasing Entity under it for the purpose of making audits, examinations, excerpts, and transcriptions. This right shall survive for a period of seven (7) years following termination of this Agreement or final payment for any order placed by a Purchasing Entity against this Agreement, whichever is later, to assure compliance with the terms hereof or to evaluate performance hereunder. If an audit, litigation, or other action involving the above-referenced documents, required to be maintained for two (2) years from the date that all issues arising out of the action are resolved, or until the end of the seven (7) year retention period, whichever is later.

b. Without limiting any other remedy available to any governmental entity, the Contractor shall reimburse the applicable Lead State, Participating Entity, or Purchasing Entity for any overpayments inconsistent with the

terms of the Master Agreement or orders or underpayment of fees found as a result of the examination of the Contractor's records.

c. The rights and obligations herein exist in addition to any quality assurance obligation in the Master Agreement requiring the Contractor to self-audit contract obligations and that permits the Lead State to review compliance with those obligations.

26. Administrative Fees

a. The Contractor shall pay to NASPO ValuePoint, or its assignee, a NASPO ValuePoint Administrative Fee of one-quarter of one percent (0.25% or 0.0025) no later than sixty (60) days following the end of each calendar quarter. The NASPO ValuePoint Administrative Fee shall be submitted quarterly and is based on all sales of products and services under the Master Agreement (less any charges for taxes or shipping). The NASPO ValuePoint Administrative Fee is not negotiable. This fee is to be included as part of the pricing submitted with proposal.

b. Additionally, some states may require an additional fee be paid directly to the state only on purchases made by Purchasing Entities within that state. For all such requests, the fee level, payment method and schedule for such reports and payments will be incorporated into the Participating Addendum that is made a part of the Master Agreement. The Contractor may adjust the Master Agreement pricing accordingly for purchases made by Purchasing Entities within the jurisdiction of the state. All such agreements shall not affect the NASPO ValuePoint Administrative Fee percentage or the prices paid by the Purchasing Entities outside the jurisdiction of the state requesting the additional fee. The NASPO ValuePoint Administrative Fee in subsection 7.26 a. shall be based on the gross amount of all sales (less any charges for taxes or shipping) at the adjusted prices (if any) in Participating Addenda.

27. NASPO ValuePoint Summary and Detailed Usage Reports

In addition to other reports that may be required by this solicitation, the Contractor shall provide the following NASPO ValuePoint reports.

a. Summary Sales Data. The Contractor shall submit quarterly sales reports directly to NASPO ValuePoint using the NASPO ValuePoint Quarterly Sales/Administrative Fee Reporting Tool found at http://www.naspo.org/WNCPO/Calculator.aspx. Any/all sales made under this Master Agreement shall be reported as cumulative totals by state. Even if Contractor experiences zero sales during a calendar quarter, a report is still required. Reports shall be due no later than thirty (30) days following the end of the calendar quarter (as specified in the reporting tool).

b. Detailed Sales Data. Contractor shall also report detailed sales data by: (1) state; (2) entity/customer type, e.g. local government, higher education, K12, non-profit; (3) Purchasing Entity name; (4) Purchasing Entity bill-to and ship-to locations; (4) Purchasing Entity and Contractor Purchase Order identifier/number(s); (5) Purchase Order Type (e.g. sales order, credit, return, upgrade, determined by industry practices); (6) Purchase Order date; (7) Ship Date; (8) and line item description, including product number if used. The report shall be submitted in any form required by the solicitation. Reports are due on a quarterly basis and must be received by the Lead State and NASPO ValuePoint Cooperative Development Team no later than thirty (30) days after the end of the reporting period. Reports shall be delivered to the Lead State and to the NASPO ValuePoint Cooperative Development Team electronically through a designated portal, email, CD-ROM, flash drive or other method as determined by the Lead State and NASPO ValuePoint. Detailed sales data reports shall

include sales information for all sales under Participating Addenda executed under this Master Agreement. The format for the detailed sales data report is in shown in Attachment I – Usage Reporting Template

c. Reportable sales for the summary sales data report and detailed sales data report includes sales to employees for personal use where authorized by the solicitation and the Participating Addendum. Report data for employees should be limited to ONLY the state and entity they are participating under the authority of (state and agency, city, county, school district, etc.) and the amount of sales. No personal identification numbers, e.g. names, addresses, social security numbers or any other numerical identifier, may be submitted with any report.

d. Contractor shall provide the NASPO ValuePoint Cooperative Development Coordinator with an executive summary each quarter that includes, at a minimum, a list of states with an active Participating Addendum, states that Contractor is in negotiations with and any Participating Addendum roll out or implementation activities and issues. NASPO ValuePoint Cooperative Development Coordinator and Contractor will determine the format and content of the executive summary. The executive summary is due thirty (30) days after the conclusion of each calendar quarter.

e. Timely submission of these reports is a material requirement of the Master Agreement. The recipient of the reports shall have exclusive ownership of the media containing the reports. The Lead State and NASPO ValuePoint shall have a perpetual, irrevocable, non-exclusive, royalty free, transferable right to display, modify, copy, and otherwise use reports, data and information provided under this section.

28. Inspection and Acceptance

a. Where the Master Agreement or an Order does not otherwise specify a process for inspection and Acceptance, this section governs. This section is not intended to limit rights and remedies under the applicable commercial code.

b. All Products are subject to inspection at reasonable times and places before Acceptance. Contractor shall provide right of access to the Lead State, or to any other authorized agent or official of the Lead State or other Participating or Purchasing Entity, at reasonable times, in order to monitor and evaluate performance, compliance, and/or quality assurance requirements under this Master Agreement. Products that do not meet specifications may be rejected. Failure to reject upon receipt, however, does not relieve the contractor of liability for material (nonconformity that substantial impairs value) latent or hidden defects subsequently revealed when goods are put to use. Acceptance of such goods may be revoked in accordance with the provisions of the applicable commercial code, and the Contractor is liable for any resulting expense incurred by the Purchasing Entity related to the preparation and shipping of Product rejected and returned, or for which Acceptance is revoked.

c. If any services do not conform to contract requirements, the Purchasing Entity may require the Contractor to perform the services again in conformity with contract requirements, at no increase in Order amount. When defects cannot be corrected by re-performance, the Purchasing Entity may require the Contractor to take necessary action to ensure that future performance conforms to contract requirements; and reduce the contract price to reflect the reduced value of services performed.

d. The warranty period shall begin upon Acceptance.

29. Warranty

Unless a warranty is otherwise proposed by Contractor and accepted by the Lead State in accordance with RFP section 4.1.8, this section governs. The Contractor warrants for a period of one year from the date of Acceptance that: (a) the Product performs according to all specific claims that the Contractor made in its response to the solicitation, and (b) (b) the Product is free of defects in materials and workmanship. Upon breach of the warranty, the Contractor will repair or replace (at no charge to the Purchasing Entity) the Product whose nonconformance is discovered and made known to the Contractor. If the repaired and/or replaced Product proves to be inadequate, or fails of its essential purpose, the Contractor will refund the full amount of any payments that have been made. The rights and remedies of the parties under this warranty are in addition to any other rights and remedies of the parties provided by law or equity, including, without limitation, actual damages, and, as applicable and awarded under the law, to a prevailing party, reasonable attorneys' fees and costs.

30. NASPO ValuePoint Cooperative Program Marketing and Performance Review

a. Contractor agrees to work cooperatively with NASPO ValuePoint personnel. Contractor agrees to present plans to NASPO ValuePoint for the education of Contractor's contract administrator(s) and sales/marketing workforce regarding the Master Agreement contract, including the competitive nature of NASPO ValuePoint procurements, the Master agreement and participating addendum process, and the manner in which qualifying entities can participate in the Master Agreement.

b. Contractor agrees to participate in an annual contract performance review at a location selected by the Lead State and NASPO ValuePoint, which may include a discussion of marketing action plans, target strategies, marketing materials, as well as Contractor reporting and timeliness of payment of administration fees.

31. Title of Product

Upon Acceptance by the Purchasing Entity, Contractor shall convey to Purchasing Entity title to the Product free and clear of all liens, encumbrances, or other security interests. Transfer of title to the Product shall include an irrevocable and perpetual license to use any Embedded Software in the Product. If Purchasing Entity subsequently transfers title of the Product to another entity, Purchasing Entity shall have the right to transfer the license to use the Embedded Software with the transfer of Product title. A subsequent transfer of this software license shall be at no additional cost or charge to either Purchasing Entity or Purchasing Entity's transferee.

32. Waiver of Breach

Failure of the Lead State, Participating Entity, or Purchasing Entity to declare a default or enforce any rights and remedies shall not operate as a waiver under this Master Agreement or Participating Addendum. Any waiver by the Lead State, Participating Entity, or Purchasing Entity must be in writing. Waiver by the Lead State or Participating Entity of any default, right or remedy under this Master Agreement or Participating Addendum, or by Purchasing Entity with respect to any Purchase Order, or breach of any terms or requirements of this Master Agreement, a Participating Addendum, or Purchase Order shall not be construed or operate as a waiver of any subsequent default or breach of such term or requirement, or of any other term or requirement under this Master Agreement, Participating Addendum, or Purchase Order.

33. Assignment of Antitrust Rights

Contractor irrevocably assigns to a Participating Entity who is a State any claim for relief or cause of action which the Contractor now has or which may accrue to the Contractor in the future by reason of any violation of state or federal antitrust laws (15 U.S.C. § 1-15 or a Participating Entity's state antitrust provisions), as now in effect and as may be

amended from time to time, in connection with any goods or services provided to the Contractor for the purpose of carrying out the Contractor's obligations under this Master Agreement or Participating Addendum, including, at a Participating Entity's option, the right to control any such litigation on such claim for relief or cause of action.

34. Debarment

The Contractor certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract) by any governmental department or agency. This certification represents a recurring certification made at the time any Order is placed under this Master Agreement. If the Contractor cannot certify this statement, attach a written explanation for review by the Lead State.

35. Governing Law and Venue

a. The procurement, evaluation, and award of the Master Agreement shall be governed by and construed in accordance with the laws of the Lead State sponsoring and administering the procurement. The construction and effect of the Master Agreement after award shall be governed by the law of the state serving as Lead State (in most cases also the Lead State). The construction and effect of any Participating Addendum or Order against the Master Agreement shall be governed by and construed in accordance with the laws of the Participating Entity's or Purchasing Entity's State.

b. Unless otherwise specified in the RFP, the venue for any protest, claim, dispute or action relating to the procurement, evaluation, and award is in the Lead State. Venue for any claim, dispute or action concerning the terms of the Master Agreement shall be in the state serving as Lead State. Venue for any claim, dispute, or action concerning any Order placed against the Master Agreement or the effect of a Participating Addendum shall be in the Purchasing Entity's State.

c. If a claim is brought in a federal forum, then it must be brought and adjudicated solely and exclusively within the United States District Court for (in decreasing order of priority): the Lead State for claims relating to the procurement, evaluation, award, or contract performance or administration if the Lead State is a party; the Participating State if a named party; the Participating Entity state if a named party; or the Purchasing Entity state if a named party.

36. NASPO ValuePoint eMarket Center

a. In July 2011, NASPO ValuePoint entered into a multi-year agreement with SciQuest, Inc. whereby SciQuest will provide certain electronic catalog hosting and management services to enable eligible NASPO ValuePoint's customers to access a central online website to view and/or shop the goods and services available from existing NASPO ValuePoint Cooperative Contracts. The central online website is referred to as the NASPO ValuePoint eMarket Center.

b. The Contractor will have visibility in the eMarket Center through Ordering Instructions. These Ordering Instructions are available at no cost to the Contractor and provide customers information regarding the Contractors website and ordering information. The Contractor is required at a minimum to participate in the eMarket Center through Ordering Instructions.

c. At a minimum, the Contractor agrees to the following timeline: NASPO ValuePoint eMarket Center Site Admin shall provide a written request to the Contractor to begin Ordering Instruction process. The Contractor

shall have thirty (30) days from receipt of written request to work with NASPO ValuePoint to provide any unique information and ordering instructions that the Contractor would like the customer to have.

d. If the solicitation requires either a catalog hosted on or integration of a punchout site with eMarket Center or either solution is proposed by a Contractor and accepted by the Lead State, the provisions of the eMarket Center Appendix to these NASPO ValuePoint Master Agreement Terms and Conditions apply.

eMarket Center Appendix

a. This Appendix applies whenever a catalog hosted by or integration of a punchout site with eMarket Center is required by the solicitation or either solution is proposed by a Contractor and accepted by the Lead State.

b. Supplier's Interface with the eMarket Center. There is no cost charged by SciQuest to the Contractor for loading a hosted catalog or integrating a punchout site.

c. At a minimum, the Contractor agrees to the following:

(1) Implementation Timeline: NASPO ValuePoint eMarket Center Site Admin shall provide a written request to the Contractor to begin enablement process. The Contractor shall have fifteen (15) days from receipt of written request to work with NASPO ValuePoint and SciQuest to set up an enablement schedule, at which time SciQuest's technical documentation shall be provided to the Contractor. The schedule will include future calls and milestone dates related to test and go live dates. The contractor shall have a total of Ninety (90) days to deliver either a (1) hosted catalog or (2) punch-out catalog, from date of receipt of written request.

(2) NASPO ValuePoint and SciQuest will work with the Contractor, to decide which of the catalog structures (either hosted or punch-out as further described below) shall be provided by the Contractor. Whether hosted or punch-out, the catalog must be strictly limited to the Contractor's awarded contract offering (e.g. products and/or services not authorized through the resulting cooperative contract should not be viewable by NASPO ValuePoint Participating Entity users).

(a) Hosted Catalog. By providing a hosted catalog, the Contractor is providing a list of its awarded products/services and pricing in an electronic data file in a format acceptable to SciQuest, such as Tab Delimited Text files. In this scenario, the Contractor must submit updated electronic data [Insert Time Frame Here] to the eMarket Center for the Lead State's approval to maintain the most up-to-date version of its product/service offering under the cooperative contract in the eMarket Center.

(b) Punch-Out Catalog. By providing a punch-out catalog, the Contractor is providing its own online catalog, which must be capable of being integrated with the eMarket Center as a. Standard punch-in via Commerce eXtensible Markup Language (cXML). In this scenario, the Contractor shall validate that its online catalog is up-to-date by providing a written update [every Insert Time Frame Here] to the Lead State stating they have audited the offered products/services and pricing listed on its online catalog. The site must also return detailed UNSPSC codes (as outlined in line 3) for each line item. Contractor also agrees to provide e-Quote functionality to facilitate volume discounts.

d. Revising Pricing and Product Offerings: Any revisions to product/service offerings (new products, altered SKUs, new pricing etc.) must be pre-approved by the Lead State and shall be subject to any other applicable restrictions with respect to the frequency or amount of such revisions. However, no cooperative contract enabled in the eMarket Center may include price changes on a more frequent basis than once per quarter. The following conditions apply with respect to hosted catalogs:

(1). Updated pricing files are required by the 1st of the month and shall go into effect in the eMarket Center on the [1st day of the following month (i.e. file received on 1/01/13 would be effective in the eMarket Center on 2/01/13)]. Files received after the 1st of the month may be delayed up to a month (i.e. file received on 11/06/09 would be effect in the eMarket Center on 1/01/10).

(2) Lead State-approved price changes are not effective until implemented within the eMarket Center. Errors in the Contractor's submitted pricing files will delay the implementation of the price changes in eMarket Center.

e. Supplier Network Requirements: Contractor shall join the SciQuest Supplier Network (SQSN) and shall use the SciQuest's Supplier Portal to import the Contractor's catalog and pricing, into the SciQuest system, and view reports on catalog spend and product/pricing freshness. The Contractor can receive orders through electronic delivery (cXML) or through low-tech options such as fax. More information about the SQSN can be found at: www.sciquest.com or call the SciQuest Supplier Network Services team at 800-233-1121.

f. Minimum Requirements: Whether the Contractor is providing a hosted catalog or a punch-out catalog, the Contractor agrees to meet the following requirements:

(1) Catalog must contain the most current pricing, including all applicable administrative fees and/or discounts, as well as the most up-to-date product/service offering the Contractor is authorized to provide in accordance with the cooperative contract; and

(2) The accuracy of the catalog must be maintained by Contractor throughout the duration of the cooperative contract between the Contractor and the Contract Administrator; and

(3) The Catalog must include a Lead State contract identification number; and

(4) The Catalog must include detailed product line item descriptions; and

(5) The Catalog must include pictures when possible; and

(6) The Catalog must include any additional NASPO ValuePoint and Participating Addendum requirements. Although suppliers in the SQSN normally submit one (1) catalog, it is possible to have multiple contracts applicable to different NASPO ValuePoint Participating Entities. For example, a supplier may have different pricing for state government agencies and Board of Regents institutions. Suppliers have the ability and responsibility to submit separate contract pricing for the same catalog if applicable. The system will deliver the appropriate contract pricing to the user viewing the catalog.

g. Order Acceptance Requirements: Contractor must be able to accept Purchase Orders via fax or cXML. The Contractor shall provide positive confirmation via phone or email within 24 hours of the Contractor's receipt of the Purchase Order. If the Purchasing Order is received after 3pm EST on the day before a weekend or holiday, the Contractor must provide positive confirmation via phone or email on the next business day.

h. UNSPSC Requirements: Contractor shall support use of the United Nations Standard Product and Services Code (UNSPSC). UNSPSC versions that must be adhered to are driven by SciQuest for the suppliers and are upgraded every year. NASPO ValuePoint reserves the right to migrate to future versions of the UNSPSC and the Contractor shall be required to support the migration effort. All line items, goods or services provided under the resulting statewide contract must be associated to a UNSPSC code. All line items must be identified at the most detailed UNSPSC level indicated by segment, family, class and commodity. More information about the UNSPSC is available at:http://www.unspsc.com and http://www.unspsc.com/FAQs.asp#howdoesunspscwork.

i. Applicability: Contractor agrees that NASPO ValuePoint controls which contracts appear in the eMarket Center and that NASPO ValuePoint may elect at any time to remove any supplier's offering from the eMarket Center.

j. The Lead State reserves the right to approve the pricing on the eMarket Center. This catalog review right is solely for the benefit of the Lead State and Participating Entities, and the review and approval shall not waive the requirement that products and services be offered at prices (and approved fees) required by the Master Agreement.

k. Several NASPO ValuePoint Participating Entities currently maintain separate SciQuest eMarketplaces, these Participating Entities do enable certain NASPO ValuePoint Cooperative Contracts. In the event one of these entities elects to use this NASPO ValuePoint Cooperative Contract (available through the eMarket Center) but publish to their own eMarketplace, the Contractor agrees to work in good faith with the entity and NASPO ValuePoint to implement the catalog. NASPO ValuePoint does not anticipate that this will require substantial additional efforts by the Contractor; however, the supplier agrees to take commercially reasonable efforts to enable such separate SciQuest catalogs.

Contract Provisions for Orders Utilizing Federal Funds 7.37

Pursuant to Appendix II to 2 Code of Federal Regulations (CFR) Part 200, Contract Provisions for Non-Federal Entity Contracts Under Federal Awards, Orders funded with federal funds may have additional contractual requirements or certifications that must be satisfied at the time the Order is placed or upon delivery. These federal requirements may be proposed by Participating Entities in Participating Addenda and Purchasing Entities for incorporation in Orders placed under this master agreement.

D. CONTRACTOR'S TERMS AND CONDITIONS CONTAINED IN CONTRACTOR'S RESPONSE AS REVISED AND ACCEPTED BY THE LEAD STATE

SERVICES AND PURCHASING TERMS AND CONDITIONS

1 TASER services will not be authorized until a signed Quote or Purchase Order is received, whichever is first.

1.1 **Evidence.com Subscription Term:** The Initial Term of the Subscription services will begin after shipment of the Product. If shipped in 1st half of the month, the start date is on the 1st of the following month. If shipped in the last half of the month, the start date is on the 15th of the following month.

1.2 **Professional Services Term:** Amounts pre-paid for professional services as outlined in the Quote and the Professional Service Appendix must be used within 6 months of the Effective Date.

2 **Definitions.**

"Business Day" means Monday through Friday, excluding holidays.

"Confidential Information" means all nonpublic information disclosed by TASER, TASER affiliates, business partners of TASER or their respective employees, contractors or agents that is designated as confidential or that, given the nature of the information or circumstances surrounding its disclosure, reasonably should be understood to be confidential.

"Documentation" means the (i) specifications, explanatory or informational materials, whether in paper or electronic form, that relate to the Services provided under this

Agreement, or (ii) user manuals, technical manuals, training manuals, warnings, specification or other explanatory or informational materials, whether in paper or electronic form, that relate to the Products provided under this Agreement.

"Evidence.com Service" means TASER web services for Evidence.com, the Evidence.com site, EVIDENCE Sync software, Axon Capture App, Axon® Mobile App, other software, maintenance, storage, and product or service provided by us under this Agreement for use with Evidence.com. This does not include any Third Party Applications, hardware warranties, or the my.evidence.com services.

"**Installation Site**" means the location(s) where the Products are to be installed.

"Policies" means the Trademark Use Guidelines, all restrictions described on the TASER website, and any other policy or terms referenced in or incorporated into this Agreement. Policies do not include whitepapers or other marketing materials.

"Products" means all TASER equipment, software, cloud based services, Documentation and software maintenance releases and updates provided by TASER under this Agreement.

"Quote" is an offer to sell, is valid only for products and services listed on the quote at prices on the quote. All Quotes referenced in this Agreement or issued and accepted after the Effective Date of this Agreement will be subject to the terms of this Agreement. Any terms and conditions contained within the Agency's purchase order in response to the Quote will be null and void and shall have no force or effect. TASER is not responsible for pricing, typographical, or other errors in any offer by TASER and TASER reserves the right to cancel any orders resulting from such errors. TASER reserves the right to adjust prices or Products unless otherwise specified in the Quote.

"Resolution Time" means the elapsed time between TASER's acknowledgment of an issue until the problem in the Services has been resolved, which does not include time delays caused by the Agency or by third parties outside of TASER's reasonable control.

"Services" means all services provided by TASER pursuant to this Agreement.

"Agency Content" means software, data, text, audio, video, images or other Agency content or any of the Agency's end users (a) run on the Evidence.com Services, (b) cause to interface with the Evidence.com Services, or (c) upload to the Evidence.com Services under the Agency account or otherwise transfer, process, use or store in connection with the Agency account.

3 **Payment Terms.** Invoices are due to be paid within 30 days of the date of invoice; provided, however, payment received in forty-five (45) days shall not constitute default hereunder nor entitle TASER to late payment fees or interest. All orders are subject to prior credit approval. Payment obligations are non-cancelable and fees paid are non-refundable and all amounts payable will be made without setoff, deduction, or withholding.

4 **Shipping; Title; Risk of Loss; Rejection.** TASER reserves the right to make partial shipments and products may ship from multiple locations. Shipping dates are estimates only. The Agency may reject nonconforming Product by providing TASER written notice of rejection within 10 days of shipment. Failure to notify TASER within the 10 day rejection period will be deemed as acceptance of Product.

5 **Returns.** All sales are final and no refunds or exchanges are allowed, except for warranty returns or as provided by state or federal law.

6 **Warranties.**

6.1 **Hardware Limited Warranty.** TASER warrants that its law enforcement hardware products are free from defects in workmanship and materials for a period of ONE (1) YEAR from the date of receipt. Extended warranties run from the date of purchase of the extended warranty through the balance of the 1-year limited warranty term plus the term of the extended warranty measured after the expiration of the 1-year limited warranty. CEW cartridges and Smart cartridges that are expended are deemed to have operated properly. TASER-Manufactured Accessories are covered under a limited 90-DAY warranty from the date of receipt. Non-TASER manufactured accessories are covered under the manufacturer's warranty. If TASER determines that a valid warranty claim is received within the warranty period, TASER agrees to repair or replace the Product. TASER's sole responsibility under this warranty is to either repair or replace with the same or like Product, at TASER's option.

6.2 **Warranty Limitations.**
The warranties do not apply and TASER will not be responsible for any loss, data loss, damage, or other liabilities arising from: (a) damage from failure to follow instructions relating to the Product's use; (b) damage caused by use with caused by use with non-TASER products or from the use of cartridges, batteries or other parts, components or accessories that are not manufactured or recommended by TASER; (c) damage caused by abuse, misuse, intentional or deliberate damage to the product, or force majeure; (d) damage to a Product or part that has been repaired or modified by persons other than TASER authorized personnel or without the written permission of TASER; or (e) if any TASER serial number has been removed or defaced.

6.2.1 **To the extent permitted by law, the warranties and the remedies set forth above are exclusive and TASER disclaims all other warranties, remedies, and conditions, whether oral or written, statutory, or implied, as permitted by applicable law. If statutory or implied warranties cannot be lawfully disclaimed, then all such warranties are limited to the duration of the express warranty described above and limited by the other provisions contained in this Agreement.**

TASER's cumulative liability to any Party for any loss or damage resulting from any claims, demands, or actions arising out of or relating to any TASER product will not exceed twice the purchase price paid to TASER for the product or if for services, the amount paid for such services. In no event will either Party be liable for any, special, indirect, incidental, exemplary, punitive or consequential damages, however caused, whether for breach of warranty, breach of contract, negligence, strict liability, tort or under any other legal theory. This limitation shall not apply to Section – 9.3 – Indemnification in the State of Oklahoma Terms and Conditions. This limitation also shall not apply to Section 7.14: Indemnification in the NASPO ValuePoint Master Agreement Terms & Conditions.

6.3 **Warranty Returns.** If a valid warranty claim is received by TASER within the warranty period, TASER agrees to repair or replace the Product which TASER determines in its sole discretion to be defective under normal use, as defined in the Product instructions. TASER's sole responsibility under this warranty is to either repair or replace with the same or like Product, at TASER's option.

6.3.1 For warranty return and repair procedures, including troubleshooting guides, please go to TASER's websites www.taser.com/support or www.evidence.com, as indicated in the appropriate product user manual or quick start guide.

6.3.2 Before delivering product for warranty service, it is the Agency's responsibility to upload the data contained in the product to the EVIDENCE.com services or download the product data and keep a separate backup copy of the contents. TASER is not responsible for any loss of software programs, data, or other information contained on the storage media or any other part of the product services.

6.3.3 A replacement product will be new or like new and have the remaining warranty period of the original product or 90 days from the date of replacement or repair, whichever period is longer. When a product or part is exchanged, any replacement item becomes Purchaser's property and the the replaced item becomes TASER's property.

7 **Design Changes.** TASER reserves the right to make changes in the design of any of TASER's products and services without incurring any obligation to notify the Agency or to make the same change to products and services previously purchased.

8 **Insurance.** TASER will maintain at TASER's own expense and in effect during the Term, Commercial General Liability Insurance, Workers' Compensation Insurance and Commercial Automobile Insurance and will furnish certificates of insurance or self-insurance upon request.

9 **IP Rights.** TASER owns and reserves all right, title, and interest in the TASER Products and related software, as well as any suggestions made to TASER.

10 **Agency Responsibilities.** The Agency is responsible for (i) use of TASER Products (including any activities under the Agency Evidence.com account and use by Agency employees and agents), (ii) breach of this Agreement or violation of applicable law by the Agency or any of the Agency's end users, (iii) Agency Content or the combination of Agency Content with other applications, content or processes, including any claim involving alleged infringement or misappropriation of third party rights by Agency Content or by the use of Agency Content, (iv) a dispute between the Agency and any third party over Agency use of TASER products or the collection or use of Agency Content, (v) any hardware or networks that the Agency connects to the Evidence.com Services, and (vi) any security settings the Agency establishes to interact with or on the Evidence.com Services.

11 **Termination.** TASER may terminate its contract with the Purchasing Entity for cause upon 30 days advance notice to the Purchasing Entity if there is any material default or breach of the contract by the Purchasing Entity, unless the defaulting Purchasing Entity has cured the material default or breach within the 30-day notice period. The Purchasing Entity may terminate its contract with TASER for cause upon 30 days advance notice to TASER, if there is any material default or breach of the contract by TASER and TASER fails to cure the material default or breach within the 30-day notice period. In the event that the Purchasing Entity terminates this Agreement under this Section and TASER fails to cure the material breach or default, TASER will issue a refund of any prepaid amounts on a prorated basis. Notwithstanding the above, such termination between TASER and the Purchasing Entity shall not terminate the Master Agreement between TASER and NASPO.

11.1 **After Termination.** TASER will not delete any Agency Content as a result of a termination during a period of 90 days following termination. During this 90-day period the Agency may retrieve Agency Content only if all amounts due have been paid (there will be no application functionality of the Evidence.com Services during this 90-day period other than the ability to retrieve Agency Content). The Agency will not incur any additional fees if Agency Content is downloaded from Evidence.com during this 90-day period. TASER has no obligation to maintain or provide any Agency Content after this 90-day period and will thereafter, unless legally prohibited, delete all of Agency Content stored in the Evidence.com Services. Upon request, TASER will provide written proof that all Agency Content has been successfully deleted and fully removed from the Evidence.com Services.

11.2 **Post-Termination Assistance.** TASER will provide Agency with the same post-termination data retrieval assistance that TASER generally makes available to all customers. Requests for TASER to provide additional assistance in downloading or transferring Agency Content will result in additional fees and TASER will not warrant or guarantee data integrity or readability in the external system.

12 **General.**

12.1 **Excusable delays**. TASER will use commercially reasonable efforts to deliver all products and services ordered as soon as reasonably practicable. In the event of interruption of any delivery due to causes beyond TASER's reasonable control TASER has the right to delay or terminate the delivery with reasonable notice.

12.2 **Independent Contractors**. The Parties are independent contractors. Neither Party, nor any of their respective affiliates, has the authority to bind the other. This Agreement does not create a partnership, franchise, joint venture, agency, fiduciary, or employment relationship between the Parties.

12.3 **U.S. Government Rights**. Any Evidence.com Services provided to the U.S. Government as "commercial items," "commercial computer software," "commercial computer software documentation," and "technical data" will have the same rights and restrictions generally applicable to the Evidence.com Services. If the Agency is using the Evidence.com Services on behalf of the U.S. Government and these terms fail to meet the U.S. Government's needs or are inconsistent in any respect with federal law, the Agency will immediately discontinue use of the Evidence.com Services. The terms "commercial item," "commercial computer software," "commercial computer software documentation," and "technical data" are defined in the Federal Acquisition Regulation and the Defense Federal Acquisition Regulation Supplement.

12.4 **Import and Export Compliance**. In connection with this Agreement, each Party will comply with all applicable import, re- import, export, and re-export control laws and regulations.

12.5 **No Waivers**. The failure by either Party to enforce any provision of this Agreement will not constitute a present or future waiver of the provision nor limit the Party's right to enforce the provision at a later time.

12.6 **Severability**. This Agreement is contractual and not a mere recital. If any portion o f this Agreement is held to be invalid or unenforceable, the remaining portions of this Agreement will remain in full force and effect.

12.7 **Notices**. All communications and notices to be made or given to the Lead State pursuant to this Master Agreement must be in the English language. All notices related to this Master Agreement shall be provided to the Lead State by personal delivery and/or email and will be effective upon receipt. Contact information for notices:

TASER:
TASER International, Inc.
Attn: Contracts
17800 N. 85th Street
Scottsdale, AZ 85255
contracts@taser.com

Lead State:
Ferris J. Barger
State Purchasing Director
5005 North Lincoln Boulevard, Suite 300
Oklahoma City, OK 73105

With a copy to:

OMES-Central Purchasing Deputy General Counsel
5005 North Lincoln Boulevard, Suite 300
Oklahoma City, OK 73105

12.8 **Counterparts**. If this Agreement form requires the signatures of the Parties, then this Agreement may be executed by electronic signature in multiple counterparts, each of which is considered an original.

The terms contained herein will apply to the Agency where appropriate in accordance with the Products and Services listed on the Quote provided to the Agency for signature. The Agency agrees when signing the related Quote that the Agency has caused this Agreement to be duly executed. Each Party warrants and represents that its respective signatories whose signatures appear on the Quote have been and are, on the date of signature, duly authorized to execute this Agreement.

EVIDENCE.COM TERMS OF USE

1 **Access Rights.** Upon the purchase or granting of a subscription from TASER and the opening of an Evidence.com account the Agency will have access and use of the Evidence.com Services for the storage and management of Agency Content during the subscription term (**Term**). The Evidence.com Service and data storage are subject to usage limits. The Evidence.com Service may not be accessed by more than the number of end users specified in the Quote. If Agency becomes aware of any violation of this Agreement by an end user, the Agency will immediately terminate that end user's access to Agency Content and the Evidence.com Services.

2 **Agency Owns Agency Content.** The Agency controls and owns all right, title, and interest in and to Agency Content and TASER obtains no rights to the Agency Content and the Agency Content are not business records of TASER. The Agency is solely responsible for the uploading, sharing, withdrawal, management and deletion of Agency Content. TASER will have limited access to Agency Content solely for the purpose of providing and supporting the Evidence.com Services to the Agency and Agency end users. The Agency represents that the Agency owns Agency Content; and that none of Agency Content or Agency end users' use of Agency Content or the Evidence.com Services will violate this Agreement or applicable laws.

3 **Evidence.com Data Security.**

3.1. **Generally.** TASER will implement commercially reasonable and appropriate measures designed to secure Agency Content against accidental or unlawful loss, access or disclosure. TASER will maintain a comprehensive Information Security Program (**ISP**) that includes logical and physical access management, vulnerability management, configuration management, incident monitoring and response, encryption of digital evidence uploaded, security education, risk management, and data protection. The Agency is responsible for maintaining the security of end user names and passwords and taking steps to maintain appropriate security and access by end users to Agency Content. Log-in credentials are for Agency internal use only and Agency may not sell, transfer, or sublicense them to any other entity or person. The Agency agrees to be responsible for all activities undertaken by the Agency, Agency employees, Agency contractors or agents, and Agency end users which result in unauthorized access to the Agency account or Agency Content. Audit log tracking for the video data is an automatic feature of the Services which provides details as to who accesses the video data and may be downloaded by the Agency at any time. The Agency shall contact TASER immediately if it is discovered that an unauthorized third party may be using the Agency account or Agency Content or if account information is lost or stolen.

3.2. **FBI CJIS Security Addendum.** For customers based in the United States, TASER agrees to the terms and requirements set forth in the Federal Bureau of Investigation (**FBI**) Criminal Justice Information Services (**CJIS**) Security Addendum for the Term of this Agreement.

4 **Our Support.** TASER will make available updates as released by TASER to the Evidence.com Services. Updates may be provided electronically via the Internet. TASER will use reasonable efforts to continue supporting the previous version of any API or software for 6 months after the change (except if doing so (a) would pose a security or intellectual property issue, (b) is economically or technically burdensome, or (c) is needed to comply with the law or requests of governmental entities. The Agency is responsible for maintaining the computer equipment and Internet connections necessary for use of the Evidence.com Services.

5 **Data Privacy.** TASER will not disclose Agency Content or any information about the Agency except as compelled by a court or administrative body or required by any law or regulation. TASER will immediately give notice if any disclosure request is received for Agency Content so the Agency may have ample time to file an objection with the court or administrative body. The Agency agrees to allow TASER access to certain information from the Agency in order to: (a) perform troubleshooting services for the account upon request or as part of our regular diagnostic screenings; (b) enforce this agreement or policies governing use of Evidence.com Services; or (c) perform analytic and diagnostic evaluations of the systems.

6 **Data Storage.** TASER will determine the locations of the data centers in which Agency Content will be stored and accessible by Agency end users. For United States customers, TASER will ensure that all Agency Content stored in the Evidence.com Services remains within the United States including any backup data, replication sites, and disaster recovery sites. TASER may transfer Agency Content to third parties for the purpose of storage of Agency Content. TASER agrees to provide Agency with prior written notice and obtain Agency's written approval before transferring Agency Content to third parties. The Agency's approval shall not be unreasonably withheld. Third party subcontractors responsible for storage of Agency Content are contracted by TASER for data storage services. Ownership of Agency Content remains with the Agency. For use of an Unlimited Evidence.com License unlimited data may be stored in the Agency's Evidence.com account if the data originates from a TASER device. For use of Totally Unlimited Evidence.com Licenses TASER reserves the right to limit the types of content the Agency can store and share using the Services.

7 **Fees and Payment.** Additional end users may be added during the Term at the pricing in effect at the time of purchase of additional end users, prorated for the duration of the Term. Additional end user accounts will terminate on the same date as the pre-existing subscriptions. Upon 30 days notice to the Agency, TASER reserves the right to charge Additional fees mutually agreed to may be applied for exceeding purchased storage amounts. Additional storage may be purchased for $0.75 per GB per year. TASER also reserves the right to charge for TASER's assistance in the downloading or exporting of Agency Content. TASER's assistance is at a cost of $2,000 per day.

8 **Suspension of Evidence.com Services.** TASER may suspend Agency access or any end user's right to access or use any portion or all of the Evidence.com Services immediately upon notice in accordance with the following:

8.1. In the event the Agency materially breaches any term of the Master Agreement or TASER's MSPA is Agreement and fails to cure such breach after TASER provides 30 days' notice, pursuant to Section 11 of the MSPA;

8.2. The Agency or an end user's use of or registration for the Evidence.com Services (i) poses a security risk to the Evidence.com Services or any third party, (ii) may adversely impact the Evidence.com Services or the systems or content of any other customer, (iii) may subject TASER, TASER's affiliates, or any third party to liability, or (iv) may be

fraudulent;

8.3. TASER will not delete any of Agency Content on Evidence.com as a result of a suspension, except as specified elsewhere in this Agreement.

9 **Software Services Warranty**. TASER warrants that the Evidence.com Services will not infringe or misappropriate any patent, copyright, trademark, or trade secret rights of any third party. Solely for the purposes of Evidence.com Services, TASER disclaims any warranties or responsibility for data corruption or errors before the data is uploaded to the Evidence.com Services, provided such corruption or errors is not the result of TASER's hardware or software.

10 **License Restrictions**. Neither the Agency nor any Agency end users may, or attempt to: (a) permit any third party to access the Evidence.com Services except as permitted in this Agreement; (b) modify, alter, tamper with, repair, or otherwise create derivative works of any of the Evidence.com Services; (c) reverse engineer, disassemble, or decompile the Evidence.com Services or apply any other process or procedure to derive the source code of any software included in the Evidence.com Services, or allow any others to do the same; (d) access or use the Evidence.com Services in a way intended to gain unauthorized access, avoid incurring fees or exceeding usage limits or quotas; (e) copy the Evidence.com Services in whole or part, except as expressly permitted in this Agreement; (f) use trade secret information contained in the Evidence.com Services, except as expressly permitted in this Agreement; (g) resell, rent, loan, or sublicense the Evidence.com Services; (h) access the Evidence.com Services in order to build a competitive product or service or copy any features, functions, or graphics of the Evidence.com Services; (i) remove, alter, or obscure any confidentiality or proprietary rights notices (including copyright and trademark notices) of ours or our licensors on or within the Evidence.com Services or any copies of the Evidence.com Services; or (j) use the Evidence.com Services to store or transmit infringing, libelous, or otherwise unlawful or tortious material, to store or transmit material in violation of third party privacy rights, or to store or transmit malicious code. All licenses granted in this Agreement are conditional on continued compliance this Agreement, and will immediately and automatically terminate if the Agency does not comply with any term or condition of this Agreement. The Agency may only use our trademarks in accordance with the TASER Trademark Use Guidelines (located at www.TASER.com).

11 Evidence.com Notices. Notices regarding the Evidence.com services, including but not limited to planned maintenance and outages may be provided from TASER by posting on the Agency's Evidence.com site.

PROFESSIONAL SERVICES

1 **Scope of Services.** The project scope will consist of the Services identified on the Quote.

1.1. The Package for the Axon and Evidence.com related Services are detailed below:

System set up and configuration
Setup Axon® Mobile on smart phones (if applicable). Configure categories & custom roles based on Agency need.
Troubleshoot IT issues with Evidence.com and Evidence.com Dock (Dock) access.
Work with IT to install EVIDENCE Sync software on locked-down computers (if applicable). For the Full Service Package: One on-site session Included
For the Starter Package: Virtual Assistance Included

Dock installation Work with Agency to decide ideal location of Dock setup and set configurations on Dock if necessary. Authenticate Dock with Evidence.com using "admin" credentials from Agency. Work with Agency's IT to configure its network to allow for maximum bandwidth and proper operation within Agency's network environment. For Full Service: On site Assistance Included For the Starter Package: Virtual Assistance Included
Dedicated Project Manager Assignment of a specific TASER representative for all aspects of planning the Product rollout (Project Manager). Ideally, the Project Manager will be assigned to the Agency 4–6 weeks prior to rollout.
Weekly project planning meetings Project Manager will develop a Microsoft Project plan for the rollout of Axon camera units, Docks and Evidence.com account training based on size, timing of rollout and Agency's desired level of training. Up to 4 weekly meetings leading up to the Evidence.com Dock installation of not more than 30 minutes in length.
Best practice implementation planning session—1 on-site session to: (only included in Full Service Package) Provide considerations for establishment of video policy and system operations best practices based on TASER's observations with other agencies. Discuss importance of entering metadata in the field for organization purposes and other best practice for digital data management. Provide referrals of other agencies using the Axon camera products and Evidence.com services Create project plan for larger deployments. Recommend rollout plan based on review of shift schedules.
System Admin and troubleshooting training sessions (only included in Full Service Package) 2 on-site sessions—each providing a step-by-step explanation and assistance for Agency's configuration of security, roles & permissions, categories & retention, and other specific settings for Evidence.com.
Axon instructor training Prior to general user training on Axon camera systems and Evidence.com services, TASER's on-site professional services team will provide training for instructors who can support the Agency's subsequent Axon camera and Evidence.com training needs.
End user go live training and support sessions Provide individual device set up and configuration assistance; pairing with viewers when applicable; and training on device use, Evidence.com and EVIDENCE Sync.
Implementation document packet Evidence.com administrator guides, camera implementation guides, network setup guide, sample policies, and categories & roles guide
Post go live review session

1.1. Additional training days may be added on to any service package for additional fees set forth in the Quote.

2 **Delivery of Services.**

2.1. **Hours and Travel.** TASER personnel will work within normal business hours, Monday through Friday, 8:30 a.m. to 5:30 p.m., except holidays unless otherwise agreed in advance. All tasks on-site will be performed over a consecutive timeframe unless otherwise agreed to by the Parties in advance. Travel time by TASER personnel to Agency premises will not be charged as work hours performed.

2.2. **Changes to Services.** Changes to the scope of Services must be documented and agreed upon by the Parties in a change order. Changes may require an equitable

adjustment in the charges or schedule.

3 **Authorization to Access Computer Systems to Perform Services.** The Agency authorizes TASER to access relevant Agency computers and network systems solely for the purpose of performing the Services. TASER will work diligently to identify as soon as reasonably practicable the resources and information TASER expects to use, and will provide an initial itemized list to the Agency. The Agency is responsible for, and assumes the risk of any problems, delays, losses, claims, or expenses resulting from the content, accuracy, completeness, and consistency of all data, materials, and information supplied by the Agency.

4 **Site Preparation and Installation.** Prior to delivering any Services, TASER will provide 1 copy of the then-current user documentation for the Services and related Products in paper or electronic form (**Product User Documentation**). The Product User Documentation will include all environmental specifications that must be met in order for the Services and related Products to operate in accordance with the Product User Documentation. Prior to the installation of Product (whether performed by the Agency or TASER), the Agency must prepare the Installation Site in accordance with the environmental specifications set forth in the Product User Documentation. Following the installation of the Products, the Agency must maintain the Installation Site where the Products have been installed in accordance with the environmental specifications set forth in the Product User Documentation. In the event that there are any updates or modifications to the Product User Documentation for any Products provided by TASER under this Agreement, including the environmental specifications for the Products, TASER will provide the updates or modifications to Agency when they are generally released by TASER to TASER customers.

Acceptance Checklist. TASER will present an Acceptance Checklist (**Checklist**) upon completion of the Services that will exactly mirror the description of services within this Section. The Agency will sign the Checklist acknowledging completion of the Services once the on-site service session has been completed. If the Agency reasonably believes that TASER did not complete the Services in substantial conformance with this Agreement, the Agency must notify TASER in writing of the specific reasons for rejection of the Services within 7 calendar days from delivery of the Checklist. TASER will address the issues and then will re-present the Checklist for approval and signature. If TASER does not receive the signed Checklist or a written notification of the reasons for the rejection of the performance of the Services within 7 calendar days of delivery of the Checklist, the absence of the Agency response will constitute affirmative acceptance of the Services, and a waiver of any right of rejection.

TASER ASSURANCE PLAN

The TASER Assurance Plan or "TAP" has been purchased as part of the Quote attached to this Agreement. TAP provides hardware extended warranty coverage, Spare Products, and Upgrade Models at the end of the TAP Term. TAP only applies to the TASER Product listed in the Quote with the exception of any initial hardware or any software services offered for, by, or through the Evidence.com website. The Agency may not buy more than one TAP for any one covered Product.

1 **TAP Warranty Coverage**. TAP includes the extended warranty coverage described in the current hardware warranty. TAP warranty coverage starts at the beginning of the TAP Term and continues as long as the Agency continues to pay the required annual fees for TAP. The Agency may not have both an optional extended warranty and TAP on the Axon camera/Dock product. TAP for the Axon camera products also includes free replacement of the Axon flex controller battery and Axon body battery during the TAP Term for any failure that is not specifically excluded from the Hardware Warranty.

2 **TAP Term**. TAP Term start date is based upon the shipment date of the hardware covered under TAP. If the shipment of the hardware occurred in the first half of the month, then the

Term starts on the 1st of the following month. If the shipment of the hardware occurred in the second half of the month, then the Term starts on the 15th of the following month.

3 **SPARE Product**. TASER will provide a predetermined number of spare Products for those hardware items and accessories listed in the Quote (collectively the "Spare Products") to keep at the Agency location to replace broken or non-functioning units in order to improve the availability of the units to officers in the field. The Agency must return to TASER, through TASER's RMA process, any broken or non-functioning units for which a Spare Product is utilized, and TASER will repair or replace the non-functioning unit with a replacement product. TASER warrants it will repair or replace the unit which fails to function for any reason not excluded by the TAP warranty coverage, during the TAP Term with the same product or a like product, at TASER's sole option. The Agency may not buy a new TAP for the replacement product or the Spare Product.

3.1. Within 30 days of the end of the TAP Term the Agency must return to TASER all Spare Products. The Agency will be invoiced for and are obligated to pay to TASER the MSRP then in effect for all Spare Products not returned to TASER. If all the Spare Products are returned to TASER, then TASER will refresh the allotted number of Spare Products with Upgrade Models if the Agency purchases a new TAP for the Upgrade Models.

4 **TAP Officer Safety Plan (OSP)**. The Officer Safety Plan includes the benefits of the Evidence.com Unlimited License (which includes unlimited data storage for Axon camera and Axon Capture generated data in the Evidence.com Services and TAP for the Axon Camera), TAP for Evidence.com Dock, one TASER brand CEW with a 4-year Warranty, one CEW battery, and one CEW holster. At any time during the OSP term the Agency may choose to receive the CEW, battery and holster by providing a $0 purchase order. At the time elected to receive the CEW, the Agency may choose from any current CEW model offered. The OSP plan must be purchased for a period of 5 years. If the OSP is terminated before the end of the term and the Agency did not receive a CEW, battery or holster, then we will have no obligation to reimburse for those items not received. If OSP is terminated before the end of the term and the Agency received a CEW, battery and/or holster then (a) the Agency will be invoiced for the remainder of the MSRP for the Products received and not already paid as part of the OSP before the termination date; or (b) only in the case of termination for non-appropriations, return the CEW, battery and holster to TASER within 30 days of the date of termination.

5 **TAP Upgrade Models**. Upgrade Models are to be provided as follows during and/or after the TAP Term: (i) an upgrade will provided in year 3 if the Agency purchased 3 years of Evidence.com services with Ultimate Licenses or Unlimited Licenses and all TAP payments are made; or (ii) 2.5 years after the Effective Date and once again 5 years after the Effective Date if the Agency purchased 5 years of Evidence.com services with an Ultimate License or Unlimited Licenses or OSP and made all TAP payments.

For CEW Upgrade Models TASER will upgrade Products, free of charge, with a new unit that is the same product or a like product, in the same weapon class ("Upgrade Model"). For example: (a) if the Product is a single bay CEW, then Agency may choose any single bay CEW model as the Agency's Upgrade Model; (b) if the Product is a multibay CEW, then Agency may choose any multi-bay CEW model as the Upgrade Model; and (c) if the Covered Product is a TASER CAM recorder, then the Agency may choose any TASER CAM model as an Upgrade Model. To continue TAP coverage for the Upgrade Model, the Agency must elect TAP and will be invoiced for the first year payment at the time the upgrade is processed. The TAP payment amount will be the rate then in effect for TAP. Agency may elect to receive the Upgrade Model anytime in the 5th year of the TAP term as long as the final payment has been made.

Any products replaced within the six months prior to the scheduled upgrade will be deemed the Upgrade Model. Thirty days after the Upgrade Models are received, the Agency must return the products to TASER or TASER will deactivate the serial numbers for the products received unless the Agency purchases additional Evidence.com licenses for the Axon camera products the Agency is keeping. The Agency may buy a new TAP for any Upgraded Model.

5.1. **TAP Axon Camera Upgrade Models.**

5.1.1. If the Agency purchased TAP for Axon Cameras as a stand-alone service, then TASER will upgrade the Axon camera (and controller if applicable), free of charge, with a new on-officer video camera that is the same product or a like product, at TASER's sole option. TASER makes no guarantee that the Upgrade Model will utilize the same accessories or Dock. If the Agency would like to change product models for the Upgrade Model, then the Agency must pay the price difference in effect at the time of the upgrade between the MSRP for the offered Upgrade Model and the MSRP for the model that will be acquired. No refund will be provided if the MSRP of the new model is less than the MSRP of the offered Upgrade Model.

5.1.2. If the Agency purchased Unlimited License or OSP, then TASER will upgrade the Axon camera (and controller if applicable), free of charge, with a new on-officer video camera of the Agency's choice.

5.2. **TAP Dock Upgrade Models**. TASER will upgrade the Dock free of charge, with a new Dock with the same number of bays that is the same product or a like product, at TASER's sole option. If the Agency would like to change product models for the Upgrade Model or add additional bays, then the Agency must pay the price difference in effect at the time of the upgrade between the MSRP for the offered Upgrade Model and the MSRP for the model desired. No refund will be provided if the MSRP of the new model is less than the MSRP of the offered Upgrade Model.

6 **TAP Termination.** If an invoice for TAP is more than 30 days past due or the Agency defaults on its payments for the Evidence.com services then TASER may terminate TAP and all outstanding Product related TAPs. TASER will provide notification that TAP coverage is terminated. Once TAP coverage is terminated for any reason, then:

6.1. TAP coverage will terminate as of the date of termination and no refunds will be given.

6.2. TASER will not and has no obligation to provide the free Upgrade Models.

6.3. The Agency will be invoiced for and are obligated to pay to TASER the MSRP then in effect for all Spare Products provided under TAP. If the Spare Products are returned within 30 days of the Spare Product invoice date, credit will be issued and applied against the Spare Product invoice.

6.4. The Agency will be responsible for payment of any missed payments due to the termination before being allowed to purchase any future TAP.

6.5. If the Agency received Axon Products free of charge and TAP is terminated before the end of the term then (a) the Agency will be invoiced for the remainder of the MSRP for the Products received and not already paid as part of the TAP before the termination date; or (b) only in the case of termination for non-appropriations, return the Products to TASER within 30 days of the date of termination.

6.6. If the Agency made two or more annual TAP payments, then the Agency will: retain the extended warranty coverage; receive a 50% credit for the difference between TAP payments paid prior to termination and the extended warranty price then in effect for each CEW covered under TAP; and have until the date listed on the termination notification to apply that credit toward the purchase of any TASER products. The credit amount available and expiration date of the credit will be provided as part of the termination notification.

6.7. If the Agency made only one annual TAP payment, then the Agency may elect to pay the difference between the price for the extended warranty then in effect and the payments made under TAP to continue extended warranty coverage. This election must be made when written notice of cancellation is submitted by the Agency. If the Agency does not elect to continue with an extended warranty, then warranty coverage will terminate as of the date of cancellation/termination.

6.8. If the Agency received a credit towards the first TAP payment as part of a trade-in promotion, then upon cancellation/termination the Agency will be assessed a $100 cancellation fee for each covered Product.

AXON INTEGRATION SERVICES

1. **Term.** The term of this SOW commences on the Effective Date. The actual work to be performed by TASER is not authorized to begin until TASER receives the signed Quote or a purchase order for the Integration Services, whichever is first.

2. **Scope of Integration Services.** The project scope will consist of the development of an integration module that allows the EVIDENCE.com services to interact with the Agency's RMS so that Agency's licensees may use the integration module to automatically tag the AXON® recorded videos with a case ID, category, and location. The integration module will allow the Integration Module License holders to auto populate the AXON video meta-data saved to the EVIDENCE.com services based on data already maintained in the Agency's RMS. TASER is responsible to perform only the Integration Services described in this SOW and any additional services discussed or implied that are not defined explicitly by this SOW will be considered out of the scope and may result in additional fees.

3. **Pricing.** All Integration Services performed by TASER will be rendered in accordance with the fees and payment terms set forth in the Quote.

4. **Delivery of Integration Services.**

   4.1 **Support After Completion of the Integration Services.** After completion of the Integration Services and acceptance by the Agency, TASER will provide up to 5 hours of remote (phone or Web-based) support services at no additional charge to the Agency. TASER will also provide support services that result because of a change or modification in the EVIDENCE.com services at no additional charge as long as the Agency maintains EVIDENCE.com subscription licenses and Integration Module Licenses, and as long as the change is not required because the Agency changes its RMS. Thereafter, any additional support services provided to the Agency will be charged at TASER's then current standard professional services rate.

   4.2 **Changes to Services.** Changes to the scope of the Integration Services must be documented and greed upon by the Parties in a change order. If the changes cause an increase or decrease in any charges or cause a scheduling change from that originally agreed upon, an equitable adjustment in the charges or schedule will be agreed upon by the Parties and included in the change order, signed by both Parties.

   4.3 **Warranty.** TASER warrants that it will perform the Integration Services in a good and workmanlike manner.

5 **Acceptance.** TASER will present Agency with a completed Checklist (**Checklist**) certifying TASER's completion of the Integration Services. If Agency reasonably believes that TASER did not complete the Integration Services in substantial conformance with this SOW, Agency must notify TASER in writing of its specific reasons for rejection within 7 calendar days from delivery of the Checklist to the Agency. TASER will address the Agency's issues and will re-present the Checklist for the Agency's review. If TASER does not receive a written notification of the reasons for rejection of the Checklist, the absence of a response will

constitute Agency's affirmative acceptance of the Integration Services, and a waiver of any right of rejection.

6 **Agency's Responsibilities.** TASER's successful performance of the Integration Services depends upon the Agency's:

6.1 Making available its relevant systems, including its current RMS, for assessment by TASER (including making these systems available to TASER via remote access if possible);

6.2 Making any required modifications, upgrades or alterations to Agency's hardware, facilities, systems and networks related to TASER's performance of the Integration Services;

6.3 Providing access to the building facilities and where TASER is to perform the Integration Services, subject to safety and security restrictions imposed by the Agency (including providing security passes or other necessary documentation to TASER representatives performing the Integration Services permitting them to enter and exit Agency premises with laptop personal computers and any other materials needed to perform the Integration Services);

6.4 Providing all necessary infrastructure and software information (TCP/IP addresses, node names, and network configuration) necessary for TASER to provide the Integration Services;

6.5 Promptly installing and implementing any and all software updates provided by TASER;

6.6 Ensuring that all appropriate data backups are performed;

6.7 Providing to TASER the assistance, participation, review and approvals and participating in testing of the Integration Services as requested by TASER;

6.8 Providing TASER with remote access to the Agency's Evidence.com account when required for TASER to perform the Integration Services;

6.9 Notifying TASER of any network or machine maintenance that may impact the performance of the integration module at the Agency; and

6.10 Ensuring the reasonable availability by phone or email of knowledgeable staff and personnel, system administrators, and operators to provide timely, accurate, complete, and up-to-date documentation and information to TASER (these contacts are to provide background information and clarification of information required to perform the Integration Services).

7 **Authorization to Access Computer Systems to Perform Services.** Agency authorizes TASER to access Agency's relevant computers, network systems, and RMS solely for the purpose of performing the Integration Services. TASER will work diligently to identify as soon as reasonably practicable the resources and information TASER expects to use, and will provide an initial itemized list to Agency. Agency is responsible for, and assumes the risk of any problems, delays, losses, claims, or expenses resulting from the content, accuracy, completeness, and consistency of all data, materials, and information supplied by Agency.

8 **Definitions.**

"Integration Services" means the professional services provided by us pursuant to this SOW.

AXON FORENSIC SUITE SOFTWARE

Use of any of the Axon Forensic Suite Software including Axon Convert, Axon Five and Axon Detect (Software) indicates agreement to the terms below. The Software, all executable instructions, images, icons, sound, and text incorporated in the Software, is owned by Amped Software SRL. (Amped) and is protected by United States copyright laws and international treaty provisions. Except to the extent expressly licensed in this Agreement, all rights are reserved to Amped.

1. **License Grant**. TASER grants a non-exclusive, royalty-free, worldwide right and license to use the Software, where "use" and "using" in this Agreement mean storing, loading, installing, or executing the Software exclusively for data communication with an Amped or a TASER product. This Software may be used in a networked environment on computers other than the computer on

which the Software is installed provided that each execution of the Software is for data communication with an Amped or a TASER product. Copies and adaptations of the Software may be made for archival purposes and when copying or adaptation is an essential step in the authorized use of the Software provided that the Agency retains all copyright, trademark, and proprietary notices in the original Software on all copies or adaptations. The Agency may copy the written materials accompanying the Software.

2. **Definitions**. "Amped Software" means the computer software programs available developed by Amped and the name of the applications are Amped Five Professional, Amped Five First Responder, Amped DVRCONV, and AMPED AUTHENTICATE. "Amped Copyrights" means Amped's copyrights in and to Amped Five.

3. **License Restrictions**. The Agency may not use the Software in any manner or for any purpose other than as expressly permitted by this Agreement. The Agency may not: (a) modify, alter, tamper with, repair, or otherwise create derivative works of the Software; (b) reverse engineer, disassemble, or decompile the Software or apply any other process or procedure to derive the source code of the Software, or allow any others to do the same; (c) access or use the Software in a way intended to avoid incurring fees or exceeding usage limits or quotas; (d) copy the Software in whole or part, except as expressly permitted in this Agreement; (e) use trade secret information contained in the Software, except as expressly permitted in this Agreement; (f) resell, rent, loan or sublicense the Software; (g) access the Software in order to build a competitive product or service or copy any features, functions or graphics of the Software; or (h) remove, alter or obscure any confidentiality or proprietary rights notices (including copyright and trademark notices) of Amped or TASER licensors on or within the Software or any copies of the Software. All licenses granted to the Agency in this Agreement are conditional on continued compliance this Agreement, and will immediately and automatically terminate if the Agency does not comply with any term or condition of this Agreement. During the term of use of the Software and after, the Agency will not assert, nor authorize, assist, or encourage any third party to assert, against TASER or any TASER affiliates, customers, vendors, business partners, or licensors, any patent infringement or other intellectual property infringement claim regarding the Software.

4. **Support**. The Agency acknowledges that TASER offers no guarantee of support or maintenance for Amped FIVE until purchased. Once purchased, TASER will offer support of Amped Five for one year at support@taser.com. On or before the one year anniversary of purchase, the Agency may purchase additional years of support at current pricing. Should no support package be purchased, ongoing support and updates are discontinued by Amped for product, even though the Agency license remains valid for perpetual use.

5. **Termination**. This Agreement will continue for the duration of Amped's copyright in the Software, unless earlier terminated as provided in this Agreement. TASER may terminate the license for failure to comply with any of the terms set forth in this Agreement after providing notice and a 30 day right to cure. Upon termination, the Agency must immediately destroy the Software, together with all copies, adaptations and merged portions thereof in any form. Obligations to pay accrued charges or fees will survive the termination of this Agreement.

6. **Export Controls (U.S. and Canada Only)**. EXPORT OF THIS SOFTWARE IS PROHIBITED. SOFTWARE MAY NOT BE EXPORTED WITHOUT THE PRIOR EXPRESSED WRITTEN APPROVAL OF TASER. UNAUTHORIZED EXPORT OF SOFTWARE IS PROHIBITED BY TASER AND CONSIDERED A VIOLATION OF LICENSE AGREEMENT.

OKLAHOMA NASPO VALUEPOINT MASTER AGREEMENT AWARD

EXHIBIT B – SERVICE LEVEL AGREEMENT

This Service Level Agreement (**SLA**) is a policy governing the use of the Evidence.com™ Service offerings.

1 **Service Commitment**. Apart from maintenance described in Section 2, TASER will use reasonable efforts to make the Service Offerings available 99.9% of the time 7 days per week on a 24-hour basis.

2 **Maintenance.**

2.1 Scheduled maintenance will take place according to our prevailing routine maintenance schedule. Routine maintenance is currently scheduled on the fourth Tuesday of each month from 21:00 – 22:00 Pacific Standard Time. Maintenance periods may periodically result in the Service Offerings being unavailable. When possible, TASER will give notice 1 week prior to any changes to the maintenance schedule.

2.2 Emergency maintenance may have less than a 24-hour notification period. TASER may perform emergency maintenance as necessary, including, but not limited to, when the service must be made unavailable to ensure the on-going security, availability and performance of Evidence.com service and customer data within Evidence.com.

3 **After Hours Emergency Support**. Evidence.com Help Desk are available at Help@EVIDENCE.com.

4 **Response Times**.

Issue Classification	Description	Targeted Response Time	Targeted Resolution Time*
Severity 1	• Business critical function is down • Material impact to Customer's business • No workaround exists	As soon as possible, using reasonable commercial efforts	Less than 24 hours
Severity 2	• Business critical function is impaired or degraded • There are time-sensitive issues that materially impact ongoing production • Workaround exists, but it is only temporary	1 Business Day	Less than 1 weeks
Severity 3	• Non-critical function down or impaired • Does not have significant current production impact • Performance is degraded	1 Business Day	Mutually agreed timeframe based on prioritization.

* Resolution time is a target, but may not be possible with all reported issues depending on circumstances.

5 **Backup**. TASER will administer system backup according to our prevailing backup plan. The Agency retains rights to all Agency Content and user data contained in the backups in accordance with this Agreement. The

Service Offerings will alert the Agency Administrator(s) of upcoming scheduled evidence deletions within the system and the Agency Administrator(s) may delay deletion by either re-categorizing that evidence or by selecting the option to extend the retention period. Once evidence is deleted it is unrecoverable.

6 **Exclusions**. The Service Commitment does not apply to any unavailability, suspension or termination of the Service Offerings, or any other Evidence.com performance issues: (a) caused by factors outside of our reasonable control, including any force majeure event, terrorism, sabotage, virus attacks, or Internet access or related problems beyond the demarcation point of the Service Offerings (including Domain Name Server issues outside TASER's direct control); (b) that result from any actions or inactions of the Agency or any third party; (c) that result from Agency caused communication delays, including wrong, bad or missing data, organized or transmitted data received, or any other data issues related to the communication or data received from or through the Agency; (d) that result from Agency equipment, software or other technology and/or third party equipment, software or other technology (other than third party equipment within TASER's direct control); (e) that result from any maintenance as provided for pursuant to this SLA; or (f) arising from TASER's suspension and termination of Agency's right to use the Service Offerings in accordance with this Agreement.

OKLAHOMA NASPO VALUEPOINT MASTER AGREEMENT AWARD

EXHIBIT C – PRICE AND COST PROPOSAL

Cost in proposals will be evaluated independent of the technical evaluation. Cost proposal must be submitted to the Lead State as a separate document in Offerors Proposal. Do not embed cost proposal in the technical proposal response.

Offeror shall provide detailed pricing for all costs associated with the responsibilities and related services, per Attachment D.

Offer may provide pricing for one band or all bands.

Cost for the NASPO ValuePoint Master Agreements shall be based on the following:

Offeror must submit cost, prices and rates as required by Attachment D Pricing Template. Prices and rates shall include all anticipated charges, including but not limited to, freight and delivery, cost of materials and product, travel expenses, transaction fees, overhead, profits, and other costs or expenses incidental to the Offeror's performance.

The Lead State is exempt from federal excise taxes and no payment will be made for any taxes levied on the Offeror's or any Subcontractor's employee's wages. If required by Lead State, Taxes shall be included as a separate line item on an Offeror's invoice. The tax rules with respect to other Participating Entities may vary and are expected to be addressed in the Participating Addenda. As a general rule, Government Agencies do not pay sales tax.

1. Price and Rate Guarantee Period

All prices and rates offered shall be guaranteed for the initial term of the Master Agreement. Any request for price or rate adjustment following the initial Master Agreement term, is detailed in Section 7.6 of the Master Agreement terms and conditions, and must be submitted to Lead State in writing as specified.

2. Cost for the NASPO ValuePoint Master Agreements shall be based on the following:

There are four (4) bands of products included with this proposal offering. Each band has a separate pricing template, and is named Attachment D – Band 1, 2, 3, or 4. Respondents may submit pricing for one or all product bands. Additionally, each cost sheet is divided with color tabs at the bottom of each sheet for identification of type of cost required.

To ensure contract flexibility for new technology and product offerings, contract will be awarded at the percentage discount stated per category of item. Clearly indicate how percentage quoted correlates to the identified item description.

Contract pricing shall be marked as a discount percentage from the referenced catalog or publically available URL, and required identified baseline as identified by the item descriptions on pricing tables.

Volume or Cumulative-spend based additional discount percentages are to be clearly marked in tab provided.

Respondents may also propose additional product identifiers as good, better, or best; contract specific Hot-List Items, as long as pricing will be held for the initial agreement period. These items should be included within the market basket which is contained in each band of Attachment D, pricing cost proposals, and clearly marked as such.

Market basket items, unless specifically identified as a special offering, will be used for evaluation purposes. All items must include identifiable baseline references, or will be disqualified from costing evaluation.

3. Special pricing instructions per Band

Band 1 (Body Worn Video)

Percentage discounts will outline the basic catalog discount structure. Respondents will identify the baseline used, and category / catalog discounts. The areas for volume discounts and additional discounts are how respondent can show additional incentives.

Cost scenario pricing will be used for evaluation purposes. Each responded shall list proposed product and indicate the category of Good, Better, or Best. Respondent shall indicate if pricing scenario will be offered as a special contract item – specific product line at quoted price.

Offeror is encouraged to provide contract special offerings to entail the final end user's understanding of available body worn video products.

Band 2 (Vehicle Mounted Video – May include Public Transit and School Bus Video/Recording)

Percentage discounts will outline the basic catalog discount structure. Respondents will identify the baseline used, and category / catalog discounts. The areas for volume discounts and additional discounts are how respondent can show additional incentives.

Cost scenario pricing will be used for evaluation purposes. Each respondent shall list proposed product and indicate the category of Good, Better, or Best. Respondent shall indicate if pricing scenario will be offered as a special contract item – specific product line at quoted price.

Offeror is encouraged to provide contract special offerings to entail the final end user's understanding of available vehicle mounted video products

Band 3 (Video Storage, Data Security, Software and Peripherals)

Cost scenarios are provided to allow offeror the ability to provide their best solution for each situation. Offeror may propose multiple storage and security options, and may include both cloud services and secure self-contained storage solutions. These scenarios will be used in evaluation calculations.

Percentage discounts will be used for final award, and must be stated with baseline identified. Offeror is encouraged to provide contract special offerings to entail the final end user's understanding of available storage and security solutions.

Band 4 (Vehicle Mounted Equipment)

Band 4 has been intentionally omitted and while included in the Solicitation OK-MA-145, it is not included in the scope of this Master Agreement.

CITY OF ARVADA

REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM 8.A.2.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: R22-015, A Resolution Accepting Donations of Ballistic Armor and Monetary Donations to the Arvada Police Department

Report in Brief

The Arvada Police Department (APD) occasionally receives donations of protective equipment for its officers. Less frequently, the APD receives offers of monetary donations. During 2021, the APD received in-kind donations of 22 rifle-rated body armor plates from Shield 616, a 501(c)(3) charitable organization that provides supplemental body armor to police agencies across the nation. On December 21, 2021, the APD received a cash donation of $1,000.00 from Arvada resident Ms. Barbara J. Wilson, who insisted that her donation be used to directly benefit members of the APD. On February 9, 2022, Grace Church of Arvada offered a donation of $12,500.00 to assist the APD in its effort to send members to the 2022 National Police Week ceremonies in Washington D.C.

City Charter section 13.6 provides that the City Council is authorized to receive donations on behalf of the City.

The Arvada team recommends that the City Council approve R22-015, A Resolution Accepting Donations of Ballistic Armor and a Monetary Donation to the Arvada Police Department.

Financial Impact

Approval of these donations has no adverse financial impact. Ms. Wilson's and Grace Church's donations will be deposited to account 22.600000.54001 upon Council approval.

Background

Shield 616 is a Colorado-based 501(c)(3) non-profit organization. Their mission is to provide supplemental protective equipment for first responders, including police and EMS personnel. Since 2017, Shield 616 has donated ballistic armor to police and fire agencies in 26 states, providing additional ballistic protection to over 5,000 first responders. Shield 616 has previously donated ballistic armor to the APD. Council may recall that the APD's own Sgt. Chris McCoy appeared in a Shield 616 television spot during the 2019 Super Bowl.

Shield 616 donated 22 rifle-rated ballistic armor plates to the APD during 2021. This supplemental armor is expensive and impractical to wear regularly due to its weight and bulk. The APD greatly appreciates Shield 616's armor donations, as this frees equipment funds for other purposes, and the supplemental armor can be worn by APD officers as needed when responding to a critical incident. The total value of the Shield 616 armor donated to the APD in 2021 is $8775.00.

On December 20, 2021, Arvada resident Ms. Barbara J. Wilson provided a check to the APD in the amount of $1,000.00. Ms. Wilson expressed her appreciation of the men and women of the APD, and asked that her donation be used to benefit APD members. Chief Strate generally refers monetary donations to other charitable causes. Here, however, Ms. Wilson was steadfast in her insistence that she wanted her donation only to be used to directly benefit APD members. Therefore, the Chief determined that the APD could utilize her donation to supplement APD funds which would be used to send a contingent of

APD members to Washington D.C. to attend National Police Week ceremonies in May of this year. APD members will attend to honor Officer Gordon Beesley, whose name will be engraved on the National Law Enforcement Officers Memorial at the ceremony.

On February 9, 2022, Chief Strate attended a community event at Grace Church of Arvada located at 6969 Sheridan Boulevard. At the event, Grace Church Pastor Rick Long approached the Chief with an unsolicited offer of $12,500.00 expressly to benefit APD officers on behalf of the entire congregation in memory of Officer Beesley. Chief Strate was greatly moved by the offer and determined that the funds could also be used to send APD officers to National Police Week ceremonies.

Discussion

The APD greatly appreciates these donations. Shield 616 has made similar donations to the APD in past years, and each donation has allowed the agency to provide its officers with supplemental equipment that would not be otherwise available.

Chief Strate found the donations of Ms. Wilson and Grace Church to be particularly moving. He authored a heartfelt letter of thanks to Ms. Wilson for her support of the APD and its members. The Chief is in the process of similarly recognizing Grace Church's generosity.

The APD will be better able to honor Officer Beesley's memory with the help of Ms. Wilson and Grace Church of Arvada. There are significant travel costs associated with APD members' attendance at National Police Week. These donations will defray a portion of those costs.

The APD is holding the checks from Ms. Wilson and Grace Church pending Council's approval.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

NA

Strategic Alignment

Accepting these donations supports the Safe Community Priority Area of the City Council Strategic Plan. The donated equipment and funds will allow the APD to otherwise utilize its existing budget for other uses in support of providing community safety.

Alternative Courses of Action

Recommendation for Action

The Arvada team recommends that the City Council approve R22-015, A Resolution Accepting Donations of Ballistic Armor and Monetary Donations to the Arvada Police Department.

Suggested Motion:

I move that R22-015, A Resolution Accepting Donations of Ballistic Armor and Monetary Donations to the Arvada Police Department, be (approved) (rejected).

Prepared by:

Aaron Jacks, Assistant City Attorney

Reviewed by:
Alyssa Gleinn, Legal Specialist-Prosecution 2/4/2022

Approved by:

Aaron Jacks, Assistant City Attorney	2/4/2022
Bridgette Roberts, Executive Assistant	2/4/2022
Link Strate, Chief of Police	2/4/2022
Nora Steenson, Deputy City Attorney	2/6/2022
Rachel Morris, City Attorney	2/10/2022
Lorie Gillis, Deputy City Manager	2/17/2022
Mark Deven, City Manager	2/22/2022

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R22-015

A RESOLUTION ACCEPTING DONATIONS OF BALLISTIC ARMOR AND MONETARY DONATIONS TO THE ARVADA POLICE DEPARTMENT

WHEREAS, the Arvada Police Department investigates crime and apprehends criminals; and

WHEREAS, Arvada police officers face threats including violent criminals that may be armed with rifles that can penetrate standard body armor; and

WHEREAS, Shield 616, a 501(c)(3) charitable organization which supports law enforcement agencies across the country with protective equipment donations, donated 22 pieces of rifle-rated ballistic armor to the Arvada Police Department during 2021; and

WHEREAS, Arvada Police Officer Gordon Beesley died in the line of duty on June 21, 2021, and his name will be added to the National Law Enforcement Officers Memorial in Washington D.C. during a ceremony at National Police Week in May, 2022; and

WHEREAS, on December 20, 2021, Ms. Barbara J. Wilson of Arvada donated $1,000.00 to the Arvada Police Department, which will be utilized to assist the Department in sending members to the 2022 National Police Week ceremonies in honor of Officer Beesley; and

WHEREAS, On February 9, 2022, Grace Church of Arvada, a 501(c)(3) public charity, offered a donation of $12,500.00 to the Arvada Police Department, which will also be used to assist the Department in sending members to the 2022 National Police Week ceremonies; and

WHEREAS, Section 13.6 of the Arvada City Charter provides that the City Council may receive donations on behalf of the City.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The City Council hereby accepts Shield 616's generous donation of ballistic armor on behalf of the City and the members of the Arvada Police Department.

Section 2. The City Council, with deep gratitude and appreciation, hereby accepts the generous donations of Ms. Wilson and Grace Church of Arvada on behalf of the City and the members of the Arvada Police Department, in memory of Officer Gordon Beesley.

Section 3. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 7th day of March, 2022.

_____

Marc Williams, Mayor

ATTEST:

_____

City Clerk

APPROVED AS TO FORM:

Rachel A. Morris, City Attorney

By: _____

CITY OF ARVADA

REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM 8.A.3.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: R22-016, A Resolution Authorizing an Agreement By and Between the City of Arvada and SEMA Construction, Inc. for Construction Manager/General Contractor (CM/GC) Services, Construction Package 2, West 72nd Avenue - Kipling Street to Simms Street in the amount of $22,636,539.43

Report in Brief

Council action is requested in the attached resolution authorizing an agreement by and between the City of Arvada and SEMA Construction, Inc. for delivery of Construction Package 2 (CP-2), the second of a total of three packages to be delivered for the 72nd Avenue bond project. CP-2 consists of removal of trees, relocation of utilities, installation of new utilities, traffic signals, improvements at First United Church of Arvada, improvements at Grange 25, side street improvements, and widening of the roadway between Swadley Court and Oak Street. The total project corridor consists of a length of approximately 1.16 linear miles with a proposed right-of-way (ROW) width of 110' (CIP project 18-ST-30).

The Arvada team recommends that the City Council approve R22-016, A Resolution Authorizing an Agreement By and Between the City of Arvada and SEMA Construction, Inc. for Construction Manager/General Contractor (CM/GC) Services, Construction Package 2, West 72nd Avenue - Kipling Street to Simms Street in the amount of $22,636,539.43.

Financial Impact

Financial Impact: $22,636,539.43

This is Construction Package two of three for the 72nd Avenue Bond project. The funds for the recommended action and the remaining construction package are encumbered and budgeted; therefore, the financial impact is accounted for within the 2022 Updated Budget.

This is a Capital Improvement Project (CIP) 18-ST-30

Background

With the 2018 passage of the bond projects, the City contracted with Muller Engineering as the engineering design consultant on the W. 72nd Avenue bond project. Initially, the City intended for this project to be delivered using a Design-Bid-Build (D-B-B) method. In mid-2019, the project delivery method was changed to a Construction Manager/General Contractor (CM/GC) method. The CM/GC method of delivery ensures that the City team, the design team, and the construction team are all working together from the beginning to construct a successful project. The City advertised for a CM/GC for the project team. SEMA was selected as the CM/GC and the project was broken out into three construction packages with this package (CP-2) the second of three. This second package (CP-2) went through several iterations of construction cost control and pricing negotiation between SEMA's Opinion of Probable Construction Costs (OPCC) and an Independent Cost Estimate (ICE) to come to a Construction Agreed Price (CAP) between the CM/GC and the City.

Discussion

Per the CM/GC alternative delivery system that was selected by the City in mid-2019, the 72nd Avenue bond project was broken up into 3 distinct delivery packages to help expedite the overall timeline of the project, and to provide coordination efficiencies. The delivery packages are titled Construction Package 1 (CP-1), Construction Package 2 (CP-2) and Construction Package 3 (CP-3), and are briefly described below:

CP-1 is tree removal and new utilities within the proposed 110' ROW corridor;
CP-2 is new roadway construction from Swadley Court to Oak Street; and
CP-3 is new roadway construction from Oak Street to Kipling Street, including a temporary railroad crossing and vehicular bypass, a Union Pacific Railroad (UPRR) shoofly, and construction of a new UPRR bridge and vehicular underpass.

Activity for CP-2 will be accomplished through five separate phases to keep the public safe and provide vehicle traffic through lanes during the construction. The first phase will start by constructing temporary vehicle lanes on the north side of existing W 72nd Avenue, thereby providing a working area to the south to install utilities, sidewalk, curb and gutter, and the south half of the new roadway. Once the south half of the roadway is complete, the traffic will be shifted south to provide a working area for the northern half of the roadway. While completing the major utilities and roadway, side street improvements, driveways, and off-street improvements will be constructed. Off-street improvements will include the First United Church of Arvada improvements (water quality pond, driveways, parking area), walls, and drainage facilities. The final phase of CP2 will include landscaping (sod, trees, shrubs).

Right-of-Way acquisition has occurred over the last year through the efforts of City team members and contracted consultants in order to provide the Right-of-Way and easements necessary for the roadway widening. Their hard work has provided the second construction package with the full ROW and easements needed for construction. In fact, only one parcel remains to be acquired for the project as a whole. The last parcel is necessary for Construction Package #3. The City team is continuing to negotiate with this final landowner.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A

Strategic Alignment

The recommended actions align with the following Principle and Strategic Result within the Infrastructure Priority Area of the City Council Strategic Plan:

- Infrastructure Principle to provide safe and efficient connections to modes of transportation, including transit, streets,sidewalks, and bikeways with a focus on enhanced technology at high-priority intersections, improving safety and minimizing traffic congestion.
- Infrastructure Strategic Result #4 to effectively utilize approved bond funds for the completion of Ralston Road Phase 2 and expansion of 72nd Avenue.

Alternative Courses of Action

N/A

Recommendation for Action

The Arvada team recommends the City Council approve R22-016, A Resolution Authorizing an Agreement By and Between the City of Arvada and SEMA Construction, Inc. for Construction Manager/General Contractor (CM/GC) Services, Construction Package 2, West 72nd Avenue - Kipling Street to Simms Street in the Amount of $22,636,539.43.

Suggested Motion:

I move that R22-016, A Resolution Authorizing an Agreement By and Between the City of Arvada and SEMA Construction, Inc. for Construction Manager/General Contractor (CM/GC) Services, Construction Package 2, West 72nd Avenue - Kipling Street to Simms Street in the Amount of $22,636,539.43, be (approved) (rejected).

Prepared by:
Britton Thomas, Civil Engineer III

Reviewed by:

Approved by:

Jacqueline Rhoades, City Engineer	2/16/2022
Don Wick, Director of Public Works	2/18/2022
Bryan Archer, Director of Finance	2/22/2022
Gail Walker, Legal Specialist-Contracts	2/22/2022
Erika Pierce, Litigation Paralegal	2/22/2022
Rachel Morris, City Attorney	2/23/2022
Lorie Gillis, Deputy City Manager	2/23/2022
Mark Deven, City Manager	2/23/2022

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R22-016

A RESOLUTION AUTHORIZING AN AGREEMENT BY AND BETWEEN THE CITY OF ARVADA AND SEMA CONSTRUCTION, INC. FOR CONSTRUCTION MANAGER/GENERAL CONTRACTOR(CM/GC) SERVICES, CONSTRUCTION PACKAGE 2, WEST 72ND AVENUE - KIPLING STREET TO SIMMS STREET IN THE AMOUNT OF $22,636,539.43

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is authorized to sign and the City Clerk to attest, in a form approved by the City Attorney, an Agreement, which is in substantially the same form as attached between the City of Arvada and SEMA Construction, Inc. for construction manager/general contractor services, construction package 2, West 72nd Avenue - Kipling Street to Simms Street in the amount of $22,636,539.43.

Section 2. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 7th day of March, 2022.

_____
Marc Williams, Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:
Rachel A. Morris, City Attorney

_____

Construction Project Contract
Construction Manager/General Contractor
(CM/GC) Services
Construction Package 2
West 72nd Avenue – Simms Street to Kipling Street

ARVADA'S VISION MISSION AND VALUES

VISION: We dream big and deliver.

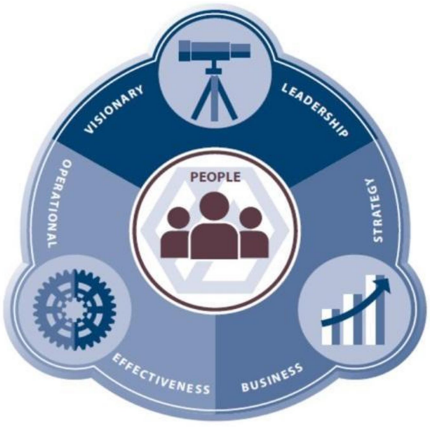
MISSION: We are dedicated to delivering superior services to enhance the lives of everyone in our community.

VALUES:

Innovation – We excel in creativity, flexibility and the use of best practices while valuing diverse backgrounds, ideas and perspectives.

Passion – We are a high performing, inclusive team inspiring each other to pursue excellence.

Opportunity – We value our diversity, embrace possibilities, face challenges, persevere and take action to deliver quality results.



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EXHIBITS: SEE DOCUMENTS LISTED AT SECTION 2.11

CONSTRUCTION MANAGER/GENERAL CONTRACTOR AGREEMENT

1. PARTIES. This Agreement is entered into by and between the City of Arvada, a home rule municipal corporation ("Arvada" and/or "Owner"), and SEMA Construction, Inc., having its offices at 7353 South Eagle Street, Centennial, Colorado 80112, engaged to serve as Construction Manager/General Contractor, ("Contractor").

2. EFFECTIVE DATE AND NOTICE OF NONLIABILITY. This Agreement shall not be effective or enforceable until it is approved and signed by Arvada's City Council or its designee ("Effective Date"), but shall be effective and enforceable thereafter in accordance with its provisions. Arvada shall not be liable to pay or reimburse Contractor for any performance or be bound by any provision herein prior to the Effective Date.

RECITALS:

WHEREAS, Arvada requires construction services for the reconstruction of West 72nd Avenue-Simms Street to Kipling Street, ("Project"); and

WHEREAS, authority exists in the law and funds have been budgeted, appropriated, and otherwise made available for payment; and

WHEREAS, Arvada had previously established the Fixed Limit of Construction Cost for the Project in the amount of $52,720,000.00; and

WHEREAS, the Contractor was selected after a determination that its Statement of Qualifications was the most advantageous to Arvada pursuant to a Request for Qualifications issued on September 6, 2019 and awarded on November 18, 2019; and

WHEREAS, on or about December 2, 2019, Arvada and Contractor entered into a Construction Manager/General Contractor ("CM/GC") pre-construction phase agreement for the Project, ("Main Agreement"); and

WHEREAS, on or about March 15, 2021 Arvada and Contractor executed a Construction CM/GC Agreement for Construction Package 1 with a Construction Agreed Price ("CAP") of $1,371,181.73 which was within the Fixed Limit of Construction Cost as established by the Owner, ("Construction Package 1 Agreement"); and

WHEREAS, on or about April 5, 2021 Arvada and Contractor executed the first amendment to the Construction Package 1 Agreement extending the date to complete the work to October 31, 2021, ("First Amendment"); and

WHEREAS, on or about October 21, 2021 Arvada and Contractor the second amendment to the Construction Package 1 Agreement 1 extending the date to complete the work to June 6, 2022, ("Second Amendment");

WHEREAS, the Design Consultant for the project is Muller Engineering Company, Inc.; and

WHEREAS, Contractor has established a CAP for Construction Package 2 of $22,636,539.43 that is within the Fixed Limit of Construction Cost as established by the Owner; and

WHEREAS, the Contractor and Arvada agreed upon the CAP for Construction Package 2 in accordance with the Main Agreement.

NOW, THEREFORE, Arvada and the Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. THE WORK

1.1 Contractor shall complete all Work to complete the Project as specified or indicated in the Contract Documents.

1.2 In the performance of the Work under this Agreement, the Contractor acknowledges that time is critical for Project delivery and that portions of the Work could have their design completed as separate Bid Packages and under construction before other portions of the Work are fully designed. It is further recognized that this accelerated approach to construction utilizing the services of a Design Consultant, Owner's Representative, and Contractor is a unique concept and that its utilization requires maximum cooperation between all parties. It is also recognized that the Work to be performed by the Contractor and the inter-relationships and coordinative aspects, thereof, are in the developmental state and not fully defined. In furtherance thereof, if there appears to be a duplication, overlap or conflict of the responsibilities of duties between the Design Consultant, Owner's Representative, and Contractor or an absence of designation, the question shall be submitted to the Owner in writing for determination. The Contractor shall abide by the decision of the Owner.

1.3 The Contractor agrees to cooperate fully with the Owner, Owner's Representative, and the Design Consultant in the design and construction aspects of the Work to keep within the Owner's monetary limitations, as stipulated above.

1.4 The Contractor understands the relationship of trust and confidence established between it and the Owner and accepts those responsibilities as described in this Agreement. The Contractor covenants with the Owner to furnish its best skill and judgment and to cooperate with the Design Consultant in furthering the interests of the Owner. The Contractor understands that the Owner is relying on the Contractor's skill and expertise in the area of construction and construction management. The Contractor agrees to furnish efficient business administration and superintendence and to use its best efforts to complete the work in an expeditious and economical manner consistent with the interest of the Owner.

1.5 The Contractor, the Owner, Owner's Representative, and the Design Consultant, collectively called the Project Team, shall work during design through to construction completion. The Contractor shall provide leadership to the Construction Team on all matters relating to construction.

1.6 The Design Consultant is a representative of the Owner as provided in the Contract Documents and its Agreement is with the Owner. In case of termination of employment or death of the Design Consultant, the Owner shall appoint a capable and reputable Design Consultant against whom the Contractor makes no reasonable objection, whose status under the Agreement shall be the same as that of the former Design Consultant.

1.7 The Contract Documents shall not be deemed to create any contractual relationship between the Design Consultant and the Contractor or any separate contractors, subcontractors of any tier or suppliers on the Project; nor shall anything contained in the Contract Documents be deemed to give any third party any claim or right of action against the Owner, the Design Consultant or Contractor which does not otherwise exist without regard to the Contract Documents.

1.8 The intent of the Contract Documents is to include all items and services necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not specifically covered in the Contract Documents shall be required unless such Work is not consistent with the Contract Documents or is not reasonably inferable from the Contract Documents as being necessary to produce the intended results. Words and abbreviations which have well known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings. If there are conflicting variances between the Drawings and Specifications, the requirements of the Specifications shall control unless the Design Consultant directs otherwise in writing. Numerous exhibits to be developed over a period of time are to be also attached to and made a part of the Contract Documents, some of which may be in conflict with other exhibits or portions of this Agreement. If there are such conflicts the Contractor shall seek clarification from the Owner in writing.

ARTICLE 2. DEFINITIONS

2.1 "Agreement" or "Contract" shall be considered to be this written Agreement entered into by the Owner and the Contractor for the performance of the Work and payment therefore.

2.2 “Amendment” or “Change Order” is a written amendment to this Agreement signed by the Contractor and the Owner or its authorized agent, issued after the Effective Date of this Agreement, authorizing a change in the Work, the method or manner of performance, an adjustment in the Fixed Limit of Construction Cost, Contract Sum, , or the Term.

2.3 “Bid Package” means a substantially complete Plans, Specifications, and Cost Estimate package from which a CAP proposal could be prepared for LLTP or any Construction Package and which a Bid Package may be advertised through Arvada’s procurement process.

2.4 “CM/GC Management Price Percentage” means the fee percentage to be applied to all LLTP CAP and Construction CAP proposals equal to the amount of profit, overhead, and construction general conditions.

2.5 “CM/GC Services” means the services performed by Contractor as specified in Section 3.4.

2.6 “CM/GC Construction Contract” means the contract between the Owner and the Contractor to perform construction activities for any approved Construction CAP.

2.7 "Colorado Labor," as provided in C.R.S. § 8-17-101(2)(a), as amended, means any person who is a resident of the state of Colorado, at the time of the public works project, without discrimination as to race, color, creed, sex, sexual orientation, marital status, national origin, ancestry, age, or religion except when sex or age is a bona fide occupational qualification. A resident of the state of Colorado is a person who can provide a valid Colorado driver’s license, a valid Colorado state-issued photo identification, or documentation that he or she has resided in Colorado for the last thirty days.

2.8 “Constructability Report” means a written report that reviews each Bid Package at agreed upon Milestones for constructability and feasibility, which includes, but is not limited to, a brief cost and risk analysis with regards to constructability.

2.9 “Construction CAP (Construction Agreed Price)” means the maximum amount for which all Work required for each Construction Package, excepting LLTP, shall be accomplished (including CMGC Management Price Percentage). For any Construction CAP to be accepted by the Owner, the Owner’s Estimate (ICE) and the Contractor’s OPCC must be within a percentage acceptable to the Owner.

2.10 “Construction Package” means the phase of Work performed by the Contractor in the construction of the Work from award of construction contracts for any Bid Package until the final acceptance of such Bid Package by Arvada. Construction Package excludes all Design Services.

2.11 "Contract Documents" consist of the following documents (Exhibits), if there are inconsistencies to project specific details between any of the Exhibits, the most recent in time and mutually approved by the Parties will be controlling. Contractor shall confirm with Arvada if the intent is not clear between the Exhibits:

2.11.1 This Agreement;

2.11.2 The current City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements and Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, incorporated by reference;

2.11.3 Project Special Provisions prepared or issued by Arvada or its Design Consultant if applicable;

2.11.4 Detail drawings and Bid Documents prepared or issued by Arvada, Arvada’s Engineer/Architect, or other Arvada consultant;

2.11.5 Specification Illustrations and attachments;

2.11.6 All supplementary requirements regarding wage rates, E.E.O., affirmative action and all other Federal-State requirements as outlined in the specifications (if any);

2.11.7 Construction Agreed Price (CAP) Documents, Drawings and Specifications including Addenda and Modifications (when approved by the Owner);

2.11.8 The General Terms and Conditions, Special Conditions, Insurance Requirements, Exhibits, and Addenda (if any) in the RFQ (RFQ-19-W.72nd Ave. - CMGC);

2.11.9 Contractor's Response to the RFQ and Proposal, Advertisement for Bid, Bid Proposal, Bid Schedule, Bid Bond, and Certificates of Insurance;

2.11.10 Contractor's Baseline Schedule Documents;

2.11.11 Notice of Award;

2.11.12 Performance and Payment Bond;

2.11.13 Notice to Proceed; and

2.11.14 Change Orders (if any);

2.12 "Contractor" means the individual, joint venture, partnership, or corporation which has, been selected by the Owner by virtue of its in-house capabilities of budgeting, cost estimating, management and labor relations personnel, the required technical and professional services expertise to work with the Owner and the Design Consultant in order to help formulate the Project budget, furnish the Design Consultant with the information on construction technology and market conditions to help assure that the Project design stays within the Project budget, Fixed Limit of Construction Cost, and aggregate of LLTP CAPs and Construction CAPs (except for changes made pursuant to Article 9) and manage the procurement effort.

2.13 "Contractor's CM/GC Preconstruction Fee" means the lump sum amount set forth above to be paid by the Owner to the Contractor for Work performed by Contractor through the Design Phase which is equal to the amount of the fees and costs for administrative costs, overhead and profit, including, but not limited to, all resources needed to perform the duties described in the scope of Work.

2.14 "Cost Model" means the open and transparent model that the Contractor develops and uses through the Design Phase so that estimates and assumptions are communicated to the Owner, Design Consultant, Owner's Representative, and Independent Cost Estimator.

2.15 “Critical Path Method” or “CPM” means a mathematically based algorithm for scheduling a set of project activities, which is an important tool for effective project management. It involves constructing a model of the project including a list of all activities required to complete the project (typically categorized within a work breakdown structure), the time (duration) that each construction activity will take to completion, and the dependencies between the activities. Using these values, CPM calculates the longest path of planned activities to the end of the project, and the earliest and latest that each activity can start and finish without making the project longer. This process determines which activities are "critical" (i.e., on the longest path) and which have "total float" (i.e., can be delayed without making the project longer).

2.16 "Date of Completion” is the date certified by the Owner when the Work, or designated portion thereof, is complete in accordance with the Contract Documents.

2.17 "Day" as used in the Contract Documents shall mean calendar day unless specifically designated otherwise.

2.18 “Design Consultant" means Muller Engineering Company, Inc. and its team of sub-consultants.

2.19 “Design Services” means architectural and engineering services provided by the Design Consultant and/or the Contractor.

2.20 “Direct Cost of the Work" means those items included in any Construction CAP which, pursuant to the Construction General Conditions, are directly related to construction and not otherwise defined under such Construction Phase.

2.21 “Dispute Resolution” means the process through which the Parties (Owner and the Contractor) agree to resolve any issue related to this Agreement that may result in Disputes and Claims.

2.22 “Disputes and Claims” means all disputes and/or claims concerning contract price, time, payment, and/or interpretation of this Agreement. Disputes and Claims include, but are not limited to, any disagreement resulting from a delay, a Change Order, any Modification, another written order, or an oral order from the Owner, including any direction, instruction, interpretation, or determination by the Owner, interpretations of the Agreement provisions, Drawings, Plans, or Specifications or the existence of alleged differing site conditions.

2.23 "Drawings" mean all Drawings approved by the Owner which have been prepared by the Design Consultant showing the work to be done.

2.24 “Final Acceptance” means the stage in the progress of the Work for any LLTP Package, Design Phase, or Construction Package after Substantial Completion, when all remaining items of Work for such Package have been completed, all requirements of the Contract Documents related to such Package are satisfied and Arvada’s Acceptance Letter for such Package can be

issued. Portions of the Package may be separately and partially deemed complete at the discretion of the Owner when that portion of the Package reaches such stage of completion and a partial Arvada Acceptance Letter for such Package can be issued.

2.25 “FIR” means the field inspection review which is the plan review where the Plans and Specifications are thirty percent (30%) completed as specified.

2.26 "Fixed Limit of Construction Cost" is the dollar amount available for the total cost for performance of the aggregate of all LLTP CAPs and Construction CAPs as designed or specified by the Design Consultant.

2.27 “FOR” means the final office review which is the plan review where the Plans and Specifications are ninety percent (90%) completed as specified.

2.28 “Health and Safety Plan” means a site specific safety and health plan to protect workers, staff, and visitors that protect their health and safety.

2.29 “Independent Cost Estimate” means an independent check of unit prices and overall construction costs at each design milestone that is conducted with the Project design and construction information independent of the Owner, Design Consultant, and the Contractor.

2.30 “Independent Cost Estimator” or “ICE” means the designee of the Owner tasked to perform the Independent Cost Estimate.

2.31 “Innovation Tracking and Performance Report” means a report that tracks all innovations offered by Contractor, Owner, and Design Consultant team members. It also tracks the performance of these innovations during any Construction Phase or LLTP of the Project.

2.32 “Instruments of Service” means all documents produced by the Design Consultant, including Plans, Specifications, Drawings, opinions, reports, and calculations, which have historically been treated as intellectual property belonging to the Design Consultant that created it.

2.33 “LLTP” means long lead-time procurements which must be ordered and/or procured in advance of the Construction Phase for which it shall be used.

2.34 “LLTP CAP” means the maximum amount for which any LLTP shall be procured. The CM/GC Management Price Percentage is applied to all LLTP CAP proposals. For any LLTP CAP to be accepted by the Owner, the Owner’s Estimate and the Contractor’s OPCC must be within a percentage acceptable to the Owner.

2.35 “Material Sourcing Plan” means the plan that details how the Contractor will handle bids from material vendors for any LLTP CAP or Construction CAP proposals. This plan is part of the open Cost Model required as part of any Bid Package development.

2.36 “Milestone” means a point in the Design Phase where Plans, Specifications, and estimates are at an agreed completion point. Milestone examples include FIR, FOR, and LLTP CAP or Construction CAP proposals.

2.37 “Modification” includes (1) a written Amendment to this Agreement signed by both parties, (2) a Change Order, or (3) a written interpretation issued by the Owner pursuant to Section 4.2.

2.38 "Notice" shall mean any communication in writing from either contracting Party to the other by such means of delivery that receipt cannot be properly denied.

2.39 “Notice of Termination” means the delivered Notice that informs the Contractor that the Agreement between Arvada and the Contractor is being terminated for the convenience of Arvada or for default pursuant to Article 15.

2.40 “Opinion of Probable Construction Cost” or “OPCC” is the cost to complete the Work for a LLTP or a Construction Phase. This cost includes all labor, materials, equipment, bond premiums, and actual costs of procurement or construction that the Contractor will use for the duration of such LLTP or Construction Phase to complete the Work. Each Opinion of Probable Construction Cost shall be produced in an open book process throughout the Design Phase of the Project so that the Owner, the Design Consultant, and the Independent Cost Estimator can make accurate assumptions, calculate prices, and determine the amount of risk in the Project.

2.41 "Owner," shall mean Arvada and/or Arvada’s Representative.

2.42 “Pay Estimate” means a request for payment for Work completed on a monthly basis and pursuant to the Standard Specifications.

2.43 “Plans” includes the detailed plans and standard plans, in which calculated dimensions will govern over scaled dimensions.

2.44 “Preconstruction Phase” means the phase of Work in which CM Services, LLTP, and Design Services are performed.

2.45 “Procurement Review Report” means the report detailing any LLTP CAP plans, warranties, liquidated damages, procurement strategies, schedules, and details required for LLTPs.

2.46 “Product Data” are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, cost models, risk registers, communications, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

2.47 "Project" is the total design and construction of the project as identified in Owner’s Scope of Work identified in the RFQ and further detailed in the proposal phase, of which the Work

performed under the Contract Documents, is a part, and may include construction by the Owner or by separate contractors.

2.48 “Project Management Software” means the contract-control/project-management software approved by the Owner.

2.49 “Project Schedule” means a CPM schedule that is prepared by the Contractor that shall be used for coordination, for evaluation of progress, for evaluation of changes to the Agreement, and to ensure the timely completion of the Work as called for in the Contract Documents.

2.50 “Owner’s Estimate” means the estimate reviewed and approved by the Owner to be compared to each OPCC in development of a CAP. The Independent Cost Estimate can serve as the Owner’s Estimate if approved by the Owner.

2.51 “Quality Control Plan” means the plan describing the Contractor's plans to ensure quality and compliance in construction.

2.52 “Risk Management Plan” means the plan which includes risk identification, assessment, and completion of a Risk Register detailing risks, mitigation, and the assigned responsibility for each risk.

2.53 “Risk Register” means a listing of risks and opportunities, risk assessments, and an evaluation of mitigation and responsibility for those risks.

2.54 “Rough Order of Magnitude” or “ROM” means an estimation of a project’s level of effort and cost to complete. A ROM estimate takes place very early in a project’s life cycle and is used to validate design decisions and decide between various design options.

2.55 “Samples” are physical examples which illustrate materials, equipment, or reasonable workmanship, and establish standards by which the Work shall be judged.

2.56 "Schedule of Bid Items" is part of the Contract Documents for any LLTP CAP or Construction CAP proposals, which includes an itemized description of the Work by division and section of the Specifications. The format will be an electronic EBS file submitted to the Owner by flash drive, CD, or electronic submittal.

2.57 “Shop Drawings” are drawings, diagrams, schedules, and other data specifically prepared for the Work by the Contractor or any Subcontractor of any tier, manufacturer, Supplier, or distributor, to illustrate some portion of the Work.

2.58 “Specifications” means the detailed, exact statement of particulars, especially statements prescribing materials and methods; and quality of Work for any LLTP or Construction Package, which include, but are not limited to, Project special provisions and standard special provisions.

2.59 "Subcontractor" means a person, firm, or corporation supplying labor and materials, or only labor, for all or any portion of the Work, under separate contract or agreement with the Contractor.

2.60 “Substantial Completion” or “Substantially Complete” mean the stage in the progress of the Work for any LLTP or Construction Package when the procurement or CM/GC Services are sufficiently complete, in accordance with the Contract Documents as modified by any Amendment or Change Order, so that the Work, or at the discretion of the Owner, any designated portion thereof, is available for its intended use by the Owner and a Notice of Substantial Completion for such phase can be issued. Portions of the phase may, at the discretion of the Owner, be designated as Substantially Complete.

2.61 “Superintendent” means the Contractor’s authorized employee held responsible in charge of the Work.

2.62 "Supplier" means any manufacturer, fabricator, distributor, material man or vendor.

2.63 "Term" means the term of the Agreement, which shall commence as set forth in Section 6.1 and shall end on the final completion date of the Project pursuant to Article 14.

2.64 “Value Engineering” or “VE” means a study or activity that helps to design and provide deliverables that meet the customer needs at the lowest cost while assuming a standard of quality and reliability.

2.65 "Work" means the construction and services required by or reasonably inferable from the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others, and includes all labor, materials, equipment and services provided or to be provided by Contractor to fulfill the Contractor’s obligations and to ensure a complete and proper job as intended by the Contract Documents.

2.66 “Worker and Public Safety Plan” means the report detailing how the Contractor will provide a safe work site and provide safety for the travelling public.

2.67 “Working Day” means any day, exclusive of Saturdays, Sundays, and State and federal recognized holidays, on which weather and other conditions not under the control of the Contractor will permit construction operations to proceed with the normal working force engaged in performing those items controlling the completion of the Work.

ARTICLE 3. CONTRACTOR'S SERVICES

The Contractor shall perform the following services under this Agreement in each of the phases described below:

3.1 COMPLETION WITHIN FISCAL AND TIME CONSTRAINTS AND VALUE ENGINEERING

3.1.1 The Contractor expressly recognizes that this Project is being undertaken on an accelerated basis and must be completed within the time and fiscal constraints as set forth throughout the Main Agreement, the Amendments, this Agreement, and its Exhibits. . The Contractor further represents to the Owner that by executing this Agreement, it has been fully informed and has thoroughly reviewed: the goals of the Project; the work effort of the Design Consultant performed to date for the Project, including geotechnical analysis and testing; all of this Agreement's Exhibits and Contract Documents; has been informed of the Owner's general time as well as fiscal constraints and contingencies applicable to the Fixed Limit of Construction Cost; and all of the CM/GC Services and LLTPs to be provided by the Contractor pursuant to the Contract Documents. Based upon this review and analysis and recognizing that the contract for Design Services is between the Owner and the Design Consultant, the Contractor nonetheless represents to the Owner that it shall provide all the necessary services and perform all of the Work within the requirements of the Contract Documents.

3.1.2 To accomplish the objectives set forth in Section 3.1.1, the Contractor has provided consultation throughout the Preconstruction Phase, including, but not limited to, the furnishing of all necessary CM/GC Services and LLTPs. In cooperation with the Design Consultant and Owner, the Contractor shall:

3.1.2.1 If OPCCs and/or bids received for the Work contained in any Bid Package could cause the anticipated cost of the Work to exceed the then current OPCC, the Fixed Limit of Construction Cost, any LLTP CAP, any Construction CAP or Schedule of Bid Items, the Contractor shall, at no additional cost to the Owner, provide additional Value Engineering services in conjunction with any and all appropriate items in the OPCC, the Fixed Limit of Construction Cost, any LLTP CAP, any Construction CAP and/or the Schedule of Bid Items for the Work;

3.1.2.2 Prepare preliminary construction schedules and phasing alternatives;

3.1.2.3 In collaboration with the Design Consultant and the Owner, utilize the previously prepared Risk Management Plan, perform risk assessments, and utilize the Risk Register;

3.1.2.4 With the assistance of the Design Consultant and the Owner, develop an Innovation Tracking and Performance Report;

3.1.2.5 Develop a Quality Control Plan, a Material Sourcing Plan, a Dewatering Plan, and a Worker and Public Safety Plan;

3.1.2.6 Prepare and submit a Procurement Review Report for each LLTP CAP.

3.2 AVAILABLE FUNDS

3.2.1 The Parties expressly recognize and agree that this Agreement is subject to and contingent upon the continuing availability of funds for the purposes hereof. Arvada voters

approved a bond measure in 2018 to fund this project. If the project is unable to be completed in the amount approved by voters, Arvada may immediately terminate this Agreement without liability, including any liability for termination costs. In the event of termination, the Contractor is entitled to payment, in accordance with this Agreement, for Work completed on the Project as of the date of the termination.

3.2.2 The Contractor acknowledges that Arvada is limited in the funds available to design and construct the Project. Should funding of a lesser amount be made available for the Project, the Owner may revise the Project scope consistent with the ultimate appropriation.

3.2.3 Payments pursuant to this Agreement shall be made only from available funds encumbered for this Agreement and Arvada's liability for such payments shall be limited to the amount remaining of such encumbered funds.

3.3 BUDGETING AND FIXED LIMIT OF CONSTRUCTION COST

3.3.1 Based on consultation with the Design Consultant, the Owner has furnished a Fixed Limit of Construction Cost as set forth above, which sets forth the dollar amount available for the total OPCC(s) of this Construction Package which includes contingencies for bidding and construction, shared risk contingency pools, force account items, and the CM/GC Management Price Percentage.

3.3.2 The Fixed Limit of Construction Cost may be revised only by approved Amendments and Change Orders issued after execution of the Contract Documents.

3.4 CM/GC SERVICES

3.4.1 The Contractor shall perform those services included, but not limited to, those described in the Contract Documents. In addition and not in limitation, the Contractor shall also perform the other CM/GC Services designated in this Article.

3.4.2 The Contractor shall utilize Microsoft Project or similar software, approved by the Owner, to develop and manage the schedule. The schedule, as agreed to, shall be CPM with reasonable detail to allow for assessment of each Construction Package or LLTP schedule for equipment or materials to be furnished by the Owner or Contractor as agreed, the adequacy of the construction duration/period, critical paths among the activities for the building systems, peak manpower requirements, and crunch points within the Project's logic/critical path. As part of each FOR review and OPCC, this preliminary schedule shall be updated by the Contractor to reflect the work described in any FOR documents, and shall be utilized by the Owner to assess each LLTP CAP and Construction CAP proposal. The Project Schedule will be updated at other Milestone dates as agreed at the Project Scoping Workshop.

3.4.3 The Contractor shall attend all regular Project status meetings with the Owner and the Design Consultant and such additional meetings as the Owner may request. All regular meetings shall be scheduled by the Design Consultant with the agreement of the Contractor and approval of the Owner. All additional meetings shall be scheduled by the Owner.

3.4.4 The Contractor shall investigate and recommend materials and equipment that could be purchased by the Owner or the Contractor as agreed; consider LLTP opportunities, and mass purchasing power in making such recommendations; recommend a schedule for such purchases after coordination with the Design Consultant in the schedule for preparation of Contract Documents; and expedite and coordinate delivery of these purchases to facilitate their delivery by the required dates.

3.4.5 The Contractor shall provide the requirements and assignment of responsibilities for safety precautions and programs as required for the execution of the Work, temporary project facilities, and for equipment, materials and services for common use of Subcontractors and verify that all are included in the Contract Documents.

3.4.6 The Contractor shall provide, not later than the first of each month, a monthly report documenting the current status of the Project's schedule, OPCC updates, requests for information, submittals, manpower, safety, and other pertinent information. The report shall be separate from the monthly schedule update/report. The report shall include a narrative discussion of the progress achieved, activities anticipated for the next month, and issues that are affecting the rate of progress. Progress photographs for any LLTP Package shall be attached/included.

3.4.7 If the Contractor or any of its Subcontractors of any tier participating in Construction reviews observes that any of the Contract Documents are at variance with applicable laws, statutes, building codes, industry standards, ordinances, rules or regulations, in any respect, the Contractor shall promptly notify the Owner in writing, noting the applicable Drawing, Plan or Specification, and recommend an appropriate alternative for correcting the Contract Document.

3.5.8 All reviews by the Contractor shall include written responses and redlined documents that detail recommendations, changes, and questions.

3.6 CONSTRUCTION SERVICES

3.6.1 The Contractor shall, in a good and workmanlike manner at his own cost and expense, and strictly in accordance with this Agreement, furnish all materials and do work not herein specifically excepted, necessary or incidental to the complete construction of Construction Package 2. The work is described in the plans and specifications for the project described.

3.6.2 Except for contract changes approved by Arvada in accordance with Article 9 of this Agreement, the CAP will not be increased. The Contractor assumes all risk for performance of the work for the specified Construction Package, including management of its subcontractors, suppliers, and any associated cost impacts over and above the CAP.

3.7 ADMINISTRATION

3.7.1 The Owner shall provide administration of this Agreement as described throughout this Agreement.

3.7.2 The Design Consultant and the Contractor shall advise and consult with the Owner. All instructions and communications by the Design Consultant to the Contractor and by the Contractor to the Design Consultant shall be copied to the Owner.

3.7.3 Except where expressly provided to the contrary in the Contract Documents, the Contractor's contact person shall forward all communications in writing and all documents to the Owner's contact person and the Design Consultant's contact person simultaneously as listed below:

Party	**Contact**
Owner: City of Arvada	R. Britton Thomas
Design Consultant: Muller Engineering Company, Inc.	Carlos Sala
Contractor: SEMA Construction, Inc.	Geoff Mestas

3.8 ACCESS TO WORK

3.8.1 The Design Consultant and Owner shall at all times have access to the Work wherever it is in preparation and progress. The Contractor shall provide safe and reasonable facilities for such access so that the Design Consultant and Owner may exercise their rights and perform their functions under the Contract Documents.

3.8.2 During all phases of the Work and services to be provided hereunder the Contractor agrees to establish a working office at a place agreeable to the Owner and permit duly authorized agents and employees of Arvada to enter the Contractor's offices for the purpose of inspections, reviews and audits during normal working hours. Reviews may also be accomplished at meetings that are arranged at mutually agreeable times and places.

3.9 DESIGN CONSULTANT'S AUTHORITY

3.9.1 The duties, responsibilities and limitations of authority of the Design Consultant during construction shall be set forth by the Owner.

3.10 NO RESPONSIBILITY FOR DESIGN CONSULTANT

3.10.1 The Contractor shall not be responsible for the failure of the Design Consultant or its sub-consultants to properly discharge their duties and responsibilities as set forth in the agreement between the Owner and Design Consultant.

3.11 SCHEDULE, COORDINATION, AND COST CONTROL

3.11.1 In the performance of the Work under this Agreement, the Contractor acknowledges that time is of the essence. The Contractor shall begin the performance of CM/GC Services upon receiving a Notice to Proceed to Commence CM/GC Services. The Contractor shall begin the LLTP or the Construction Package upon receiving the Notice to Proceed to Commence LLTP or Construction Package in accordance with Section 6.1. The Contractor shall schedule and coordinate the work of all of its Suppliers on the Project including their use of the site. The Contractor shall keep the Suppliers informed of the Project Schedule to enable the Suppliers to plan and perform the work properly. The Contractor shall carry the Work forward expeditiously with adequate forces and shall achieve completion of the Work prior to the Date of Completion specified in Section 6.3, as adjusted by Change Orders and Amendments.

3.12 PRELIMINARY PROJECT SCHEDULE

3.12.1 Detailed Project Schedules for Construction CAP Bid Packages are included in the Contract Documents.

3.12.2 Upon acceptance by the Owner, the most current Project Schedule shall be used as a basis for determining progress payments.

3.12.3 Technical Requirements:

3.12.3.1 The Project Schedule shall be developed utilizing commercially available scheduling software as approved by the Owner. The level of detail of the Contractor's schedule shall be a function of the complexity of the Work involved. The Milestones and total number of activities shall be subject to approval by the Owner. The activities and resource loading will correspond with the Cost Model as required by Contract Documents.

3.12.3.2 Schedule activities shall be cost-loaded as agreed to and the assigned dollar value (cost loading) of each activity of the network shall cumulatively equal the total of the CAP. Costs for mobilization, bonds, permits, insurance costs may be shown separately. For any items that the Contractor intends to bill for stored materials, these items need to be shown as separate material procurement activities in the schedule and the material dollars only placed on these activities. Billing for stored materials on any other schedule activities not broken out in this manner shall not be allowed. General and administrative cost, overhead, and profit shall not be included within the cost loading and payment for these costs/fees shall be administered separately by the CM/GC Management Price Percentage.

3.12.3.3 The Contractor shall assign manpower loading as agreed to for each activity of the network. In addition, the Contractor shall prepare and submit a separate manpower summary analysis in graphic format depicting manpower by Subcontractor and aggregate. The graph(s) shall show the number of man-days of effort, by month, over the duration of the Project Schedule for each LLTP or Construction Package.

3.12.3.4 For all major equipment and materials fabricated or supplied for this Project, the network shall show a sequence of activities including, preparation of Shop Drawings and Samples submissions, review and approval of Shop Drawings and Samples, shop fabrication and delivery, erection or installation, and testing of equipment and materials.

3.12.4 Submittals:

For the preliminary or detailed Project Schedule submittals, as well as for each Project Schedule update, the Contractor shall submit the following:

3.12.4.1 Electronic copies of schedule reports, to include the following minimum items:

3.12.4.1.1 Cost report showing activity dollar value, dollar value of Work in place (to-date), and dollar value for current period;

3.12.4.1.2 Cost report showing activity dollar value, dollar value of Work in place (to-date), and dollar value for current period summarizing to Schedule of Bid Items;

3.12.4.1.3 Resource report showing man-day allocations by specific trade on each activity;

3.12.4.1.4 Variance report comparing current dates to target dates;

3.12.4.1.5 Cash flow report showing monthly projections of expenditures.

3.12.4.2 A narrative schedule report documenting:

3.12.4.2.1 Description of the actual Work accomplished during the reporting period;

3.12.4.2.2 Description of any problem areas;

3.12.4.2.3 Description of current and anticipated delays with recommended corrective actions to mitigate such delays;

3.12.4.2.4 A list of proposed modifications, additions, deletions, and changes in logic to the approved construction schedule;

3.12.4.3 A Contractor's schedule to the Owner in an electronic format.

3.12.4.4 The Contractor shall utilize Microsoft Project or similar software agreed to by the Owner, to prepare and keep current, for the Owner's approval, a time schedule of

submittals in a submittal log which is coordinated with the Contractor's detailed Project Schedule and allows the Owner a reasonable time to review submittals.

3.12.5 Schedule Management

3.12.5.1 Progress Meetings: Progress meetings will be held in a number per week or month mutually agreed to by the Owner and the Contractor, a meeting shall be held to assess the progress achieved by the Contractor during previous work week, discuss and resolve issues affecting progress, and review the critical activities anticipated for the following two weeks. The Contractor is to provide short interval schedules documenting the activities to be accomplished during the past week and the activities forecast for the next two weeks.

3.12.5.2 Monthly Project Review Meetings: Once each month on or about the 25th of the month, a meeting shall be held to review a draft Pay Estimate and Project Schedule update, assess and agree to the progress achieved by the Contractor during the previous month, discuss and resolve issues affecting progress, and review the critical activities to be accomplished during the following 90 days. The Contractor is to provide a draft Pay Estimate and Project Schedule update reflecting the Work accomplished during the previous month.

3.12.5.3 Monthly Schedule Reporting: After the monthly Project review meeting, but not later than the 28th of the month, the Contractor shall update the preliminary or detailed Project Schedule and submit the Pay Estimate.

3.12.5.4 Schedule Modifications: If, as a result of the monthly schedule update, it appears the preliminary or detailed Project Schedule no longer represents the actual-/logical progression of the Work or the Contractor’s plan for prosecution and progress of the Work, the Owner shall require the Contractor to submit a revision to the preliminary or detailed Project Schedule. Such revisions to the preliminary or detailed Project Schedule shall not alter any of the Milestone dates unless approved by the Owner.

3.12.5.5 Schedule Impacts, Schedule Delays, Time Extensions: During the course of the Project, it may be appropriate to revise the preliminary or detailed Project Schedule to incorporate impacts or delay issues into the Project Schedule. If the Contractor feels it has encountered schedule impacts that it feels may warrant a time extension, it shall present an impacted Project Schedule in accordance with Article 6, to the Owner supporting its claim.

3.12.5.6 Recovery Schedule: If progress falls behind schedule dates, the Contractor shall prepare a recovery schedule indicating its revised plan to assure the timely completion of the Work. The recovery plan shall be subject to the Owner’s approval.

ARTICLE 4. DRAWINGS, PLANS, AND SPECIFICATIONS

4.1 PROCUREMENT OF AND RIGHTS IN DATA, DOCUMENTS, AND COMPUTER

4.1.1 Any software, research, reports, studies, estimates, data, photographs, negatives or other documents, Plans, Drawings, Specifications, memoranda, computation sheets or materials prepared by Contractor in the performance of its obligations under this Agreement shall be the exclusive property of Arvada without restriction and all such materials shall be delivered to the Owner by the Contractor upon completion, termination, or cancellation of this Agreement. Contractor may, at its own expense, keep copies of all its writings for its personal files. Contractor shall not use, willingly allow, or cause to have such materials used for any purpose other than the performance of Contractor's obligations under this Agreement without the prior written consent of the Owner; provided, however, that Contractor shall be allowed to use non-confidential materials for writing samples in pursuit of the Work. Copies of said documents may be retained by the Contractor, but shall not be made available to other individuals or organizations without prior written approval of the Owner. The ownership rights described herein shall include, but not be limited to, the right to copy, publish, display, transfer, prepare derivative works, or otherwise use written works.

4.1.2 The Drawings, Plans, and Specifications and other documents are to be used only with respect to this Project and are not to be used on any other project. With exception of one contract set for each Party to this Agreement, such documents are to be returned or suitably accounted for to the Owner on request at the completion of the Work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project is to be approved by the Owner.

4.2 REVIEW OF THE CONTRACT DOCUMENTS

4.2.1 The Contractor shall carefully study and compare the Contract Documents and shall immediately report to the Owner any error, inconsistency, or omission that may be discovered. The Contractor shall perform no portion of the Work at any time without Contract Documents or, where required, approved Drawings, Plans, Specifications, RFI Responses, Details, instructions, Shop Drawings, Product Data, or Samples for such portion of the Work.

4.2.2 If the Contractor or any of its Subcontractors of any tier observes that any of the Contract Documents are at variance with applicable laws, statutes, building codes, ordinances, industry standards, rules, or regulations, in any respect, the Contractor shall immediately notify the Owner in writing, and any necessary changes shall be accomplished by appropriate Amendment or Change Order.

4.2.3 If the Contractor or any of its Subcontractors of any tier perform any Work with knowledge or reason to know that it is contrary to any laws, statutes, building codes, ordinances, industry standards, rules, or regulations, and does not notify the Owner, as required in Sections 4.2.1 and 4.2.2, the Contractor shall assume full responsibility therefor and shall bear all costs attributable therefor.

4.3 INTERPRETATIONS

4.3.1 The Owner shall be the interpreter of the requirements of the Contract Documents and the judge of the performance thereunder.

4.3.2 The Owner shall render interpretations consistent with the intent of, and reasonably inferable from the Contract Documents, consisting of additional instructions by means of Drawings, Plan, Specifications or otherwise, necessary for the proper execution or progress of the Work, in accordance with agreed upon time limits and otherwise so as to cause no unreasonable delay. The Contractor may make written request to the Owner for such interpretations and decisions.

4.4 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

4.4.1 The Contractor shall furnish for approval, all Samples as directed by the Design Consultant. The Design Consultant shall check and approve such Samples with reasonable promptness.

4.4.2 The Contractor shall prepare, review, approve, and submit to the Design Consultant, with reasonable promptness and in such sequence as to cause no unreasonable delay in the Work or in the work of the Owner or any separate Contractor, all Samples and sufficient copies of all Shop Drawings and Product Data required by the Contract Documents. Specific quantities, format, size, etc. of Samples, Shop Drawings, and Product Data shall be described in the Contract Documents prepared by the Design Consultant. All Shop Drawings shall contain identifying nomenclature and each submittal shall be accompanied by a letter of transmittal identifying in detail all enclosures.

4.4.3 By preparing, approving, and submitting Shop Drawings, Product Data, and Samples, the Contractor represents that the Contractor has determined and verified all materials, field measurements, and field construction criteria related thereto, or shall do so with reasonable promptness, and has checked and coordinated the information contained within such submittal with the requirements of the Work, the Project, the Contract Documents, and prior approvals.

4.4.4 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Design Consultant's approval of Shop Drawings, Product Data, or Samples unless the Contractor has specifically informed the Owner and Design Consultant in writing of such deviation at the time of submission and the Design Consultant and Owner have both given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data, or Samples by the Design Consultant's approval of them.

4.4.5 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, or Samples, to revisions other than those requested by the Owner on previous submittals.

4.4.6 No portion of the Work requiring submission of a Shop Drawing, Product Data, or Sample shall be commenced until the submittal has been approved by the Owner.

4.4.7 All such portions of the Work shall be in accordance with approved submittals. Work which is improperly fabricated, whether through incorrect Shop Drawings, faulty workmanship or materials, shall not be acceptable unless previously accepted in writing by the Owner.

4.4.8 The Owner will review and approve or take other appropriate action upon the Contractor's submission of any document such as Shop Drawings, Product Data, and Samples, but only for conformance with the design concept of the Work and the information given in the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no unreasonable delay. The Owner's approval of a specific item shall not indicate approval of an assembly of which the item is a component. Any and all approved substitutions shall be coordinated with the Contract Documents and all prior approvals.

4.4.9 Transmittal of copies of Shop Drawings, Product Data and Samples to the Owner is solely for convenience of the Owner and shall neither create nor imply a responsibility or duty of review by the Owner.

4.5 CONFIDENTIALITY

4.5.1 The Contractor understands that all services hereunder are confidential in character, and that as such, details and investigative results are not to be divulged in whole or in part at any time in the form of press releases, public statements, and publication in technical papers by the Contractor, its agents, employees or representatives.

4.5.2 Similarly, no detailed information about the Project shall be tendered to property owners, speculative and promotional interests or to the general public without written authority from Arvada.

ARTICLE 5. THE OWNER RESPONSIBILITIES

5.1 THE RESPONSIBILITIES

5.1.1 The Owner has furnished Contractor with the Fixed Limit of Construction Cost established for the Work.

5.1.2 The Owner shall designate a representative (other than the Design Consultant) authorized to act on its behalf with respect to the Project.

5.1.3 The Owner has retained a Design Consultant for preparation of the Design Services documents required for the Project. The Design Consultant's services, duties, and responsibilities are described in the agreement between the Owner and the Design Consultant, a copy of which will be furnished to the Contractor.

5.1.4 The Contractor shall be furnished, without charge copies of the Drawings, Plans and Specifications for each LLTP or Construction Package. Additional sets, as mutually agreed upon to meet construction needs, shall be a direct cost of Work. The Owner's preference is to use electronic copies when possible to minimize unnecessary paper files.

5.1.5 The Owner shall furnish the site of the Project, all necessary surveys describing the physical characteristics, legal limitations, utility locations, and a legal description.

5.1.6 The Owner shall identify and make available to Contractor copies of reports of geotechnical explorations and tests of subsurface conditions at the site which have been utilized by Design Consultant in preparing the Drawings, Plans, and Specifications. The Owner does not represent that these reports show completely and accurately the existing conditions and the Owner does not guarantee any interpretation of the reports. The Contractor expressly assumes all responsibility for assumptions, deductions and conclusions which may be made as to the nature of the materials to be excavated, and the difficulties of making and maintaining the required excavations, and of doing other work affected by the geology of the site of the Work, including dewatering.

5.1.7 The Owner shall secure and pay for necessary approvals, temporary easements, permanent easements, assessments, and acquisitions.

5.1.8 The Owner shall furnish such legal, accounting, and insurance counseling services as may be necessary for the Project and such auditing services as the Owner may require ascertaining how or for what purposes the Contractor has used the monies paid to it under this Agreement.

5.1.9 The services, information, surveys, and reports required by Sections 5.1.3 through 5.1.8 shall be furnished on a timely basis and at the Owner's expense, and except as may be provided to the contrary elsewhere in this Agreement, the Contractor shall be entitled to rely upon the accuracy and completeness thereof.

5.1.10 The Contractor recognizes that the Owner is a governmental body with certain procedural requirements to be satisfied. The Contractor has and shall make reasonable allowance in its performance of the Work for such additional time as may be required for approvals and decisions by the Owner.

ARTICLE 6. TIME OF COMMENCEMENT AND COMPLETION

6.1 COMMENCEMENT

6.1.1 The Parties' performances under this Agreement shall commence on the Effective Date but no work shall be performed prior to the Contractor's receipt of a Notice to Proceed.

6.1.2 The procurement of any LLTP is expressly conditioned upon and shall not commence until:

6.1.2.1 The applicable LLTP CAP has been approved and accepted by the Owner and added to this Agreement by Amendment;

6.1.2.2 The date for completion of the LLTP has been approved and accepted by the Owner;

6.1.2.3 All required Performance Bonds and Payment Bonds and Insurance Certificates have been approved and accepted by the Owner; and

6.1.2.4 Notice to Proceed to commence Construction Package 2 has been issued by the Owner and made a part of the Contract Documents.

6.1.2.5 If any of the preceding material conditions to be performed by the Contractor have not been fully satisfied by reason of any act or omission on the part of the Contractor through no fault of the Owner, the Owner shall give the Contractor written notice of any and all such deficiencies and allow 10 days from the date of such notice to correct and cure such deficiency or deficiencies, and if the deficiency or deficiencies are not fully corrected and cured within the 10 day period, the Owner may declare the Contractor to be in default of this Agreement.

6.1.3 The commencement of any Construction Package is expressly conditioned upon and shall not commence until:

6.1.3.1 The applicable Construction CAP and associated Schedule of Bid Items have been approved and accepted by the Owner;

6.1.3.2 A CM/GC Construction Contract for such Construction Package has been issued, signed, and executed;

6.1.3.3 The date for completion of the Construction Package Work has been approved and accepted by the Owner;

6.1.3.4 It is in accordance with the standard special provisions (as included in any Specifications);

6.1.3.5 All required Performance Bonds and Payment Bonds and Insurance Certificates have been approved and accepted by the Owner; and

6.1.3.6 A Notice to Proceed to commence the Construction Package has been issued by the Owner as part of the CM/GC Construction Contract.

6.1.3.7 If any of the preceding material conditions to be performed by the Contractor have not been fully satisfied by reason of any act or omission on the part of the Contractor through no fault of the Owner, the Owner shall give the Contractor written notice of any and all such deficiencies

and allow 10 days from the date of such notice to correct and cure such deficiency or deficiencies, and if the deficiency or deficiencies are not fully corrected and cured within the 10 day period, the Owner may declare the Contractor to be in default of this Agreement.

6.2 TIME OF ESSENCE

6.2.1 Time is of the essence of this Agreement. The Contractor shall begin the Work on the Effective Date. The Contractor shall carry the Work forward expeditiously with adequate forces and shall achieve completion of the Work by the Termination Date.

6.3 COMPLETION DATE

6.3.1 The Date of Completion for performance hereunder shall be established:

6.3.1.1 The initial Date of Completion for any LLTP or any Construction Package is stated in the Amendment incorporating the applicable Bid Package. Amendments to such Date of Completion are made by approved Amendments to the applicable Bid Package.

6.3.1.2 The initial Date of Completion for CM/GC Services is the Termination Date.

6.3.1.3 The date of completion of any LLTP or Construction Package will be as set in the specific LLTP or Construction Package specifications.

6.4 DELAYS AND EXTENSIONS OF TERM AND FOR COMPLETION OF WORK

6.4.1 Extensions of the Term of this Agreement will be granted only to the extent that the critical path was delayed or the time allowed for any activity or activities affected exceed the identified available float or slack that occurs, or should occur, along the channels involved.

6.4.2 Subject to the limitations as provided in Section 6.4.1, if the Contractor is delayed at any time in the progress of the Work by any act or omission of the Owner, the Design Consultant, or of any employee of either, or by any separate contractor that is not a Subcontractor of the Contractor, or by changes ordered in the Work, or by strikes, lockouts, fire, unusual delay in transportation, directed suspensions of the Work pursuant to Section 6.5.1, unavoidable casualties, or any other causes beyond the Contractor's control, the Term of this Agreement shall be extended by the Owner for such period of time as the Owner may determine based upon the Contractor's showing of the delay to the critical path in accordance with Section 6.4.1 and that it could not have avoided the delay by the exercise of due diligence.

6.4.3 If adverse weather conditions are the basis for a claim for an extension of the Term of this Agreement, such claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and that the weather conditions complained of had an adverse effect on the critical path. Substantiation shall

be based on a comparison of current conditions with recorded conditions for the same time period over the duration of the past 10 years.

6.4.4 If the Contractor intends to assert a claim for an extension of the Term of this Agreement, the Parties shall use Dispute Resolution pursuant to this Agreement.

6.4.5 If no schedule is prepared fixing the dates on which various detail Drawings, Plans, Specifications and instruction (not including final construction documents to be released for construction) will be needed, no extension to the term of this Agreement shall be allowed for failure to furnish such Drawings, Plans, Specifications or instructions as needed, except in respect of that part of any delay in furnishing Drawings, Plans, Specifications or instructions extending beyond a period of two (2) weeks after written demand for such Drawings, Plans, Specifications or instructions is received by the Design Consultant. In any event, any claim for an extension of the term of this Agreement for such cause shall be recognized only to the extent of the delay directly caused by failure to furnish Drawings, Plans, Specifications or instructions pursuant to schedule, or such two (2) weeks demand, without fault on the part of the Contractor or those for whom the Contractor is responsible.

6.5 TEMPORARY SUSPENSION OF THE WORK

6.5.1 The Owner shall have the authority to suspend the Work (each a "Suspension of Work"), either wholly or in part, for such period or periods as it may deem necessary due to:

6.5.1.1 Unsuitable weather;

6.5.1.2 Faulty workmanship;

6.5.1.3 Contractor's material and substantial failure to carry out orders or to perform any provision of the Contract Documents;

6.5.1.4 Conditions which are considered unfavorable for the prosecution of the Work; or

6.5.1.5 Any other reason, with or without cause, including but not limited to the availability of funding for the Project as well as any other construction projects and the need to allocate funds between them.

6.5.2 If it should become necessary to suspend the Work for an indefinite period, the Contractor shall store all materials in such manner that they shall not become an obstruction or become damaged in any way; and it shall take every precaution to prevent damage to or deterioration of the Work, provide suitable drainage, and erect temporary structures where necessary.

6.5.3 Such notice of Suspension of Work shall be in writing and the Contractor shall again proceed with the Work when so notified in writing.

6.6 LIQUIDATED DAMAGES

6.6.1 If the Contractor shall neglect, fail or refuse to complete the Work within the times specified in the Agreement, such failure shall constitute a breach of the terms of the Agreement and Arvada shall be entitled to liquidated damages for such neglect, failure or refusal, as specified in the adopted version of *Arvada's Engineering Code of Standards and Specifications,* shown below.

Original Contract Amount		Daily Charge
From More than	To and Including	
$ 0	$ 150,000	$ 500
150,000	250,000	600
250,000	500,000	800
500,000	1,000,000	1400
1,000,000	2,000,000	2000
2,000,000	4,000,000	3300
4,000,000	10,000,000	3900

Over $10,000,000 - daily charge will increase by $300 increments for each $1,000,000 over $10,000,000.

6.6.2 The Contractor and the Contractor's surety shall be jointly liable for and shall pay the Owner, or the Owner may withhold, the sums hereinafter stipulated as liquidated damages for each calendar day of delay in the entire Project resulting from delays in any LLTP or Construction Package, which is determined by when such LLTP or Construction Package is, 1) Complete, and the Notice (or all Notices) of Completion are issued, 2) Complete and accepted, or 3) both. Delay in Substantial Completion shall be measured from the date of the Notice to Proceed to commence LLTP or Construction Package, and delay in final completion and acceptance shall be measured from the date of the Notice of Completion for such LLTP or Construction Package.

6.6.3 The Parties expressly agree that said amounts are a reasonable estimate of the presumed actual damages that would result from any of the breaches listed, and that any liquidated damages that are assessed have been agreed to in light of the difficulty of ascertaining the actual damages that would be caused by any of these breaches at the time this Agreement was formed.

ARTICLE 7. SUBCONTRACTS

7.1 SUBCONTRACTING

7.1.1 Any Subcontractor retained by the Contractor and any and all subcontracts entered into by the Contractor for any Work performed under this Agreement and any Modifications hereto are subject to prior approval by the Owner. The Contractor shall not engage the services of any persons then in the employ of the Owner for Work covered by the terms of this Agreement without the written consent of the Owner. All subcontracts, exceeding $10,000.00 in cost, shall contain the provisions included in Article 17.

7.2 SUBCONTRACTING REQUIREMENTS

7.2.1 The Contractor shall comply with all applicable requirements of the Contract Documents relating to Subcontracts, and shall ensure that its Subcontractors (at all tiers) comply with all applicable requirements of the Contract Documents relating to subcontracting. The Contractor shall not add, delete, or change the role of, any Subcontractor without the prior written approval of the Owner.

7.3 ASSIGNMENT OF SUBCONTRACT RIGHTS

7.3.1 Each Subcontract shall provide that, pursuant to terms in form and substance satisfactory to the Owner: (i) the Owner is a third party beneficiary of the Subcontract and shall have the right to enforce all terms of the Subcontract for its own benefit; and (ii) all guarantees and warranties, express and implied, shall inure to the benefit of the Owner as well as the Contractor. Any acceptance of assignment of a Subcontract from the Owner, its successor(s), or assign(s) shall not operate to make the assignee(s) responsible or liable for any breach of the Subcontract by the Contractor or for any amounts due and owning under the Subcontract included in an invoice paid by the Owner.

7.4 CONTRACTOR RESPONSIBLE FOR SUBCONTRACTORS

7.4.1 The Contractor shall be responsible to the Owner for the acts and omissions of its agents and employees, Suppliers, Subcontractors performing Work under a contract with the Contractor, and such Subcontractors' lower tier subcontractors, agents, Suppliers, or employees.

7.5 SUBCONTRACT DATA

7.5.1 The Contractor shall notify the Owner, in writing, of the name and address of, and licenses held by, each Subcontractor (excluding Suppliers), as soon as the potential Subcontractor has been identified by Contractor, but in no event less than 14 days prior to the scheduled initiation of Work by such proposed Subcontractor. Monthly the Contractor shall provide to the Owner a Subcontractor report (including suppliers), divided according to the preconstruction services and construction work, detailing the following:

7.5.1.1 Name of Subcontractor;

7.5.1.2 Total subcontract amount;

7.5.1.3 The amount and type of work completed in recent month;

7.5.1.4 Total payments paid to date;

7.5.1.5 Most recent payment and its date;

7.5.1.6 Payments due; and

7.5.1.7 Status of the work (i.e. in progress, ended, etc.).

7.5.2 The Contractor shall allow the Owner access to all Subcontracts and records regarding Subcontracts, including copies of all Additional Insured endorsements identifying the Owner as an Additional Insured; and shall deliver to the Owner within ten days after receipt of a request from the Owner, copies of all Subcontracts.

7.6 SUBSTITUTION OF SUBCONTRACTORS

7.6.1 The Contractor shall not add, delete, make a substitution or change the role of, any Subcontractor, Supplier, person, or entity previously selected without the prior written approval of the Owner.

7.7 SUBCONTRACTUAL RELATIONS

7.7.1 By an appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor and Supplier, to the extent of the Work to be performed by the Subcontractor or Supplier, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by the Contract Documents, assumes toward the Owner and the Design Consultant. Said agreement shall preserve and protect the rights of the Owner and the Design Consultant under the Contract Documents with respect to the Work to be performed by the Subcontractor or Supplier so that the subcontracting thereof shall not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor or Supplier to enter into similar agreements with their subcontractors and suppliers. The Contractor shall make available to each proposed Subcontractor or Supplier, prior to the execution of the subcontract, copies of the Contract Documents to which the Subcontractor or Supplier shall similarly make copies of such Contract Documents available to their sub-subcontractors.

7.8 OWNER/SUBCONTRACTOR RELATIONSHIP

7.8.1 The Parties recognize that the bidding and subcontracting procedures prescribed herein are intended to promote pricing of the Work that shall be fair and reasonable and based on full and open competition. Nothing contained in the Contract Documents, including this Agreement, shall be deemed to create any contractual relationship between any Subcontractor or Supplier of any tier and the Owner.

7.9 PAYMENTS TO SUBCONTRACTORS

7.9.1 Monthly Work Product Review: On a monthly basis, the Contractor shall review the work product of each lower tier subcontract or supplier participating on the project and document the monthly work product review as part of the Subcontractor Data report required in 7.5.1. Any dispute which results in a disagreement regarding the amount of work completed or amount due must be detailed in the documentation. Work shall not be deemed completed or ended if there is an outstanding dispute. The Contractor and Subcontractor or supplier shall both agree to and sign the documentation. If the subcontractor or supplier provides an invoice which is agreed to by the receiving party, such invoice may satisfy this requirement. This procedure must be carried out by all subcontractors and suppliers with lower tier subcontractors and suppliers.

7.9.2 Prompt Payment. The Contractor is responsible for ensuring that all subcontractors and suppliers at every tier are promptly paid. All subcontractors and suppliers must be paid within 30 days of the monthly work product review detailed in 7.9.1.

7.9.3 Good Cause Exception. If the Contractor has "good cause" to delay or withhold a Subcontractor's progress payment, the Contractor shall notify the Owner and the Subcontractor in writing within seven days after receiving payment from the Owner. The notification shall specify the amount being withheld and provide adequate justification for withholding the payment. The notice shall also clearly state what conditions the Subcontractor must meet to receive payment. "Good cause" shall include but not be limited to the failure of the Subcontractor to make timely submission of required paperwork.

7.9.4 Subject to Arvada's right to withhold from progress payments any amounts in dispute, and except as expressly stated otherwise in this Section, any disagreement between Arvada and the Contractor relating to this Section 7 shall be subject to a Disputes and Claims process. Failure by Arvada to pay any amount in dispute shall not alleviate, diminish, or modify in any respect the Contractor's obligation to perform under the Contract Documents, including the Contractor's obligation to achieve Final Acceptance in accordance with the Contract Documents, and the Contractor shall not cease or slow down performance under the Contract Documents on account of any such amount in dispute. The Contractor shall proceed as directed by Arvada pending resolution of the dispute. Upon resolution of such dispute, each party shall promptly pay to the other any amount owing.

ARTICLE 8. COMPENSATION

8.1 CONTRACTOR'S CM/GC CONSTRUCTION FEE AND LLTP CAP

8.1.1 All invoices shall be submitted by the Contractor to the Owner for payment pursuant to the terms of this Agreement. The Contractor shall submit its billings such that the cost for each activity or task contained in the Agreement shall be separately shown. Upon approval thereof, Arvada will pay the appropriate amount of each invoice to the Contractor within 30 days of receipt of invoice, if all charges are adequately documented and undisputed. Interest shall be paid on all undisputed and unpaid invoices in accordance with Section 2.32 of *Arvada's Standards and Specifications*. Progress payments may be claimed on a monthly basis pursuant to the payment format approved in this Agreement.

8.2 CONTRACT SUM

8.2.1 Subject to the provisions of Articles 3, 9, and 16, the compensation for Construction Package 2 services shall be $22,636,539.43.

8.2.3 The Contract Sum shall be the maximum amount payable under this Agreement and the Contract Documents to Contractor by Arvada, from available funds for Construction Package 2. The Contract Sum can only be modified by Amendment.

8.3 PAYMENTS

8.3.1 The City shall pay the Contractor, according to the requirements of the plans and specifications referenced herein and subject to the following paragraph, the amounts required for the completed work at the unit prices set forth in the CAP proposal, and such further amounts as may be required for extra work or materials, all according to the provisions and subject to the conditions set forth herein.

Payment pursuant to this Contract will be made, from available funds that are currently encumbered for this Contract in a maximum amount not to exceed $22,636,539.43 that includes the CAP (Total Direct Cost of Construction to execute the work pursuant to the plans, specifications, and estimates provided by the City for each Bid Package and a percentage not to exceed the CM/GC Management Fee Percentage).

Any encumbered funds not needed to complete Construction Package 2, through reduced quantities, eliminated pay items, or unused Force Account monies will be retained by the Owner and may be used to fund future construction packages.

8.3.2 LLTP and Construction CAPs

8.3.2.1 At the time of the agreement and acceptance of each LLTP CAP or Construction Package, the Contractor shall submit to the Owner a complete, detailed, and itemized Schedule of Bid Items for such LLTP CAP or Construction Package CAP.

8.3.2.2 Arvada shall pay the Contractor, according to the requirements of the Drawings, Plans, Specifications and Standard Specifications, the amounts required for the completed LLTP or Construction Package at the unit prices set forth in such LLTP CAP or Construction Package CAP proposal, and such further amounts as may be required for extra work or materials, all according to the provisions and subject to the conditions as set forth in the Drawings, Plans, Specifications, Standard Specifications, and Project Special Provisions as required in this Agreement.

8.3.3 All payments to Contractor shall be in the form of Pay Estimates.

8.4 CONDITIONS OF COMPENSATION/CONDITION PRECEDENT

8.4.1 Financial obligations of Arvada payable after the current fiscal year are contingent upon funds for the purpose being appropriated, budgeted, and otherwise made available.

8.4.2 The Contractor shall submit monthly progress reports and an updated project CPM schedule to the Owner. Failure to submit a progress report may result in non-payment to the Contractor for the month. The progress report and updated project CPM schedule will be reviewed by the Owner. The progress report shall contain, but not limited to, the following:

8.4.2.1 Report on progress of each Work activity or Milestone identified in the Agreement, to show the amount of Work accomplished during the current month and the amount of Work accomplished overall;

8.4.2.2 A report on the time scheduled for each Work activity or Milestone identified in the Agreement to show planned time completion and actual times used to do the Work;

8.4.2.3 A description of the cause for delays beyond the planned completion time of Work activities or Milestones contained in the Agreement;

8.4.2.4 A report on the cost incurred to date on each Work activity or Milestone contained in the Agreement and a comparison to the cost estimates for such Work activity or Milestone;

8.4.2.5 A description of possible remedies to get Work activities or Milestones that are behind schedule, back on schedule, and to get Work activities or Milestones that are exceeding cost estimates, back within planned costs;

8.4.2.6 Documentation of meetings that were held during the subject time period; and

8.4.2.7 A description of problems and concerns that could affect delivery of the Work or Project.

8.4.3 The total cost of the Work including but not limited to the Contactor's LLTP CAPs, Construction Package CAPs and any and all sums claimed by the Contractor to be due as set forth throughout this Agreement, are expressly subject to the limitations set forth in Section 8.4.1 and nothing herein contained shall be construed or understood to commit the Owner to a total expense greater than that which is provided in the appropriation or allocation. Further, no funds appropriated or allocated for any other purpose shall be expended for this Agreement. The Owner agrees not to issue any Modifications which would cause the sums due the Contractor pursuant to this Agreement to exceed the appropriation or allocation for the Work.

8.4.4 Contractor shall not receive payment for any Work without its receipt of the required, appropriate Notice to Proceed.

ARTICLE 9. CHANGES IN THE WORK

9.1 AMENDMENTS AND CHANGE ORDERS

9.1.1 The Owner, with the approval of City Council, without invalidating this Agreement and without notice to any surety, may order extra work or make changes by altering, adding to, or deducting from the Work, the Fixed Limit of Construction Cost, the Contract Sum, any LLTP CAP, Term, or Construction CAP being adjusted accordingly.

9.1.2 Each adjustment in the Work, the Fixed Limit of Construction Cost, the Contract Sum, any LLTP CAP, Term, and Construction CAP resulting from an Amendment shall clearly separate the amount attributable to the cost of the Work and the Contractor's Fee, if any. The Fixed Limit of Construction Cost, Contract Sum, any LLTP CAP, Term, or Construction CAP may be changed only by Amendment.

9.1.3 Any changes in the Work that result in an increase in the Work, the Fixed Limit of Construction Cost, the Contract Sum, any LLTP CAP, Term, and Construction CAP shall be added to this Agreement by an Amendment pursuant to Section 9.1.2.

9.1.4 No extra work or change in the Contract Documents shall be made unless by a written Amendment or Change Order. No claim for any change to the Work, the Fixed Limit of Construction Cost, the Contract Sum, any LLTP CAP, Term, or Construction CAP shall be valid unless so ordered. An Amendment or Change Order signed by the Contractor conclusively establishes the Contractor's agreement therewith, including the adjustment in the Contract Sum, any LLTP CAP, Construction Package CAP, or the Term.

9.1.5 This Agreement is subject to such modifications as may be required by changes in federal or State law, or their implementing regulations. Any such required modification shall automatically be incorporated into and be part of this Agreement on the effective date of such change as if fully set forth herein. Except as provided above, no modification of this Agreement shall be effective unless agreed to in writing by both Parties in an Amendment.

9.1.6 All Change Orders, changes in estimated quantities, hazardous materials, and differing site conditions will follow Arvada's Standard Specifications.

9.2 ADJUSTMENTS IN CONTRACT SUM WITHIN A CONSTRUCTION CAP

9.2.1 The value of any change shall be determined in one or more of the following ways:

9.2.1.1 By estimate and acceptance in a lump sum;

9.2.2.2 By unit prices named in the Contract Documents or subsequently agreed upon;

9.2.2.3 By actual cost plus a fixed fee being agreed upon prior to starting the changed Work.

ARTICLE 10. INSURANCE

10.1 GENERAL

10.1.1 INSURANCE REQUIREMENTS

The following listed insurance requirements shall be carried by the selected Contractor for the construction phase of the contract.

10.1.1.1 **Commercial General Liability**, written on an occurrence form, for limits not less than $1,000,000 for bodily injury and property damage for each occurrence and not less than $2,000,000 aggregate. Coverage shall include premises and operations liability, blanket contractual, broad form property damage, products and completed operations and personal injury endorsements.

10.1.1.2 **Workers' Compensation and Employers Liability** as required by statute. Employers Liability coverage is to be carried for a minimum limit of $1,000,000 for each accident/disease and $2,000,000 aggregate.

10.1.1.3 **Automobile Liability** for limits not less than $1,000,000 combined single limit for bodily injury and property damage for each occurrence. Coverage shall include owned, non-owned and hired automobiles.

10.1.1.4 **Umbrella Liability** of $5,000,000, following form to the Commercial General Liability.

10.1.1.5 **Railroad Protective Liability Insurance** (RPLI) as required by the Union Pacific Railroad Company (UPRR). Contractor's acquisition of RPLI may be allowed to be delayed with Owner's approval; however, in all cases the Contractor must procure RPLI per the requirements of UPRR for all activities that require it, before any work can be performed inside UPRR right of way.

10.1.1.6 **Pollution Legal Liability Insurance** for limits not less than $1,000,000 per occurrence (or claims made) and not less than $1,000,000 aggregate for bodily injury, personal injury, or property Damage.

10.2.1 ADDITIONAL INSURANCE REQUIREMENTS**:**

- Contractor will be required to, at its own expense, keep in full force and effect during the term of the Agreement, and during the term of any extension or amendment of the Agreement, insurance reasonably sufficient to insure against the liability assumed by Contractor pursuant to the provisions of the solicitation sent by the City of Arvada or as determined by the City of Arvada Risk Manager.

- Issuance of a Contract is contingent upon the receipt of the insurance documents. Work shall not commence before this requirement is met. If the Contractor fails to submit the required insurance documents within fifteen (15) calendar days after notice to submit such policies is given to the Contractor by a City representative, the Contractor may be in default.

- Except for Workers Compensation, Employer's Liability insurance, Automobile Liability and Professional Liability insurance, the City of Arvada must be endorsed as an additional insured on a Certificate of Insurance.

- All coverage must be written with carriers holding a minimum A.M. Best rating of A-:VII, and authorized to do business in Colorado. Coverage shall be primary, and any insurance held by the City of Arvada is excess and non-contributory.

- The City, through its Risk Manager, reserves the right to require additional insurance coverage and other requirements.

10.3 COMPLIANCE

10.3.1 Failure of the Contractor to fully comply with any and all insurance requirements during the Term may be considered a material breach of this Agreement and may be cause for immediate termination of the Agreement at the option of the Owner. The Owner reserves the right to negotiate additional specific insurance requirements at the time of the award.

10.4 MUTUAL COOPERATION

10.4.1 The Owner and Contractor shall cooperate with each other in the collection of any insurance proceeds which may be payable in the event of any loss, including the execution and delivery of any proof of loss or other actions required to effect recovery.

10.4.2 If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to the Date of Completion of the Work, such occupancy shall not commence prior to the time mutually agreed to by the Owner and the Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. No insurance shall be canceled or allowed to lapse on account of such partial occupancy. Consent of the Contractor and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld. The Contractor shall assist the Owner in completing and executing such form(s) as are necessary for approval of occupancy and use, prior to the Owner's possession and use. Any and all areas so occupied will be subject to a final inspection when the Contractor complies with Article 14, Completion, Final Inspection, Acceptance and Settlement.

ARTICLE 11. INDEMNIFICATION

11.1 The Contractor shall indemnify, save and hold harmless Arvada, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses and attorney's fees, to the extent such claims are caused by any negligent act or omission of the Contractor, its employees, agents, subcontractors or assignees pursuant to the terms of this Agreement, but not to the extent such claims are caused by any act or omission of, or breach of contract by Arvada, its employees, agents, other contractors or assignees, or other parties not under control of or responsible to the Contractor.

11.2 In any and all claims against the Owner, its agents or employees, by any employee of the Contractor, any Subcontractor of any tier, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under

this Article 11 shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor of any tier under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

11.3 The obligations of the Contractor under this Article 11 shall not extend to the liability of the Design Consultant, its consultants, agents or employees, arising out of: (1) the preparation or approval of maps, Drawings, Plans, opinions, reports, surveys, Amendments, Change Orders, designs or Specifications; (2) the giving of or the failure to give direction or instructions by the Design Consultant, its consultants, agents or employees, provided such giving or failure to give is the primary cause of the injury or damage; or (3) any acts of the Design Consultant, its consultants, agents or employees outside of the scope of their duties pursuant to the Contract Documents.

ARTICLE 12. CONTRACTOR'S PERFORMANCE AND PAYMENT BONDS

12.1 The Contractor shall furnish a Performance Bond and a Payment Bond on Arvada's approved form, executed by a corporate surety licensed to transact such business in the State of Colorado, each in the full amount of the applicable LLTP CAP or Construction CAP with the Amendment for the addition of the applicable Bid Package to this Agreement. If subsequent Amendments are made to this Agreement which substantially increase the applicable LLTP CAP or Construction Package CAP, increased bond limits shall be furnished by the Contractor upon the acceptance of the increase in the applicable LLTP CAP or Construction Package CAP. The then current bonds shall apply to all Work included within the scope of the applicable LLTP or Construction Package, including but not limited to all prior Work which may have been performed when previous bonds were in effect.

The Amendment for such applicable LLTP or Construction Package shall not take effect or be in force until the Contractor shall have furnished and delivered to Arvada a Payment Bond and Performance Bond, acceptable to Arvada, in a penal sum equal to the nearest integral $100.00 in excess of the applicable LLTP CAP or Construction Package CAP duly executed by a corporate surety, qualified and licensed to do business in Colorado and maintaining a general agent therein.

12.2 The Performance Bond shall remain in effect until at least one year after the date when such LLTP or Construction Package receives Final Acceptance, except as otherwise provided by law or regulation or by the Contract Documents. The Payment Bond shall remain in effect for not less than the required statutory period. All bonds signed by an agent must be accompanied by a certified copy of the authority to act. All bonds must be acceptable to the Owner.

12.3 The initial Bonds shall be filed with the Owner at the time of execution of the initial, applicable Bid Package.

12.4 If the surety on any bond furnished by Contractor is declared bankrupt, becomes insolvent, its right to do business in the State of Colorado is terminated or it ceases to meet the requirements of Sections 12.1 and 12.2, the Contractor shall within 10 days thereafter, substitute another bond and surety, both of which must be acceptable to the Owner.

12.5 Upon the issuance and acceptance of the Performance Bonds and Payment Bonds, the premium therefore shall be included in the first Pay Estimate for the applicable LLTP CAP or Construction Package CAP. The premiums for all bonds and increases thereto to be provided by the Contractor as well as those Subcontractors required to be bonded by the Contractor shall be included in the applicable LLTP CAP or Construction Package CAP, and the price of each applicable Amendment and Change Order, and the Contractor shall not be entitled to additional compensation therefor.

ARTICLE 13. ACCESS TO WORK AND OBSERVATION

13.1 DESIGN CONSULTANT'S WORK

13.1.1 The Owner shall be in the first instance, the judge of the performance of the Contractor as it relates to compliance with the Contract Documents and quality of workmanship and material.

13.1.2 The Owner and its Design Consultant shall make visits to the site appropriate to the stage of construction to become familiar with the progress and quality of the Work, and to determine that the Work is proceeding in accordance with the Contract Documents. Observation may extend to all or any part of the Work and to the preparation, fabrication or manufacture of materials.

13.1.3 The Owner shall also observe the following for compliance with the Contract Documents:

13.1.3.1 Shop Drawings; and

13.1.3.2 Any special testing required in the Contract Documents.

ARTICLE 14. COMPLETION, FINAL INSPECTION, ACCEPTANCE AND SETTLEMENT

14.1 NOTICE OF COMPLETION

14.1.1 When the LLTP or Construction Package, or a portion of the Work (as hereafter described) which the Owner has agreed to accept separately, is Complete and ready for final inspection, the Contractor shall file a Notice of Completion with the Owner that the Work, or such portion, in the opinion of the Contractor, is Complete in accordance with the Contract Documents. The Contractor shall prepare and submit with such Notice of Completion a comprehensive list of items to be completed or corrected prior to final payment, which shall be subject to review and additions as the Design Consultant or the Owner shall determine after inspection. If the Design Consultant or the Owner believe that any of the items on the list of items submitted, or any other item of Work to be corrected or completed, or the cumulative number of items of Work to be corrected or completed, shall prevent a determination that the Work is Complete, those items shall be completed by the Contractor and the Notice of Completion shall then be resubmitted.

14.2 FINAL INSPECTION

14.2.1 The Owner and the Contractor shall make a final inspection of the Work to determine whether the Work is Complete and has been completed in accordance with the Contract Documents and the Standard Specifications.

14.2.2 The Contractor shall provide the Owner an updated list in sufficient detail to fully outline the following:

14.2.2.1 Work to be completed, if any; and

14.2.2.2 Work not in compliance with the Drawings, Plans or Specifications, if any.

14.2.2.3 A list shall be made by the Owner in sufficient detail to fully outline to the Contractor:

14.2.2.4 Work to be completed, if any;

14.2.2.5 Work not in compliance with the Drawings or Specifications, if any; and

14.2.2.6 Unsatisfactory Work for any reason, if any.

14.2.4 The required number of copies of the list shall be countersigned by the authorized representative of the Owner and shall then be transmitted by the Owner to the Contractor and Design Consultant. The Owner’s final list shall control over the Contractor's preliminary list.

14.3 NOTICE OF COMPLETION

14.3.1 Notice of Completion shall establish the date of Completion of the Work or portion thereof. The Contractor acknowledges and agrees that because of the public at large, greater care must be taken in establishing the date of Completion than might otherwise be the case to ensure that the Project, the Work or any portion thereof is fully usable and safe for public use.

14.3.2 The Notice of Completion shall not be issued until the following have been fully established:

14.3.2.1 The Work, or portion thereof, has been fully inspected as required by the Drawings, Plans and Specifications, and the overall state of completion is appropriate for presentation to the public; and

14.3.2.2 The Contractor has provided a schedule for the completion of each and every item identified on the list which specifies the Subcontractor or trade responsible for the Work, and the dates the completion or correction of the item shall be commenced and finished, with the exception of only those

items which are beyond the control of the Contractor despite due diligence. The schedule shall provide for a reasonable list inspection process. Unless liquidated damages have been specified, the cost to the Owner, if any, for re-inspections due to failure to adhere to the Contractor's proposed list completion schedule shall be the responsibility of the Contractor and may be deducted by the Owner from final amounts due to the Contractor.

14.3.3 Completion of the Work, or portion thereof, shall not be conclusively established by a decision by the Owner to take possession and use of a portion, or all of the Work, where portions of the Work cannot meet all the criteria noted above. Notice of Completion for the Work, or portion thereof, shall, however, only be withheld for substantial reasons when the Owner has taken possession and uses the Work, or portion thereof, in accordance with the Agreement. Failure to furnish the required completion schedule shall constitute a substantial reason for withholding the issuance of any Notice of Completion.

14.3.4 The Contractor shall have the right to request an inspection of any portion of the Work when in the opinion of the Design Consultant and Owner a pre-acceptance list can be reasonably prepared, without confusion as to which portions of the Work which might be issued after such portion is accepted. Portions of the Work may be, but shall not necessarily be limited to, such portions of the Work, as separate deliverables where such Work consists of multiple deliverables. In such circumstances, when in the opinion of the Owner and the Design Consultant, the requirements for issuance of a Notice of Completion can be satisfied with respect to the portion of the Work, a partial Notice of Completion may be issued for such portion of the Work.

14.5 FINAL SETTLEMENT

14.5.1 Final payment and settlement shall be made on the date fixed and published for such payment except as hereafter provided. The Owner shall not authorize final payment until all items on the pre-acceptance list have been completed and the Notice of Final Settlement published. Before the Owner may issue the Notice of Final Settlement and advertise the Work for final payment, the Contractor shall have corrected all items on the pre-acceptance list except those items for which delayed performance is expressly permitted, subject to withholding for the cost thereof, and shall have delivered to the Principal Representative:

14.5.1.1 All guarantees and warranties;

14.5.1.2 All statements to support local sales tax refunds, if any;

14.5.1.3 Three complete bound sets of required operating maintenance instructions and Shop Drawings;

14.5.1.4 One set of as-built Contract Documents showing all job changes;

14.5.1.5 All required Drawings, Plans, Specifications and reports; and

14.5.1.6 Demonstrated to the operating personnel of the Owner the proper operation and maintenance of all equipment.

14.5.2 Upon completion of the foregoing, the Project shall be advertised in accordance with the Notice of Final Settlement by two publications of such notice, the last publication appearing at least 10 days prior to the time of final settlement. Publication and final settlement should not be postponed or delayed solely by virtue of unresolved claims against the Work or the Contractor from Subcontractors, suppliers or material men based on good faith disputes; the resolution of the question of payment in such cases being directed by statute.

14.5.3 Except as hereafter provided, on the date of final settlement thus advertised, provided the Contractor has submitted a written Notice of Final Settlement to the Owner that no Disputes and Claims are outstanding, and further provided that the Owner shall have received no claims, final payments and settlement shall be made in full. If any unpaid claim for labor, materials, rental machinery, tools, supplies or equipment is filed before payment in full of all sums due the Contractor, the Owner shall withhold from the Contractor on the date established for final settlement, sufficient funds to insure the payment of such claim, until the same shall have been paid or withdrawn, such payment or withdrawal to be evidenced by filing a receipt in full or an order for withdrawal signed by the claimant or his or her duly authorized agent or assignee. The amount so withheld may be in the amount of 125% of the claims or such other amount as the Owner reasonably deems necessary to cover expected legal expenses. Such withheld amounts shall be in addition to any amount withheld based on the cost to complete unfinished Work or the cost to repair defective Work. However, as provided by statute, such funds shall not be withheld longer than 90 days following the date fixed for final settlement with the Contractor, as set forth in the published Notice of Final Settlement, unless an action at law shall be commenced within that time to enforce such unpaid claim and a notice of such action at law shall have been filed with the Owner. At the expiration of the 90 day period, the Owner shall release to the Contractor all other money not the subject of such action at law or withheld based on the cost to complete unfinished Work or the cost to repair defective Work.

14.6 RECORDS

14.6.1 Maintenance: The Contractor (and any Subcontractor) shall maintain a complete file of all books, records, accounts, and other written or computerized materials which pertain to the accounting and performance of Work, the delivery of services, and the compliance with applicable requirements under this Agreement, and shall maintain such records for a period of three years after the date of termination of the Agreement, or for such further period as may be necessary to resolve any matters which may be pending.

14.6.2 Access: The Contractor (and any Subcontractor) shall permit Arvada and their designated representatives, during normal business hours, to access all books, records, accounts, and other relevant material concerning the Work performed or services provided under this Agreement for the purpose of investigation, audit, and copying to ascertain compliance with, or to detect violation of, any applicable federal and/or State law or regulation or with the terms of the Agreement, or to evaluate performance under the Agreement. All records or information

obtained in this manner shall be used only for the purpose described herein, except as otherwise authorized by law.

14.6.3 Subcontracts: For the benefit of Arvada, the Contractor shall include the language of this Section 14.6 in all subcontracts, in order to require the Subcontractor(s) to comply with the record maintenance and access conditions described above.

ARTICLE 15. OWNER'S RIGHT TO TERMINATE CONTRACT

15.1 TERMINATION FOR DEFAULT

15.1.1 General: If the Contractor should be adjudged bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed to take over its affairs, or if it should fail to prosecute the Work with due diligence and carry the Work forward in accordance with its work schedule or if it should fail to subsequently perform one or more of the provisions of the Contract Documents to be performed by it, the Owner may service written notice on the Contractor and the surety on its Performance Bonds and Payment Bonds, stating its intention to exercise one of the remedies hereinafter set forth and the grounds upon which the Owner may, without prejudice to any other right or remedy, exercise one of such remedies, at once.

15.1.2 Conditions and Procedures:

15.1.2.1 The Owner may terminate the services of the Contractor, which termination shall take effect immediately upon service of a Notice of Termination thereof on the Contractor and its surety, whereupon the surety shall have the right to take over and perform the Agreement. If the surety does not commence performance of this Agreement within 10 days after service of the Notice of Termination, the Owner may take over the Work, take possession of and use all materials, equipment, and deliverables on the site, and prosecute the Work to completion by such means as it shall deem best. In the event of such termination of its service, the Contractor shall not be entitled to any further payments under this Agreement until the Work is completed and accepted. If the cost, expenses, and damages to perform the Work, as determined by the Owner, exceed such unpaid balance of the Contract Sum or the applicable LLTP CAP as the case may be, the Contractor and its surety shall pay the difference to the Owner.

15.1.2.2 The Owner may take control of the Work and either make good the deficiencies of the Contractor or direct the activities of the Contractor in doing so, employing such additional help as the Owner deems advisable. In such event, the Owner shall be entitled to collect from the Contractor and its surety, or to deduct from any payment then or thereafter due the Contractor, the costs incurred in having such deficiencies made good and any damages or expenses incurred through the default of the Contractor, provided the Owner approves the amount thus charged to the Contractor.

15.1.2.3 The Owner may require the surety on the Contractor's Performance Bond to take control of the Work at once and see to it that all the deficiencies of the Contractor are made good, with due diligence. As between the Owner and the surety, the cost of making good such deficiencies shall all be borne by the surety. If the surety takes over the Work, either upon termination of the services of the Contractor or upon instructions from the Owner to do so, the provisions of the Contract Documents shall govern in respect to the Work done by the surety, the surety being substituted for the Contractor as to such provisions, including provisions as to payment for the Work and provisions of this Article as to the right of the Owner to do the Work or to take control of the Work.

15.2 TERMINATION FOR CONVENIENCE OF ARVADA

15.2.1 The performance of Work under this Agreement may be terminated, in whole or in part, by the Owner when the Owner determines that the purposes of the distribution of public funds under this Agreement would no longer be served by completion of the Work. Termination of Work hereunder shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of Work under this Agreement is terminated and the date upon which such termination becomes effective.

15.2.2 After receipt of the Notice of Termination, the Contractor shall cancel its outstanding commitments hereunder covering the procurement of all applicable LLTP and CMGC Services deliverables. In addition, the Contractor shall exercise all reasonable diligence to accomplish the cancellation or diversion of its outstanding commitments covering all applicable LLTP and CMGC Services and extending beyond the date of such termination to the extent that they relate to the performance of any Work terminated by the Notice of Termination. With respect to such canceled commitments, the Contractor agrees to:

15.2.2.1 Settle all outstanding liabilities, disputes and claims arising out of such cancellation of commitments, with the approval or ratification of the Owner, to the extent it may require, which approval and ratification shall be final for all purposes of this clause; and

15.2.2.2 Assign to the Owner in the manner, at the time and to the extent directed by the Owner, all of the right, title, and interest in the Contractor under the orders and Subcontractors so terminated, in which case the Owner shall have the right, in its discretion, to settle or pay any or all liabilities, disputes and claims arising out of the termination of such orders and subcontracts.

15.2.3 The Contractor shall submit its Termination Claim to the Owner within 90 days after receipt of a Notice of Termination unless one or more extensions in writing are granted by the Owner upon written request of the Contractor within such 90 day period or authorized extension thereof. Upon failure of the Contractor to submit its Termination Claim within the time allowed,

the Owner may determine, on the basis of information available to it, the amount, if any, due to the Contractor by reason of the termination, and shall thereupon pay to the Contractor the amount so determined.

15.2.4 Costs claimed, agreed to, or determined pursuant to Sections 15.2.3 and 15.2.5 shall be limited to the Contract Sum and the applicable LLTP CAP or Construction Package CAP, and the provisions of Sections 8.6 and 8.8. The sums to be paid to the Contractor shall not include any compensation, loss, or lost profit on Work not performed by the Contractor or any of its Subcontractors of any tier or suppliers.

15.2.5 Subject to the provisions of Section 15.2.3 above, the Contractor and the Owner may agree upon the whole or any part of the amount(s) to be paid to the Contractor by reason of the termination under this section, which amount(s) may include any reasonable cancellation charges thereby incurred by the Contractor and any reasonable loss upon outstanding commitments for applicable LLTP CAP, Construction Package CAP, and CMGC Services which it is unable to cancel; provided, however, that in connection with any outstanding commitments for applicable LLTP CAP, Construction Package CAP, and CMGC Services which the Contractor is unable to cancel, the Contractor shall have exercised reasonable diligence to divert such commitments to its other activities and operations. Any such agreement shall be embodied in an Amendment to this Agreement, and the Contractor shall be paid the agreed amount.

15.2.6 The Owner may from time to time, under such terms and conditions as it may prescribe, make partial payment against costs incurred by the Contractor in connection with the terminated portion of this Agreement, whenever, in the opinion of the Owner, the aggregate of such payment is within the amount to which the Contractor shall be entitled hereunder.

15.2.7 The Contractor agrees to transfer title and deliver to the Owner, in the manner, at the time, and to the extent, if any, directed by the Owner, such information and items which, if this Agreement had been completed, would have been required to be furnished to the Owner, including:

15.2.7.1 Completed or partially completed Drawings (including as-built Drawings), Shop Drawings, Plans, Specifications, and information; and

15.2.7.2 Materials and equipment produced or in process or acquired in connection with the performance of the Work terminated by the Notice of Termination.

Other than the above, any termination inventory resulting from the termination of this Agreement may, with the written approval of the Owner, be sold or acquired by the Contractor under the conditions prescribed by and at a price or prices approved by the Owner. The proceeds of any such disposition shall be applied in reduction of any payments to be made by the Owner to the Contractor under this Agreement, or shall otherwise be credited to the price or cost of Work covered by this Agreement, or paid in such other manner as the Owner may direct. Pending final disposition of property arising from the termination, the Contractor agrees to take such action as may be necessary, or as the Owner may direct, for the protection and preservation of the property

related to this Agreement which is in the possession of the Contractor, and in which the Owner has or may acquire an interest.

15.3 AVAILABLE FUNDS CONTINGENCY TERMINATION

15.3.1 The Parties expressly recognize that the Contractor is to be paid, reimbursed, or otherwise compensated with funds approved by City Council for the purpose of contracting for the Work provided for herein, and therefore, the Contractor expressly understands and agrees that all its rights, demands, and claims to compensation arising under this Agreement are contingent available funds. If such funds or any part thereof are not available, Arvada may immediately terminate this Agreement without liability, including for termination costs.

ARTICLE 16. MISCELLANEOUS PROVISIONS

16.1 DESIGN CONSULTANT

16.1.1 It is expressly understood that the Owner shall directly retain the services of the Design Consultant.

16.2 EQUAL EMPLOYMENT OPPORTUNITY, LABOR COMPLIANCE, AND ON THE JOB TRAINING

16.2.1 The Contractor confirms that it has an equal employment opportunity policy ensuring equal employment opportunity without regard to race, color, national origin, sex, age, religion or handicap; and that it maintains no employee facilities segregated on the basis of race, color, religion or national origin.

16.3 NON-DISCRIMINATION. The Contractor shall comply with all applicable Legal Requirements that enumerate unlawful employment practices including discrimination because of race, religion, color, gender, age, disability, or national origin. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, national origin, religion, sex, age or handicap. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, national origin, religion, gender, age or handicap. Such action shall include the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

16.3.1 Inclusion in Subcontracts
The Contractor shall include Sections 7.2.1 in every Subcontract over $10,000 (including purchase orders), and shall require that they be included in all Subcontracts over
$10,000 at lower tiers, so that such provisions will be binding upon each Subcontractor.

16.4 DISPUTES AND CLAIMS

16.4.1 All Disputes and Claims shall use the appropriate section of *Arvada's Engineering Code of Standards and Specifications,* currently Section 2.44 but may be subject to change.

16.5 EXECUTION OF EXHIBITS

16.5.1 It is contemplated by the Parties that certain exhibits hereto shall not be accomplished or finalized at the time this Agreement is executed as such exhibits must, by the nature of the provisions relative thereto, be executed by the Parties subsequent to the execution of this Agreement. The Parties shall be diligent in accomplishing such exhibits at the earliest appropriate time in accordance with the provisions hereof.

16.6 GOVERNMENTAL IMMUNITY

16.6.1 Notwithstanding any other provision of this Agreement to the contrary, no term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions of the Colorado Governmental Immunity Act, Section 24-10-101, et.seq., CRS, as now or hereafter amended. The Parties understand and agree that liability for claims for injuries to persons or property arising out of negligence of Arvada, its departments, institutions, agencies, boards, officials and employees is controlled and limited by the provisions of Section 24-10-101, et. seq., CRS, as now or hereafter amended.

16.7 LEGAL AUTHORITY

16.7.1 The Contractor warrants that it possesses the legal authority to enter into this Agreement and that it has taken all actions required by its procedures, by-laws, and/or applicable law to exercise that authority, and to lawfully authorize its undersigned signatory to execute this Agreement and to bind the Contractor to its terms. The person(s) executing this Agreement on behalf of the Contractor warrant(s) that such person(s) have full authorization to execute this Agreement.

16.8 ASSIGNMENTS AND SUBCONTRACTS

16.8.1 Contractor's rights and obligations hereunder are personal and may not be transferred, assigned or subcontracted without the prior, written consent of Arvada. Any attempt at assignment, transfer, subcontracting without such consent shall be void. All assignments, subcontracts, or Subcontractors approved by Contractor or Arvada are subject to all of the provisions hereof.

16.9 BINDING EFFECT

16.9.1 Except as otherwise provided in Section 16.12, all provisions herein contained, including the benefits and burdens, shall extend to and be binding upon the Parties' respective heirs, legal representatives, successors, and assigns.

16.10 COUNTERPARTS

16.10.1 This Agreement may be executed in multiple identical original counterparts, all of which shall constitute one agreement.

16.11 ENTIRE UNDERSTANDING

16.11.1 This Agreement represents the complete integration of all understandings between the Parties and all prior representations and understandings, oral or written, are merged herein. Prior or contemporaneous additions, deletions, or other changes hereto shall not have any force or affect whatsoever, unless embodied herein.

16.12 CHANGE ORDER PROCESS.

16.12.1 If Arvada wishes to add services, Arvada may so request in writing. Email will suffice as a writing for this purpose. If Contractor is not able to accommodate Arvada, it will promptly notify Arvada.

16.12.2 When both parties have agreed on the contents of a Change Order, both parties shall so indicate by signing the Change Order.

16.12.3 Once a Change Order has been agreed to in writing, signed by the parties, the Change Order shall be deemed a part of this Agreement. Any such Change Orders shall be subject and subordinate to the terms of this Agreement and incorporated herein, unless otherwise agreed to in writing signed by the parties.

16.13 INTEGRATION, AMENDMENT, AND SEVERABILITY. This Agreement represents the entire agreement between the parties, and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties. If any other provision of this Agreement is held invalid or unenforceable, no other provision shall be affected by such holding, and all of the remaining provisions of this Agreement shall continue in full force and effect if the essential terms and conditions of this Agreement for both parties remain valid, legal, and enforceable.

16.14 TERMS AND CONDITIONS IN SOLICITATION. Contractor affirms that it has read and is familiar with the Contract Documents, including but not limited to the General Terms and Conditions, Special Terms and Conditions, Insurance Requirements, and other RFQ requirements, and agrees to be bound by those terms and conditions

16.15 PERFORMANCE MEASURES. The Performance Measures for this Agreement shall be those proposed by Contractor in its original Response to Arvada's solicitation and accepted by Arvada, which are included in the Contract Documents that are exhibits to this Agreement.

ARTICLE 17. COLORADO SPECIAL PROVISIONS

17.1 CORA DISCLOSURE

17.1.2 To the extent not prohibited by federal law, this Agreement and the performance measures and standards under CRS §24-103.5-101, if any, are subject to public release through the Colorado Open Records Act, CRS §24-72-101, et seq.

17.2 PAYMENTS TO CONSTITUTE CURRENT EXPENDITURES. Financial obligations of Arvada, if any, after the current year, are contingent on funds for that purpose being appropriated, budgeted, and otherwise made available by the City Council for the City of Arvada. Arvada's obligations under the Agreement shall be from year to year only and shall not constitute a multiple-fiscal year direct or indirect debt or other financial obligation of Arvada within the meaning of Article X, Section 20 of the Colorado Constitution.

17.3 GOVERNMENTAL IMMUNITY.

No term or condition of this Contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, of the Colorado Governmental Immunity Act, CRS §24-10-101 et seq., or the Federal Tort Claims Act, 28 U.S.C. §§1346(b) and 2671 et seq., as applicable now or hereafter amended.

17.4 INDEPENDENT CONTRACTOR

Contractor shall perform its duties hereunder as an independent contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be deemed to be an agent or employee of Arvada. Contractor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through Arvada, and Arvada shall not pay for or otherwise provide such coverage for Contractor or any of its agents or employees. Unemployment insurance benefits shall be available to Contractor and its employees and agents only if such coverage is made available by Contractor or a third party. Contractor shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Contract. Contractor shall not have authorization, express or implied, to bind Arvada to any contract, liability or understanding, except as expressly set forth herein. Contractor shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by Arvada, and (c) be solely responsible for its acts and those of its employees and agents.

17.5. PUBLIC CONTRACTS WITH NATURAL PERSONS. CRS §24-76.5-101.

Contractor, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that he or she (a) is a citizen or otherwise lawfully present in the United States pursuant to federal law, (b) shall comply with the provisions of CRS §24-76.5-101 et seq., and (c) has produced one form of identification required by CRS §24-76.5-103 prior to the effective date of this Contract.

DATED this_____day of_____, 2022.

CITY OF ARVADA, a Colorado home rule municipal corporation

_____

Marc Williams, Mayor
8101 Ralston Road
Arvada, CO 80002

ATTEST:

_____

City Clerk

APPROVED AS TO FORM:

Rachel A. Morris, City Attorney

By: _____

SEMA CONSTRUCTION, INC.

_____

Steven C. Mills, Corp. V.P. Contracts
smills@semaconstruction.com
7353 South Eagle Street
Centennial, Colorado 80112

Exhibit 2.11.1

This Agreement

Exhibit 2.11.2

The current City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements and Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, incorporated by reference

Exhibit 2.11.3

Project Special Provisions prepared or issued by Arvada or its Design Consultant if applicable

My responsibility as it applies to this Specifications Package is limited to: roadway and removals

CONTRACT DOCUMENTS

My responsibility as it applies to this Specifications Package is limited to: Drainage and Erosion Control

West 72nd Avenue Improvements
Swadley Court to Oak Street
Construction Package #2
100% Submittal

COLORADO LICENSED DANIEL K. HELLRUNG 56232 PROFESSIONAL ENGINEER 02/11/2022

COLORADO LICENSED MELANIE D. CHENARD 40198 PROFESSIONAL ENGINEER 02/13/2022

City of Arvada Project No. 18-ST-30

My responsibility as it applies to this Specifications Package is limited to: Water Line and Sanitary Sewer

My responsibility as it applies to this Specifications Package is limited to: Landscape

ANTHONY RICHARD MAZZEO, JR 605 02/01/2010 Original Date of Licensure STATE OF COLORADO LANDSCAPE ARCHITECT 02/14/2022

My responsibility as it applies to this Specifications Package is limited to: Irrigation

September 2021

COLORADO LICENSED SHELBY N. BEFKE 54605 PROFESSIONAL ENGINEER 02/14/2022

JEFF ZAPF 02/14/2022 COMMERCIAL

MULLER ENGINEERING COMPANY, INC.

My responsibility as it applies to this Specifications Package is limited to: Lighting & Electrical

COLORADO LICENSED DANIEL R. SANDEL 41269 PROFESSIONAL ENGINEER 02/11/2022

My responsibility as it applies to this Specifications Package is limited to: Traffic

COLORADO LICENSED TIM D. HAUSMAN 40715 PROFESSIONAL ENGINEER 02/14/2022

ENGINEERING SERVICES AND TRAFFIC DIVISIONS
ARVADA, COLORADO
SPECIAL PROVISIONS
WEST 72ND AVENUE IMPROVEMENTS
SWADLEY COURT TO OAK STREET

The 2019 Standard Specifications for Road and Bridge Construction controls construction of this project. The following special provisions supplement or modify the Standard Specifications and take precedence over the Standard Specifications and plans.

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TRANSPORTATION AND ENGINEERING DIVISION
ARVADA, COLORADO
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WEST 72ND AVENUE IMPROVEMENTS
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COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall commence work under the contract on or before 20 days following the "Notice to Proceed" unless such time for beginning the work shall be changed by the City of Arvada Engineering Services Division Engineer in the "Notice to Proceed." The Contractor shall complete all work within 883 calendar days in accordance with the "Notice to Proceed."

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.03 shall include the following:

Salient Features to be shown on the Contractor's progress schedule are:

1. Notice to Proceed
2. Mobilization / Permits
3. Construction Traffic Control/Signing
4. Erosion Control Device Placement
5. Clearing and Grubbing/Tree Removal/Protect Existing Vegetation
6. Survey
7. Monthly Weather Days
8. Remove Asphalt Mat and Concrete Pavement
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15. Sidewalk and Stairs
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17. Landscaping/Irrigation
18. Revegetation (Topsoil, Seeding, Mulching etc.)
19. Fences
20. Permanent Signs
21. Permanent Pavement markings
22. Letter of Completion
23. Final Inspection
24. Punch List Repairs
25. Final Acceptance

END OF SECTION REVISION

REVISION OF SECTION 101
DEFINITIONS AND TERMS

Section 101 of the Standard Specifications is hereby revised for this project as follows:

101.18 CONTRACT MODIFICATION ORDER – Change Order

101.28 DEPARTMENT – City of Arvada Department of Public Works

101.29 ENGINEER – The City Engineer for the City of Arvada, acting either directly or through an authorized representative who is responsible for engineering and administrative supervision of the project.

101.48 PRE-CONSTRUCTION CONFERENCE – A meeting of City project personnel, Contractor project personnel and other stakeholders held prior to the beginning of construction at which topics pertinent to the successful prosecution of the work are discussed.

101.51 PROJECT ENGINEER – The Engineer for the City of Arvada, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

101.73 (a) When specifically referenced in these documents, the Standard Specifications shall also include the current City of Arvada *Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements*, dated January 12, 2016.

101.76 STATE – City of Arvada, Colorado (where applicable)

Add Subsection 101.96, 101.97 and 101.98, 101.99, and 101.100 as follows:

101.96 Day. Where the word “day” is used without the reference “calendar” or “working” preceding it, it shall be interpreted to mean calendar day.

101.97 Letter of Completion. Written notification sent by the Contractor to City of Arvada that the Work is completed and ready for final inspection.

101.98 Final Inspection. Final inspection refers to the “punch list” final walk-through.

101.99 Punchlist. A written list submitted to the Contractor of any defects identified during the Final Inspection or any other limited specific Work inspections.

101.100 Final Acceptance. Once all Punchlist items have been satisfactorily completed, a written acceptance of the Work will be provided by City of Arvada to the Contractor.

END OF SECTION REVISION

REVISION OF SECTION 102
PROJECT PLANS AND OTHER DOCUMENTS

Section 102 of the Standard Specifications is hereby revised for this project as follows:

Subsection 102.05 shall include the following:

- WEST 72ND AVENUE IMPROVEMENTS, SWADLEY COURT TO OAK STREET CONSTRUCTION PACKAGE NO. 2, PREPARED BY MULLER ENGINEERING COMPANY.

- CONTRACT DOCUMENTS WEST 72ND AVENUE IMPROVEMENTS, SWADLEY COURT TO OAK STREET CONSTRUCTION PACKAGE NO. 2, CITY OF ARVADA PROJECT NUMBER 18-ST-30.

END OF SECTION REVISION

REVISION OF SECTION 104
SCOPE OF WORK

Section 104 of the Standard Specifications is hereby revised for this project as follows:

Subsection 104.02 (c) shall include the following:

Claims made by the Contractor for any loss of anticipated salvage value, for items shown to be removed and become the property of the Contractor, because of any such alterations, or by reason of any variations between the approximate quantities and the quantities of work as done, will not be accepted.

In Subsection 104.04, item (a), delete the 2nd paragraph and replace with the following:

Maintenance requirements are outlined in item (e) below. Payment will be per items (f) and (h) below.

In Subsection 104.04, add the following paragraphs:

(e) General. The Contractor shall perform the following routine maintenance work:

1. Repair of pavement surfaces. This work will normally require full depth patching. However, where damage resulting from the Contractor's operations is extensive, the Engineer may order full width overlays with hot mix asphalt to provide an acceptable driving surface for the traveling public.
2. Maintaining adequate drainage.
3. Keeping the traveled roadway clear of rock and debris.
4. Shouldering-up along the edge of pavement where needed.
5. Dust control.
6. Maintain the construction fencing throughout the project.
7. Protect and cover all trenches each night to assure a safe work zone.

(f) The Contractor shall bear all expense required for maintaining the traveled roadway for the traffic through the project, as described above, until final acceptance of the project is made pursuant to subsection 105.20.

(g) Adverse Weather Conditions. The Contractor shall cease any operation that affects traffic when the Engineer determines that slippery roads, poor visibility, or other adverse weather conditions make traffic control hazardous to the traveling public. Operations shall not begin until the conditions improve to the point where the roadway becomes safe.

(h) Costs. All costs incidental to the foregoing requirements will not be paid for separately but shall be included in the work.

Delays or impacts to the Contractor due to the requirements of this provision shall not be a basis for an extension of time or additional compensation, or both.

END OF SECTION REVISION

REVISION OF SECTION 105
CONTROL OF WORK

Section 105 of the Standard Specifications is hereby revised for this project as follows:

Subsection 105.02(f) shall include the following:

Payment for preparing and furnishing "As Constructed" plans (red-lined drawings) will not be paid for separately but shall be included in the work.

In Subsection 105.09, delete the second paragraph and replace with the following:

In case of discrepancy, the order of precedence is as follows:

(a) West 72nd Avenue Swadley Court to Oak Street Construction Package No. 2 Construction Contract.
(b) Agreements and Permits
(c) Project Special Provisions.
(d) Standard Special Provisions
(e) Plans (Calculated dimensions will govern over scaled dimensions).
    1) Detailed Plans.
    2) Standard Plans.
(f) City of Arvada *Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements*, dated January 12, 2016.
(g) Standard Specifications

In Subsection 105.11, delete the first paragraph and replace with the following:

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavation or grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days prior to commencing such operations. Contact the Utility Notification Center of Colorado (UNCC) to have locations of UNCC registered lines marked by member companies (811). All other underground facilities shall be located by contacting the respective company. Utility service laterals shall also be located prior to beginning excavating or grading.

The location of utility facilities, as shown on the plans and as herein described, were obtained from the best available information.

All costs incidental to the foregoing requirements shall not be paid for separately but shall be included in the work. Full compensation for compliance and cooperation, as required by this section, shall be considered to be included in the unit prices paid for various Contract items of work and no additional compensation will be allowed.

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REVISION OF SECTION 105
CONTROL OF WORK

It shall be the Contractor's responsibility to determine the exact location of utilities that may interfere with construction of this project in advance of beginning construction in an area so that potential conflicts may be resolved by exploratory excavation sufficiently in advance of beginning construction in an area. Cost for exploratory excavation shall not be paid for as potholing. Costs to locate and expose utilities via potholing or excavation done by the Contractor shall not be paid for by the City but shall be included in the work.

The Contractor shall provide two (2) weeks advance notice to the utility companies prior to commencing any work affecting said utility(s). Work involving changes in, or interference with, utility service shall be done at such times and in such manner that it will cause the least interference with the proper handling and delivery of the utility service to the receiving customers. The Contractor shall notify all parties that will be affected 24 hours prior to the time sewer or water service is disconnected or interrupted. All services so disconnected, interrupted, or damaged shall be immediately repaired and restored to service. Repair work shall be continuous until the service is restored. No service shall be left inoperative overnight. When work is being performed in the vicinity of utilities, the Contractor shall take appropriate measures to provide for the protection of the utility.

Should the Contractor desire to have any rearrangement made in any utility facility for his convenience in order to facilitate his construction operations, he shall make whatever arrangements are necessary with the owners of such utility for such rearrangement and bear all expenses in connection therewith.

Due to utility relocation operations that may have occurred after preparation of the plans, attention is directed to the possible existence of underground facilities not known to the City or in a location different from that which is indicated on the plans or in the special provisions. The Contractor shall take reasonable steps to ascertain the exact location of all underground facilities prior to doing work that may damage such facilities or interfere with their service. If the Contractor discovers underground facilities not indicated on the plans or in the special provisions, he shall immediately give the Engineer and the utility owner written notification of the existence of such facilities and coordinate the rearrangement of the facility as provided above.

All costs incidental to the foregoing requirements shall not be paid for separately but shall be included in the work. Full compensation for compliance and cooperation, as required by this section, shall be considered to be included in the unit prices paid for Contract items of work and no additional compensation will be allowed. The Potholing pay item will only be used for investigating newly found functioning utilities that were not on the plans and will be directed by the Engineer.

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REVISION OF SECTION 105
CONTROL OF WORK

In Subsection 105.11, delete paragraph three and replace with the following:

In accordance with C.R.S. 9-1.5-103 et seq. (Excavation Requirements – Plans and Specifications), the Design Engineer will certify in the project plans and specifications which Quality Level (A-D) the depicted existing known utilities are, pursuant to the most recent version of the ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02). The Contractor shall not be relieved of its responsibility to comply with the requirements set forth therein and shall not rely solely on the City's plans and specifications when completing its work with respect to existing buried utilities. The Contract will indicate those utility items which are to be relocated or adjusted by the utility owner or which are to be relocated or adjusted by the Contractor. The Contractor shall consider in the bid proposal all of the permanent and temporary utility facilities in their present or relocated positions as shown in the Contract and as revealed by site investigation. Utility delays due to changes which are the responsibility of the Contractor will be considered non-excusable delays. Utility delays beyond the Contractor's control and not due to the fault or negligence of the Contractor shall be documented by the Contractor and tied to the project's critical path schedule, so as to demonstrate a timeline of events leading up to the utility owner's failure to perform and subsequent delay to the project. Delays will be determined to be compensable or non-compensable in accordance with subsection 108.08. The Contractor and the Engineer shall meet with the utility owners as often as necessary to coordinate and schedule relocations or adjustments. Additional compensation will not be allowed for foreseeable coordination, inconvenience, or damage sustained due to interference from the utility facilities or the removal or relocation operations as indicated in the Contract.

The Contract Documents will indicate those utility facilities which are to be located, relocated or adjusted by the utility owner or which are to be located, relocated or adjusted by the Contractor. The Contractor shall consider in the bid proposal all of the permanent and temporary utility facilities in their present or relocated positions as shown in the Contract Documents and as revealed by site investigation. The Contractor shall meet with the utility owners as often as necessary to coordinate and schedule relocations or adjustments. All costs incidental to the foregoing requirements shall not be paid for separately but shall be included in the work. Full compensation for compliance and cooperation, as required by this section, shall be considered to be included in the unit prices paid for Contract items of work and no additional compensation will be allowed. The Potholing pay item will only be used for investigating newly found functioning utilities that were not on the plans, as directed by the Engineer.

Any questions regarding utilities should be directed to the individual utility.

Subsection 105.16 shall be revised to include the following:

Sampling and testing of work for this project shall be performed by the Contractor according to the Colorado Department of Transportation *Field Materials Manual*, current edition.

The Contractor is responsible for Quality Control. The City or its designated consultant will perform Quality Assurance sampling and testing of the work.

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REVISION OF SECTION 105
CONTROL OF WORK

Delete Subsection 105.21 and replace with the following:

Final Inspection. Final acceptance of the project shall be subject to the terms and conditions required by the Contract.

END OF SECTION REVISION

REVISION OF SECTION 105
COOPERATION WITH UTILITIES

Section 105 of the Standard Special Provisions is hereby revised for this project as follows:

Subsection 105.11 shall include the following:

The Contractor will be required to attend a Utility Design/Coordination meetings to be conducted by the City of Arvada or private utility companies (Xcel, Comcast and/or CenturyLink). The exact meeting dates, times, and locations will be determined and conveyed to the Contractor a minimum of one week in advance of the meeting.

The purpose of this meetings will be to coordinate all utility relocation activities between the Contractor and the affected utility owners in the project corridor. During this meeting, viable phasing schemes will be determined and coordinated such that the Contractor's construction phasing can be integrated with utility relocation activities.

No additional measurement or payment will be made for attendance at this utility design/constructability meeting, but shall be considered subsidiary to the contract.

See Utilities specification for additional information.
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END OF SECTION REVISION

REVISION OF SECTION 105
COOPERATION BETWEEN CONTRACTORS

Section 105 of the Standard Specifications is hereby revised for this project as follows:

Subsection 105.12 shall include the following:

The Contractor has the responsibility of coordinating the work with the construction operations of Utility Company Contractors working in the project corridor and other development contractors. See Utility specifications for additional information.

The Contractor shall coordinate work with the other contractors and utility companies to ensure the construction of all projects occur with minimal disruption to the traveling public. The Contractor is responsible for determining and addressing all construction and other potential coordination issues that may impact the project, including viable phasing schemes to complete both utility relocation, and construction of the roadway elements. The Contractor is not entitled to compensation for delays caused by other construction activity.

A **Cooperation between Contractors Plan** that includes communication and coordination of work schedules shall be submitted for review and acceptance by the Engineer 7 days prior to the start of work. As a minimum, the plan shall address the following:

- Coordination of emergency vehicles through the projects and the implementation of an Emergency Vehicle Access Plan.
- Communication with the local emergency responders and law enforcement agencies.
- Communication with the City of Arvada.
- Combined construction phasing schedule incorporating all salient features for the relocation of utilities by other forces.

Updates to the Emergency Vehicle Access Plan shall be posted by the Public Information Manager. This shall include updated information to be maintained on the local number Public Information line. Updates shall be posted weekly or whenever changes have been approved by the City of Arvada.

The Contractor shall schedule and coordinate all traffic lane closures and MHT's at least five days prior to the lane closure or MHT taking effect. All other phasing sequencing shall be submitted to the Engineer for approval prior to its implementation.

Contractors representatives shall meet with the City of Arvada and other entities as often as necessary to maintain coordination of construction activities.

The cost of the coordination and communication equipment shall be included in the work with no separate payment.

END OF SECTION REVISION

REVISION OF SECTION 107
INSURANCE

Section 107.18 is hereby revised to read:

For this project, all insurance certificates shall name City of Arvada as an additionally insured party.

END OF SECTION REVISION

REVISION OF SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Subsection 107.02 shall include the following:

The Contractor will be responsible for obtaining a “no-fee” Right-of-Way Use, storm water discharge and Construction Permit from City of Arvada Engineering Services Division. Copies of all permits and plans shall be available on site at all times.

Subsection 107.12 shall include the following:

The Contractor shall endeavor to protect the existing trees and vegetation during construction with the exception of those trees and shrubs which must be removed to accommodate new structures or landscape. Specific areas of vegetation to be protected shall be fenced in the field by the Contractor as shown on the plans or as directed by the Project Engineer. Fencing shall be installed to protect the maximum practical amount of tree root zone as recommended by arborist and approved by Project Engineer.

Equipment shall not be parked and building materials shall not be stockpiled within 30 feet of the existing trees.

The Contractor shall take care when excavating, grading, or planting around tree roots. Roots larger than 1 inch shall not be cut for the purposes of installing water or sewer lines or other items which can be relocated. Irrigation lines and such should be installed under tree roots or moved to the side whenever possible.

Trees, shrubs, bushes and vegetation will be evaluated for damage during construction and just prior to final acceptance.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is repaired to the Engineer's satisfaction at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges but will be charged as contract time.

Subsection 107.15 shall include the following:

The types and coverage limits of insurance shall be as listed in the Contract.

The Contractor’s comprehensive general liability, automobile liability, and umbrella liability policies shall name as additional insured the following: The City of Arvada. The Contractor shall submit copies of policies concerning such coverage to City of Arvada contemporaneously with the submittal of the insurance certificates.

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REVISION OF SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Subsection 107.25(b), add the following:

25. This project is subject to a permit with the Colorado Department of Public Health and Environment (CDPHE) for Stormwater Discharges Associated with Construction Activities (Stormwater Construction Permit). The Stormwater Construction Permit will be obtained by the contractor prior to construction. The Contractor is responsible for operational control, identified in the permit, to address the impacts that construction activities at the project site may have on stormwater runoff. The permit will include a Stormwater Management Plan (SWMP) and the SWMP must be maintained to include all activities covered by the Stormwater Construction Permit. In the event that a Notice of Violation of the permit is issued as a result of the Contractor's Work, the Contractor shall resolve the violation including without limitation payment of any fines and costs. The Contractor is required to comply with all aspects of the Stormwater Construction Permit and SWMP at no additional cost.

    In the event all construction activities have been completed and accepted (Final Acceptance), but final stabilization of vegetative cover has not been achieved, the Contractor shall continue to perform all inspection, sampling, testing and submittal of reports to the City, at least once every 30 calendar days, as required by the Stormwater Discharge Permit. Such work will continue until final stabilization of vegetative cover is established sufficiently to allow permit termination. All work necessary to comply with this requirement shall be performed at no additional cost. The Contractor shall remove all temporary erosion and sediment controls from the project site upon final stabilization of vegetative cover. All work necessary to comply with this requirement shall be performed at no additional cost.

    For information on required steps to transfer ownership and inactivate the Stormwater Construction Permit, contact:

    Colorado Department of Health
    Water Quality Control Division
    4300 Cherry Creek Drive South
    WQCD-P-B2
    Denver, Colorado 80246-1530
    Telephone: (303) 692-2000

Subsection 107.25(c), paragraph 1, add the following:

All work and costs associated with permits and certifications as outlined in 107.25 (b), and paragraphs 21, 22 and 23, will not be paid for separately, but shall be included in the work.

END OF SECTION REVISION

REVISION OF SECTION 108
PROSECUTION AND PROGRESS

Section 108 of the Standard Specifications is hereby revised for this project as follows:

In Subsection 108.01, delete the first sentence of the second paragraph and replace with the following:

> The Contractor will be permitted to sublet a portion of the Contract; however, the Contractor's organization shall perform work amounting to not less than 50 percent of the total contract cost.

In Subsection 108.02, delete the last sentence and replace with the following:

> The Contractor shall commence work under the Contract on or before the fifth calendar day from the date of receipt of a "Notice to Proceed," and shall complete all work in accordance with the "Notice to Proceed."

Delete Subsection 108.03 and replace with the following:

CONTRACTOR'S CONSTRUCTION SCHEDULE

A. GENERAL

1. The Contractor shall provide a Critical Path Project Schedule covering the duration of the project, beginning with the "Date of Award", and ending with "Punch List Repairs". An early completion project schedule will not be submitted by the Contractor and will not be accepted by the City of Arvada. All costs relating to the preparation, submittal, and acceptance of the Schedule, reports and revisions, and all requirements of this subsection will not be paid separately but shall be included in the work. The purpose of the Project Schedule is to:

    a. Assure adequate planning, scheduling, and reporting during the execution of the Work by the Contractor.

    b. Assure coordination of the Work of the Contractor and various Subcontractors at all tiers.

    c. Establish a critical path for the completion of the Work to assist the Contractor, City of Arvada and Engineer in monitoring the progress of the Work and evaluating proposed changes to the Contract Duration and the Project Schedules resulting from changes in the work and/or potential weather delays.

    d. Assist in the coordination of construction activities so as to complete the Work within the Contract time.

2. The Project Schedule shall be based upon the Critical Path method (CPM) for planning, scheduling, and progress reporting of the Work.

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REVISION OF SECTION 108
PROSECUTION AND PROGRESS

3. The Project Schedule shall include a graphic network prepared by the Contractor. The Contractor shall submit all schedule submissions to the City as both a printed or plotted pure logic diagram and a bar chart with an accompanying electronic copy of the schedule. The electronic file shall be in a file format published by Primavera Project Planner, Primavera Suretrack, Microsoft Project, or Primavera Cloud.

4. The Contractor shall provide a Network, which shall be a reasonable representation of how the Work is planned to be performed and shall be used to monitor the progress of the work of the Contract. All costs associated with the development and maintenance of the schedule shall be borne by the Contractor.

In Subsection 108.08, replace the second paragraph with the following:

The Contractor shall not carry on construction operations on Sundays, or holidays unless previously arranged, except for pre-wetting, making emergency repairs, and providing proper protection of the work, except with the written permission of the City Manager. The Contractor shall perform all on-roadway work between the hours as specified in Section 2.19 Working Hours in the City of Arvada Engineering Code of Standards and Specifications For the Design and Construction of Public Improvements, January 2016. Refer to Revision of Section 630 for limitations on work which interferes with traffic. Nighttime work will be allowed by obtaining a nighttime noise exemption from City of Arvada

In Subsection 108.08(a), add following:

The contract time shall not be changed, except by Contract Modification Order in accordance with the Contract.

In Subsection 108.08(c), delete the section and replace with the following:

The definition of delays shall be those stated in the Contract.

END OF SECTION REVISION

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REVISION OF SECTION 109
MEASUREMENT AND PAYMENT

Section 109 of the Standard Specifications is hereby revised for this project as follows:

Subsection 109.01 shall include the following:

The Contractor shall collect the scale ticket on each load of 304 and 403 material when it is delivered to the project site, and ensure that the information required in subsection 109.01 is shown on each ticket:.

The scale tickets shall be available on site for City of Arvada personnel to inspect.

Each day the Contractor shall provide to the Engineer envelopes which contain the previous day's signed tickets and the following:

1. On each envelope: Project number, date delivered to project, type of material, location placed, daily total and cumulative total.
2. One of the following:
    a. Two adding machine tape tabulations of the weight tickets with corresponding totals run and signed by different persons,
    b. One signed adding machine tape tabulation of the weight tickets that has been checked and signed by a second person and a signed check tape of computer scale tickets that have a cumulative total. These scale tickets must be consecutive and without voids adjustments.
3. A listing of any overweight loads on the envelope, including ticket numbers and amount over legal limit.
4. A comparison of the actual yield for each day's placement to the theoretical yield. Theoretical yield shall be based on the actual area paved, the planned thickness, and the actual density of the mixture being placed. Any variance greater than +2.5% shall be indicated on the envelope and a written explanation included.

Each day, the Contractor shall provide a vehicle identification sheet that contains the following information for each vehicle:

1. Vehicle number
2. Length
3. Tare weight
4. Number of axles
5. Distance between extreme axles
6. All other information required to determine legal weight
7. Legal weight limit

In Subsection 109.04, delete paragraph (a), (b), (c), (d), (g), (h), (i), and replace with the following:

For work paid under a Force Account with no established Contract unit pricing, the Contractor shall determine a unit or lump sum price inclusive of labor, equipment, and materials for review by the Engineer. Administrative compensation in paragraph (e) will be paid in addition to accepted unit or lump sum pricing.

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REVISION OF SECTION 109
MEASUREMENT AND PAYMENT

In Subsection 109.06, subparagraph (a), delete the second and third sentences and replace with the following:

> The amount to be retained will be five percent of the value of the completed work, exclusive of payments for materials on hand. No further amount will be retained subject to the following:
>
> (1) A full ten percent retainage of the value of the completed work shall be implemented if the Contractor's progress of performance is not satisfactory to the City.
>
> (2) The amount of payment and retainage shall be subject to consent of any surety entitled to such right of approval pursuant to any performance or payment bonds.

In Subsection 109.06, delete subparagraph (b).

END OF SECTION REVISION

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REVISION OF SECTION 109
CMGC OVERRUN POOL

Section 109 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 109.03 and replace with the following:

109.03 Compensation for Altered Quantities.

a) *Construction Agreed Price.* On CMGC Construction projects, when the accepted quantities of work vary from the quantities in the Contract, The Contractor shall accept as payment in full, payment at the original contract unit prices for the installed and accepted quantities of work up to the original quantities shown in the Construction Agreed Price proposal, except as defined in subsections 104.02, 104.03, and 108.11 as approved by the Engineer. All planned Force Account items will be paid for in accordance with subsections 104.03 as listed in the Project Special Provision, Force Account Items. Overruns directed by the Engineer on original quantities as accepted in the Construction Agreed Price proposal shall be paid for under the existing line item and will be reconciled against the CMGC Overrun Pool item.

Overruns approved by the Engineer on original quantities as accepted in the Construction Agreed Price proposal shall be paid for at the original contract unit prices under the planned Force Account Item, CMGC Overrun Pool for the following items only:

203 items except: Unclassified Excavation

206 items

207 Topsoil (Import)

208 items except: Concrete Washout Structures, Storm Drain Inlet Protection (Type III), Vehicle Tracking Pad, Erosion Control Management (ECM).

214 items

403 items

503 items

603 items

607 items:

613 items: Conduit items only

619 items

621 items

627 items

630 items

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REVISION OF SECTION 109
CMGC OVERRUN POOL

If items and their original quantities shown in the Construction Agreed Price proposal change or are modified by the Department between acceptance of the CAP proposal and issuance of the final construction plans and specifications, the Contractor shall accept as payment in full at the original contract unit prices for the quantities that have changed.

Allowance will not be made except as provided in subsections 104.02, 104.03, and 108.11, for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation of overhead expense among the contract items or from any other cause.

Delete subsection 109.04 and replace with the following:

109.04 Compensation for Changes and Force Account Work.

Overruns on all bid items and quantities that are allowed to be overrun as defined in subsection 109.03 will be paid for using the CMGC Overrun Pool. All bid items and quantities that will be paid for using the CMGC Overrun Pool will be as described in the Project Risk Register, including definitions and identify how to determine when and how to measure payment for the risk item.

Force account work shall not be eligible for the CMGC Management Price Percentage.

a) *Labor*. For all labor and foremen in direct charge of the specific operations, the Contractor will receive the actual rate of wage normally paid for each and every hour that the labor and foremen are actually engaged in the work, as documented by certified payrolls

   The Contractor shall receive the actual costs paid to, or in behalf of, workers by reason of subsistence and travel allowances, health and welfare benefits, pension fund benefits, or other benefits, when the amounts are required by a collective bargaining agreement or other employment contract or generally applicable to the classes of labor employed on the work. An amount equal to 67 percent of the actual wages and fringe benefits paid directly to the employees will also be paid to the Contractor. This 67 percent will not be applied to subsistence, travel allowance, or to fringe benefits paid to a third party or a trustee. The CMGC Management Price Percentage as specified in the Contract will not be added to labor costs

b) *Materials.* For materials accepted by the Engineer and incorporated in the work, the Contractor shall receive the actual cost of such materials, including transportation charges paid (exclusive of equipment rentals as hereinafter set forth) to which the CMGC Management Price Percentage will be added. For materials provided by a subcontractor, accepted by the Engineer and incorporated in the work; the Contractor shall receive the actual cost of such materials, including transportation charges paid (exclusive of equipment rentalsas hereinafter set forth), to which 15% will be added.

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REVISION OF SECTION 109
CMGC OVERRUN POOL

c) *Owned or Leased Equipment.* For the use of any machinery or equipment, approved by the Engineer, which is owned or leased directly by the Contractor or subcontractors, or by entities that are divisions, affiliates, subsidiaries or in any other way related to the Contractor or subcontractors or their parent companies, the Contractor will be paid in the manner hereinafter specified. Rental rates will be from the current edition of the Rental Rate Blue Book of Rental Rates for Construction Equipment and will be used as follows:

1. Determination of the rental rate to be used will be as follows:
   Hourly rate: RR = (ADJ BB/176) (RF) +EOC
   Standby rate: SR = (ADJ BB/176) (RF) (0.5)
   Where: RR = Hourly rental rate
   SR = Standby rate
   ADJ BB = Blue Book Monthly Rate adjusted for year of manufacture
   RF = Regional Factor of 1.06
   EOC = Estimated Hourly Operating Costs from Blue Book

2. The number of hours to be paid for will be the number of hours that the equipment is actually used on a specific force account activity.

3. Overtime shall be compensated at the same rate indicated in subsection 109.04 (c) 1. above.

4. The EOC will be used for each hour that the equipment is in operation on the force account work. Such costs do not apply to idle time regardless of the cause.

5. Idle time for equipment will not be paid for, except where the equipment has been held on the Project site on a standby basis at the direction of the Engineer. Such payment will be made at the standby rate established in subsection 109.04 (b) 1.

6. Incurrence of costs for standby rates for equipment shall not take place until approval has been received from the Engineer. Payment for standby time will not be made on any day the equipment Incurrence of costs for standby rates for equipment shall not take place until approval has been received from the Engineer. Payment for standby time will not be made on any day the equipment operates for eight or more hours. For equipment accumulating less than eight hours operating time on any normal work day standby payment will be limited to only that number of hours that, when added to the operating time for that day, equals eight hours. Additionally, payment for standby time will not be made in any consecutive 30 day period that the equipment operates for 176 or more hours. For equipment accumulating less than 176 hours operating time in any consecutive 30 day period, standby payment will be limited to only that number of hours that, when added to the operating time for that consecutive 30 day period, equals 176 hours. Standby payment will not be made in any case on days not normally a work day.

7. The rates established above shall include the cost of fuel, oil, lubrication, supplies, incidental tools valued at less than $500, necessary attachments, repairs, overhaul and maintenance of any kind, depreciation, storage, overhead, profit, insurance, all costs (including labor and equipment) of moving equipment onto and away from the site, and all incidentals, except as allowed in subsection 109.04(c)8.

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REVISION OF SECTION 109
CMGC OVERRUN POOL

8. The rental rate for small tools shall be $2.00 per hour. Small tools are defined as any tool which would be valued between $500 and $2,000 if purchased new.
9. Transportation charges for each piece of equipment to and from the site of the work will be paid provided:
    1. The equipment is obtained from the nearest source,
    2. Charges are restricted to those units of equipment not already available or required on the Project, and
    3. The equipment is used solely for the force account work.
10. Fast use expendable parts not included in the Rental Rate Blue Book will be paid at certified invoice cost to which the CMGC Management Price Percentage will be added. Such parts not totally expended on the force account work will be prorated based on actual use.
11. Payable time periods will not include:
    1. Time elapsed while equipment is broken down
    2. Time spent in repairing equipment
    3. Time elapsed after the equipment is no longer needed.

If a piece of equipment that is not in the Blue Book is needed, rates shall be agreed to in writing before the equipment is used.

d) *Rental Equipment.* Use of rental equipment not owned or leased by the Contractor or subcontractors will be paid for by certified invoice cost to which the CMGC Management Price Percentage will be added. The EOC will also be paid if not included in the rental rate. The use of and rates for rental equipment shall be approved by the Engineer prior to use. Proration of rental rates to an hourly rate for equipment not used solely for the force account shall be based on 176 hours per month, 40 hours per week or 8 hours per day as applicable. The cost of moving the rental equipment onto and away from the job will also be paid when the equipment is used solely for the force account work. For work performed by a subcontractor, an amount equal to ten percent of the total due to the Contractor for rental equipment cost will be added to compensate the Contractor for related overhead costs.

e) *Administrative Compensation.* Administrative compensation will be paid to the Contractor for work performed on a force account basis by a subcontractor, utility, railroad, waste disposal company, or specialty firm. The compensation will be a percentage of the value of the force account work performed in accordance with the following:

To $1,000	10%
Over $1,000 to $10,000	$100 plus 5% of excess over $1,000
Over $10,000	$550 plus 3% of excess over $10,000

The percentages will be calculated after certified invoices are furnished by the Contractor. Compensation for administrative loading expenses will be applied to each individual billing for each force account, not to exceed one administrative loading per billing nor one billing per force account per month.

END OF SECTION REVISION

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REVISION OF SECTION 201
CLEARING AND GRUBBING

Section 201 of the Standard Specifications is hereby revised for this project as follows:

Revise Subsection 201.01 to include the following:

This work includes the removal, pruning and trimming of all trees (12" caliper or smaller), shrubs, bushes, and other vegetation within the limits of cut and fill shown on the plans (or as noted) that are not designated to remain or be transplanted. This work includes the preservation from injury or defacement of all vegetation and objects designated to remain or be transplanted.

Revise Subsection 201.02 to include the following:

Once all directed clearing is completed and accepted, no additional clearing, will be allowed unless approved, in writing, by the Engineer.

No tree will be removed without prior approval of the Engineer. Trees removed without prior approval of the Engineer will be replaced at the Contractor's expense. Fair compensation will be given to those affected owners as determined by the engineer.

All wood, debris, lumber, and other obstructions not designated to remain shall be cleared, as required.

Pruning of trees shall include removal of all branches within five (5) feet vertically of the ground, or seven (7) feet vertically of the ground if overhanging a sidewalk, bike path, driveway, or other walkway. Also prune all dead branches.

Trimming of tree branches shall be performed with a chainsaw or other type of saw with a wood cutting blade. Branches shall be cleanly cut and removed at the trunk or at the "V" connection of the branch. Damage to the tree resulting from improper pruning or trimming may result in the Contractor being required to replace the tree at their expense or be liable for the value of the tree per Subsection 107.12.

Subsection 201.04 shall be revised to include the following:

Removal and disposal of trees greater than a caliper of 12 inches measured three feet above the ground, or as descignated on the plans as "Removal of Tree" shall be measured separately and paid in accordance with Section 202. All other trees with a caliper measured 12 inches or less three feet above the ground shall be included in Clearing and Grubbing.

The Contractor shall mark all trees anticipated for removal and disposal with flagging. No tree shall be removed without approval of the Engineer. Once approval is given, the Contractor shall remove and dispose of trees off site within 24 hours.

Complete removal of the tree stump and main root structure is required for all trees within the roadway prism, including travel lanes, curb, gutter and sidewalk. The tree stump of all trees removed outside of the roadway prism shall be ground with a stump grinder. Tree stump grinding or removal and disposal for existing tree stumps (tree already removed), regardless of caliper, will be paid as part of Clearing and Grubbing.

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REVISION OF SECTION 201
CLEARING AND GRUBBING

Stumps shall be ground with a stump grinder to a minimum depth of 12 inches below finished grade or removed by digging around the stump and main root structure, and carefully pulled out with a backhoe bucket or other means. The Contractor is hereby cautioned that the potential for shallow underground utilities exist in close proximity to tree stumps. The Contractor shall verify no utilities are in conflict prior to commencing stump grinding or removal operations.

END OF SECTION REVISION

-1-
REVISION OF SECTION 202
REMOVAL OF BUILDING/SHED

Section 202 of the Standard Specifications is hereby revised for projects as follows:

Subsection 202.01 shall include the following:

Removal of Building/Shed shall consist of the complete demolition, subsequent removal and disposal, of two (2) shed structure at the following property:

a. First Untied Methodist Church of Arvada – (2) two sheds (one shed has a concrete foundation, that will also need to be removed, and one is a pre-fab shed)
   11200 W. 71nd Pl.
   Arvada, CO 80004
b. 7195 Simms Street
c. Arvada, CO 8004

Existing shed work includes: removal of existing shed structure and possible concrete foundation

This work shall be completed in accordance with the City of Arvada Engineering Code of Standards and Specifications, current edition and in conformity with the information provided within this specification and the plans.

Prior to proceeding with demolition, the Contractor shall obtain the following:

- The contractor shall contract with, at his sole expense, a Colorado Department of Public Health and Environment (CDPHE) licensed person or company to evaluate each structure for the presence of Asbestos Containing Material (ACM) and lead based paint. The contractor shall provide the findings of the asbestos and lead based paint survey to the City for review upon completion of the investigation. If ACM and/or lead based paint are found to be present in either structure to be removed, the contractor shall provide ACM and lead based paint abatement in accordance with all federal, state, local, and/or City requirements. The abatement must be completed by a Colorado Department of Public Health and Environment (CDPHE) certified abatement contractor and shall be completed in accordance with CDOT Specification 250.07 – Asbestos Containing Material Management and also in accordance with CDOT Asbestos Contaminated Soil Management Standard Operating Procedure. Additionally, depending on the type of ACM, this material must also be abated in accordance with either Section 5.5 of the Solid Waste Regulations, or Regulation No. 8 of the Air Quality Control Commission Regulations. Workers on this project must follow CDOT Specification 250 – Environmental, Health and Safety Management. The abatement shall be measured and paid for under the Force Account (F/A) pay item F/A Environmental Health and Safety Management, per section 250.

- Contractor shall be responsible for obtaining all necessary federal, state, local, and City permits needed for both the needed abatement and full demolition of the structures described above. This would include any permits required for disconnection and protection of public utilities, or any other permits needed to complete the work.

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REVISION OF SECTION 202
REMOVAL OF BUILDING/SHED

- All fees associated with state/local/federal/City permitting and notification requirements for building demolition..

- Contractor shall also ensure the safety and security of the worksite at all times. This should include providing any protection necessary for the traveling public and a secure worksite to prevent unauthorized access at all times.

- Utility locates and verification that all utilities have been properly disconnected.

The Contractor shall submit written verification that all the above has been obtained prior to commencement of demolition operations.

The Contractor is responsible for compliance with all federal, state, and local laws, regulations, and ordinances.

The Contractor shall completely remove and dispose of structures, foundations (including footers), including all pipes, conduits and similar appurtenances lying therein in its entirety, and any earthwork or grading in preparation for the installation of the roadway improvements. Any earthwork and grading (including compaction) shall be performed per CDOT specifications applicable to this project.

Disconnection of water and sewer services shall be at the main. All related costs for disconnecting the water and sewer services, including obtaining a right-of-way permit from the City of Arvada for work in adjacent streets (i.e. Quail St., etc.), excavation, backfill, flowfill, asphalt removal and replacement, curb and gutter and sidewalk removal and replacement, traffic control, etc. sha11 be included in the work. Basements, crawl spaces, and all depressed areas remaining after the demolition of all structures shall be backfilled and compacted in accordance with Section 203. All work associated with backfilling and grading shall also be included in the work.

The following City of Arvada specification applies to the water and sewer line disconnects:

Sec. 5.1.3 Demolition and disconnection of existing utilities.

Prior to demolition of a building on premises, including moving of a building to another location, an owner must request the utility billing division to turn off water and read the water meter. A permit to disconnect the utilities shall be obtained from the engineering division and a permit for demolition shall be obtained from the building inspection division (if required). The utility disconnects will be in accordance with city engineering specifications. The utility service lines shall be disconnected at the main, unless otherwise specified in writing by the utilities manager. (Ord. No. 2574, § 1, 11-21-88; Ord. No. 3403, § 14, 10-20-97)

Xcel Energy shall be responsible for the electrical and natural gas utility disconnects. Coordination with Xcel forces may be necessary to accommodate this work.

Contractor shall take special note to Right-of-way Restrictions Specification regarding timing of access to properties.

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REVISION OF SECTION 202
REMOVAL OF BUILDING/SHED

Subsection 202.11 shall include the following:

Removal of Building/Shed will be paid as lump sum. All work and costs associated with the removal, demolition, disposal and restoration shall be included in the work, measurement and payment for any other items will not be made. All material generated from the removal shall become the property of the Contractor.

Subsection 202.12 shall include the following:

Pay Item	**Pay Unit**
Removal of Building/Shed	Lump Sum

No separate measurement or payment will be made for: asbestos investigation and reports, clearing and grubbing, removal and disposal of buildings, foundation, basement slabs, cesspool, privies, buried fuel and septic tanks (or abandonment), above ground fuel tanks, wells, well casing, wells (or abandonment), slabs on grade; disconnect and protection of public utilities or improvements; sawing, excavation, hauling and disposal of all rubble and material, furnishing, hauling, placing, backfilling including basements, compacting fill and grading the area to drain; protection of facilities designated to remain, protection and security of worksite, but shall be included in the work.

The contract unit price bid shall also include the salvage of materials removed, their custody, preservation, storage, and disposal as specified in the Contract Documents.

END OF SECTION REVISION

REVISION OF SECTION 202
REMOVAL OF ASBESTOS CEMENT PIPE

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.02 shall include the following:

The Contractor is advised a portion of the existing 68-inch pipe removal shall include asbestos cement pipe(Routt Street). Asbestos cement pipe shall be handled, removed, and disposed of according to the required regulations of The Colorado Department of Public Health and Environment (CDPHE), the Department of Environmental Health, Environmental Quality Division (EQD), Section 250, and other applicable regulations.

Subsection 202.11 shall include the following:

Removal of eight (8) inch asbestos cement pipe will be paid for as Removal of Asbestos Cement Pipe Costs for asbestos materials handling and disposal will not be paid for separately but shall be included in the work. All handling and disposal of existing asbestos cement pipe shall follow applicable regulations as outlined above.

END OF SECTION REVISION

REVISION OF SECTION 202
REMOVAL OF FIRE HYDRANT

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.11 shall include the following:

The quantity to be measured for removal of fire hydrant shall be the number of existing fire hydrants, hydrant barrels, 6-inch fire hydrant laterals, 6-inch gate valves and elbows actually removed and salvaged and 6-inch laterals or tee plugged as shown on the drawings.

Subsection 202.12 shall include the following:

Payment for removal of fire hydrant shall include full compensation for removing and salvaging of the fire hydrant, hydrant barrel, and elbow to the City of Arvada and either plugging the 6-inch hydrant lateral (with a 6-inch mechanical joint cap) or plugging the fire hydrant tee (with a 6-inch mechanical joint plug) and removing the entire 6-inch hydrant lateral and placing all materials required and for excavation, backfilling or flowfill, and compaction to restore the site, complete in place. This includes the removal and replacement of existing sidewalk, curb and gutter, fences, landscaping, etc.

END OF SECTION REVISION

REVISION OF SECTION 202
REMOVAL OF VALVE BOX AND LID

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.11 shall include the following:

The quantity to be measured for payment shall be each existing cast iron valve box and lid removed and disposed of as shown on the drawings or as directed and approved by the Engineer in the field. This work includes closing the existing valve prior to removing the valve box, filling the valve box hole, compacting the fill and patching with asphalt.

Subsection 202.12 shall include the following:

Payment shall include full compensation for locating, excavating, removing, hauling, and disposal of the existing valve box and lid to an off-site location. The abandoned valve shall be closed and buried in place.

END OF SECTION REVISION

REVISION OF SECTION 202
REMOVAL OF WATER METER

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.11 shall include the following:

> The quantity to be measured for removal of water meter (including meter pit, meter setter, cone and lid, water service) removed and disposed of as shown on the drawings. This work includes removing all items related to the meter pit, filling the meter pit hole, and compacting the fill. Actual water meter to be maintained and switched to a new meter pit after the service has been transferred from the existing water line main to the next water main.

Subsection 202.12 shall include the following:

Payment shall include full compensation for locating, excavating, removing, hauling, and disposal of the existing meter pit to an off-site location.

END OF SECTION REVISION

REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work includes removal and disposal of existing asphalt mat within the project limits as shown on the plans or at locations directed by the Engineer.

In subsection 202.02 delete the seventh paragraph and replace with the following:

The existing asphalt mat, which varies in thickness, shall be removed in a manner that minimizes contamination of the removed mat with underlying material. The removed mat shall become the property of the Contractor and shall be either disposed of outside the project site, or used in one or more of the following ways:

1. Used in embankment construction in accordance with subsection 203.06.
2. Placed in bottom of fills, as approved by the Engineer.
3. Placed in the subgrade soft spots as directed by the Engineer.

Subsection 202.11 shall include the following:

The removal of the existing asphalt mat will be measured by the square yard of mat removed to the required depth and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	**Pay Unit**
Removal of Asphalt Mat	Square Yard

Unless otherwise specified in the Contract, the disposal of the asphalt mat or its use in other locations on the project will not be measured and paid for separately, but shall be included in the work.

END OF SECTION REVISION

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REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 202.09, and replace it with the following:

202.09 Removal of Asphalt Mat (Planing). Prior to beginning planing operations, the Contractor shall submit a planing plan and a Process Control Plan (PCP) for approval by the Engineer. The planing plan shall include at a minimum:

(1) The number, types and sizes of planers to be used.
(2) The width and location of each planing pass.
(3) The number and types of brooms to be used and their locations with respect to the planers.
(4) The proposed method for planing and wedging around existing structures such as manholes, valve boxes, and inlets.
(5) The longitudinal and transverse typical sections for tie-ins at the end of the day.
(6) If requested by the Engineer, a plan sheet showing the milling passes.

The PCP shall include as a minimum:

(1) The schedule for replacing the cutting teeth.
(2) The daily preventive maintenance schedule and checklist.
(3) Proposed use of automatic grade controls.
(4) The surface testing schedule for smoothness.
(5) The process for filling distressed areas.
(6) The schedule for testing macrotexture of the milled surface.
(7) Corrective procedures if the milled surface does not meet the minimum macrotexture specification.
(8) Corrective procedures if the milled surface does not meet the minimum transverse or longitudinal surface finish when measured with a 10 foot straightedge.

The Contractor shall not start the planing operation until the hot mix asphalt (HMA) mix design has been approved and a Form 43 has been signed by the Engineer.

The existing pavement shall be milled to the cross-slope as shown on the plans, and shall have a surface finish that does not vary longitudinally or transversely more than ⅜ inch from a 10 foot straightedge. A 10 foot straightedge shall be supplied by the Contractor.

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REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)

All milled surfaces shall be broomed with a pick-up broom, unless otherwise specified, before being opened to traffic. A sufficient number of brooms shall be used immediately after planing to remove all milled material remaining in the roadway.

If the Contractor fails to adequately clean the roadway, work shall cease until the Engineer has approved the Contractor's revised written proposal to adequately clean the roadway.

The milled surface shall have a macrotexture equal to or less than 0.170 inches for single-lift overlays and 0.215 inches for multiple-lift overlays as tested in accordance with CP 77. Milled surfaces that do not meet these criteria shall require corrective action in accordance with the PCP. The Contractor shall be responsible for testing the macrotexture of the milled surface at the location directed by the Engineer in accordance with CP 77 at a stratified random frequency of one test per 10,000 square yards or a minimum of once per work day.

At the completion of each day's work, longitudinal vertical edges greater than 1 inch shall be tapered. No transverse vertical edges will be allowed. Longitudinal milled surface tie-ins to existing pavement shall be tapered to not less than a 3:1 slope, transverse milled surface tie-ins to existing pavement shall be tapered to not less than a 50:1 slope. Transverse tapered joints may be tapered with the planing machine, a temporary asphalt ramp, or other methods approved by the Engineer. No longitudinal joint between the milled and existing surfaces shall fall between 1 to 5 feet of any lane line.

If the transverse joint is tapered with a temporary asphalt ramp, the milled surface at the joint shall be constructed as a butt joint the full depth of the lift of asphalt to be placed on the milled surface. The Contractor shall be responsible for maintaining this asphalt ramp until all corresponding HMA is placed. All work associated with this joint will not be paid for separately, but shall be included in the cost of planing.

If the transverse joint is tapered with a planing machine, a butt joint shall be cut into the taper the full depth of the lift of asphalt to be placed on the milled surface prior to commencement of resurfacing. All work associated with this joint will not be paid for separately, but shall be included in the cost of planing.

Other approved transverse joint tapers shall be maintained at the expense of the Contractor, and at a minimum shall incorporate a butt joint the full depth of the lift of asphalt to be placed on the milled surface prior to commencement of resurfacing.

Distressed or irregular areas identified in the planed surface by the Engineer shall be patched.

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REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT (PLANING)

The roadway shall be left in a safe and usable condition at the end of each work day. The Contractor shall take appropriate measures to ensure that the milled surface does not trap or hold water. All required pavement markings removed by the planing shall be restored before the roadway is opened to traffic.

All milled surfaces to be overlaid with HMA shall be covered with new asphalt within 10 working days.

All planing shall be completed full width and parallel to the travel lanes before resurfacing commences unless otherwise directed by the Engineer.

All material generated by the planing operation shall become the property of the Contractor unless otherwise noted in the Contract.

Each planer shall conform to the following:

The planer shall have sufficient power, traction and stability to maintain an accurate depth of cut. The propulsion and guidance system of the planer shall be maintained in such condition that the planer may be operated to straight and true lines.

The planer shall be capable of operating with automatic grade controls (contact or non-contact) on both sides of the machine using a 30 foot averaging system or other approved grade control systems. The use of such controls shall be described in the Contractor’s PCP.

The planer shall be capable of picking up the removed material in a single operation. A self-loading conveyor shall be an integral part of the planer. Windrows will not be allowed.

Subsection 202.12 shall include the following:

Macrotexture testing, macrotexture corrective actions, planers, brooms, and all other work necessary to complete the item, Removal of Asphalt Mat (Planing), will not be measured and paid for separately, but shall be included in the work.

END OF SECTION REVISION

REVISION OF SECTION 202
REMOVAL OF TRAFFIC SIGNAL EQUIPMENT

Section 202 of the Standard Specifications is hereby revised as follows:

DESCRIPTION

Subsection 202.02 shall include the following:

Traffic signal equipment to be removed shall consist of the items specifically identified on the plans, or in writing by the Project Engineer. It shall be the Contractor's responsibility to assure that the Contractor has a full and complete understanding of included items prior to bidding.

CONSTRUCTION REQUIREMENTS

Subsection 202.04 shall include the following:

Removal of the traffic signal equipment shall include traffic signal poles and mast arms, traffic signal controller and cabinet, cabinet and pole footings, signal heads, video detection cameras, radio communication antennas, pull boxes, all attachment hardware, and all incidental equipment, except as noted on plans. All existing foundations shall be removed to a depth as specified on the plans. All wiring shall be removed from abandoned conduit and the conduit shall be abandoned in place. The Contractor shall restore disturbed areas affected by removals. Restoration of landscaped areas shall be per Revision of Section 107, Protection and Restoration of Existing Property and Landscape.

METHOD OF MEASUREMENT

Subsection 202.11 shall include the following:

All traffic signal equipment which is removed shall remain the property of the Contractor except video detection equipment which shall be returned to the City, or unless otherwise specified by the Project Inspector. City property shall be removed from the work site and returned by the Contractor to the City at 6701 Indiana Street, Arvada, Colorado. Delivery of salvaged equipment shall be included in the cost of Removal of Traffic Signal Equipment and will not be paid for separately.

BASIS OF PAYMENT

Subsection 202.12 shall include the following:

Pay Item	Pay Unit
Removal of Traffic Signal Equipment	Lump Sum

Payment includes all labor, equipment, and materials necessary to complete the work.

REVISION OF SECTION 203
POTHOLING

Section 203 of the Standard Specifications is hereby revised for this project as follows:

Subsection 203. 05(f) shall include the following:

Potholing excavation work shall be performed utilizing hydrovac equipment capable of reaching the required depths necessary to expose buried utility lines located throughout the project. The truck shall be capable of containing a sufficient amount of water needed for the work activity as well as any slurry generated for disposal at a location to be determined by the Contractor. Slurry will not be disposed of within the highway right-of-way unless approved by the Project Engineer. All potholing methods and locations shall be pre approved by the Engineer. Any potholing that has not been approved by the Engineer shall be at the Contractor's expense.

Subsection 203.11(e) shall include the following:

Contractor shall be responsible for marking, measuring and documenting the elevation and offset of all located utilities during potholing. All utility locate data shall be submitted to the Project Engineer no later than one working day after the utility has been located. Measuring, recording and documenting of utility locations shall not be measured and paid for separately but shall be included in the cost of the work.

Upon completion of documentation of existing utilities, potholes shall be backfilled with round ¼" minus pea gravel. Backfilling of the potholes will also not be measured and paid for separately but shall be included in the cost of the work.

Subsection 203.12 shall include the following:

The accepted quantities will be paid for at the contract unit price per hour.

Payment will be made under:

Pay Item	**Pay Unit**
Potholing	Hour

END OF SECTION REVISION

REVISION OF SECTION 206
EXCAVATION AND BACKFILL FOR STRUCTURES

Section 206 of the Standard Specifications is hereby revised for this project as follows:

Subsection 206. 06(b) shall be modified as follows:

For pipes, structure excavation and backfill and will not be measured and paid for separately, but shall be included in the work. The following quantities will be shown on the plans for information only:

Structure excavation: area below the limits of roadway excavation multiplied by the trench width
Structure backfill: backfill required to depth of 1 foot above the top of pipe
Embankment material: backfill placed above 1 foot above the top of pipe to the subgrade of the roadway

END OF SECTION REVISION

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REVISION OF SECTION 207
TOPSOIL

Section 207 of the Standard Specifications is hereby deleted for this project and replaced with the following:

DESCRIPTION

207.01 This work consists of salvaging topsoil from onsite locations, stockpiling, maintaining, and preparing the subsoils for the placement of the topsoil at locations shown on the plans. It also includes creating seeding media by amending subsoils, and importing offsite topsoil when shown on the plans.

Substitutions from this specification will not be allowed unless submitted in writing to the Engineer and approved by the Region or Headquarters Landscape Architect.

MATERIALS

207.02 General. Topsoil shall be salvaged onsite, imported, or produced as shown on the plans. Topsoil shall be free of refuse and litter along with noxious weed seed and reproductive plant parts, as listed in current State of Colorado A and B Noxious Weed List and local agency weed lists. Topsoil shall not include heavy clay, hard clods, toxic substances, pathogens, or other material, which would be detrimental to growing native vegetation. All required amendments shall be thoroughly incorporated to parent material, onsite. All amendments shall conform to Section 212. Topsoil and parent material shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 3 inches in any dimension for all material used within the designed clear zone for the project. Topsoil outside of the clear zone may contain rock larger than 4 inches in any dimension. For slopes with no structures being used to protect areas from falling rocks the Contractor shall remove or secure any rocks deemed unstable and could pose a safety hazard.

Topsoil shall be generated from one or more of the following as shown on the plans:

(a) *Topsoil (Onsite).* Topsoil shall consist of the upper 6-inch layer of the A horizon, as defined by the Soil Science Society of America, or at the depths and locations shown on the Stormwater Management Plan (SWMP). It shall consist of loose friable soil, salvaged from onsite and stockpiled or windrowed. Litter and duff (layer of partially decomposed plant material) shall be collected as part of the salvaging of topsoil unless specified to be removed and hauled offsite on the plans.

(b) *Seeding Media.* Seeding Media shall consist of one or all of the following approved materials: subsoil, overburden, or material generated from rock. Contractor shall select onsite or offsite locations to generate material that meet the requirements of Table 207-1. The Contractor shall provide a Certified Test Report (CTR) in accordance with subsection 106.13, excluding lot, heat, and batch confirming that the excavated material conforms to Table 207-1.

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REVISION OF SECTION 207
TOPSOIL

(c) *Topsoil (Offsite).* The Contractor shall submit a CTR for Topsoil (Offsite) for approval a minimum of 60 days prior to import in accordance with subsection 106.13. The Contractor shall include with the CTR a complete Soil Nutrient Analysis for the properties listed in Table 207-2 from an independent laboratory that participates in the National Association for Proficiency Testing (NAPT). If topsoil nutrient analysis is deficient, an Amendment Protocol shall be submitted by the Contractor for approval. The Amendment Protocol shall contain a complete list of amendments and associated quantities to produce topsoil that conforms to Table 207-2.

The Contractor shall submit a Certificate of Compliance (COC) for Topsoil (Offsite) for approval a minimum of 60 days prior to import that the source has controlled noxious weeds in accordance with the State of Colorado Noxious Weed Act 35-5.5-115.

Table 207-1
PHYSICAL PROPERTIES OF SEEDING MEDIA

Property	Range	Test
Soil pH (s.u.)	5.6 – 7.5	ASA Mono. #9, Part 2, Method 10-3.2 or TMECC 04.11-A
Soil Electrical Conductivity (EC) (mmhos/cm or ds/m)	< 5.0	ASA Mono. #9, Part 2, Method 10-3.3
Soil SAR (s.u.)	0 - 10	ASA Mono. #9, Part 2, Method 10-3.4
Rock Content (%)	≤ 25	USDA NRCS Rock Fragment Modifier Usage
Trace Contaminants (Arsenic, Cadmium, Copper, Mercury, Selenium, Zinc, Nickel, and Lead)	Meets US EPA, 40 CFR 503 Regulations	TMECC 04.06 or EPA6020/ASA (American Society of Agronomy)
Rock Content (%) greater than 3" diameter	≤ 25	USDA NRCS Rock Fragment Modifier Usage
USDA Soil Texture	No more than 70% clay, silt, and sand by percentage volume of topsoil.	ASA Monograph #9, Part 1, Method 15-4 or ASA 1 43-5
All Particle Sizes	< 6 Inches	
Physical contaminants (man-made inerts) (%)	< 1	TMECC 03.08-C
C:N ratio	<20	TMECC 05.02-A
* Fines % when manufacturing material from rock	>25% material passing through #4 sieve	ASTM D6913

Amendments to the base imported material shall have the quantities of material verified onsite prior to incorporation into parent material, either at the stockpiles or after placement of parent material. Topsoil amended at the stockpiles shall be distributed to the site within seven days. * Substitute this requirement for USDA Soil Texture requirement when project are approved to use material manufactured from native rock material on site.

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REVISION OF SECTION 207
TOPSOIL

Table 207-2
TOPSOIL (OFFSITE) PROPERTIES

Property	Range	Test Methods
Soil pH (s.u)	5.6 – 7.5	ASA Mono. #9, Part 2, Method 10-3.2 or TMECC 04.11-A
Salt by Electrical Conductivity (EC) (mmhos/cm or ds/m)	< 2.0	ASA Mono. #9, Part 2, Method 10-3.3
Soil SAR (s.u.)	0 – 10	ASA Mono. #9, Part 2, Method 10-3.4
Soil OM (%)	3 – 5	Methods of Soil Analysis, Part 3, Method 34
Soil N (NO_3-n, ppm)	≥ 20.0	Methods of Soil Analysis, Part 3. Chemical Methods. Ch. 38 Nitrogen – Inorganic Forms
Soil P (ppm)	≥ 13.0	ASA Mono. #9, Part 2, Method 24-5.4 or others as required based on soil pH
Soil K (ppm)	≥ 80	ASA Mono. #9, Part 2, Method 13-3.5
Rock Content (%) greater than 3" diameter	≤ 25	USDA NRCS Rock Fragment Modifier Usage
Bioassay (seedling emergence and relative vigor)	> 80% of control	TMECC 05.05-A or Approved Germination Test
Soil Texture	No more than 70% clay, silt and sand by percentage volume of topsoil	ASA Mono. #9, Part 1, Method 15-4
Physical contaminants (man-made inerts) (%)	< 1	TMECC 03.08-C
Trace Contaminants (Arsenic, Cadmium, Copper, Mercury, Selenium, Zinc, Nickel, and Lead)	Meets US EPA, 40 CFR 503 Regulations	TMECC 04.06 or EPA6020/ASA (American Society of Agronomy)
All Particle Sizes	< 6 Inches	
C:N ratio	<20	TMECC 05.02-A

The Contractor shall utilize a rod penetrometer for determining subgrade soil preparation and determining looseness of soil after ripping. The penetrometer shall have a psi pressure gage, and shall meet the following requirements:

(1) Steel rod with a minimum diameter of ½ inch with graduations (tick marks) every 6 inches.
(2) The rod shall be made of stainless steel or other metal that will not bend when weight is applied.
(3) The end of the rod shall have a 30-degree cone tip.
(4) The diameter of the cone at its tip shall be no more than 0.1 inch.
(5) The top of the rod shall be a T-handled configuration.

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REVISION OF SECTION 207
TOPSOIL

CONSTRUCTION REQUIREMENTS

207.03 Site Pre-vegetation Conference. Prior to the start of the initial Subgrade Soil Preparation for the project, the Contractor shall request a Site Pre-vegetation Conference. The Engineer will set up the conference and will include: the Engineer or designated representative, the Superintendent or designated representative, the sub-contractor(s) performing the subgrade soil preparation and soil amendments, and the CDOT Landscape Architect representing the Region. Only one meeting is required for the project unless a new sub-contractor is brought on that did not attend the previous meeting.

The Agenda of the Pre-vegetation Conference can be found in Appendix A of the Construction Manual and includes the following:

(1) Final review of the Topsoil (Offsite) Amendment Protocol

(2) Review of the Method Statement detailing the equipment which will be used for the subgrade soil preparation operations

(3) Review of rod penetrometer which will be used to determine subgrade soil preparation of topsoil

(4) Permanent Stabilization Phasing Plan (identify strategies and site management measures to protect de-compacted, topsoil amended, seeded, and blanketed areas from foot, vehicle loads, and other disturbances).

(5) Seeding. See subsection 212.03 for submittal requirements.

(6) Meeting attendee sign-in log

207.04 Topsoil Stockpiling. Stockpiles of topsoil shall be created as shown on the plans or as approved by the Engineer. All Stockpiles of topsoil which are scheduled to remain in place for 14 days or more shall receive interim stabilization in accordance with subsection 208.04. All topsoil stockpiles shall be identified using white pin flags with “TOPSOIL” printed in black letters and shall have their locations shown on the SWMP Plans. Each individual stockpile shall require at least one flag, and one additional flag for each 10 cubic yards of salvaged topsoil. The contractor shall provide only perimeter flags for stockpile larger than 100 cubic yards with a minimum spacing of 25 feet.

Topsoil may be placed in stockpiles or windrowed at the edge of the disturbance. Windrowed topsoil shall not be used as perimeter erosion control or extensively compacted. When topsoil is windrowed, all stockpile requirements still apply.

(1) Upland Topsoil. If included on the plans, stockpiles shall be treated with herbicide, in accordance with Section 217, or as directed.

(2) Wetland Topsoil. Wetland stockpiles shall not be treated with herbicide. Weeds shall be hand pulled.

Wetland topsoil shall be placed within 24 hours from excavation, unless otherwise approved by the Engineer. Wetland topsoil shall not be stockpiled for more than six months.

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REVISION OF SECTION 207
TOPSOIL

207.05 Subgrade Soil Preparation. Before placement of topsoil, the subgrade shall be ripped to a minimum depth of 14 inches. Subgrade shall be mostly dry and friable. Subgrade shall crumble without sticking together, yet not be so dry and hard that it does not break apart easily.

Underground utilities shall be located prior to soil preparation.
Subgrade soil preparation equipment shall meet the requirements for either winged tip or parabolic shanks. Operation shall be performed to fracture the soil uniformly without lifting or furrowing the surface excessively. The Contractor shall submit a method statement for subgrade soil preparation other equipment will be considered.

1. Winged tip shanks (dozer equipment) shall be a minimum of 6 inches wide and have 2 inches of vertical profile change on the blade with a 40 – 60-degree sweep angle.

The Contractor shall calibrate the subgrade soil preparation equipment using a minimum 30 linear feet of the initial pass. The Contractor shall utilize the rod penetrometer to verify that that de-compaction was successfully done. The Contractor shall take penetration measurements every 6 inches across a transect perpendicular to the direction of the tractor and spanning the width of the subgrade soil preparation. Depths of penetration shall confirm that a minimum of 12 inches can be achieved without reaching 300 psi on the rod penetrometer pressure gage (approximately 30 pounds of pressure on the T-handle).

Existing subgrade shall be de-compacted to a depth of 14 inches. If multiple passes are needed, the subsequent passes shall be positioned so that the ripping equipment (subsoilers) from the previous pass are split by the subsequent pass. Following ripping, the Contractor shall remove all sticks, stones, debris, clods, and all other substances greater than 6 inches in diameter. The Contractor shall restrict motorized vehicle and foot traffic from passing over the ripped area since this would recompact the areas that received subgrade soil preparation.

The first 4 feet from the edge of pavement shall be ripped to a depth of 6 inches. If the project is going to use aggregate base course or recycled asphalt as a shouldering technique, those areas will not require subgrade soil preparation. Depth of soil ripping for the subgrade soil preparation shall be checked with the rod penetrometer.

The Contractor shall verify adequate de-compaction of the entire area to have topsoil placed using a rod penetrometer in the presence of the Engineer. Tests shall be performed at a minimum of ten random locations per each acre as selected by the Engineer. The Test shall verify that a depth of 12 inches of penetration into the soil can be achieved without reaching 300 psi on the rod penetrometer pressure gage (approximately 30 pounds of pressure on the T-handle). If this depth cannot be achieved for 80 percent of the penetrations, the Contractor shall re-rip the area at no additional cost to the Department.

207.06 Placement of Topsoil and Seeding Media. Topsoil and Seeding Media shall be hauled and placed at the locations disturbed and will be re-vegetated or as shown on the plans. The contractor shall place a minimum thickness of 6 inches and should only be handled when it is dry enough to work without damaging soil structure. Topsoil and Seeding Media shall be placed a minimum depth of twelve (12) inches when placed over riprap as required on the plans. No Topsoil or Seeding Media shall be placed below ordinary high water mark except as otherwise specified in bio-stabilization bank treatments.

Salvaged topsoil placement deeper than 6 inches is allowed if additional approved material is on-site.

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Contractor shall place topsoil in a method that does not re-compact subgrade material using low ground-contact pressure equipment, or by excavators and/or backhoes operating adjacent to it.

The final grade shall be free of all materials greater than3 inches in diameter within the designed clear zone for the project. Equipment not required for revegetation work will not be permitted in the areas of placed topsoil.

Soil amendments, seedbed preparation, and permanent stabilization mulching shall be accomplished within four working days of placing the topsoil on the de-compacted civil subgrades. If placed topsoil is not mulched with permanent stabilization mulch within four working days, the Contractor shall complete interim stabilization methods in accordance with subsection 208.04(e), at no additional cost to the Department. Time to perform the work may be extended for delays due to weather.

METHOD OF MEASUREMENT

207.07 Topsoil material will be measured by the actual number of cubic yards of topsoil placed and accepted.
Subgrade soil preparation will be measured by the square yards of subgrade which is ripped and accepted for adequate de-compaction.

BASIS OF PAYMENT

207.08 The accepted quantities measured will be paid for at the Contract unit price for each of the pay items listed below that appear in the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
Topsoil (Onsite)	Cubic Yard
Topsoil Import	Cubic Yard

Amendments for Topsoil (Onsite) and Seeding Media will be measured and paid for in accordance with Section 212.

Amendments for Topsoil (Offsite) will not be measured and paid for separately, but shall be included in the work.

Noxious Weed Management will be measured and paid for in accordance with Section 217.

Stockpiling or windrowing of topsoil will not be measured and paid for separately, but shall be included in the work.

Testing of Seeding Medial and Topsoil (Offsite) will not be measured and paid for separately but shall be included in the work.

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Rod penetrometer and associated verification testing of random locations will not be measured and paid for separately, but shall be included in the work.

The Site Pre-vegetation Conference will not be paid for separately, but shall be included in the work.

Additional passes with the ripping equipment to achieve the desired de-compaction will not be measured and paid for separately, but shall be included in the work.

Removing of clods, sticks, stones, debris, concrete, and asphalt in excess of 3 inches in any dimension for all topsoil and Seeding Media used within the designed clear zone for the project will not be measured and paid for separely, but shall be included in the work.

END OF SECTION REVISION

REVISION OF SECTION 208
EROSION CONTROL

Section 208 of the Standard Specifications is hereby revised for this project as follows:

Wherever Section 208 is in conflict with the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements, dated January 2016 (Arvada Standards), the Arvada Standards or other standards referenced therein shall take precedence.

The term *Sediment Control Log* shall be considered equivalent with the term *Erosion Log*.

The term *Rock Sock* shall be considered equivalent with the term *Aggregate Bag*.

END OF SECTION REVISION

REVISION OF SECTION 209
WATERING AND DUST PALLIATIVES

Section 209 of the Standard Specifications is hereby revised for this project as follows:

Subsection 209.05 shall include the following:

> The Contractor shall be responsible for controlling vehicle and equipment speeds within the project site to keep dust to a minimum. If excessive dust is being generated by construction traffic, the Contractor shall immediately take corrective measures as determined by the Project Engineer.

In Subsection 209.08, delete paragraphs one, two, and three and replace with the following:

> Water required for all work covered under the contract will not be measured and paid for separately but shall be included in the work. The source of this water is the Contractor's responsibility. Water may not be taken from on-site ditches, creeks, or their tributaries.

END OF SECTION REVISION

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Section 212 of the Standard Specifications is hereby deleted for this project and replaced with the following:

DESCRIPTION

212.01 This work consists of application of fertilizer, soil amendments, seedbed preparation, and placing seed and sod.

Substitutions from this specification will not be allowed unless submitted in writing to the Engineer and approved by the Region or Headquarters Landscape Architect.

MATERIALS

212.02 Seed, Fertilizers, Soil Conditioners, Mycorrhizae, Elemental Sulfur, and Sod.

(a) *Seed.* Seed shall be delivered to the project site in sealed bags tagged by a registered seed supplier conforming to the requirements of the Colorado Seed Act, CRS 35-27-111(1). Seed used on the project shall not be in the Contractor's possession for more than 30 days from the date of pickup or delivery on the seed vendors packing slip. Bags which have been opened or damaged prior to Engineer inspection will be rejected. The State required legal tags shall remain on the bag until opened and the seed is placed in either the drill or hydraulic seeders in the presence of the Engineer. The Engineer shall remove all tags after seed has been planted. Each seed tag shall clearly show the following:

(1) Name and address of the supplier

(2) Botanical and common name for each species

(3) Lot numbers

(4) Percent by weight of inert ingredients

(5) Guaranteed percentage of purity and germination

(6) Pounds of Pure Live Seed (PLS) of each seed species

(7) Total net weight in pounds of PLS in the sealed bag

(8) Calendar month and year of test date

Seeds shall be free from all noxious weed seeds in accordance with Colorado Seed Act (CRS 35-17) prohibited noxious weed seed list.

Weed seed content shall not exceed the requirements in part 7.2 of the Colorado Department of Agriculture's Seed Act Rules and Regulations.

Seed which has become wet, moldy, or damaged in transit or in storage will not be accepted.

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Seed and seed labels shall conform to all current State regulations and to the testing provisions of the Association of Official Seed Analysis. Computations for quantity of seed required on the project shall include the percent of purity and percent of germination.

The Contractor shall store seed under dry conditions, at temperatures between 35 °F to 90 °F, under low humidity and out of direct sunlight. The Contractor shall provide the location of where seed is stored and access to stored seed locations to the Engineer. Seed stored by the Contractor for longer than 30 will be rejected.

(b) *Organic Fertilizer*. Fertilizer derived directly from plant or animal sources shall conform to Colorado Revised Fertilizer Rules 8 CCR 1202-4. Fertilizer shall be uniform in composition and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's name, address, and nutrient analysis. Fertilizer bags (containers) which arrive at the project site opened, damaged, or lacking a label will be rejected. The Contractor shall only use bulk shipments such as tote bags or super sacks that have a manufacture's original label and sealed at the manufacturing facility. Fertilizer which becomes caked or damaged will not be accepted. Fertilizer shall be stored according to manufacturer's recommendations in a dry area where the fertilizer will not be damaged.

Organic fertilizer formulation being submitted for use must be registered with the Colorado Department of Agriculture.

Verification tests may be conducted by CDOT on grab samples of organic fertilizer delivered to the site to determine the reliability of bag label analysis and for ingredients which are injurious to plants. If a product of any supplier is found to consistently deviate from the bag level analysis, the acceptance of that product will be discontinued. Copies of the failing test reports will be furnished to the Colorado State Board of Agriculture for appropriate action under the "Colorado Fertilizer Law".

Fertilizer shall be supplied in one of the following physical forms:

(1) A dry free-flowing granular fertilizer, suitable for application by agricultural fertilizer spreader.

(2) A homogeneous pellet, suitable for application by agricultural fertilizer spreader. Pellet size shall be 2-3 mm. Smaller may be allowed when Seeding (Native) Hydraulic is shown on the plans.

(3) A soluble form that will permit complete suspension of insoluble particles in water, suitable for application by power sprayer.

The application rate of the organic fertilizer shall be either as high or low nitrogen (N) fertilizer as shown on the plans.

High N organic fertilizer chemical analysis shall conform to Table 212-1.

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Table 212-1
Chemical Analysis for High N Fertilizer

Ingredient	Range	Test Method
Nitrogen (N) (%)	6 - 10	AOAC Official Method 993.13 Nitrogen (Total) in Fertilizers Combustion Method
Phosphorus (P) (%)	1 - 8	AOAC Official Method 960.03 Phosphorus (Available) in Fertilizers
Potassium (K) (%)	1 - 8	AOAC Official Method 983.02 Potassium in Fertilizers

Low N organic fertilizer chemical analysis shall conform to Table 212-2.

Table 212-2
Chemical Analysis for Low N Fertilizer

Ingredient	Range	Test Method
Nitrogen (N) (%)	2 -5	AOAC Official Method 993.13 Nitrogen (Total) in Fertilizers Combustion Method
Phosphorus (P) (%)	3 - 8	AOAC Official Method 960.03 Phosphorus (Available) in Fertilizers
Potassium (K) (%)	1 - 8	AOAC Official Method 983.02 Potassium in Fertilizers

Organic fertilizers shall conform to Table 212-3.

Table 212-3
Organic Fertilizer Properties

Criteria	Range
Moisture content by weight	< 6%

(c) *Compost (Mechanically Applied).* Compost shall be suitable for use in Erosion Log (Type 2) and permanent seeding applications. Compost shall not contain visible refuse, other physical contaminants, or substances considered harmful to plant growth. Compost shall be used in accordance with all applicable EPA 40 CFR 503 standards for Class A biosolids including the time and temperature standards. Materials that have been treated with chemical preservatives as a compost feedstock will not be permitted.

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

The Contractor shall provide material that has been aerobically composted in a commercial facility. Compost shall be from a producer that participates in the United States Composting Council's (USCC) Seal of Testing Assurance (STA) program. The Department will only accept STA approved compost that is tested in accordance with the USCC Test Methods for Examining of Composting and Compost (TMECC) manual.

Verification tests may be conducted by CDOT on grab samples of compost delivered to the site to determine the gradation and physical properties. Testing may be done for indication of ingredients which are injurious to plants. Sampling procedures will follow the STA 02.01 Field Sampling of Compost Materials and 02.01-B Selection of Sampling Locations for Windrows and Piles. If a product is found to consistently deviate from the gradation and property analysis, the acceptance of that product will be discontinued. Copies of the failing test reports will be furnished to the USCC.

1. Compost for permanent seeding soil conditioner locations onsite and application rates shall be as shown on the plans.
   Organic matter in compost shall be no more than 2 inches in length.
   Compost (Mechanically Applied) for permanent seeding shall meet the gradation and physical properties as shown in Table 212-4 and Table 212-5. The Contractor shall provide a written explanation for compost tested parameters not within the acceptable requirements for review and consideration.
   The Contractor shall provide documentation from the composting facility confirming that the material has been tested in accordance with USCC TMECC.

Table 212-4
Gradation for Permanent Seeding Compost

Sieve Size	Percent Passing		
	Minimum	Maximum	Test Method
25.0 mm (1")	100		TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification"
19.0 mm (3/4")	90	100	
6.25 mm (1/4")	70	100	

Note: Compost shall be from a producer that participates in the USCC STA program.

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Table 212-5
Properties for Permanent Seeding Compost

Compost Parameters	Reported as	Requirements	Test Method
pH	pH units	6.0 - 8.5	TMECC 04.11-A
Soluble Salts (Electrical Conductivity)	dS/m (mmhos/cm)	< 5.0	TMECC 04.10-A
Moisture Content	%, wet weight basis	25% - 50%	TMECC 03.09-A
Organic Matter Content	%, dry weight basis pounds per cubic yard	20% - 50% >240	TMECC 05.07-A
Carbon to Nitrogen Ratio (C:N)		< 15:1	
Man-made Inert Contamination (plastic, concrete, ceramics, metal, etc.)	%, dry weight basis	< 1%	TMECC 03.08-A
Stability (respirometry)	mg CO_2-C per g TS per day mg CO_2-C per g OM per day	8 or below	TMECC 05.08-B
Select Pathogens and weed free	(PASS/FAIL) Limits: Salmonella < 3 MPN/4 grams of TS, or Coliform Bacteria < 1000 MPN/gram	Pass	TMECC 07.01-B Fecal Coliforms, or 07.02 Salmonella
Trace Metals	(PASS/FAIL) Limits (mg $kg^{-1,}$ dw basis): Arsenic (As) 41, Cadmium (Cd) 39, Copper (Cu)1500, Lead (Pb) 300, Mercury (Hg) 17, Nickel (Ni) 420, Selenium (Se) 100, Zinc (Zn) 2800	Pass	TMECC 04.06
Maturity (Bioassay) Percent Emergence Relative Seedling Vigor	 %, (average) %, (average)	 > 80% > 80%	TMECC 05.05-A
Use the STA Lab bulk density lb/cu ft as received, multiplied by organic matter % as received, multiplied by 27 to calculate pounds per cubic yard of organic matter.			

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

2. Compost for Erosion Log (Type 2) shall meet the gradation and physical properties as shown in Table 212-6 and Table 212-7.

Table 212-6
Gradation for Erosion Log (Type 2) Compost

Sieve Size	Percent Passing		
	Minimum	Maximum	Test Method
75.0 mm (3")	100		TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification"
25.0 mm (1")	90	100	
9.5 mm (3/8")	10	50	

Note: Organic matter for erosion log compost shall be no more than 4 inches in length. Compost shall be from a producer that participates in the USCC STA program.

Table 212-7
Properties for Erosion Log (Type 2) Compost

Compost Parameters	Reported as	Requirements	Test Method
pH	pH units	6.0 - 8.5	TMECC 04.11-A
Soluble Salts (Electrical Conductivity)	dS/m (mmhos/cm)	< 5.0	TMECC 04.10-A
Moisture Content	%, wet weight basis	< 60%	TMECC 03.09-A
Organic Matter Content	%, dry weight basis	25% - 100%	TMECC 05.07-A
Man-made Inert Contamination (plastic, concrete, ceramics, metal, etc.)	%, dry weight basis	< 0.5%	TMECC 03.08-A
Stability (respirometry)	mg CO_2-C per g TS per day mg CO_2-C per g OM per day	N/A	TMECC 05.08-B
Select Pathogens and weed free	(PASS/FAIL) Limits: Salmonella < 3 MPN/4 grams of TS, or Coliform Bacteria < 1000 MPN/gram	Pass	TMECC 07.01-B Fecal Coliforms, or 07.02 Salmonella
Trace Metals	(PASS/FAIL) Limits (mg $kg^{-1,}$ dw basis): Arsenic (As) 41, Cadmium (Cd) 39, Copper (Cu)1500, Lead (Pb) 300, Mercury (Hg) 17, Nickel (Ni) 420, Selenium (Se) 100, Zinc (Zn) 2800	Pass	TMECC 04.06
Maturity (Bioassay) Percent Emergence Relative Seedling Vigor	 %, (average) %, (average)	 N/A N/A	TMECC 05.05-A

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

(d) *Biotic Soil Amendments (Hydraulically Applied*). Soil amendments shall be a combination of natural fibers, growth stimulants, and other biologically active material designed to improve seed germination and vegetation establishment as shown in Table 212-8. Biotic soil amendments shall be pre-packaged in ultraviolet and weather resistant packaging and labeled from the manufacturer. Bags (containers) which arrive at the project site opened, damaged, or lacking a label will be rejected. Bulk shipments such as tote bags will be rejected. Biotic soil amendments shall be stored in locations not exceeding 80 °F. Acceptance of material shall be subject to the requirements of the Department's Approved Product List (APL).

The application rate of the biotic soil amendments shall be in accordance with the rates shown on the plans. Use of mulch tackifier (Plantago Insularis or pre-gelatinized corn starch polymer) shall be in accordance with Section 213. It shall be used as a wetting agent at a rate of 30 pounds per acre. Biotic soil amendments shall provide a continuous and uniform cover and shall consist of one of the components in Table 212-8 and all of the performance and physical properties in Table 212-9.

Table 212-8
Required Percentage Ranges of Biotic Soil Amendments

Components	Units	Requirement
Professional grade sphagnum peat moss, professional grade reed sedge peat moss or compost that meets the Seal of Testing Assurance Program of the US Composting Council	%, dry weight basis	> 41%
Mechanically processed straw consisting of weed free agricultural straw, flexible flax fiber or rice hulls	%, dry weight basis	< 57%

Table 212-9
Performance and Physical Requirements of Biotic Soil Amendments

Parameters	Reported as	Requirement	Test Method
pH	pH units	5.0 – 7.5	ASTM D1293
Moisture content	%, wet weight basis	10% - 50%	ASTM D 2974
Organic matter content	%, dry weight basis	**> 85%**	ASTM D586
Carbon Nitrogen Ratio	Ratio C:N	< 38:1	ASTM E1508
Man-made inert contamination	%, dry weight basis	< 1.0%	
Acute Toxicity	(Pass/Fail)	Pass (non-toxic)	ASTM 7101 or EPA Method 2021.0 or EPA Method 2002.0
Vegetative Minimum		> 400%	ASTM 7322
The Contractor shall provide a CTR with independent laboratory analysis for the required parameters in accordance with subsection 106.13.			

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(e) *Humate*. The Contractor shall provide a screened dry granular form of organic humic and fulvic acid substance. Humate shall be pre-packaged and labeled from the manufacturer. Bags (containers) which arrive at the project site opened, damaged, or lacking label will be rejected. The Contractor shall only use bulk shipments such as tote bags or super sacks that have a manufacture's original label and sealed at the manufacturing facility. Humate shall be stored in locations not exceeding 80 °F. Humate shall be provided in accordance with the rates shown on the plans. Product shall conform to the parameters in Table 212-10 and Table 212-11.

Table 212-10
Screened Size Requirements for Humate

Seeding Method	Reported as	Requirement
Seeding (Native) Drill, Hydraulic and Broadcast	inches	< 1/4

Table 212-11
Performance and Physical Requirements of Humate

Parameters	Reported as	Requirement	Test Method
Organic Matter	%, dry weight basis	>70%	
Fines (material that is finer than the No. 200 (75-µm) sieve)	%, dry weight basis	<2%	ASTM D7928
pH	pH units	3.0 - 4.5	ASTM D1293
Acute Toxicity	Pass / Fail	Non Toxic	ASTM 7101 or EPA Method 2021 or 2002
Humic and Fulvic Acids	%, dry weight basis	> 70%	A & L Western method; total alkali extractable
Carbon Content	%, dry weight basis	40% - 50%	
Moisture Content	%, dry weight basis	< 20%	
Heavy Metal / Ash Content	%, dry weight basis	< 15%	
The Contractor shall provide a CTR with independent laboratory analysis for the required parameters in accordance with subsection 106.13.			

(f) *Mycorrhizae*. Mycorrhizae shall arrive onsite in original and undamaged packaging. Handling of this material shall follow manufacturer's safety recommendations. Mycorrhizae shall be stored onsite in such a way as to avoid exposure to direct sunlight for more than four hours and to prevent package temperatures to rise above 85 °F. The endo mycorrhizal inoculum shall provide at least 60,000 propagules per pound and shall contain all of the following species and conform to the parameters in Table 212-12:

(1) Glomus intraradices (a.k.a. Rhizophagus intraradices)
(2) Glomus mosseae (a.k.a. Funneliformis mosseae
(3) Glomus aggregatum (a.k.a. rhizophagus aggregatus)
(4) Glomus etunicatum (a.k.a. Claroideoglomus etunicatum)

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Table 212-12
Physical Requirements of Endo Mycorrhizae

Parameters	Reported as	Requirement	Test Method
Acute Toxicity	Pass or Fail	Non Toxic	ASTM 7101 or EPA Method 2021 or 2002
The Contractor shall provide a CTR with independent laboratory analysis has been done on the product for the required parameters in accordance with subsection 106.13.			

The following rates shall be used for Seeding Methods:

(1) For Seeding (Native) Drill, the mycorrhizae product shall be provided as a dry free-flowing granular material, suitable for application by agricultural drill seeder. Application rate shall be 8 pounds per acre.

(2) For Seeding (Native) Hydraulic, the mycorrhizae product shall be provided as a fine granular (< 2 mm) or powdered form (particle size less than 300 microns) that will permit complete suspension and used with hydro-seeder equipment. Application rate shall be 20 pounds per acre.

(3) For Seeding (Native) Broadcast, the mycorrhizae product shall be provided as a dry free-flowing granular material, suitable for application by fertilizer spreader. Application rate shall be 20 pounds per acre.

(g) *Elemental Sulfur.* The Contractor shall provide a free-flowing granular material consistent in size suitable for application by agricultural spreader and conform to the parameters in Table 212-13. Elemental sulfur shall arrive onsite in original and undamaged packaging.

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

Table 212-13
Physical Requirements of Elemental Sulfur

Parameters	Reported as	Requirement
Guaranteed Analysis of Elemental Sulfur (S)	%	> 90
Bulk Density	Lbs per cu. ft.	> 75

(h) *Sod.* Sod shall be nursery grown and 99 percent weed free. Species shall be as shown on the plans. The 1 percent allowable weeds shall not include undesirable perennial or annual grasses or plants defined as noxious by current State statute or county noxious weed list. Soil thickness of sod cuts shall not be less than ¾ inch or more than 1 inch. Sod shall be cut in uniform strips with minimum dimensions of 18 inches in width and 48 inches in length. The Contractor shall submit a sample of the sod proposed for use, which shall serve as a standard if approved. Sod furnished, whether in place or not, that is not up to the standard of the sample will be rejected. CDOT will reject all sod that was cut more than 72 hours prior to installation.

Each load of sod shall be accompanied by a certificate from the grower stating the type of sod and the date and time of cutting. The Contractor shall submit the certificate to the Engineer prior to application of the sod. Only sod that is accompanied by the certificate from the grower will be accepted and paid for.

CONSTRUCTION REQUIREMENTS

212.03 Submittals. The Contractor shall provide the name and contact information of the seeding contractor 30 days prior to start of seeding work. The Contractor shall provide two copies of items (1) - (14) listed below to the Pre-vegetation Conference in accordance with Section 207. When the Contractor provides resubmittals to meet Contract requirements, the Region or Headquarters Landscape Architect shall be copied on all correspondence.

(1) **Written confirmation from the registered seed supplier, on the Contractor's letterhead, that the Contract specified seed has been secured. No substitutions of the contract specified seed will be permitted unless evidence is submitted, from one of the registered seed suppliers that the Contract specified seed is not available and will not become available during the anticipated construction period.**
(2) **Seed vendor's "seed dealer" endorsement.**
(3) **A copy of each seed species germination report of analysis that verifies the lot has been tested by a recognized laboratory for seed testing within 13 months prior to the date of seeding.**
(4) **A copy of each seed species purity laboratory report of analysis that verifies that the lot has been tested by a recognized laboratory for seed testing. The report shall list all identified species, seed count, and date of test.**
(5) **Manufacturer's documentation stating that the fertilizer meets the Contract requirements.**
(6) Organic fertilizer documentation showing manufacturer and chemical analysis.

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(7) Permit issued from CDPHE confirming that the vendor can produce or sell compost in accordance with House Bill (HB) 1181.

(8) Documentation from the compost manufacturer that it is a participating member of in the U.S. Composting Council's Seal of Testing Assurance Program (STA).

(9) Results of compost testing on an STA Compost Technical Data Sheet confirming all required test methods are met using the STA Program.

(10) Sample of physical compost (at least one cubic foot of material).

(11) Manufacturer's documentation confirming that biotic soil amendment meets the required physical and performance criteria based on independent testing by the manufacturer.

(12) Manufacturer's documentation confirming that humate meets the required physical and performance criteria based on independent testing by the manufacture.

(13) Manufacturer's documentation confirming that mycorrhizae meets the physical criteria based on independent testing and that the minimum required species is provided.

(14) Pictures and descriptions of seeding equipment proposed to be used on the project. Based on the seeding methods required at a minimum this should include the drill seeder, hydraulic seeder, cultipacker or seed bed roller implements.

(15) Instructions and documentation on how seeders will be calibrated onsite, in accordance with subsection 212.05(a).

212.04 Seeding Seasons. Seeding in areas that are unirrigated shall be restricted according to the parameters in Table 212-14.

Table 212-14
Seeding Seasons

Zone	Spring Seeding	Fall Seeding
Areas other than the Western Slope		
Below 6000'	Spring thaw to June 1	September 15 until consistent ground freeze
6000' - 7000'	Spring thaw to June 1	September 1 until consistent ground freeze
7000' - 8000'	Spring thaw to July 15	August 1 until consistent ground freeze
Above 8000'	Spring thaw to consistent ground freeze	
Western Slope		
Below 6000'	Spring thaw to May 1	August 1 until consistent ground freeze
6000' - 7000'	Spring thaw to June 15	September 1 until consistent ground freeze
Above 7000'	Spring thaw to consistent ground freeze	

(1) "Spring thaw" is the earliest date in a new calendar year in which seed can be buried ½ inch into the surface soil (topsoil) through normal drill seeding methods.

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(2) "Consistent ground freeze" is the time during the fall months in which the surface soil (topsoil), due to freeze conditions, prevents burying the seed ½ inch through normal drill seeding operations. Seed shall not be sown, drilled, or planted when the surface soil or topsoil is in a frozen or crusted state.

Seeding accomplished outside the time periods listed above will be allowed only when the Contractor's request is approved by the Engineer in writing, with coordination from the Region Landscape Architect. If requested by the Contractor, the Contractor must agree to perform the following work at no cost to the Department: reseed, remulch, and repair areas which fail to produce species indicated in the Contract.

If seeding is ordered by the Engineer outside the time periods listed above, the cost to repair areas that fail to produce species will be paid for by the Department.

212.05 Native Seeding Methods. Areas to be seeded shall be installed in accordance with SWMP Permanent Stabilization Plan.

All amendments and seeding shall be applied based on the seeding method and rates specified on the plans.

The Contractor shall complete the Amendments Verification Prerequisite for each of the seeding methods described herein. This shall be done by completing a Seed and Amendment Quantities Worksheet for each work area. This worksheet shall have a list of all amendments and the seed labels for each of the areas to be worked on. The State required legal tags shall remain on the bag until opened and the seed placed in either the drill or hydraulic seeders in the presence of the Engineer. Seeding work shall not begin until written approval of the worksheet has been received from the Engineer.

In determining the weight of seed required for each work area, the Contractor shall use the Pure Live Seed (PLS) weight shown on each bag of seed. Calculations based on net weight will not be accepted.

The Contractor shall submit a proposed Permanent Stabilization Phasing Plan to the Engineer prior to the Pre-revegetation Conference for approval showing how the SWMP Permanent Stabilization Plans will be implemented to minimize traffic loading damage to subgrade soil prepared and seeded areas. The proposed sequencing shall consider and identify strategies and site management control measures to protect seeded areas from foot, vehicle, and other disturbances. The strategic planning of the permanent seeding and mulch shall consider all other phasing of construction activities including traffic management and utility work. Areas damaged due to the Contractor’s failing to protect the seeded areas shall be repaired at no cost to the Department. Seeded areas damaged due to circumstances beyond the Contractor's control shall be repaired and reseeded as ordered. Payment for corrective work, when ordered, shall be at the Contract prices shown and in accordance with subsection 109.04.

The following seeding application methods shall not be implemented during winds which are consistently higher than 20 MPH, or when the ground is frozen, excessively wet, or otherwise untillable. The Engineer may test to see if the moisture level in the soil is acceptable to work the soil by performing a Soil Plasticity Test as described in the Construction Manual. Multiple seeding operations shall be anticipated, based on acceptable seeding conditions. The seeding methods to be implemented shall be one or more of the following, as shown on the plans:

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SOIL AMENDMENTS, SEEDING, AND SODDING

(a) *Seeding (Native) Drill.*

(i) *Fertilizer, Compost, Humates and Elemental Sulfur*. The Contractor shall uniformly apply compost and elemental sulfur on the surface of the topsoil using an agricultural spreader at the rate of application specified on the plans. All competitive, non-native vegetation shall be uprooted and hauled offsite prior to spreading amendments. Prior to starting incorporation of compost and elemental sulfur, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet. Verification Prerequisite for this method also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps are not included in the Contract, the Contractor shall use the Contract grading or roadway plan sheets.

Once the Quantities Verification Prerequisite is completed for an area, the Contractor shall homogenously incorporate the compost and elemental sulfur into the top 6 inches of topsoil. Tillage of the amendments shall be completed using a disc and harrow, field cultivator, vibra-shank, or other method suitable to site conditions. For small areas tillage shall be completed using rotary tillers. No measurable depth of organic amendment shall be present on the surface.

The shanks on the back of a grader or dozer shall not be used for tillage. Tillage may take multiple passes to achieve the desired harmonious incorporation. If multiple passes are required, the Contractor shall cross till the soil with the second pass occurring at a 30-degree angle to the first pass. On slope areas, all tillage shall be parallel to the contour. For project that will utilize aggregate or recycled asphalt shouldering material amendments, tillage is not required under shouldering material. Projects seeding up to the edge of pavement, tillage is not required for first 12” from the edge of pavement.

Once incorporation of compost and elemental sulfur is approved, the Contractor shall uniformly apply fertilizer and humates on the surface of the topsoil using an agricultural spreader, as shown in the Contract documents.

(ii) ***Seedbed Preparation.*** **Amended topsoil shall be cultivated to a firm but friable seedbed using cultipacker or seed bed roller implements. Crusted hard soils shall be broken up and all areas shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension in accordance with Section 207. Areas shall be left in a rough and uncompacted condition with a surface variance of 2 to 4 inches.**

(iii) ***Seed and Mycorrhizae.*** **Prior to seeding, the finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, drives and other structures. Seeding shall be done within two days of seedbed preparation efforts (tilling or scarifying). If a rain event occurs that compacts or erodes the seedbed prior to performing seeding, the seedbed shall be re-prepared as directed by the Engineer.**

Areas shall be seeded by mechanical power drawn drills suitable for area soils, topography, and size followed by packer wheels. Mechanical power drawn drills shall have furrow openers and depth bands set to maintain a planting depth of at least ¼ inch and not more than ½ inch and shall be set to space the rows not more than 8 inches apart. Seeding equipment shall have a double disk opener, seed box agitator, and seed metering device.

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SOIL AMENDMENTS, SEEDING, AND SODDING

The seeder shall be calibrated by collecting seed from a single drop tube in the presence of the Engineer based on the following procedure. The Contractor shall provide the tape measure, scale, collection cup, and seed bag with complete label from the supplier. The Contractor may submit an alternative method for approval at the site Pre-vegetation Conference.

(1) Measure the total width (W) of the drill seeder in feet.

(2) Count the number of drill rows (N) on the seeder.

(3) On drill seeders that the tire drives the seeding mechanism, measure the tire circumference (C) in feet.

(4) Calculate the number of rotations the tire will complete per acre using the following equation:

A =	one acre or 43,560 square feet (SF)
A /W =	feet (F) the drill seeder needs to travel for each acre
F/C =	number of rotations (R) of the tire per acre

(5) Reduce the amount of tire rotations by one tenth.

.90R = # Tire rotations to calibrate seeder (RCS)

(6) Find the seeding rate (LBS PLS / Acre) on the Stormwater Management Plan.

(7) Using the information from the seed tag, convert the PLS seed rate to a bulk seeding rate using the following equations:

% PLS = (% purity (in decimal form) from seed label) x (% germination (in decimal form) from seed label)

(LBS PLS / Acre) from the SWMP / % PLS = Required bulk seed per acre in LBS

(8) Reduce the required bulk seed per acre based on the number of seeder tubes.

Required bulk seed per acre / N = Weight in LBS of bulk seed from one tube

(9) Reduce the required bulk seed rate from the tube by one tenth.

0.90 x Weight of bulk seed from one tube = Collected bulk seed weight (CBS) in LBS

(10) Set the drill seeder to the correct seeding rate using the manufacturer's recommendation.

(11) With the collection cup under one tube and the driving wheel jacked up, rotate the tire the RCS amount of times. Use the value stem to count the rotations.

(12) Using the scale, weigh the seed in the collection cup.

(13) Adjust the drill calibration until the weight of bulk seed in the collection cup equals the CBS in LBS.

Drill seeders shall be recalibrated every time the drill is mobilized onsite. The Contractor shall submit a written statement that the equipment is calibrated, and shall provide the correct depth based on conditions before seeding actions are initiated. The Contractor shall continuously monitor equipment to ensure that it is providing a uniform seed application.

If mycorrhizae is called for on the plans, the granules shall be included with the seed in the drill seeder such that the mycorrhizae is placed at or below the seed.

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The distance between furrows produced using the drill shall not be more than 8 inches. If rows on the drill exceed 8 inches, the Contractor shall drill the areas twice (if achievable at 30-degree angles to each other) at no additional cost to the Department.

After seeding, the furrows that were created by the drill shall be maintained in place. Construction traffic, other than what is needed to mulch the areas, shall not be permitted on the areas completed.

Permanent stabilization mulching shall be accomplished within 24 hours of drill seeding.

(b) *Seeding (Native) Hydraulic.*

This method utilizes water as the carrying agent and mixes biotic soil amendments, seed, organic fertilizer, humates, mycorrhizae and elemental sulfur into a single slurry for hydraulic application. The Contractor shall furnish and place combined slurry with a hydro-seeder that will maintain a continuous agitation and apply homogenous mixture through a spray nozzle. The pump shall produce enough pressure to maintain a continuous, non-fluctuating spray that will reach the extremities of the seeding area. Water tanks shall have a means of measuring volume in the tank. Seed shall be added to the slurry onsite, no more than 60 minutes before starting application. Slurry shall be applied from a minimum of two opposing directions to achieve complete soil coverage.

The application of the single slurry shall be applied within four hours of adding Mycorrhizae.

The Contractor shall prevent seed, fertilizer, and mulch from falling or drifting onto areas occupied by rock base, rock shoulders, plant beds, or other areas where grass is detrimental. The Contractor shall remove material that falls on plants, roadways, gravel shoulders, structures, and other surfaces where material is not specified.

(i) *Seedbed Preparation*. All areas shall be loosened to at least 6 inches, leaving the surface in rough condition with a surface variance of 6 to 8 inches. On steep slopes, tillage shall be accomplished with appropriate equipment as the slope is constructed. Soil areas shall be tilled to produce loose and friable surfaces with crusted hard soils broken up. All slopes shall be free of clods, sticks, stones, debris, concrete, asphalt and all other materials in excess of 4 inches in any dimension. All competitive, non-native vegetation shall be uprooted and hauled offsite prior to spreading amendments. Under no circumstances shall the ground surface be smooth and compacted.

(ii) *Biotic Soil Amendment, Fertilizer, Humate, Mycorrhizae and Seed*. The Contractor shall assemble all materials for proposed areas to hydro-seed and review quantities with area of coverage with the Engineer as the Quantities Verification Prerequisite for this method. Prior to mixing in the tank, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet that the correct quantities are onsite. This quantities verification prerequisite also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps were not included in the Contract, grading or roadway plan sheets shall be used. For the verification process, the Contractor shall provide the Engineer with all documentation for materials in unopened

packaging.

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SOIL AMENDMENTS, SEEDING, AND SODDING

After the Quantities Verification Prerequisite has been approved, the hydro-seeder shall be filled with water to 1/3 of its required volume. Following this, water and biotic soil amendments shall be added to the hydro-seeder at a consistent rate. The ratio of water to Biotic Soil Amendments shall be in accordance with manufacturer's recommendations. Fertilizer, humates and mycorrhizae shall then be added until the tank has reached 3/4 of its required volume. The tank shall then be filled with water to the required volume. Uniform slurries shall be agitated or mixed for a minimum of ten minutes after all water and materials are in the tank.

Hydraulic seeding equipment shall include a pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure. The equipment shall have a nozzle adaptable to hydraulic seeding requirements. Storage tanks shall have a means of estimating the volume used or remaining in the tank.

Seed shall be added to the slurry onsite no more than 60 minutes before starting application. The Contractor shall increase the Seed Plan rates (LBS PLS / Acre) as shown on the plans by 1.5 times at no additional cost to the Department. The Contractor may be required to apply slurry using multiple hoses to ensure uniform application to all areas of the site. Coverage rates shall be based on the volume of material in the tank, as verified by the Engineer. Areas of lighter applications (covering more area than what is calculated) will require additional application, as directed.

An appropriate curing period shall be in accordance with manufacturer's recommendations, and shall consider forecasted weather conditions.

Permanent stabilization mulching shall be accomplished within 24 hours of hydraulic application of native seed.

(c) *Seeding (Native) Broadcast.*

This method utilizes hand equipment to broadcast spread amendments and seed over prepared seedbeds.

(i) *Fertilizing, Compost, Humate and Elemental Sulfur.* The Contractor shall uniformly apply compost and elemental sulfur on the surface of the placed topsoil using an agricultural spreader at the rate of application specified on the plans. All competitive non-native vegetation shall be uprooted and hauled offsite prior to spreading amendments. Prior to starting incorporation, the Contractor shall receive written acceptance from the Engineer on the Seed and Amendment Quantities Worksheet that the correct quantities will be applied. The Quantities Verification Prerequisite for this method also requires documentation on the Permanent Stabilization SWMP Site Maps with the approved areas outlined, signed, and dated by the Engineer to track progress. If SWMP Site Maps are not included in the Contract, the grading or roadway plan sheets shall be used.

Once the Quantities Verification Prerequisite is completed for an area, the Contractor shall homogenously incorporate the Compost into the top 6 inches of soil. Tillage of the amendments shall be completed using appropriate tools depending on the size of the area to be worked. Contractor shall use hand tillers or approved small space implements.

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Once incorporation of compost and elemental sulfur is approved, the Contractor shall uniformly apply organic fertilizer and humates on the surface of the topsoil using an agricultural spreader.

(ii) *Seedbed Preparation.* Amended topsoil shall be cultivated to a firm but friable seedbed using tractor implements. Crusted hard soils shall be broken up and all areas shall be free of clods, sticks, stones, debris, concrete, and asphalt in excess of 4 inches in any dimension in accordance with Section 207. Areas shall be left in a rough condition with a surface variance of 2 to 4 inches. Under no circumstances shall the ground surface be smooth and compacted.

(iii) *Seed and Mycorrhizae.* Prior to seeding, the finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, drives and other structures. Seeding shall be accomplished within two days of seedbed preparation efforts (tilling or scarifying) to make additional seedbed preparation unnecessary. If a rain event occurs that compacts or erodes the seedbed prior to performing seeding, the seedbed shall be re-prepared as directed.

Areas shall be seeded by broadcast-type seeders (cyclone or approved mechanical seeders). The Contractor shall increase the Seed Plan rates (LBS PLS / Acre) as shown on the plans by 1.5 times at no additional cost to the Department.

After seeding, mycorrhizae shall be evenly hand-distributed across the area. Seed and mycorrhizae shall be covered by hand raking and covering with ¼ to ½ inch of topsoil. To ensure seeds have a firm contact with the soil the Contractor shall use a heavy roller as approved in the Site Pre-vegetation Conference. Mycorrhizae shall not be exposed to sunlight for more than four hours. Using equipment with continuous cleat tracks (cat-tracking) to cover seed is not permitted.

Permanent stabilization mulching shall be accomplished within 24 hours of broadcast seed application of native seed.

212.06 Seeding (Temporary). Areas of topsoil shall be seeded with annual grasses in accordance with SWMP Interim Site Maps or as directed by the Engineer.

Seeding may take place at any time during the year as long as the ground is not covered in snow and topsoil is not frozen. Topsoil may be placed in a stockpile or distributed on-grade after receiving subgrade soil preparation.

Interim stabilization for areas that receive temporary seeding shall be in accordance with subsection 208.04(e)2. Seed shall not be included with interim hydraulic mulch applications.

The Contractor shall wait to amend topsoil until the area is ready for permanent seeding with native seed mix shown on the SWMP. The Contractor shall use either the drill, hydraulic, or broadcast method of seeding. Seeding rates (LBS PLS / Acre) shall be increased by 1.5 times for hydraulic and broadcast methods at no additional cost to the Department.

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SOIL AMENDMENTS, SEEDING, AND SODDING

Seed shall meet the requirements of 212.02(a) and shall be selected from Table 212-1 based on the application time.

Table 212-1
Temporary Seed Mixes

Common Name	Botanical Name	Application Time	Seeding Rates (LBS PLS / Acre)	Planting Depth (inches)
Oats	Avena sativa	October 1 - May 1	35	1 - 2
Foxtail Millet	Setaria italica	May 2 - September 30	30	1/2 - 3/4

The Contractor shall restrict motorized vehicle and foot traffic from areas that have received temporary seeding.

212.07 Seeding (Lawn). Lawn grass seeding shall be accomplished in the seeding seasons in accordance with subsection 212.03.

(a) *Fertilizing and Soil Conditioning.* The first application of fertilizer, soil conditioner, or both shall be incorporated into the soil immediately prior to seeding, and shall consist of a soil conditioner, commercial fertilizer, or both as designated in the Contract. Fertilizer called for on the plans shall be worked into the top 4 inches of soil at the rate specified in the Contract. Biological nutrient, culture, or humate based material called for on the plans shall be applied in a uniform application onto the soil service. Organic amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

The second application of fertilizer shall consist of a fertilizer having an available nutrient analysis of 20-10-5 applied at the rate of 100 pounds per acre. It shall be uniformly broadcast over the seeded area three weeks after germination or emergence. The area shall then be thoroughly soaked with water to a depth of 1 inch.

Fertilizer shall not be applied when the application will damage the new lawn.

(b) *Seedbed Preparation.* In preparation of seeding lawn grass, irregularities in the ground surface, except the saucers for trees and shrubs, shall be removed. Measures shall be taken to prevent the formation of low places and pockets where water will stand.

Immediately prior to seeding, the ground surface shall be tilled or hand worked into an even and loose seedbed to a depth of 6 inches, free of clods, sticks, stones, debris, concrete, and asphalt in excess of 2 inches in any dimension, and brought to the desired line and grade.

(c) *Seeding.* Seed shall be drilled with mechanical landscape type drills. Broadcast type seeders or hydraulic seeding will be permitted only on small areas not accessible to drills. Seed shall not be drilled or broadcast during windy weather or when the ground is frozen or untillable.

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SOIL AMENDMENTS, SEEDING, AND SODDING

212.08 Sodding.

(a) *Fertilizing and Soil Conditioning*. Prior to laying sod, the 4 inches of subsoil underlying the sod shall be treated by tilling in fertilizer, compost, or humates as specified on the plans. Amendments shall be applied uniformly over the soil surface and incorporated into the top 6 inches of soil.

After laying the sod, it shall be fertilized with a fertilizer having a nutrient analysis of 20-10-5 at the rate of 200 pounds per acre. Fertilizer shall not be applied when the application will damage the sod.

(b) *Soil Preparation.* Prior to sodding, the ground shall be tilled or hand worked into an even and loose sod bed to a depth of 6 inches, and irregularities in the ground surface shall be removed. Sticks, stones, debris, clods, asphalt, concrete, and other material more than 2 inches in any dimension shall be removed. Depressions or variances from a smooth grade shall be corrected. Areas to be sodded shall be smooth before sodding occurs.

(c) *Sodding.* Sod shall be placed by staggering joints with all edges touching. On slopes, the sod shall run approximately parallel to the slope contours. Where the sod abuts a drop inlet, the subgrade shall be adjusted so that the sod shall be 1-½ inches below the top of the inlet.

Within one hour after the sod is placed and fertilized it shall be watered. After watering, the sod shall be permitted to dry to the point where it is still wet enough for effective rolling. The Contractor shall roll the sod in two directions with a lawn roller capable of applying between 50 - 80 pounds per square inch of surface pressure to eliminate air pockets.

METHOD OF MEASUREMENT

212.09 The quantities of lawn seeding and the three native seeding types will not be measured but shall be the quantities designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract.

The quantity of sod will be by the actual number of square feet, including soil preparation, water, fertilizer, and sod, completed and accepted.

Organic Fertilizer, Compost (Mechanically Applied), Humates, Mycorrhizae soil amendments for Seeding (Native) methods drill, hydraulic, and broadcast will be measured by the actual quantity of material applied and accepted.

Measurement for acres will be by slope distances.

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REVISION OF SECTION 212
SOIL AMENDMENTS, SEEDING, AND SODDING

BASIS OF PAYMENT

212.10 The accepted quantities of lawn seeding, native seeding, soil conditioning, and sod will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule. Rejected seed that has been stored longer than 30 days shall be re-ordered at the expense of the Contractor.

Payment will be made under:

Pay Item	**Pay Unit**
Seeding (Native)	Acre
Seeding (Wetland)	Acre
Planting - Sod	Square Foot
Soil Conditioning	Acre

Topsoil preparation including incorporating and applying amendments, seedbed preparation, water, and seed mix (LBS PLS / Acre) will not be measured and paid for separately but shall be included in the work.

Calibrating, adjusting, or readjusting seeding or fertilizing equipment will not be measured and paid for separately but shall be included in the work.

No additional cost will be accepted for approved substitution of specified seed mix.

No payment will be made for areas seeded using one of the seeding methods without receiving signed Seed and Amendment Quantities Worksheet from the Engineer.

Additional seedbed preparation prior to seeding to correct compaction or erosion from storm events will not be measured and paid for separately but shall be included in the work.

Additional mobilizations as needed to complete seeding within allowed seeding seasons will not be measured and paid for separately but shall be included in the work.

Removal of all competitive, non-native vegetation prior to spreading amendments will not be measured and paid for separately but shall be included in the work.

END OF SECTION REVISION

REVISION OF SECTION 304
AGGREGATE BASE COURSE

Section 304 of the Standard Specifications is hereby revised for this project as follows:

Subsection 304.02 shall include the following:

Materials for the base course shall be Aggregate Base Course (Class 6) as shown in subsection 703.03

The aggregate base course (Class 6) must meet the gradation requirements and have a resistance value of at least 78 when tested by the Hveem Stabilometer method.

END OF SECTION REVISION

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REVISION OF SECTION 403
HOT MIX ASPHALT

Section 403 of the Standard Specifications is hereby revised for this project as follows:

Subsection 403.02 shall include the following:

The design mix for hot mix asphalt shall conform to the following:

TABLE 403-1

Property	Test Method	Value For Grading			
		S (100)	SX (100)	Patching SX	
Air Voids, percent at: N (design)	CPL 5115	3.5 – 4.5	3.5 – 4.5	3.5 – 4.5	
Lab Compaction (Revolutions): N (design)	CPL 5115	75	75	75	
Stability, minimum	CPL 5106	28	28	28	
Aggregate Retained on the 4.75 mm (No. 4) Sieve with at least 2 Mechanically Induced fractured faces, % minimum	CP 45	60	60	60	
Accelerated Moisture Susceptibility Tensile Strength Ratio (Lottman), minimum	CPL 5109 Method B	80	80	80	
Minimum Dry Split Tensile Strength, kPa (psi)	CPL 5109 Method B	205 (30)	205 (30)	205 (30)	
Grade of Asphalt Cement, Top Layer			PG 76-28	PG 76-28	
Grade of Asphalt Cement, Layers below Top		PG 64-22		PG 64-22	
Voids in the Mineral Aggregate (VMA) % minimum	CP 48	See Table 403-2	See Table 403-2	See Table 403-2	
Voids Filled with Asphalt (VFA), %	AI MS-2	65-80	65-80	65-80	
Dust to Asphalt Ratio Fine Gradation Coarse Gradation	CP 50	 0.6 – 1.2 0.8 – 1.6	 0.6 – 1.2 0.8 – 1.6	 0.6 – 1.2 0.8 – 1.6	

Note: AI MS-2 = Asphalt Institute Manual Series 2

Note: Mixes with gradations having less than 40% passing the 4.75 mm (No. 4) sieve shall be approached with caution because of constructability problems.

Note: Gradations for mixes with a nominal maximum aggregate size of one inch or larger are considered a coarse gradation if they pass below the maximum density line at the #4 screen. Gradations for mixes with a nominal maximum aggregate size of 3/4" to 3/8" are considered a coarse gradation if they pass below the maximum density line at the #8 screen. Gradations for mixes with a nominal maximum aggregate size of #4 or smaller are considered a coarse gradation if they pass below the maximum density line at the #16 screen.

All mix designs shall be run with a gyratory compaction angle of 1.25 degrees and properties must satisfy Table 403-1. Form 43 will establish construction targets for Asphalt Cement and all mix properties at Air Voids up to 1.0 percent below the mix design optimum.

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REVISION OF SECTION 403
HOT MIX ASPHALT

Table 403-2

	Minimum Voids in the Mineral Aggregate (VMA)			
Nominal Maximum Size*, mm (inches)	*****Design Air Voids ****			
	3.5%	**4.0%**	**4.5%**	**5.0%**
37.5 (1½)	11.6	11.7	11.8	N/A
25.0 (1)	12.6	12.7	12.8	
19.0 (¾)	13.6	13.7	13.8	
12.5 (½)	14.6	14.7	14.8	
9.5 (⅜)	15.6	15.7	15.8	
4.75 (No. 4)	16.6	16.7	16.8	16.9
	* The Nominal Maximum Size is defined as one sieve larger than the first sieve to retain more than 10%. ** Interpolate specified VMA values for design air voids between those listed. *** Extrapolate specified VMA values for production air voids beyond those listed.			

The Contractor shall prepare a quality control plan outlining the steps taken to minimize segregation of HMA. This plan shall be submitted to the Engineer and approved prior to beginning the paving operations. When the Engineer determines that segregation is unacceptable, the paving shall stop, and the cause of segregation shall be corrected before paving operations will be allowed to resume.

A minimum of 1 percent hydrated lime by weight of the combined aggregate shall be added to the aggregate for all hot mix asphalt.

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REVISION OF SECTION 403
HOT MIX ASPHALT

Subsection 403.03 shall include the following:

The Contractor shall use an approved anti-stripping additive. The amount of additive used shall be a minimum of 0.5 percent by weight of the asphalt cement. The additive shall be added at the refinery or at the hot plant. If liquid anti-stripping additive is added at the plant, an approved in-line blender must be used. The blender shall be in the line from the storage tank to the dryer drum or pugmill. The blender shall apply sufficient mixing action to thoroughly mix the asphalt cement and anti-stripping additive.

The Contractor shall construct the work such that all roadway pavement placed prior to the time paving operations end for the year, shall be completed to the full thickness required by the plans. The Contractor's Progress Schedule shall show the methods to be used to comply with this requirement.

Delete subsection 403.05 and replace with the following:

403.05 The accepted quantities of hot mix asphalt will be paid for in accordance with subsection 401.22, at the contract unit price per ton for the asphalt mixture.

Payment will be made under:

Pay Item	**Pay Unit**
Hot Mix Asphalt (Patching)(Asphalt)	Ton
Hot Mix Asphalt (Grading S)(100)(PG 64-22)	Ton
Hot Mix Asphalt (Grading SX)(100)(PG 76-28)	Ton

Aggregate, asphalt recycling agent, additives, hydrated lime, and all other work necessary to complete each hot mix asphalt item will not be paid for separately but shall be included in the unit price bid. When the pay item includes the PG binder grade, the asphalt cement will not be measured and paid for separately but shall be included in the work.

END OF SECTION REVISION

REVISION OF SECTION 504A
CONCRETE BLOCK WALLS

Section 504A is hereby added to the Standard Specifications for this project as follows:

DESCRIPTION

504A.01 This work consists of furnishing all labor, materials, equipment, and incidentals required to install a precast concrete gravity Segmental Retaining Wall (SRW) with MagnumStone™ units as specified in the plans at the locations and to the lines and grades shown on the plans. Concrete block walls or SRWs are formed of interlocking, pre-cast concrete blocks without reinforcing steel.

Reference Standards

(1) Engineering Design

a. AASHTO M288 Geotextile Specification for Highway Applications

b. AASHTO LRFD Bridge Design Specifications

c. ASTM D 6638 Standard Test Method for Determining Connection Strength Between Geosynthetic Reinforcement and Segmental Concrete Units (Modular Concrete Blocks)

d. ASTM D 6916 Standard Test Method for Determining the Shear Strength Between Segmental Concrete Units

(2) Segmental Retaining Wall (SRW) units

a. ASTM C 33 Specification for Concrete Aggregates

b. ASTM C 94 Standard Specification for Ready-Mixed Concrete

c. ASTM C 136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

d. ASTM C 140 Sample & Testing Concrete Masonry Units

e. ASTM C 150 Standard Specification for Portland Cement

f. ASTM C 260 Standard Specification for Air-Entraining Admixtures for Concrete

g. ASTM C 494 Standard Specification for Chemical Admixtures for Concrete

h. ASTM C 1262 Evaluation the Freeze-Thaw Durability of Manufactured Concrete Masonry Units and Related Concrete Units

i. ASTM C 1372 Standard Specification for Segmental Retaining Wall (SRW) Units

j. ASTM C 1776 Standard Specification for Wet-Cast Precast Modular Retaining Wall Units

k. NPCA Precast Retaining Wall Systems Best Practices Manual

l. NPCA Quality Control Manual for Precast Concrete Plants

(3) Soils

a. ASTM D 698 Test Methods for Laboratory Compaction Characteristics of Soil using Standard Effort

b. ASTM D 422 Gradation Analysis of Soil Particles

c. ASTM D 4318 Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils

d. ASTM D 51 Testing Methods for Measuring pH of Soil

e. ASTM D 2487 Standard Classification of Soils (Unified Soil Classification System)

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REVISION OF SECTION 504A
CONCRETE BLOCK WALLS

(4) Drainage Pipe

a. ASTM D 3034 Specification for Type PSM Polyvinyl Chloride (PVC) pipe

b. ASTM D 1248 Corrugated Plastic Pipe

(5) The Owner or Owner's Representative shall determine the final application, if the specifications and reference documents conflict.

(6) When constructing DOT projects, AASHTO and ASTM specifications shall be followed unless otherwise specified by the engineer.

504A.02 Retaining Wall Design Standards

(1) The wall design engineer and/or geotechnical engineer shall consider the internal stability, local stability, external stability, bearing capacity, and global stability of the soil mass above, behind and below the wall structure. The contractor will be responsible for supplying the wall internal stability designs and calculations.

(2) The MagnumStone™ wall system shall be designed in accordance with the AASHTO Bridge Design Specifications. The minimum factors of safety shall be (or greater if specified by the engineer):

a. External Stability: Base Sliding = 1.5; Overturning = 2.0; Bearing Capacity = 2.0; Global Stability = 1.3

b. Internal Stability: Tensile Overstress = 1.0; Pullout = 1.5; Internal Sliding = 1.5

c. Local Stability: Facing Shear = 1.5; Connection = 1.5

(3) Soil design parameters are specified by the engineer as shown in Shannon and Wilson Draft Letter (Appendix A).

(4) The site grades and information shall determine the length, height, and overall elevations for the MagnumStone™ retaining wall requirements.

(5) The above and below slopes of the wall details shall be depicted on the site construction drawings.

(6) The minimum embedment depth of the wall shall be specified by the contractor's submittals/block wall manufacturer.

MATERIALS

504A.03 Shop Drawings. The Contractor shall submit one electronic submittal of shop drawings and certified material test reports for review prior to construction of the wall. See subsection 504A.07 for a complete list of submittal requirements. Shop drawings shall be submitted in accordance with subsection 105.02 except that shop drawings shall be certified and stamped by a Professional Engineer licensed in the State of Colorado.

The shop drawings shall provide the details necessary to demonstrate compliance with the Contract, including:

(a) *Wall Layouts*. Wall layouts shall conform to the lines and grades on the plans including start, corner, and end stations, and top and minimum bottom of wall elevations. The construction batter required to achieve the batter shown on the plans shall be shown on the shop drawings. If temporary walls are required for the construction of permanent walls, the permanent wall vendor shall provide the shop drawings and certified material test reports for temporary walls.

(b) *Locations of Additional Wall Base Width*. In accordance with the plans and the Wall Design Schedule given in the plans, the shop drawings shall show the begin and end stations of structure backfill material width and varying block width sizes.

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REVISION OF SECTION 504A
CONCRETE BLOCK WALLS

(c) *Wall Elevations*. Wall longitudinal grades and grade break/change locations shall be shown on an elevation view, along with the horizontal gap(s) at the top of the wall (or block layers) resulting from longitudinal grade changes. The actual block elevations at the beginning and end of each change in longitudinal grade or number of block layers shall be marked on the shop drawings by taking into account the supplied block height and number of layers. Block placement sequence, if other than bottom up, and in continuous sequence from one end to the other end of the wall as the work progresses, shall be shown. The cut block limits at curved wall corners shall be shown.

(d) *Design Heights and Supplied Reinforcing Material*. Unless otherwise defined on the plans, the wall design height shall be measured vertically from the top of the leveling pad to the top of the top precast concrete block. Concrete bikeway pavement shall not be considered in the design height of the wall.

(e) *Obstructions*. Details for the placement of soil reinforcement around obstructions (i.e. steel piles, concrete boxes, culvert pipes, utilities, etc.) shall be shown on the shop drawings. Design calculations shall be provided showing that the internal stability of the wall meets the required safety factors in the area of the obstruction.

(f) *Longitudinal Grade Breaks/Changes*. Details for how changes in longitudinal grade will be accomplished shall be shown on the shop drawings, including detail drawings, method, and materials information for how any gap(s) greater than 1 inch wide will be filled.

(g) *Samples*. Samples of the SRW units, color, and texture shall be submitted, as per design specifications.

(h) *Calculations.* Design Methods and Calculations in accordance with NCMA Design Guidelines and/or AASHTO Standard Specifications for Highways shall be submitted. Global stability analyses shall be calculated and submitted as part of the final design.

504A.04 Backfill. Wall backfill material in the structure backfill zone and the associated trapezoidal retained structure backfill zone shall conform to the requirements for Structure Backfill (Class 1) of Section 206 meeting gradation requirements as shown in the details provided by the wall manufacturer. For reinforcement tensile stress and associated pullout, a friction angle of 34 degrees shall be assumed for Structure Backfill (Class 1). Structure Backfill (Class 1) shall be considered to be non-aggressive soil for corrosion and durability computations. The Plasticity Index of the backfill soils shall have a fine fraction of less than 6.

504A.05 Leveling Pad. Leveling pad material shall consist of crushed rock meeting the gradation requirements specified in the plans. Unreinforced concrete base leveling pad can also be used if specified.

GEOTEXTILE FABRIC

A. Geotextiles shall be non-woven as specified by the specifications and construction drawings.

B. Geotextiles when used as a soil separator shall be permeable, allowing water to effectively pass through the fabric openings.

504A.06 Pre-Cast Concrete Blocks. The pre-cast concrete blocks, including partial blocks, shall conform to the requirements shown on the plans and these specifications. The Contractor shall provide certification that the results of tests performed in accordance with this subsection meet the requirements of the appropriate specification. These blocks shall be factory made with Class B Concrete with the following additional requirements:

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REVISION OF SECTION 504A
CONCRETE BLOCK WALLS

(1) SRW concrete units shall be MagnumStone™ units as manufactured by licensed Sprecast producer in accordance with NCMA, ASTM and/or AASHTO standards and conform to the NPCA Quality Control Manual for Precast Concrete Plants or per project engineer specifications.

(2) MagnumStone™ units shall have a minimum 28 days compressive of equal to 4,000 psi (28 MPa) (or greater if specified) and a maximum absorption of 5 pcf (or less if specified) (ASTM C 140). (Suggested air content between 5 and 7%)

(3) Color for the MagnumStone™ units shall be Sherwin-Williams H&C® COLORTOP™ Water-Based Solid Color Concrete Stain (or approved equal) for a 2-tone, post applied concrete stain in Tan (SW 7508 or approved equal) and Charcoal (SW 6256 or approved equal). Contractor to supply sample block(s) for approval prior to acceptance.

(4) ASTM C 1262 shall be standard for areas subject to many freeze-thaw cycles.

(5) The maximum water absorption shall be less than 5%. A water-cementitious ratio of 0.45 or less is suggested.

(6) The height shall not vary more than ±3/16th of an inch (5 mm) for every 4 feet (1.2 m); length shall not vary more than ±1/2" (13 mm) per unit; and depth shall not vary more than ±1/4" (6 mm) per unit. All other specifications must meet ASTM C 1372.

(7) The MagnumStone™ standard units shall have a face area of 8 sq ft (0.75 m^2) and MagnumStone™ half high units shall have a face area of 4 sq ft (0.375 m^2)

(8) The MagnumStone™ Standard unit weight shall be approximately ±1400 lbs (635 kg) with a gravel infill weight of ±800 lbs (363 kg).

(9) The MagnumStone™ units shall be sound and free of cracks, chips or other defects that may prevent the contractor from properly installing the wall units or reduce the long term strength of the wall structure.

(10) Concrete sampling shall be in accordance with AASHTO T-141. Compression testing shall be in accordance with AASHTO T-23 and AASHTO T-22. Air content testing shall be in accordance with AASHTO T-152 or AASHTO T-196. Slump testing shall be in accordance with AASHTO T-119. 28 day testing shall be in accordance with AASHTO T-23 and AASHTO T-22 or as specified by the project engineer.

(11) Reinforcing mesh (if required) shall be shop-fabricated of cold drawn steel wire conforming to the minimum requirements of ASTM A-82 (AASHTO M-32) and shall be welded into the finished mesh fabric in accordance with ASTM A-185 (ASSHTO M-55). Galvanization shall be applied after the mesh is fabricated and conform to the minimum requirements of ASTM A-123 (AASHTO M-111). Connector bars shall be fabricated of cold drawn steel wire conforming to the requirements of ASTM A-82 (AASHTO M-32) and galvanized in accordance with ASTM A-123 (AASHTO M-111).

(12) Electrochemical requirements, if applicable, will follow the AASHTO specifications.

All block units shall be sound and free from cracks or other defects that would interfere with proper placement of the unit or impair the strength or permanence of the construction. Cracks, chips, or color blemishes will be cause for rejection. "Honeycombing" on the block face shall be patched, and shake-on color stain shall be used to blend into the remainder of the block face.

The exposed face shall be finished with an architectural surface and/or aesthetic treatment as approved by the City.

Exterior block dimensions shall be uniform and consistent. Maximum dimensional deviations shall be 1%, excluding the architectural surface. Maximum width (face to back) deviation including the architectural surface shall be 1.0 inch.

The Engineer shall be allowed to access the manufacturer's facilities to inspect sample units from lots prior to delivery with a minimum of 2 working days advance notice. The Engineer will reject any concrete block units which do not meet the requirements of this specification. Blocks shall not be shipped until the concrete strength, at the time of shipping, is greater than $0.9 \times f'_c$. The Contractor shall notify the Engineer in writing at least 3 working days before shipment of blocks begins.

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REVISION OF SECTION 504A
CONCRETE BLOCK WALLS

504A.07 Certifications, Calculations, and Testing Reports. The Contractor shall provide the following reports, certifications, design calculations, design check calculations, and checklists as needed to accompany the shop drawing submittal. All engineering calculations shall be certified and stamped by a Professional Engineer licensed in the State of Colorado.

(a) *Report of the Block-Reinforcement Connection Test.* The test report shall be prepared and certified by an independent laboratory. The block to reinforcement connection test method shall conform to the requirements of ASTM D6638 with a service state connection strength displacement criterion of ¾ inch.

(b) *Certification of Block to Reinforcement Long-Term Connection Strength*. A certification shall be provided with detailed calculations according to the latest AASHTO Standard Specification including Interim and independent laboratory test results performed in accordance with FHWA NHI-00-043, Appendix A3 to demonstrate that the facial block to reinforcement connection meets or exceeds the current AASHTO 75 year design life requirements.

(c) *Efflorescence and Air Content Test*. The block shall be visually efflorescence free. Efflorescence control agent shall be used in concrete mix design. When fly ash is used as the efflorescence control agent, the fly ash shall be ASTM C618 Class F fly ash and shall be a minimum of 20 percent by weight of the total cementitious material content. Air Content shall be determined in accordance with AASHTO T152. Concrete shall be tested a minimum of the first three batches each day and then once per five batches for the rest of the day to assure specified air entrainment.

(d) *Submittal Checklist*. The Contractor shall submit the Block Faced MSE Wall Submittal Checklist, Form 1401 with the Certifications, Calculations and Testing Report submittal package included with the shop drawing submittal. The following sections from Form 1402 shall also be included in the submittal package:

- "Certification of the initial concrete compressive strength and Report of shipping and handling stress calculations."
- "Air Content Test conforming to the requirements of ASTM C173 or ASTM C231. Multiple submittals may be required per frequency of tests."

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REVISION OF SECTION 504A
CONCRETE BLOCK WALLS

CONSTRUCTION REQUIREMENTS

504A.08 General. Survey the wall and verify the limits of the wall installation. The actual limits and dimensions for wall construction may be adjusted by the Engineer to fit field conditions.

Do not construct walls exceeding the heights shown on the plans without the prior written approval of the Engineer.

Construct walls parallel to the edge of concrete bikeway unless otherwise noted. Over-excavated or filled areas shall be compacted to meet CDOT moisture density requirements and inspected by an engineer.

Excavated materials that are used for the backfilling reinforcement zone shall be protected from weather.

Organic or other non-gravel materials shall not be used in the backfilled reinforcement zone.

504C.09 Approval and Qualifications of Wall Installer. The job site wall foreman must have prior experience or adequate training on the products that the Contractor elects to use on the project. The resume and credentials of the foreman shall be submitted to the Engineer for approval at least 10 working days prior to the start of wall construction. The foreman shall be on the site for 100 percent of the time during which the wall is being constructed.

504C.10 Wall Test Segment. The wall test segment shall be the first segment of the wall constructed. The wall test segment shall be constructed in the presence of the Technical Representative and the Engineer and shall include construction of each of the three elements listed in subsection 504C.11. The minimum length of the wall test segment shall be 40 feet or the full length of the wall if less than 40 feet.

504C.11 Technical Representative of Wall Product Supplier. The Contractor shall arrange for a technical representative (Tech Rep) of the manufacturer of the wall products to be present during the construction of each wall test segment. If the wall products are supplied from different manufactures, a Tech Rep from each wall product shall be present. The Tech Rep shall be present for construction of the wall test segment and each of the following elements:

(1) Placement of a minimum of the first two layers of primary soil reinforcement and backfill,
(2) If obstructions (i.e. steel piles, concrete piers/abutments, concrete boxes, pipes, utilities, etc.) exist, placement of primary soil reinforcement and backfill at one of the obstructions,
(3) Placement of a minimum of a four foot wall height,

Before construction of the wall test segment the Tech Rep shall provide the Contractor and the Engineer the following:

(1) Technical instructions as required in the construction of the earth retaining wall system.
(2) Product specific specifications in the placement of the soil reinforcement and backfill in accordance with the wall system.
(3) Guidelines in placing the facing units and attaching them to the soil reinforcement in accordance with the system requirements.
(4) Provide technical assistance to the facing unit fabricator.

At the completion of the wall test segment the Tech Rep shall provide the following:

(1) Documentation that the wall test segment was constructed in accordance with the product specific specifications. This documentation shall include a location description (starting and ending stations and elevations) of the wall test segment.
(2) Documentation that the job site wall foreman is familiar with the wall products used to construct the walls on the project.

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REVISION OF SECTION 504A
CONCRETE BLOCK WALLS

After completion of the wall test segment the Tech Rep shall be available whenever there is any special field condition such as change of geological condition, when there are equipment or personnel changes, or when requested by the Engineer.

504C.12 Block Quality Control, Placing Plan, and Daily Placement Logs. Before the start of each wall construction, the Contractor shall provide a block placing plan and shall supply daily placement logs to the Engineer weekly and at the completion of the wall. The placement plan shall show curved layouts, special block placement, sequence of block placement, and construction offsets as recommended by the manufacturer. The daily placement log shall consist of an elevation view of the wall showing the dates, number of blocks placed, and the lot numbers of the blocks placed. The Contractor shall coordinate and mark the block and backfill placing sequence on the daily placement logs. The log serves as means for the Engineer to identify where each lot of blocks was placed.

The block quality control shall contain multiple submittals if required by subsection 504C.07(f) and (g). Blocks shall be labeled with the manufacturer's lot number for each pallet and corresponding certification with one set of random samples tested for each 5500 square foot of wall face. At least one certification with supporting test results is required for each wall. Test results shall be reviewed and pre-approved by the Engineer before shipment.

504C.13 Excavation and Backfill. Perform the work in accordance with CDOT Section 206.03. Excavate to the depth of the bottom of leveling pad shown in the plans or to the depth below the leveling pad required to recondition the foundation subgrade as shown in the plans, see appendix a for these extents. Excavate the foundation to a minimum width equal to the specified base block unit width ('B'), plus a distance to include the geogrid reinforcement and backfill material behind the block, to meet the requirements of the Design Schedule given in the plans. Note that block widths, reinforcement length, and structure backfill material widths may vary along the wall. Conform to the following:

(1) Excavate the foundation in sections such that the wall can be constructed in one shift or one day's work, unless shoring is provided for the purpose to support the excavation.

(2) Exercise care during excavation of the back cut. The stability of temporary cut slopes is the responsibility of the Contractor.

(3) Where loose, soft, or otherwise unstable foundation soil conditions are encountered, remove and replace the material as described in this subsection.

(4) Excavations for walls may encounter bedrock, sand or gravel soils, cobbles, and large boulders. Over-excavation or "boulder buster"-type in-place fracturing/breaking may be required to remove large boulders at wall locations. Other methods of rock removal may be approved by the Engineer.

The material at the base of the leveling pad shall be compacted as required by CDOT Section 203.07. The Contractor shall recondition the subgrade to meet the CDOT moisture and density requirements. If the excavation for the placement of the leveling pad exposes an unsatisfactory bearing material, the Engineer may require removal and replacement of that material. The removed material shall be replaced with Structure Backfill (Special) compacted in conformance with subsection 203.07. The Engineer will provide the limits including the depth of removal. Excavation and backfill in in-situ wet conditions (below the groundwater or surface water level) is permissible for this project, provided all backfill materials are free of fines and are free-draining.

Recycled asphalt, recycled concrete and flow-fill material shall not be substituted for Structure Backfill (Class 1). Structure Backfill (Class 1) shall be compacted to plus or minus 2% of optimum moisture content and at least 95 percent of the maximum density as determined according to AASHTO T 180.

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REVISION OF SECTION 504A
CONCRETE BLOCK FACING MSE WALLS

Backfill containing frost or frozen lumps shall not be used. Backfill that has been placed and becomes frozen shall be removed and replaced at the Contractor's expense. The contractor is responsible for locating identifying and protecting existing utilities within the limits of excavation.

504A.14 Leveling Pad. Place the leveling pad as shown on the plans, and at the minimum thickness provided in the plans. The leveling pad shall be placed on native soils. Compact the leveling pad material to ensure a flat, hard surface on which to place the first course of blocks. The leveling pad shall be constructed to the proper elevation to ensure the final top of wall elevation shown on the plans.

504A.15 Block Placement. The wall layout line at the leveling pad shall be set back and pre-measured with appropriate batter from the top of the blocks according to the offset with respect to the centerline of the concrete bikeway. An overall negative batter (wall face leaning outward) between the bottom and the top of the wall is not allowed. Allowable construction tolerance at the wall face is 2 degrees vertically and 1 inch in 10 feet horizontally.

Place the first course of block units on the prepared leveling pad as shown in the plans, with the aesthetic surface facing out and the front edges tight together. All block units shall be checked for longitudinal grade and alignment as they are placed. Ensure that the block units are in full contact with the leveling pad. Proper care shall be taken to develop straight lines and smooth curves on the leveling pad, as per the wall layout.

The backfill in front of and behind the entire base block row shall be placed and compacted adequately to firmly lock the backfill material and the blocks in place. The triangular space between blocks shall be infilled with a granular material as specified by the manufacturer. Check all block units again for longitudinal grade and alignment. All excess material shall be swept from the top of the block units.

Place a layer of geogrid reinforcement on/through the first row of blocks prior to placement of the next row of blocks. Install the next course of wall block units on top of the base block row. Place blocks so that the joints are offset from the joints of the row below. Blocks shall be placed fully forward so as to be fully engaged on the "knobs" of the blocks below. Check each block for proper longitudinal grade and alignment. Backfill the triangular space between adjacent blocks and the space behind the blocks, to a width behind the block as shown on the plans.

Spread backfill in uniform lifts not exceeding 8 inches. Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Hand-operated place compaction equipment shall be used around the block and within 3 feet of the wall face.

Install each subsequent course of blocks in a like manner.

504A.16 Wall Drainage. Place a 4-inch diameter perforated drainpipe in the back of the excavation, at the height within the wall as shown in the plans. Surround the pipe on all sides by Filter Material (Class B) and drainage geotextile as shown in the plans.

Connect the perforated drainpipe to a non-perforated collector pipe at a spacing not to exceed 100 feet center-to-center. Connect the collector pipe to a controlled drain outlet as determined by the Retaining Wall Designer.

Do not connect collector pipes to systems designed for Retaining Wall Designer Geotechnical Engineer water retention in accordance with Best Management Practices design unless approved.

504A.17 Cap and Fence Installation

A. The MagnumStone™ full size cap units shall be placed in the same installation procedures as the regular MagnumStone™ units.
B. Geotextiles should be used as a soil separator between the final layer of drainage materials and the topsoil materials to prevent fines from migrating into the drainage gravel or through the wall face.
C. A MagnumStone™ 6” (0.15 m) high cap can be used to complete the top of the wall. Concrete adhesive shall be used to glue the cap units to the regular units.
D. The fencing posts shall be recessed into the blocks as specified in the wall details provided by MagnumStone™

REVISION OF SECTION 506
VOID-FILLED RIPRAP

Section 506 of the Standard Specifications is revised for this project as follows:

Subsection 506.02 shall be modified to include the following:

The color of riprap and void-fill materials used to fill the riprap voids shall be gray with blue/gray hues or tan and shall be uniform. Samples of riprap and void-fill materials shall be submitted for the review and approval of the Engineer prior to construction.

Where "Void-Filled Riprap" is designated on the Contract Drawings, riprap shall be mixed with the materials and associated proportions listed in the tables below to fill the voids of the riprap:

Mix Requirements for 6-Inch and 9-Inch Void-Filled Riprap

Approximate Proportions (loader buckets)	Material Type	Material Description
6	Riprap	6-Inch or 9-Inch D50
1	Void-fill material	VTC (Vehicle Tracking Control) rock (crushed rock with 100% passing 4-inch sieve, 50-70% passing 3-inch sieve, 0-10% passing 2-inch sieve)
1	Void-fill material	4-inch minus pit run surge (round river rock and sand, well graded, 90-100% passing 4-inch sieve, 70-80% passing 1.5-inch sieve, 40-60% passing 3/8-inch sieve, 10-30% passing #16 sieve).
1	Void-fill material	Type II bedding
½ to 1	Void-fill material	Native topsoil

Mix Requirements for 12-Inch and 18-Inch Void-Filled Riprap

Approximate Proportions (loader buckets)	Material Type	Material Description
6	Riprap	12-Inch or 18-Inch D50
2	Void-fill material	7-inch minus crushed rock surge (100% passing 7-inch sieve, 80-100% passing 6-inch sieve, 35-50% passing 3-inch sieve, 10-20% passing 1.5-inch sieve)
1	Void-fill material	VTC (Vehicle Tracking Control) rock (crushed rock with 100% passing 4-inch sieve, 50-70% passing 3-inch sieve, 0-10% passing 2-inch sieve)
1	Void-fill material	4-inch minus pit run surge (round river rock and sand, well graded, 90-100% passing 4-inch sieve, 70-80% passing 1.5-inch sieve, 40-60% passing 3/8-inch sieve, 10-30% passing #16 sieve).
1	Void-fill material	Type II bedding
½ to 1	Void-fill material	Native topsoil

Note: Mix proportions and material gradations are approximate and are subject to adjustment by the Engineer. No adjustment in unit price for void-filled riprap will be allowed based on modifications to the mix proportions.

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REVISION OF SECTION 506
VOID-FILLED RIPRAP

Subsection 506.03 shall be modified to include:

Elevation tolerance for the void-filled riprap shall be 2-inches (0.16-feet) and shall be measured at the discretion of the Engineer by taking spot elevations at locations determined in the field by the Engineer. Thickness of void-filled riprap shall be no less than thickness shown and no more than 2-inches (0.16-feet) greater than the thickness shown.

Prior to placement of "void-fill riprap", the subgrade should be prepared according to Section 206 Excavation and Backfill for Structures and should be dewatered to a minimum of 2-feet below the lowest point of excavation according to Section 208 Water Control.

Prior to placement, the riprap and void-fill materials shall be thoroughly mixed in single batches using a loader to pile the material, according to the proportions approved by the Engineer, and then repeatedly scoop and dump the material using a loader or track excavator until thoroughly mixed. A visual inspection will be performed by the Engineer to ensure the material has been thoroughly mixed and as directed by the Engineer, and at no additional cost to the project, the Contractor shall continue to mix the material until the desired visual appearance is achieved and approved by the Engineer. The material can then be stockpiled prior to installation, as long as the mix proportions are maintained as visually approved by the Engineer. The material will then be hauled to the site of permanent placement. It is anticipated that during transportation the material will segregate and additional mixing will be required at the site of permanent placement at no additional cost to the project. An excavator should be used to re-mix and place the material to grade. The riprap and void-fill materials should be installed and compacted so that a dense, interlocked layer of riprap and void-fill material is provided with riprap voids completely filled. The loose material shall be placed in a single lift of sufficient height such that final grade will be achieved upon compaction. Segregation of materials shall be avoided and in no case shall the combined material consist primarily of the void-fill materials. The density and interlocking nature of riprap in the mixed material shall essentially be the same as if the riprap was placed without filling the voids. If the compacted material is below final grade, placement of only the smaller void-fill materials to achieve final grade will not be permitted; the contractor shall excavate compacted void-filled riprap material that is below final grade, add additional void-fill riprap material to meet final grade, re-mix as necessary to maintain the original material proportions, and re-compact the material at no additional cost to the project.

A 50:50 mixture of pit run and Type II Bedding shall be sprinkled on the surface of the void-filled riprap at the direction of the Engineer, and washed-in with water using a high pressure hose to fill-in small voids. This shall be done just prior to compaction of the void-filled riprap.

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REVISION OF SECTION 506
VOID-FILLED RIPRAP

Compaction of the void-filled riprap shall be performed by wheel rolling with heavy rubber-tired equipment (e.g., front end loader) or tracking back and forth with the tracks of a large, heavy duty track excavator or dozer. Prior to compaction, the moisture content of the pit run surge and topsoil material in the mixture shall be near optimum conditions (not too dry and not too wet) determined visually and water shall be added, as necessary, at the direction of the Engineer.

The Contractor shall install a test section of at least 100 square feet of void-filled riprap for the review and approval of the Engineer prior to installation of the remaining void filled-riprap.

Subsection 506.04 shall include the following:

The quantity to be paid for void-filled riprap (Special) shall be the number of cubic yards installed, measured as the surface area multiplied by the thickness shown on the contract plans. No separate measurement will be made for smaller void-fill materials.

Subsection 506.05 shall include the following:

Payment for void filled riprap shall include but is not limited to; furnishing and placing riprap, furnishing void-fill material, and filling voids of riprap with void-fill materials as specified. Payment shall be made at the contract unit price for riprap and shall include full compensation for all labor, equipment, materials, transportation, and all other appurtenant items to complete the work.

Pay Item	**Pay Unit**
Void-Filled Riprap (6 inch)	Cubic Yards
Void-Filled Riprap (12 inch)	Cubic Yards

Structure excavation will be measured and paid for in accordance with Section 206.
Water Control will be paid for in accordance with Section 208.

Structure excavation is not paid for separately but included in the cost of the work.

REVISION OF SECTION 506
GROUTED BOULDERS

DESCRIPTION

Section 506.1 is revised to include the following:

This work consists of the construction of riprap and boulders in accordance with these specifications and in conformity with the lines and grades shown on the plans or established. Use of the term "boulder" equates to "riprap" that meets the requirements stated below.

MATERIALS

Section 506.02 is modified to include the following:

Boulders shall meet the following characteristics:

a. Neither breadth nor thickness of a single boulder shall be less than two-thirds (⅔) of its length.
b. Each load of boulders shall conform from the smallest to the largest size specified. Rhyolite rock shall not be used for any grouted riprap (special).
c. All boulders are to be generally block shaped, with relatively flat surfaces on the top bottom and sides to provide for stable placement, level top surfaces, and tight interlocking with minimal space between placed boulders.
d. Rock shall be free of calcite intrusions.
e. Control of gradation will be by visual inspection. However, in the event Engineer determines the boulders to be unacceptable, Engineer shall pick two random truckloads to be dumped and checked for gradation. Mechanical equipment and labor needed to assist in checking gradation shall be provided by the Contractor at no additional cost to Engineer if the boulders do not meet the specified gradation. If the boulders do meet the gradation specified, Engineer shall pay for the equipment and labor required for checking.

Table 506-3

Boulder Size (inches)	Range in Smallest Dimension of Individual Boulders (inches)	Maximum Ratio of Largest to Smallest Dimension of Individual Boulders (inches)
36	34-38	1.50
42	40-44	1.50

Riprap shall be placed at the locations as shown on the drawings and installed with the following requirements:

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REVISION OF SECTION 506
GROUTED BOULDERS

a. The subgrade to receive each boulder shall be excavated and any unstable material shall be removed. Approved material shall be placed and compacted in a maximum of four-inch (4") lifts to ninety five percent (95%) of Maximum Standard Proctor Density (ASTM D698) to re-establish the subgrade of each boulder. Unstable material shall be removed from the project site and disposed of by the Contractor. Removal and replacement of unstable material shall only be completed at the direction of Engineer and shall be paid for under Muck Excavation. Backfill behind boulders shall be compacted to ninety five percent (95%) Maximum Standard Proctor Density (ASTM D698).

b. The top of all boulders shall be as indicated on the drawings. Finished grades and subgrades for boulders will be determined from the height of each boulder used.

c. Boulders may be placed within areas of other riprap, pursuant to the drawings. All voids around such boulder shall be filled with gradation of that other riprap to form an interlocking mass.

Subsection 506.04 is modified to include the following:

Grouted Boulders shall be measured by each finished and installed boulder. All labor, work, and materials necessary to complete the work are included.

Subsection 506.05 is modified to include the following:

Pay Item	**Pay Unit**
Grouted Boulders (24 Inch)	Cubic Yards
Grouted Boulders (36 Inch)	Cubic Yards

Structure excavation is not paid for separately but included in the cost of the work.

REVISION OF SECTION 506
SOIL RIPRAP

Section 506 of the Standard Specifications is hereby revised for this project as follows:

CONSTRUCTION REQUIREMENTS

Section 506.03 shall include the following:

Soil riprap installation shall be as follows:

1. Prepare subgrade to receive riprap. Compact to ninety five percent (95%) of Maximum Standard Proctor Density (ASTM D698) to re-establish the subgrade. Unstable material shall be removed from the project site and disposed of by the Contractor. Removal and replacement of unstable material shall only be completed at the direction of Engineer and shall be paid for under Muck Excavation.

2. Where specified, place Geotextile (Drainage) (Class 1) according to Section 420.

3. Where specified, place Filter Material (Class A) to the thickness and elevations as shown in the drawings.

4. Place first lift of interlocking riprap of approximate D50 thickness. Then add existing native soil materials (not necessarily topsoil) from the site (may be alluvial soils with variety of sizes) on top of the lift, and vibrate into voids using large vibratory equipment or backhoe bucket to create a tight, dense, interlocking mass. Then place the next layer of riprap and repeat as above, until full specified thickness is achieved. Fill the voids of the top layer as necessary with existing soil materials. The final installation shall be approximately 70% interlocking riprap and 30% voids that are filled with native materials.

5. The soil material shall be further wetted to encourage void filling in between lifts.

6. Riprap shall be fully interlocking with soil filling only the void space between interlocking riprap pieces.

7. For buried soil riprap, the top surface shall be covered with four inches of topsoil (or to the depth required on the plans) such that no rock points are protruding.

8. The final surface shall be thoroughly wetted for good compaction, smoothed and compacted by vibrating equipment; the surface shall then be hand raked to receive planting or seeding in accordance with the plans.

Section 506.04 shall include the following:

Soil riprap will be measured by the cubic yard including both the rock (riprap) and soil.

Section 506.05 shall include the following:

Pay Item	**Pay Unit**
Soil Riprap (12 Inch)	Cubic Yard

Structure excavation and geotextile are not paid for separately but included in the cost of the work. Filter Material Class A is measured and paid for separately.

REVISION OF SECTION 603
REINFORCED CONCRETE PIPE

Section 603 of the Standard Specifications is hereby revised for this project as follows:

Subsection 603.02 shall include the following:

Reinforced concrete pipe shall be manufactured from concrete that meets the requirements for severity of sulfate exposure Class 2 specified in subsection 601.04.

END OF SECTION REVISION

REVISION OF SECTION 604
MANHOLE SLAB BASE (10 FOOT)

Section 604 of the Standard Specifications is hereby revised to include the following:

Subsection 604.01 shall include the following:

The sanitary sewer manholes to be installed shall be 4 feet in diameter and shall be in accordance with the City of Arvada specifications for typical manholes including ring and cover, seals, coatings manhole steps, formed bench, concrete adjustment rings, and manhole bases. All manholes installed shall have inverts cast-in-place to match where existing and new sewer lines are to be connected. Manholes shall be cast-in-place as indicated on the plan set. The depth of the manhole shall match the depth of the existing sanitary sewer line.

Subsection 604.04(b) shall include the following:

The Contractor shall ensure that all rims match the proposed grades, for cast-in-place manholes.

Subsection 604.04 shall include the following:

The Contractor shall set all sanitary sewer manhole rings and covers 1/4 inch below the finished grade of the paved surface to match cross slope and profile. The final adjustment shall be made prior to the top lift of pavement being placed.

END OF SECTION REVISION

REVISION OF SECTION 607
FENCE WOOD WITH METAL POSTS

Section 607 of the Standard Specifications is hereby revised for this project as follows:

Subsection 607.03, eighth paragraph shall include the following:

All wood fencing shown in the plans shall consist of 4” steel (metal) posts. These posts shall have a duplex protective coating. Paint colors will be chosen by the City of Arvada. Submit samples for review.

END OF SECTION REVISION

REVISION SECTION 607
FENCE (PLASTIC)

Section 607 of the Standard Specifications is hereby revised for this project as follows:

Subsection 607.03, eighth paragraph shall include the following:

Prior to the start of construction, fencing shall be installed to protect trees and other features as designated on the plans or as directed by the Engineer.

END OF SECTION REVISION

REVISION OF SECTION 608
SIDEWALKS AND BIKEWAYS

Section 608 of the Standard Specifications is hereby revised for this project as follows:

Subsection 608.01 shall include the following:

This consists of constructing concrete sidewalks, cross pans, and curb ramps in accordance with the lines and grades shown on the plans.

Delete subsection 608.02 and replace with the following:

Concrete for concrete sidewalk, cross pans, and curb ramps shall conform to Section 10 of the City of Arvada *Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements*, dated January 12, 2016, and shall be Class A.

All concrete shall be mixed with Fibrous Concrete Reinforcement (100% virgin polypropylene fibrillated fibers), at the rate of 1.5 pounds per cubic yard. Mixing, placing and finishing shall be performed according to manufacturer's recommendations.

In subsection 608.03 (d), delete the second paragraph and replace with the following:

All outside edges of the slab shall be edged with a ¼ inch radius edging tool.

In subsection 608.03 (e), delete the first paragraph and replace with the following:

(e) *Joints.* Expansion joints shall not be used except as noted in this specification. The Contractor shall sawcut the finished surface of the sidewalk and bikeway with dummy joints on ten foot centers along the sidewalk and bikeway length. Each sawcut shall be ¼-inch deep for each inch of slab thickness and a straight line perpendicular to the edges of the sidewalk or bikeway slab. Sawcutting shall be completed before contraction cracks occur. Trowelled joints will not be acceptable for the sidewalk or bikeway construction.

Subsection 608.03(f) shall include the following:

Concrete shall not be left exposed for more than 1/2 hour between the time finishing is completed and commencement of curing treatment unless otherwise approved.

Sections of concrete which develop random cracking during construction or before the expiration of the warranty period shall be removed and replaced, or repaired in a satisfactory manner as deemed by the Engineer. Repair or replacement of areas where random cracking occurs shall be at the Contractor's expense.

REVISION OF SECTION 608
SIDEWALKS AND BIKEWAYS

Subsection 608.03 shall include the following:

(g) *Warranty*. The Contractor shall guarantee against all defects in material and equipment incorporated in, and warrant all workmanship on, the Concrete Sidewalk (6-Inch) and Concrete Curb Ramp for a period of two years commencing on the Notice of Substantial Completion. Defects will be identified by the Engineer and based on the following:

1) Vertical displacement greater than ½ inch at cracks or joints in the sidewalk or curb ramp.

2) Cracks in the sidewalk or curb ramp greater than 1/4-inch width.

3) Localized heaving or settlement of the sidewalk or curb ramp.

4) Scaling or spalling of the concrete surface to a depth greater than ¼ inch.

In an emergency, the Contractor shall repair all deficiencies listed above within 48 hours of notification by the Engineer. Repairs shall be at the Contractor's expense.

All other deficiencies listed above shall be identified by the Engineer prior to the end of the 2-year warranty period with written notification sent to the Contractor. The Contractor shall repair all deficiencies prior to final Acceptance. In the event the Contractor should fail to make such repairs, adjustments, or performs other necessary work required to correct any deficiencies, the Engineer may do so and charge the Contractor the cost thereby incurred. The Contractor's Performance and Payment Bond shall remain in full force and effect through the two (2) year guarantee and warranty period.

Subsection 608.06 shall include the following:

Pay Item	**Pay Unit**
Concrete Sidewalk (6-Inch)	Square Yard
Concrete Curb Ramp	Square Yard

Fibrous polypropylene filaments will not be paid for separately, but shall be included in the work.

REVISION OF SECTION 610
MEDIAN COVER MATERIAL (PATTERNED CONCRETE)

Section 610 of the Standard Specifications is hereby revised for this project as follows:

Subsection 610.1 shall include the following

This work shall include construction of Bomacron Textured Splash Pans and Median Cover Material in accordance with these specifications and in conformity with the lines and grades shown on the plans or established.

In **Subsection 610.02** delete the second paragraph and replace with the following:

Concrete cover material shall conform to the following:

Concrete Mix Design: The concrete shall have a minimum compressive strength of 4,000 psi. Portland cement shall conform to ASTM C 150, Type I, II or V, depending on soil conditions. Aggregates shall conform to ASTM C 33. Mixing water shall be fresh, clean and potable. An air-entraining agent complying with ASTM C 260 shall be used to achieve an entrained air content for the particular concrete mix used in accordance with the published recommendations of the Portland Cement Association and the American Concrete Institute (for freeze thaw climate). A normal set or retarded set water reducing admixture complying with ASTM C 494 may be used. Calcium chloride shall not be used in the mix.

Bomanite Color Hardener: Specially formulated for installation of Bomacron.

The colors shall be: tile red manufactured by L.M. Scofield, locally distribured by White Cap Industries.

The antiquing release shall be: 2 parts Stone Gray, manufactured by QC Construction, locally distributed by White Cap Industries or Barton Leasing, Inc., and 1 part Deep Charcoal, manufactured by L.M. Schofield, Locally distributed by White Cap Industries.

Acrylic Sealer shall be: Arcoseal Crylic Sealant or approved equal.

All colors and sealant shall match the adjacent existing median materials.

The grade shall be heavy duty.

Control and expansion joints shall be located as shown in the plans to minimize cracking.

The Bomacron textured concrete shall be as installed by a contractor that has experience in this construction with a minimum of 5 example locations, references and approved by the engineer.

Fiber mesh ¾ inch synthetic reinforcing shall be used. Engineered synthetic reinforcing fibers shall be 100 percent polypropylene collated, fibrillated fibers. Fiber length, and amount shall conform to the manufacturer’s recommendations for the concrete mixture. The fiber manufacturer or approved distributor shall provide the services of a qualified technician for a pre job meeting, and initial job start up.

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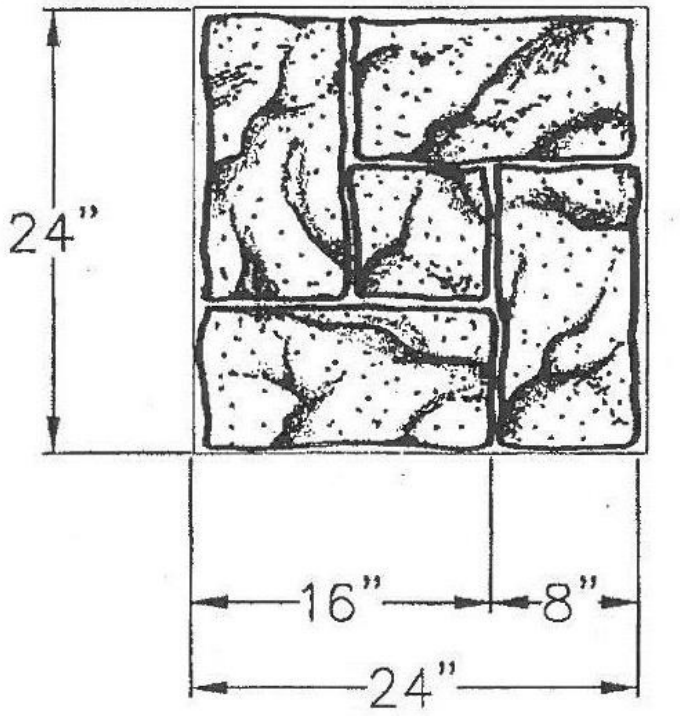
REVISION OF SECTION 610
MEDIAN COVER MATERIAL (PATTERNED CONCRETE)



Physical properties of the fibers shall be as follows:

Specific gravity:	0.9166
Modulus of elasticity:	0.5 X 10 to 0.7 X 10 psi
Tensile Strength:	70 to 110 Ksi
Length:	3 4 inches

The fiber manufacturer shall certify that all polypropylene fibers meet the physical properties, and are manufactured from virgin polypropylene containing no reprocessed olefin materials specifically for use in concrete, if the fiber manufacturer is other than the brand name listed on the literature and packaging, the certification shall be from the original manufacturer of the fibers. The fiber manufacturer shall supply an evaluation from the council of American Building Official that states that this fiber will control shrinkage and thermal cracking, and is a suitable alternative to welded wire fabric.

All fibers shall be added at the concrete batch plant to assure uniform and complete dispersion of the collated- fabrillated fiber bundles into single monofilaments within the concrete.

Concrete planter wall shall be Class B (4000 psi) and contain fibermesh.

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REVISION OF SECTION 610
MEDIAN COVER MATERIAL (PATTERNED CONCRETE)

Delete **Subsection 610.03(b)** and replace with the following:

(b) The Bomacron concrete median cover shall be constructed by a licensed, trained Bomanite contractor using Bomacron tools and processes. The licensed contractor shall provide a foreman or supervisor who has done at least three installations of demonstrated high quality.

Preparation work such as subgrade preparation shall be performed by the Contractor. Finish grading, setting of forms and screeds and reinforcing shall be done by the Bomacron-licensed contractor.

Contractor shall pour a mock-up for approval by the Engineer prior to initiating work.

The Bomacron-licensed contractor shall perform the following work, and all of this work shall be included in the work:

1. Provide materials: concrete, Bomanite color hardener, and Bomacron release agent.
2. Provide Bomacron texturing tools.
3. Place concrete
4. ApplyBomanite color hardener.
5. Apply Bomacron release agent.
6. Apply Bomacron texturing tools.
7. Apply final surface treatment.
8. Wash.
9. Apply one application of Acroseal acrylic sealant following manufacturer's recommendation.

Subsection 610.04 shall include the following:

Bomacron concrete median cover material will be measured by the square

foot. Bomacron concrete splash pan will be measured by the linear foot.

Subsection 610.05 shall include the following:

Pay Item	**Pay Unit**
Median Cover Material (Concrete)	Square Foot
Median Edging (Patterned Concrete)	Linear Foot

REVISION OF SECTION 613
ELECTRICAL CONDUIT

Subsection 613.07 of the Standard Specifications is hereby deleted for this project and replaced with Section 50.4.6.B of the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
2 Inch Electrical Conduit (Bored)	Linear Foot
2 Inch Electrical Conduit (Plastic)	Linear Foot
3 Inch Electrical Conduit (Bored)	Linear Foot
3 Inch Electrical Conduit (Plastic)	Linear Foot

REVISION OF SECTION 613
PULL BOXES

Section 613 of the Standard Specifications is hereby revised for this project to include Section 50.4.6C of the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements.

Type LG Pull Boxes shall have the dimensions 24”x36”x18”.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Type LG Pull Box	Each

REVISION OF SECTION 614
TRAFFIC CONTROL DEVICES

Section 614 of the Standard Specifications is hereby revised to include the following:

DESCRIPTION

Subsection 614.01 shall include the following:

The City of Arvada *Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements* dated January 12, 2016. Where those specifications and standards are in conflict with any portion of Section 105, the City Standards and Specifications shall take precedence.

Section 614.14 shall include the following:

Pedestrian push buttons shall be Accessible Pedestrian Signals as noted in the Standard Special Provision Pedestrian Push Buttons.

REVISION OF SECTION 614
PEDESTRIAN PUSH BUTTON POST ASSEMBLY

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work consists of the installation of a pedestrian push button and steel post assembly at locations as shown on the plans.

Subsection 614.02 shall include the following:

Post for pedestrian push button shall be tubular steel, Schedule 80.

Concrete for foundation shall be Class B.

Pedestrian push button and sign shall meet all ADA requirements.

Wiring for pedestrian push button shall conform to manufacturer recommendations.

Subsection 614.02 shall include the following:

Steel posts and slip base assembly shall be galvanized in accordance with Section 509, unless painting is called for on the plans. Painting shall be in accordance with Section 522, Duplex Coating System. The post assembly's shall match the signal pole color. The post and slip base shall be constructed as shown on the plans.

Subsection 614.13 shall include the following:

Pedestrian Push Button Post Assembly will be measured as the actual number that are installed and accepted.

614.14 shall include the following:

Pay Item	**Pay Unit**
Pedestrian Push Button Post Assembly	Each

Wiring will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTION 614
TRAFFIC SIGNAL CONTROLLER CABINET

Subsection 614.08(c) of the Standard Specifications is hereby deleted for this project and replaced with Section 50.2.8 of the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements.

MATERIALS

When controller cabinets are specified in the project plans and/or specifications, and unless otherwise specified, controller cabinets shall be a TS2 Type 1 P cabinet. The controller cabinets shall be natureal aluminum and shall be mounted on a figerglass base.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Traffic Signal Controller Cabinet	Each

REVISION OF SECTION 614
TRAFFIC SIGNAL CONTROLLER

Subsection 614.08(b) of the Standard Specifications is hereby deleted for this project and replaced with Section 50.2.9 of the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements.

MATERIALS

When controllers are specified in the project plans and/or specifications, and unless otherwise specified, controllers shall be the Econolite Cobalt Advanced Transportation Controller.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Traffic Signal Controller (SS)(FA)(8 Phase)	Each

REVISION OF SECTION 614
FIBER OPTIC CABLE (SINGLE MODE)(12 FIBER)

Subsection 614 of the Standard Specifications is hereby revised for this project to include Section 50.3.3 of the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements.

This item shall include the Fiber Optic Termination Panels required in each cabinet. See Revision of Section 614 – Fiber Optic Termination Panel.

BASIS OF PAYMENT

This item will not be measured and paid for separately but shall be included in the cost of traffic signal controller cabinet

REVISION OF SECTION 614
FIBER OPTIC TERMINATION PANEL

Subsection 614 of the Standard Specifications is hereby revised for this project to include Section 50.3.4 of the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements.

METHOD OF MEASUREMENT

This item will not be measured and paid for separately but shall be included in the cost of traffic signal controller cabinet

REVISION OF SECTION 614
ETHERNET SWITCH

Subsection 614 of the Standard Specifications is hereby revised for this project to include Section 50.3.1 of the City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements.

MATERIALS

Subsection 614.02 shall include the following:

When switches are specified in the project plans and/or specifications, and unless otherwise specified, switches shall be the Siemens Ruggedcom RS900GP.

METHOD OF MEASUREMENT

Subsection 614.13 shall include the following:

Ethernet switch shall be measured by the number of Ethernet Switches installed on the project as directly by the Project Engineer.

BASIS OF PAYMENT

This item will not be measured and paid for separately but shall be included in the cost of traffic signal controller cabinet

All necessary small form-factor pluggables (SFPs) needed to complete the fiber connection to the traffic signal shall be included in the cost of the traffic signal controller cabinet and will not be paid for separately.

REVISION OF SECTION 619
WATER METER

Section 619 of the Standard Specifications is hereby revised for this project as follows:

Subsection 619.04 shall include the following:

The quantity to be measured for payment shall be the number of meter pits/water services removed from the existing 12-inch and 18-inch water lines and transferred to the new water line after the new water service and meter pit has been installed. These meter pits/services shall be installed as shown on the plans, complete in place. The water services to be installed are ¾-inch as shown on the plans. The existing meter pit shall be removed and paid for separately as "Removal of Water Meter." The cone and lid shall be installed to a depth to match the proposed grade.

Subsection 619.05 shall include the following:

Pay Item	**Pay Unit**
Water Meter	Each

Payment shall include full compensation for assembling and placing all materials required and for excavation, backfilling, and compaction to install the meter pit and water service including ¾" service line, service line to backflow preventer (as shown in the plans at 7195 Simms Street), cone and lid, tapping saddles, meter setter, tracer wire, couplings, fittings, removal and reuse of existing meters, and all other items according to the service detail. The area around and surrounding the meter pit and service shall be returned to its original condition to match the proposed grade.

END OF SECTION REVISION

REVISION OF SECTION 619
CONNECT TO EXISTING WATER LINE

Section 619 of the Standard Specifications is hereby revised for this project as follows:

Subsection 619.04 shall include the following:

The quantity shall not be measured, but shall include all materials, equipment and labor necessary for excavation, removal and disposal of pipe at connection points, dewatering of pipeline, backfilling, and compaction to furnish and install the connection to the existing 18-inch steel water line in 72nd Avenue (east of Swadley Court), existing 24-inch PVC water line in 72nd Avenue at Simms Street, existing 8-inch PVC water line (east of Simms Street), existing 8-inch asbestos cement water line on Routt Street, existing 8-inch PVC water line on Quail Street, existing 6-inch cast iron water line on 72nd Avenue east of Quail Street, and to the existing 8-inch and 12-inch water lines at 72nd Avenue and Oak Streets as shown in the plans, complete in place. Measurement shall include necessary 6-inch, 8-inch, 12-inch, and 18-inch pipe, kick blocks, foster adaptors, necessary 6-inch, 8-inch, 12-inch, and 18-inch mechanical joint (M.J.) fittings including but not limited to long solid sleeves, PVC to asbestos cement coupling, PVC to steel coupling, horizontal bends, vertical bends, tees, crosses, plugs and caps, restraint, and all incidentals necessary for the connection. Contractor is to field verify depth of existing 6-inch, 8-inch, 12-inch, and 18-inch waterlines prior to construction to verify tie-in elevations (the new water lines shall match existing water line elevations). Vertical and horizontal bends shall be rotated as necessary in order to match existing elevations at existing water lines.

The plans indicate many of the anticipated items that will be needed for each connection including, but not limited to the following work:

- Connect new 18-inch water line to the existing18-inch steel water line in 72nd Avenue (east of Swadley Court) indicate a 18-inch steel to PVC coupling, 18-inch pipe, a 18-inch 45-degree M.J. butterfly valve (the butterfly valve to be paid for separately as “18-inch butterfly valve”).
- Connect new 18-inch water line to existing 24-inch PVC water line at 72nd Avenue and Simms Street with a 24-inch by 12-inch cross, 24-inch M.J. long solid sleeve, two M.J. butterfly valves (to be paid for separately as “18-inch butterfly valve”), foster adaptors, 18-inch and 24-inch pipe, and an 18-inch x 12-inch M.J. reducer.
- Connect new 12-inch water line to existing 8-inch PVC water line (east of Simms Street) with an 8-inch 45-degree M.J. horizontal bend with kick block, 8-inch M.J. gate valve (valve to be paid for separately as “8-inch gate valve”), 8-inch pipe, two 8-inch 45-degree mechanical joint vertical bends, and foster adaptor(s).
- Connect new 12-inch water line to existing 8-inch asbestos cement water line on Routt Street with 8-inch asbestos cement to PVC coupling, two 8-inch 45-degree M.J. horizontal bends, foster adaptors, 8-inch pipe, 8-inch M.J. gate valve (valve to be pair for separately as “8-inch gate valve”), and two 8-inch 45-degree M.J. vertical bends as needed.
- Connect new 12-inch water line to existing 8-inch PVC water line in Quail Street with an 8-inch M.J. gate valve (valve to be pair for separately as “8-inch gate valve”).
- Connect new 12-inch water line to existing 6-inch cast iron water line east of Quail Street with 6-inch M.J. gate valve (valve to be pair for separately as “6-inch gate valve”), two 6-inch 45-degree M.J. horizontal bends, foster adaptors, 6-inch pipe, and two 6-inch 45-degree M.J. vertical bends as necessary to match existing grade.

REVISION OF SECTION 619
CONNECT TO EXISTING WATER LINE

- Connect to the existing 12" PVC water line and existing 8" PVC water line at 72nd Avenue and Oak Street. The temporary connection to the existing 8-inch, 12-inch, and 18-inch water lines in previous construction phases (CP1) shall be removed by removal and disposal of the existing 12-inch x 18-inch cross, two 18-inch long solid sleeves (east and west of the cross), and the 12-inch gate valve (south side of the cross). To connect to the existing 12-inch line, new 12-inch PVC shall be installed from the existing 12-inch gate valve (north side of the cross). A new 12-inch x 12-inch M.J. tee with kick block, 12-inch M.J. gate valve (valve to be pair for separately as "12-inch gate valve"), and foster adaptors will be installed as a part of this connection. The 12-inch x 8-inch M.J. reducer and 8-inch M.J. long solid sleeve installed as a part of previous construction phases (CP1) shall be reused to make the connection to the existing 8-inch PVC water line in Oak Street. In addition, a stub-out connection across Oak Street (south of W 71st Place) and shall be installed for future water line across Lincoln Academy. To connect to the existing 8-inch water line, an 8"x8" M.J. tee with kick block, 8-inch M.J. gate valve (valve to be pair for separately as "8-inch gate valve"), and 8-inch M.J. long solid sleeve shall be installed.

Temporary blow-off valves and thrust restraint shall be provided and maintained throughout construction for testing purposes. The location of the temporary blow-off valves will be dependent on the order of construction work. Only one connection to the existing potable water system shall be made until all disinfection, flushing, and pressure/leakage testing has been completed in accordance with The City of Arvada Standard Specifications for Water and Wastewater Facilities and has been accepted by the City of Arvada. Measurement shall also include the removal of the existing sections of pipe and the removal and disposal of any existing kick blocks necessary to make the connection.

Subsection 619.05 shall include the following:

Pay Item	**Pay Unit**
Connect to Existing Waterline	Each

Payment shall include removal, disposal, dewatering of pipelines, temporary blow-off valves, temporary thrust restraints, potholing, assembling and placing all materials required and for excavation, backfilling, and compaction to install the connection to the waterline, complete in place. This work will not be measured and paid for separately but shall be included in the cost of the Connect to Existing Waterline.

END OF SECTION REVISION

REVISION OF SECTION 619
ABANDON EXISTING WATER LINE IN PLACE

Section 619 of the Standard Specifications is hereby revised for this project as follows:

Subsection 619.04 shall include the following:

The quantity shall not be measured, but shall include all materials, equipment and labor necessary for excavation, dewatering of pipeline, backfilling, and compaction to furnish and install the abandonment of the existing 6-inch, 8-inch, and 18-inch water lines in place as shown in the plans , complete in place. Measurement shall include necessary 6-inch, 8-inch, and 18-inch kick blocks, foster adaptors, M.J. plugs, M.J. caps, flow fill, and all incidentals necessary to abandon the line as shown on the plans and as directed by the City of Arvada. Measurement shall also include the removal of the existing sections of pipe and the removal and disposal of any existing kick blocks.

Subsection 619.05 shall include the following:

Pay Item	**Pay Unit**
Abandon Existing Water Line in Place	Each

Payment shall include removal, disposal, dewatering of pipelines, potholing, assembling and placing all materials required and for excavation, flow fill, fittings, kick blocks, backfilling, and compaction to abandon the existing water line, complete in place. This work will not be measured and paid for separately but shall be included in the cost of Abandon Existing Water Line in Place.

END OF SECTION REVISION

REVISION OF SECTION 619
VALVES
(GATE VALVES: 6-INCH, 8-INCH AND
12-INCH AND BUTTERFLY VALVES: 18-INCH)

Section 619 of the Standard Specifications is hereby revised for this project as follows:

Subsection 619.04 shall include the following:

The quantity shall be paid for the number of mechanical joint gate valves and butterfly valves actually installed where and as shown on the drawings, including hardware.

Subsection 619.05 shall include the following:

Pay Item	**Pay Unit**
6-inch Gate Valve	Each
8-inch Gate Valve	Each
12-inch Gate Valve	Each
18-inch Butterfly Valve	Each

Payment shall include full compensation for assembling and placing all materials required and for excavation, backfilling, and compaction and joint restraint to install the gate valve, complete in place.

END OF SECTION REVISION

REVISION OF SECTION 619
6-INCH FIRE HYDRANT

Section 619 of the Standard Specifications is hereby revised for this project as follows:

Subsection 619.04 shall include the following:

The quantity to be measured for payment shall be the number of fire hydrant assemblies actually installed where and as shown on the drawings and details. The fire hydrant assembly includes the 6-inch hydrant branch pipe, the 6-inch hydrant mechanical joint gate valve, restraint between the hydrant and the main line tee and kickblocks, as well as the fire hydrant itself, including necessary extensions and hardware. Necessary tracer wire and tracer wire test stations as shown in the details will also be included in this pay item.

Subsection 619.05 shall include the following:

Pay Item	**Pay Unit**
6-inch Fire Hydrant	Each

Payment shall include full compensation for assembling and placing all materials required and for excavation, backfilling, compaction, tracer wire, tracer wire test stations, grounding anode rods, and restraint to install the fire hydrant, pressure testing of the assembly as well as preparing the assembly for clear water/bacterial testing, re-sodding, seeding, replacement of landscaping materials, irrigation system repair, fence replacement, brick and flagstone pavers, concrete and original grade and condition, complete in place.

END OF SECTION REVISION

REVISION OF SECTION 619
PLASTIC WATER LINE PIPE (6-INCH, 8-INCH, 12-INCH, AND 18-INCH)

Section 619 of the Standard Specifications is hereby revised for this project as follows:

Subsection 619.04 shall include the following:

The quantity to be measured for payment shall be the number of lineal feet of pipe and fittings, including restraint, complete in place. No separate measurement or payment will be made for gaskets, fittings (excluding valves and fire hydrant assemblies), restraint, disinfection/pressure/bacterial testes as required by the City, or tracer wire installed on the water lines as described in the specifications or shown on the Drawings. The measurement of the lineal feet of new water line shall be measured horizontally from the centerline of the fitting to centerline of fitting. At bends, tees, plugs, fire hydrants, etc., the Contractor shall use both thrust blocks and joint restraint, as described and detailed in the specifications or as may be identified on the plans. The 6-inch, 8-inch, and 12-inch plastic pipe shall be C909 and 18-inch plastic pipe shall be C900 (as indicated on the plans).

Subsection 619.05 shall include the following:

Pay Item	**Pay Unit**
6-inch Plastic Pipe	Linear Foot
8-inch Plastic Pipe	Linear Foot
12-inch Plastic Pipe	Linear Foot
18-inch Plastic Pipe	Linear Foot

Payment shall include pipe, locating and protecting existing utilities, excavation, bedding material, fittings, restraint, thrust blocks, backfill, compaction, dewatering, permits, testing, and all incidentals required to install the pipe and fittings, complete in place. Payment shall also include any and all incidental work required during the construction of the pipelines so that all adjacent ground and appurtenances remain in or are returned to their conditions prior to construction. Such incidental work may include, but is not limited to, the following: removal and replacement of fences, signs, mailboxes, landscaping materials, irrigation systems, culverts, etc., restoration of drainage and irrigation ditches, driveways and walkways, parking areas (except asphalt pavement) and grass areas, and temporary supporting of power poles, telephone poles or structures.

END OF SECTION REVISION

REVISION OF SECTION 619
2 INCH AIR AND VACUUM VALVE

Section 619 of the Standard Specifications is hereby revised for this project as follows:

Subsection 619.04 shall include the following:

The quantity to be paid for shall be the number of single 2-inch air and vacuum valves actually installed where and as shown on the drawings and details (W-46, W-49, W-50, and W-51).

Subsection 619.05 shall include the following:

Pay Item	**Pay Unit**
2-inch Air and Vacuum Valve	Each

Payment shall include full compensation for assembling and placing all materials required for excavation, backfilling, and compaction to install the single 2 inch air and vacuum valve (and all items shown in the water line detail W-46, W-49, W-50, W-51 including concrete manhole and supports, cone sections, lid, manhole ring and cover, fittings, valves, pipe, tracer wire, residential vent assembly (including vent pipe and screen), excavation, backfill, compaction and all other incidental items required to install the unit, complete in place.

END OF SECTION REVISION

REVISION OF SECTION 621
DETOUR PAVEMENT

Section 621 is hereby added to the Standard Specifications for this project and shall include the following:

Subsection 621.01 shall include the following:

This work consists of constructing detour pavement as shown on the plans.

Subsection 621.02 shall include the following:

The Contractor shall be responsible for quality control required ensuring adequate quality of materials incorporated into the production Hot Mix Asphalt or Portland Cement Concrete used in the detour pavement.

Subsection 621.03 shall include the following:

Detour pavement construction shall include grading, sawing existing pavement and pavement appurtenances, embankment and/or excavation material, irrigation removal and replacement, capping inlets, planing, and other items of work necessary for the construction of detour pavement. The removal of the Detour Pavement shall be accomplished in accordance with the applicable sub-sections of Section 202. The Contractor shall construct temporary ditches, temporary culvert pipe, and maintain existing and new storm sewer necessary for the control of storm drainage, including maintaining existing and new inlets. The Contractor shall remove the detour pavement when it is no longer needed to maintain traffic.

The Contractor shall be responsible for ensuring all embankment construction for Detour Pavement is constructed in accordance with applicable portions of Section 203.

The Contractor shall provide smooth pavement transitions between new and existing roadways. Transverse joints between new and existing pavement shall be constructed with Hot Mix Asphalt or as approved. Grade differences shall not exceed 4 percent break-over. Transverse joint tapers shall be 20' horizontal to 1" vertical or flatter. Longitudinal joints which have a vertical drop-off shall be tapered with Hot Mix Asphalt. Tapers shall be 8 horizontal to 1 vertical or flatter.

Detour pavement design shall have a minimum of 6" base and 6" of pavement, see analysis below.

City of Arvada's minimum traffic loading for arterials (an EDLA of 200 ESALs per day), we calculate the following pavement sections:

HMA (in.)	ABC (in.)	ESAL	Design Life (yrs)
6	6	69,000	0.95

If the pavement is expected to be driven on longer than 1 year then additional pavement thickness may be required. The Contractor shall submit detour pavement design to the Engineer prior to paving. All necessary signs, pavement markings and other traffic control devices shall be provided in accordance with the traffic control plan.

The Contractor shall have a maintenance plan for all hours of the day (7 days a week) for executing a long term patch of damaged detour pavement, and have forces available to perform this work within 2 hours of notice of such damage.

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REVISION OF SECTION 621
DETOUR PAVEMENT

If the Engineer determines that the detour has deteriorated to the point where safety of the traveling public is compromised (i.e. potholes), the lane(s) in question shall be closed and the contractor shall be directed to execute their maintenance plan. If the Contractor is unresponsive to this order by the Engineer, City of Arvada maintenance forces will be mobilized to close the lane and maintain the closure until such time as the Contractor is available to perform this work. City of Arvada Maintenance forces will be responsible for the lane closure only, and only until such time as the contractor arrives on site and relieves them. City of Arvada Maintenance will not be responsible for repair of any of the contract installed detour. All time and expense for City of Arvada Maintenance work will be tracked by the engineer, and deducted from money due to the contractor. Any lane closures that are required outside of the allowable lane closure hours will be charged as 'working time violation' as established in this contract.

Subsection 621.04 shall include the following:

The Contractor shall maintain the detour for the entire period that it is open to traffic. Any distress that affects the ride, safety or serviceability of the detour roadway shall be corrected immediately at the Contractor’s expense as directed by the Engineer.

Subsection 621.05 shall include the following:

Detour pavement will be measured by the square yard of finished surface area. Ramp slopes shall be 12:1 or flatter. See CDOT Standard Plan M-609-1 for details.

Subsection 621.06 shall include the following:

The accepted quantities will be paid for at the contract unit price for each of the pay items listed below that appears in the bid schedule.

Pay Item	Pay Unit
Detour Pavement	SY

All work necessary and incidental to the construction of detour pavement, maintenance of detour pavement, including grading, sawing existing pavement and pavement appurtenances, embankment and/or excavation material, irrigation removal and replacement, capping neos and manholes for a temporary condition and restoring to the permanent condition, removal of detour pavement, temporary ditches, culvert pipe, temporary curb ramps, maintaining existing and new storm sewers and inlets, aggregate base course needed under pavement and planing will not be measured and paid for separately but shall be included in the work.

REVISION OF SECTION 623
IRRIGATION SYSTEM

Subsection 623 shall be revised as follows:

DESCRIPTION

623.01 This work consists of furnishing and constructing an irrigation system in accordance with these specifications and in conformity with the lines and grades shown on the plans or established.

MATERIALS

623.02 General. All materials and equipment incorporated into the irrigation system shall be new and of recognized standard quality. In the case of computer software or hard coded instructions, the latest available version from the manufacturer is required. All materials shall be of a standard line from a name brand manufacturer, or must be approved.

623.03 Backflow Preventer. Reduced pressure-type backflow preventers shall include two check valves, a relief valve, two gate or ball valves, and test cocks for field testing. Reduced pressure-type backflow preventers shall meet the requirements in the Colorado Department of Health, Cross Connection Manual, and shall have a non-shock cold water rating of at least 150 psi.

623.04 Automatic Controllers. The Parks department requires contractors to furnish irrigation controllers through the 2-year warranty/maintenance period. At the conclusion of that period, as a condition of final acceptance of the property, the contractor will remove their controller and install the city provided Motorola Central Control units.

623.05 Remote Control. Remote control is already established through the existing central control system.

623.06 Control Wiring 24 Volt. Connection between automatic controller and automatic control valves, flow sensors and moisture sensors shall be made with direct burial copper, 600 volt, UF, UL approved wire. Minimum wire size shall be #14 AWG. One wire shall be provided for each valve. Wires shall be color coded according to the basic plant materials irrigated by the lateral. Wire colors shall be:

Wire Color	Plant Materials
Black	spare valve wires
Yellow	spare common wires
Green	tracer wires (with all mainline and lateral lines)
Red	valve wires
White	common wires
Purple	2 for master valve
Orange	2 for master valve
Blue	2 for master valve

623.07 Sprinkler Heads. The sprinkler head shall be of the pop-up spray and pop-up rotor internal drive type. All sprinkler heads shall be capable of accepting a check valve where head elevation varies more than 5 feet within a control zone.

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REVISION OF SECTION 623
IRRIGATION SYSTEM

623.08 *Pop-up Sprays*. The pop-up spray head body, stem, and screen shall be constructed of heavy duty plastic. Spray heads shall have the following components:

(1) A soft pressure-activated wiper seal for cleaning debris from the pop-up stem as it retracts into the case to prevent stem and nozzle from sticking in the up position.
(2) A matched precipitation rate brass or plastic nozzle with an adjusting screw capable of regulating the radius and flow.
(3) A screen to protect it from clogging and a strong stainless steel retract spring for positive pop-down.
(4) A threaded cap that will allow easy removal of the screen and all other internal components from the top without removing the body from the ground.
(5) Minimum pop-up height for turf heads shall be 4 inches. Spray head pop-up height for turf in roadway medians shall be at least 6 inches, and shrub, flower, and ground cover spray heads shall be at least 12 inches.

623.08 Flow Sensor. Included as a component of the master valve

623.09 Drip Emitters. NOT IN PROJECT

623.10 Plastic Pipe and Fittings. All pipe shall be identified with the following indelible markings: manufacturer's name, nominal pipe size, schedule or class of pipe, pressure rating in pounds per square inch, date of extrusion, and NSF seal of approval.

(a) *Mainline Pipe*. Mainline pipe shall be Class 200 PVC manufactured from virgin polyvinyl chloride (PVC) compound in accordance with ASTM D1784 and D2241, cell classification 12454-B, Type I, Grade I. Pipe sizes 3 inches and smaller shall be of the solvent weld type, and sizes larger than 3 inches shall have rubber gasketed fittings. Fittings shall be standard weight schedule 40 injection molded PVC conforming to ASTM D1784 and D2466, cell classification 12454-B. Threaded nipples shall be schedule 80 PVC with molded threads conforming to ASTM D2464. Threaded fittings shall be kept to a minimum. Cement and cleaner for solvent weld pipe and fittings shall conform to ASTM D2564. Include tracer wire with all mainline.

(b) *Lateral Line Pipe*. Lateral line pipe shall be 80 pound NSF polyethylene manufactured from virgin material in conformance with ASTM D2239 and designated as PE 2306 or PE 3408. Pipe size shall not exceed 2 inches. Fittings shall be injected- molded schedule 40 PVC conforming to ASTM D2609, cell classification 12454-B. Pipe shall be clamped onto the fitting using 100 percent stainless steel screw clamps (two clamps on 1½ inch and 2 inch pipe). Include tracer wire with all lateral line.

(c) *Swing Joint Assembly*. Swing joints shall be premanufactured with full rotation capacity. Swing joints shall consist of threaded fittings combined with elastomer seals and solvent weld or threaded fittings when attaching to supply line, valve, or sprinkler head. The swing joint assembly shall consist of injection molded schedule 40 PVC conforming to ASTM D1784 and D2466, cell classification 12454-B, Type I, Grade I.

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REVISION OF SECTION 623
IRRIGATION SYSTEM

623.11 Valves.

(a) *Automatic Control Valves*. The automatic control valve shall be a normally closed 24-volt AC, 60 cycle solenoid actuated globe or angle pattern, diaphragm type valve. The valve body and bonnet shall be heavy duty glass filled nylon or brass and internal components (not including diaphragm and seat disc) shall be non-corrosive brass, bronze, stainless steel, or a combination thereof. Control valve diaphragms shall be of a one-piece molded reinforced fabric. Control valve shall have a non-shock cold water rating of at least 150 psi.

Control valves shall function manually (without electrical power) by means of an internal bleeder device on the bonnet assembly. Control valves 1 inch or greater shall have manual flow control capacity. Control valves shall be constructed so that the bonnet assembly and all operating parts can be removed without disturbing the valve body. Valve closure time (measured in actual seat disc movement time) shall be at least 0.5 second.

(b) *Quick-Coupler Valves*. The quick-coupler valve shall have a two-piece brass body, a non-shock cold water rating of at least 150 psi, and 1 inch female pipe threads at the base. The quick-coupler valve shall be designed to permit operation with a special connecting device (lug type coupler) designed for this purpose. The quick-coupler shall be provided with a rubber-like vinyl hinged locking cover. Quick-coupler keys and hose swivels shall be compatible with the quick-coupler valves furnished. Hose swivels shall be of all brass construction designed to rotate freely.

(c) *Mainline Pressure Reducing Valve*. Valves 2 inches or smaller shall be of the diaphragm spring cage construction type with a bronze body, renewable stainless steel seat, and stainless steel integral strainer. Valves larger than 2 inches shall be the balanced piston type with a ductile-iron, or cast iron body.

(d) *Manual Drain Valves*. The manual drain valve shall be constructed of heavy duty cast bronze and machined brass. The drain valve shall be a rising stem globe valve with a non-shock cold water rating of at least 150 psi. The drain valve shall have a reverse flow capability, removable bonnet, and cast bronze cross handle.

(e) *Mainline Isolation Valves*. Mainline isolation valves ¾ inch through 3 inches shall be full port ball valves with a bronze body and have a stainless steel ball and Teflon seat. The valves shall have a blow-out proof stem and be rated at a minimum of 400 psi, WOG. Mainline isolation valves larger than 3 inches in size shall be resilient seated gate valves with a cast iron body and have a 2 inch square nut operator. All isolation valves shall be rated at 200 psi differential pressure.

623.12 Valve Box. The valve box, cover and necessary extensions shall be as shown on the plans, and shall be manufactured or molded, virgin plastic materials conforming to ASTM D638 and D648. Box extensions shall be used as necessary to completely expose the remote control valve and shall seat in place under the valve box. Valve box lids shall be imprinted “Irrigation Control Valve.”

623.13 Strainer. No strainer required.

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REVISION OF SECTION 623
IRRIGATION SYSTEM

CONSTRUCTION REQUIREMENTS

623.14 General. Irrigation systems shall be installed in conformity with applicable local codes. Information on the plans shows general locations only. The Contractor shall establish exact locations of all irrigation equipment to fit field conditions, and locations will be approved by the Engineer prior to start of construction. Contractor shall maintain and protect the approved staking layout. Prior to purchase of any irrigation equipment, the Contractor shall submit a list of suppliers and specification sheets for all irrigation components. This submittal must be approved by the Engineer before any equipment purchase is made. At the submittal stage, all changes in equipment shall be brought to the attention of the Engineer.

623.15 Site Review. At least 14 days prior to the start of irrigation work on the project, a Pre-construction Conference shall be held. During irrigation installation, monthly meetings shall be held. Those in attendance shall be a representative of the Contractor's staff, the Landscape and Irrigation Subcontractors, the Engineer, and a CDOT Landscape Architect. A written description of work methods, and time schedules and milestone dates shall be presented. The Contractor shall notify the Engineer prior to mainline pressure testing, coverage tests, and final review. The Contractor shall provide two radio transceivers with necessary personnel or remote-control devices to operate automatic controllers during coverage tests and final review.

623.16 Excavation and Backfill. Excavation and backfill shall conform to the requirements of Section 206 and subsection 703.08(b) (Class 2 Structure Backfill), except that compaction of backfill outside of the roadway prism may be done by water flooding, with the approval of the Engineer. The Contractor shall maintain bottoms of trenches flat to permit all piping to be supported on an even grade. Where lines occur under paved areas, dimensions shall be considered to be below the subgrade. All mainline pipe shall be bedded in sand to allow a minimum of 2 inches of sand on all sides. Rock larger than 1 inch shall not be placed in the backfill material. Where it is necessary to excavate adjacent to existing trees or shrubs, the Contractor shall use all possible care to avoid injury to the plant root system.

623.17 Pipe Installation. Minimum cover for irrigation pipe shall be as follows:

Mainline Pipes	**24 inches below finished grade**
Lateral Pipes	18 inches below finished grade
Pipe under roadways	30 inches below subgrade finished grade
Irrigation sleeving	30 inches below finished grade

All pipes under roadways shall be encased in a steel pipe sleeve which shall be jacked or placed in a hole bored under present roadways, or in a steel or plastic pipe sleeve placed by trenching on new construction. At least 4 inches of clearance shall be provided between lines and at least 4 feet of clearance between lines of other trades. Parallel pipes shall not be installed directly over any other line. Manual drain valves shall be installed at all low points in the mainline. Minimum grade of pipe to drains shall be 3 inches per 100 feet. Plastic threaded fittings shall be assembled using teflon tape applied to male pipe threads only. Threaded fittings shall be kept to a minimum. The Contractor shall tape all open ends of the pipe during installation to prevent entry of any foreign matter into the system.

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REVISION OF SECTION 623
IRRIGATION SYSTEM

623.18 Wiring. All 24-volt wire to automatic control valves and flow sensor wiring shall be installed at a minimum depth of 28 inches below finished grade. Power source wire shall conform to subsection 715.07.

Wiring shall be installed at the side of and under mainline whenever possible. When more than one wire is placed in a trench, the Contractor shall tape wires together with electrical tape at intervals of 15 feet or less. A 24 inch coiled expansion loop shall be provided every 300 feet along wire run, before controller enclosure, at each connection, and at directional changes. Each automatic controller shall have its own separate ground wire, colored green. Wiring between automatic controller and automatic control valves or sensors shall be continuous. At locations where splicing is approved by the Engineer, moisture proof splices shall be made in a valve box. Two extra wires shall be installed along the entire mainline pipe from each automatic controller to the last automatic control valve. Wire splices shall be compatible in effectiveness to wire coating. All wire under roadways shall be encased in a separate steel or plastic conduit.

Wires for master valve shall be run in continuous, 1.25 " schedule 40 PVC conduit, from irrigation controller pad to Backflow/master valve pad.

Wires not following the mainline shall be installed using open trench excavation. Wiring shall not be installed using a vibratory plow.

Tubing shall be installed to an even grade in an open trench. Flush valve assemblies shall be installed at all ends of the drip lateral lines.

623.19 Drip Systems. No drip in project.

623.20 Valve Boxes. All valve boxes shall be installed flush with the finished grade. A “branding iron” type of tool shall be used to imprint the automatic control valve number (letters and numbers 2 inches high) on the valve box lid. Valve numbering system shall be as indicated on the plans. Geotextile filter fabric shall be placed under valve box and extend a minimum of 4 inches beyond bottom rim of valve box. Valves shall be grouped so that three or four valves are located together. Valves shall not be installed in low areas subject to standing water.

623.21 System Flushing. After all irrigation pipelines and valves are in place and connected, and prior to installation of irrigation sprinklers, rotary heads, etc., the Contractor shall thoroughly flush all lines with water at system operating pressure.

623.22 Pressure and Coverage Tests, and Adjustments. After installation of valves, pipe, and fittings, mainlines shall be inspected for leaks after a minimum 120 psi static pressure (or point-of-connection static pressure if higher) has been maintained for two hours in a hydro static test. Mainline pipes shall not be buried until completion of the test. If the system does not pass the test, the Contractor shall detect and correct problems until the system reaches the acceptable test standard. This test shall be passed prior to payment for the pipe.

Gasketed pipe shall be tested using a volumetric (make up water) test and leak rates supplied by the pipe manufacturer and commonly accepted in the industry.

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REVISION OF SECTION 623
IRRIGATION SYSTEM

The Contractor shall perform coverage tests in the presence of the Engineer, after the irrigation system is completed and prior to any planting, seeding or sodding to assure that all irrigated areas are watered completely and uniformly. The Contractor shall make all necessary adjustments to provide required coverage as directed.

623.23 Inspections. Inspections by the Engineer or the Engineer's representative can be made at any point during construction. Milestone progress dates shall be established at the Pre-construction Conference and 72-hour notice shall be given by the Contractor when a milestone event is approaching.

623.24 Irrigation As-built Plans. The Contractor shall dimension from two permanent reference points, building corners, sidewalk corners, road intersections or any permanent structures, the location of the following items:

(1) Routing of irrigation mainline.
(2) All drip and sprinkler automatic control valves.
(3) Quick coupling valves, isolation gate valves, and manual drain valves.
(4) Other related equipment as directed.

The Contractor shall provide an accurately detailed irrigation as-built layout of the irrigation system at the same scale as the design plans and on 24 inch by 36 inch waterproof medium within 90 days after installation is complete and before notice of substantial landscape completion as defined in subsection 214.04. An in-progress as-built plan shall be kept on the construction site at all times and available for impromptu review by the Engineer or the Engineer's representative.

Provision of the final as-built plan is a condition for final acceptance and release of retainage.
All changes in the irrigation system layout, including lateral layout, shall also be indicated on irrigation as-built plans. The Contractor shall provide finalized as-built plans to the Engineer at the time of Final Landscape Acceptance.

623.25 Maintenance Manuals and Training. Prior to Final Landscape Acceptance, the Contractor shall provide two individually bound maintenance manuals to the Department for the irrigation system, and shall train the owner's maintenance personnel in the proper operation of all irrigation equipment, including winterization procedures. Each manual shall contain the following:

(1) Index sheet, stating irrigation contractor's name, address, telephone number and name of person to contact.
(2) Duration of equipment or component warranty and warranty form.
(3) Equipment list providing the following for each item:
    a. Manufacturer's name
    b. Make and model number
    c. Name and address of manufacturer's local authorized distributor
    d. Spare parts list in detail
    e. Detailed operating and maintenance instructions for major equipment
(4) Descriptions of all installed materials and systems in sufficient detail to permit maintenance personnel to understand, operate, and maintain the equipment.

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REVISION OF SECTION 623
IRRIGATION SYSTEM

A print out of the as-built plans shall be provided, showing the area covered by that automatic controller. The area of coverage of each automatic control valve shall be identified using a distinctly different pastel color, drawn over the entire area of coverage. Following approval of charts by the Engineer, they shall be hermetically sealed between two layers of plastic sheet, each 20 mils thick.

623.27 Warranty. The Contractor shall warranty the irrigation system for the duration of the Landscape Establishment period specified in subsection 40.4 of the City of Arvada Engineering Cod of Standard Specifications. To ensure proper operation of the system, the Contractor shall perform, as required, warranty activities including, but not limited to the following:

(1) Inspection of the system and correction of system leaks, improperly operating valves, clogged emitters, malfunctioning automatic controllers and other components.
(2) Maintaining optimum sprinkler coverage.
(3) Adjusting sprinkler head elevations relative to finish grade.

In an emergency the Contractor shall correct all deficiencies within 24 hours of notification by the Engineer. The Contractor shall perform irrigation system inspections at least once per week and after each mowing. The Contractor shall make corrections as necessary to ensure proper operation. The Contractor shall document each inspection in writing and submit it to the Engineer.

623.28 Final Landscape Acceptance. Before final landscape acceptance is granted, the Contractor shall perform an overall operation and pressure test and confirm the irrigation system is correctly functioning. This includes two weeks on “Flow” to be verified by the City of Arvada. The Contractor shall inspect every sprinkler and as necessary, raise or lower those sprinklers which are no longer at the proper elevation relative to the finish grade as shown in the plans. The Contractor shall complete Spring start-up (pressurization) and repair all damage to the irrigation system.

623.29 Cleanup. Upon completion of the work, the Contractor shall restore ground surfaces to required elevations and remove excess materials, debris, and equipment from the site.

623.30 Not Used

623.31 Irrigation Scheduling. The Contractor shall submit recommendations for the project’s initial irrigation operating schedule for optimum plant establishment to the Engineer.

METHOD OF MEASUREMENT

623.32 All equipment, materials and labor associated with this work shall measure be lump sum.

BASIS OF PAYMENT

623.33 The accepted quantities will be paid for at the contract unit price for the item below that appears in the bid schedule.
Payment will be made under:

Pay Item	**Pay Unit**
Irrigation	LS

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REVISION OF SECTION 623
IRRIGATION SYSTEM

Water lines will be paid for as provided in Section 619.

Kick blocks, unions, fittings, filter fabric, valve access sleeves, valve boxes, piping and wire inside boxes, keys, and aggregate for valves will not be paid for separately but shall be included in the work.

Structure excavation and backfill including compaction and water will not be paid for separately, but shall be included in the work.

Concrete pad, bolts, enclosure, ground wire, and all other items necessary to complete the work shall be included in the price of the automatic controller.

Capillary tubing, tubing stakes, enclosure box and debris caps shall be included in the price of the drip emitter.

System flushing and adjustment, pressure and coverage tests, maintenance manuals, and training will not be paid for separately, but shall be included in the price of the work.

The backflow preventer enclosure and pad will not be paid for separately, but shall be included in the work. Detectable Underground Marking Tape will not be paid for separately, but shall be included in the work.

Advisor Message Receiver pagers and hand held two-way radios will not be paid for separately, but shall be included in the work. Warranty work will not be measured and paid for separately, but shall be included in the work.

REVISION OF SECTION 625
CONSTRUCTION SURVEYING

Section 625 of the Standard Specifications is hereby revised for this project as follows:

Subsection 625.03 shall include the following:

The horizontal and vertical control for this project has been established as shown on the plans. All available information defining the extent of that control is provided on the plans or is available from the Engineer. Construction surveying shall be performed by a licensed Professional Land Surveyor in the State of Colorado.

The project AutoCAD files will be made available to the Contractor, under the requirement that the Contractor sign a release indemnifying the City and the Design Consultant from any liability incurred by the use of the electronic files.

Survey and staking of proposed special ditches shall be performed by a Professional Land Surveyor.

Subsection 625.06 shall include the following:

Horizontal and vertical tolerances for construction and utility staking shall be +/- 0.01 ft. The Contractor's surveyor may need to use multiple equipment sources to ensure this level of accuracy. All work associated with providing this level of accuracy will not be paid for separately but shall be paid as part of the Construction Surveying pay item.

Subsection 625.11 shall include the following:

When construction is complete, the Contractor shall provide as-built survey data to the City of Arvada. As-built survey data shall include horizontal and vertical information for inlet grates at the flowline, rims of manholes, inverts of all drainage structures and features, minor and major structures, gutter and flow pan flowlines, edges of pavement, edges of sidewalks and other concrete flatwork, roadway crowns, utility features, and any other points requested by the Engineer. All as-built survey data shall be submitted in an electronic format compatible with AutoCAD drawing files. All work associated with obtaining and providing as-built survey data will not be paid for separately but shall be paid as part of the Construction Surveying pay item.

Subsection 625.12 shall include the following:

As existing active and abandoned in-place subsurface utilities (known lines and lines that are discovered) are exposed during construction activities, the Contractor shall survey these line locations for horizontal and vertical locations to comply with Subsurface Utility Engineering (SUE) requirements. This data shall be given to the City as part of the as-built survey data and shall be submitted in an electronic format compatible with AutoCAD drawing files. All work associated with obtaining and providing subsurface utility data will be paid as part of the Utility Surveying lump sum pay item.

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REVISION OF SECTION 625
CONSTRUCTION SURVEYING

In Subsection 625.13 delete the last paragraph and replace with the following:

Traffic control for construction surveying will not be measured and paid for separately but will be included in the work.

Survey for as-built information will not be measured and paid for separately but will be included in the cost of Construction Surveying.

Subsection 625.13 shall include the following:

Pay Item	**Pay Unit**
Construction Surveying	Lump Sum

END OF SECTION REVISION

REVISION OF SECTION 626
MOBILIZATION

Section 626 of the Standard Special Specifications is hereby revised to include the following:

The following items will be paid for under Mobilization

(1) Project office expenses
(2) Field office expenses
(3) Administrative salaried labor
(4) Employee mobilization, sustenance, housing
(5) Yards and stating
(6) Safety training, meetings and supplies
(7) Temporary access and haul roads
(8) Public road maintenance
(9) Erosion control maintenance and protection
(10) Job site cleanup and punch list
(11) Quality control
(12) Permits and fees

BASIS OF PAYMENT

Subsection 626.01 shall include the following:

Partial payments for Mobilization, as determined by the Engineer, will be made as the work progresses. The Contractor shall submit a schedule of estimated mobilization costs for the above items to be approved by the Engineer before payments are made. The total sum of all payments shall not exceed the original contract amount bid for the item, regardless of the fact that the Contractor may have for any reason, including:

(1) Shutting down work on the project
(2) Moving equipment away from the project and then back as multiple mobilization were specifically bid into the Construction Agree Price (CAP) for certain work on the project.
(3) Additional mobilizations unless otherwise approved by the Engineer.

These payments shall be independent of partial payments as defined in Subsection 109.06.

Payments will be full compensation for all work necessary to complete the item.

Payment will be made under:

Pay Item	**Pay Unit**
Mobilization	Lump Sum

Nothing herein shall be construed to limit or preclude partial payments for other items as provided for by the contract

END OF SPECIFICATION

REVISION OF SECTION 626
PUBLIC INFORMATION SERVICES

Section 626 of the Standard Specifications is hereby revised for this project as follows:

Subsection 626.01 shall include the following:

The Contractor shall provide the following public information services on an ongoing basis throughout the duration of the project:

At the preconstruction conference the Contractor shall introduce the Public Information Manager (PIM) for the project and present a public information plan and strategies or methods for communicating project activities. The Contractor shall prepare and submit a preliminary list of stakeholder groups and specific stakeholders who need to receive ongoing communication about the project.

The Contractor's PIM may be a Contractor employee specifically trained as a PIM or he/she may be an approved public information subcontractor. The PIM shall have good verbal and written communications skills. The identity of the PIM and the PIM'S qualifications shall be submitted to the Engineer five days in advance of the preconstruction conference.

The PIM shall be available on every working day, accessible and on call by cell phone at all times and available upon the request of the Engineer at other than normal working hours. The PIM shall communicate with the Engineer daily.

The Contractor shall establish a Public Information Office (PIO) equipped with a telephone and an answering machine or answering device with the capability to record a message from the caller. This may be a cell phone but shall be a local number. The PIO shall be equipped with a computer and an e-mail account. The PIO may or may not be located within the Contractor's regular office provided that the telephone has a local call number. The PIM shall record a friendly greeting on the project's published phone line each week, updating the message throughout the week, as necessary, depending on changes in work schedule, activities and traffic impacts. The recording shall include each week's forthcoming activities including workdays, hours and expected traffic delays, posted detours, project completion date, and office hours. The PIM shall check the answering machine at least twice every calendar day, including weekends. The PIM shall respond to callers and e-mail inquiries as soon as possible, but no later than 24 hours. The PIM shall keep a logbook of all calls including the contact name, date of contact, date responded, the contact's comments, and the action the PIM took. A copy of this log shall be submitted to the Engineer every two weeks or more frequently, as requested by the Engineer. The PIM shall print out or keep electronically e-mail inquiries and responses. These shall be submitted to the Engineer every two weeks or more frequently, as requested by the Engineer.

The PIM shall maintain communications with businesses and individual residences, commuters, local government entities and all other stakeholders that are directly adjacent to and affected by the project, or that express interest in being informed. Using a communications method or strategy approved by the Engineer, the Contractor shall notify stakeholders about the project two weeks prior to beginning any lane restrictions or project activities. Depending upon project impacts, contact with stakeholders may be required daily, weekly, monthly or periodically throughout the duration of the project. Communications tools could include hand flyers, door hangers, newsletters, maps, mailers, using e-mail distribution lists, etc. All public information correspondence and subsequent updates shall be submitted to both the City's Region Public Relations Manager and the Engineer 48 hours (two business days) before distribution and will be approved by the City's Region Public Relations Manager before distribution.

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REVISION OF SECTION 626
PUBLIC INFORMATION SERVICES

Each communication tool shall include contact information, PIM's name, office phone, and the City's website address with the City of Arvada logo. Cell phone numbers and e-mail addresses shall be provided where service is available. The communication shall include the description of work, lane restrictions, a detour map if warranted, the anticipated start and completion dates, hours of operation and work schedule, and a Slow for the Cone Zone message. The City's Public Relations Manager and/or Engineer will provide additional text for inclusion, if warranted.

The Contractor shall erect construction traffic signs with the dates the Contractor expects to initiate and complete construction and with the Contractor's public information office's or PIM's phone number at each major approach to the project. The signs shall conform to the requirements of Section 630 and shall be erected at least one week prior to the beginning of construction. These signs shall be updated if the project schedule changes, at no cost to the project.

The City's Public Relations Manager or contractor's designee will write and distribute all News Releases to the media and handle all media relations and outreach unless otherwise directed by the Engineer.

The Contractor superintendent or PIM shall submit weekly lane closure reports to the Engineer and to the City's Public Relations Manager, using the template provided by the Project Manager.

The Public Information Services Contact Sheet shall include the following:

Owners:

City of Arvada
Name: Bill Cornelius, PE, Project Manager
Address: 8101 Ralston Rd., Arvada, CO 80002
Phone: 720-630-0993
Email: bcornelius@arvada.org

Other Contacts:

Fire Department:
Name: Steven Parker, Fire Marshall
Fairmount Fire Protection District
Address: 4755 Isabell St., Golden, CO 80403
Phone: 303-424-3012 Fax: 303-278-1252
Email: steven.parker@arvadafire.com

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REVISION OF SECTION 626
PUBLIC INFORMATION SERVICES

Rachael Kuroiwa City of Arvada 8101 Ralston Road, Arvada, CO 80002
Address: 8101 Ralston Road, Arvada, CO 80002
Phone: 303-898-7607
Email: rkuroiwa@arvada.org

Police Department

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REVISION OF SECTION 626
PUBLIC INFORMATION SERVICES

Subsection 626.02 shall include the following:

The Engineer will monitor the PIM and all public information services. When the Contractor provides acceptable public information services in accordance with these specifications, partial payments for the pay item Public Information Services will be made as the work progresses. These partial payments will be made as follows:

When 5 percent of the original Contract amount is earned, 25 percent of the amount bid for this item will be paid.

When 10 percent of the original Contract amount is earned, 40 percent of the amount bid for this item, less all previous payments, will be paid.

When 25 percent of the original Contract amount is earned, 50 percent of the amount bid for this item, less all previous payments, will be paid.

When 75 percent of the original Contract amount is earned, 75 percent of the amount bid for this item, less all previous payments, will be paid.

When 100 percent of the original Contract amount is earned, 100 percent of the amount bid for this item, less all previous payments, will be paid.

Failure to provide acceptable public information services will result in withholding of progress payment for this item. Continued failure to provide the services required will result in non-payment of the corresponding percentage of the original bid item and may result in suspension of the work in those areas affected until acceptable public information services are provided by the Contractor.

For the purpose of public information services, the term “original Contract amount” as used above, shall mean the amount bid for the construction items on this Contract, not including the amounts bid for Public Information Services and Mobilization, and “aggregate Contract amount earned” shall mean the net amount on the current monthly pay estimate, not including the amounts earned for Public Information Services and Mobilization.

Payment for Public Information Services will be full compensation for all fliers, public information office, telephone lines, signs, and all other labor and materials required to complete the item, except signs.

Payment will be made under:

Pay Item	**Pay Unit**
Public Information Services	Lump Sum

END OF SECTION REVISION

REVISION OF SECTION 630
PORTABLE VARIABLE MESSAGE SIGN

Section 630 of the Standard Specifications is hereby revised for this project as follows:

Subsection 630.01 shall include the following:

This work includes furnishing, operating, and maintaining a Portable Message Sign Panel.

Add subsection 630.031 immediately following subsection 630.03 as follows:

630.031 Portable Message Sign Panel. Portable Message Sign Panel shall be furnished as a device fully self-contained on a portable trailer, capable of being licensed for normal highway travel, and shall include leveling and stabilization jacks. The panel shall display a minimum of three - eight-character lines. The panel shall be a dot-matrix type with an LED legend on a flat black background. LED signs shall have a pre-default message that activates before a power failure. The sign shall be solar powered with independent back-up battery power. The sign shall be capable of 360 degrees rotation and shall be able to be elevated to a height of at least five feet above the ground measured at the bottom of the sign. The sign shall be visible from one-half mile under both day and night conditions. The message shall be legible from a minimum of 750 feet. The sign shall automatically adjust its light source to meet the legibility requirements during the hours of darkness. The sign enclosure shall be weather tight and provide a clear polycarbonate front cover.

Solar powered message signs shall be capable of operating continuously for 10 days without any sun. All instrumentation and controls shall be contained in a lockable enclosure. The sign shall be capable of changing and displaying sign messages and other sign features such as flash rates, moving arrows, etc.

Each sign shall also conform to the following:

(1) In addition to the onboard solar power operation with battery back-up, each sign shall be capable of operating on a hard wire, 100-110 VAC, external power source.
(2) All electrical wiring, including connectors and switch controls necessary to enable all required sign functions shall be provided with each sign.
(3) Each sign shall be furnished with an operating and parts manual, wiring diagrams, and trouble-shooting guide.
(4) The Portable Message Sign shall be capable of maintaining all required operations under Colorado mountain-winter weather conditions.
(5) Each sign shall be furnished with an attached license plate and mounting bracket.
(6) Each sign shall be wired with a 7-prong male electrical plug for the brake light wiring system.

Subsection 630.13 shall include the following:

The Portable Message Sign Panel shall be on the project at least **7 calendar days** prior to the start of active roadway and water line construction. Maintenance, storage, operation, relocation to different sites during the project, and all repairs of Portable Message Sign Panels shall be the responsibility of the Contractor.

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REVISION OF SECTION 630
PORTABLE VARIABLE MESSAGE SIGN

Subsection 630.17 shall include the following:

Portable message sign panels will be measured by the number of approved units in use on the project at any one time.

Subsection 630.18 shall include the following:

Pay Item	**Pay Unit**
Portable Message Sign Panel	Each

REVISION OF SECTION 630
TRAFFIC CONTROL

Section 630.01 General shall include the following:

The City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements dated January 12, 2016 shall be utilized. Where those specifications and standards are in conflict with any portion of Section 50, the City Standards and Specifications shall take precedence.

The contractor shall notify, at a minimum, City of Arvada Police Department, Arvada Fire Protection Agency, RTD, as well as City of Arvada Traffic Engineering when closures and detours are required.

Contractor shall propose their won traffic control phasing in an effort to increase their efficiency and timing of construction. At a minimum, unless otherwise approved by the City of Arvada Traffic Engineer, the contractor shall maintain a minimum of one travel lane in each direction on 72nd Avenue during construction and meet the conditions listed in the traffic control notes and plans in the project plans.

The contractor shall submit a Method of Handling Traffic (MHT) to the City of Arvada for review and approval for all phases, closures, detours, mini-phases and portions of work. Construction traffic control devices shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) current edition.

Contractor shall maintain business, residential and side street access at all times, unless otherwise approved by the City of Arvada. This information shall be included in the MHT to be reviewed by the City of Arvada.

The Contractor shall provide the City 48-hour notice of any change in traffic control or detours.

Special Traffic Control requirements for this project are as follows:

This project includes restrictions to work times and days that affect traffic during peak traffic times and days, holidays, holiday evenings, holiday weekends, and other circumstances as described in this special provision. Wherever other laws, ordinances, regulations, or orders are more restrictive, they shall take precedence over these requirements.

All lane closures shall be subject to the approval of the City of Arvada Traffic Engineering Division. Each lane closure request shall be made at least 48 hours in advance of the time the lane closure is to be implemented. Lane closures will not be allowed to remain unless being continuously utilized for the purpose for which they were set up. Full roadway closures shall be requested at least two weeks in advance of closure initiation.

The Contractor shall coordinate and cooperate fully with the City of Arvada, utility owners and other contractors to assure adequate and proper traffic control is provided at all times. The Contractor shall coordinate and cooperate fully with any others providing traffic control for other operations to assure that work or traffic control devices do not interfere with the free flow of traffic except as allowed by the approved MHT.

Excavations or holes shall be filled in at the direction of the Project Inspector when unattended. During non-construction periods (weekends, holidays, etc.), all work shall be adequately protected to provide for the safety of vehicular and pedestrian traffic, as detailed in the Contractor’s approved MHT.

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REVISION OF SECTION 630
TRAFFIC CONTROL

A. CONSTRUCTION REQUIREMENTS:

During construction of this project, traffic shall use the present traveled roadway at all times in each direction unless otherwise directed or authorized by the Project Engineer.

The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time unless otherwise approved by the Project Engineer. All personal vehicle and construction equipment parking is prohibited where it conflicts with safety, access, or the flow of traffic.

Contractor shall install construction traffic control devices in locations where they do not block or impede other existing traffic control devices.

Contractor and subcontractors shall equip their construction vehicles with flashing amber lights. Flashing amber lights on vehicles and equipment shall be visible from all directions.

Traffic control devices used on this project shall be kept clean and in good working order at all times.

Existing signs or other traffic control devices damaged due to the Contractor's operations shall be replaced in-kind or repaired by the Contractor at no additional cost to the project.

All advanced construction signing shall be installed prior to any construction activity and shall remain in place for all work periods. Road Work Ahead advance signs shall be reset as required to match the location of the work. Resetting construction signs during construction as required by the work is considered incidental to the project and will not be paid separately. Masking of existing or temporary signs as may be required by the work is considered incidental to the project and will not be paid for separately.

All flaggers used on this project shall be certified by an accredited organization approved by the City of Arvada. Proof of certification shall be provided to the Project Engineer. Night flagging is not allowed on this project except in cases of emergency.

The Contractor shall maintain frequent communication with the Project Engineer regarding all aspects of the daily and weekly work schedule.

All construction traffic control devices including signs installed under this project shall be installed as depicted in the MUTCD and City Standards and Specifications. Construction signing shall be removed unless work is in progress or equipment has been left on the job site. Costs of removing, resetting or reinstalling construction traffic control devices shall be incidental to the work and will not be paid for separately.

Traffic control devices shall not be stored on the project site.

At least one week prior to starting construction, the Contractor shall notify the City of Arvada Project Engineer of the date the Contractor intends to start construction.

The Contractor shall not deviate from the original approved MHT. If the original MHT requires modification, the Contractor must submit a revised plan to the Project Engineer for review and approval.

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REVISION OF SECTION 630
TRAFFIC CONTROL

All locations that are to be left unfinished overnight must have barricade devices with lights on them. All barricading shall be done in accordance with the MUTCD. If barricades are to be left up overnight they must be lit. It is the Contractor's responsibility to field inspect the work site after dark to ensure that all lights are operating properly.

Upon completion of work for the day all construction signs must be made so that they are not visible to traffic and do not pose a hazard to vehicles, bicycles and/or pedestrians.

The Contractor shall maintain continuous access throughout the project for pedestrians, bicyclists, and disabled persons. When the existing access route is disturbed by construction, a temporary all-weather access shall be provided. All temporary access shall be a minimum of 5 feet wide and meet Americans with Disabilities Act (ADA) requirements. This also includes the use of portable ADA-compliant push buttons at temporary traffic signal installations. Acceptable all weather surfacing shall be concrete or asphalt surface, or as approved by the Project Engineer. The costs of maintaining access will not be paid for separately, but shall be included in the work. Utilization of materials to be incorporated into the work may be permitted; however, any degradation or other contamination or destruction shall be corrected at the Contractor's expense prior to acceptance. Any full closures of pedestrian or bicycle routes shall be signed with appropriate detour routes.

During non-construction periods (evenings, weekends, holidays, etc.) all work shall be adequately protected to ensure the safety of vehicular and pedestrian traffic, as detailed in the Contractor's MHT. Excavations or holes shall be filled in or fenced when unattended.

The Contractor shall not place tack coat on any surface to be paved where traffic will be forced to travel upon fresh bituminous materials.

The Contractor shall clean the roadway of all construction debris before opening it to traffic.

Unless noted otherwise, all costs incidental to the foregoing requirements shall be included in the original contract prices for the project, including any additional traffic control items required for haul routes into the project. Temporary fence required for protection of the work will not be paid for separately but shall be included in the work.

All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

C. LANE AND SHOULDER CLOSURES:

Minor and short-term lane closures may be required to facilitate construction. Lane closures are permitted but are allowed only between the hours of 8:30 A.M. and 3:30 P.M. unless otherwise authorized by the Project Engineer.

D. RESTRICTED AND ALLOWABLE WORK – GENERAL:

No weekend work shall be allowed unless directed or authorized by the Project Engineer.

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REVISION OF SECTION 630
TRAFFIC CONTROL

Night-time work will not be allowed on this project. Unless specifically approved by the City of Arvada of in case of emergency

All costs related to, and incidental to, the foregoing requirements shall be included in the original contract prices and will not be measured and paid for separately.

Section 630.16 Basis of Payment shall include the following:

Payment under Traffic Control will be full compensation for development of an approved MHT, placement, maintenance and removal of all traffic control signage, pedestrian-detour signage, flagging, traffic control management and inspection, traffic control devices, including but not limited to, barricades, channelizing devices, traffic cones and portable message sign panels.

Pay Item	**Pay Unit**
Flagging	Hour
Uniformed Traffic Control	Hour
Traffic Control Inspection	Day
Traffic Control Management	Day
Barricade (Type 3 M-B)(Temporary)	Each
Construction Traffic Sign (Panel Size A)	Each
Construction Traffic Sign (Panel Size B)	Each
Portable Message Sign Panel	Each
Drum Channelizing Device	Each
Concrete Barrier (Temporary)	Linear Foot
Traffic Signal (Temporary)	Each
Impact Attenuator (Temporary)	Each

REVISION OF SECTION 630
UNIFORMED TRAFFIC CONTROL
(LOCAL AGENCY)

Section 630 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of furnishing a uniformed police agency officer from the following location agency to performed uniformed traffic control at signalized intersections where the existing traffic signal is being replaced.

City of Arvada Police Department

(720) 896-6900

When called for in the Contract, this work includes a vehicle for the officer to use in performing uniformed traffic control. The local agency officer shall have completed "The Safe and Effective Use of Law Enforcement Personnel in Work Zones" training course. The Contractor shall provide copies of documentation certifying the officer's successful completion of this course.

METHOD OF MEASUREMENT

Uniformed Traffic Control will be measured by the total number of hours that are required for uniformed traffic control including minimum shift hours required by the agency.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	**Pay Unit**
Uniformed Traffic Control	Hour

Hours of Uniformed Traffic Control that are not authorized or approved will not be paid for. Scheduling of traffic control will not be measured and paid for separately but shall be included in the work.

REVISION OF SECTION 630
TRAFFIC CONTROL MANAGEMENT

Section 630 of the Standard Specifications is hereby revised for this project to include the following:

Section 630.10 shall include the following:

The Contractor's Superintendent and Traffic Control Manager (TCM) shall be equipped with a mobile telephone unit at all times that has a local number for contact with one another, the Project Engineer, or emergency response dispatchers when emergency services are required.

The Traffic Control Supervisor and each flagger shall be equipped, at a minimum, with a handheld radio, 5-watt, FM band capable of transmitting and receiving on three frequencies. The radios shall be equipped with battery chargers and rechargeable batteries.

Subsection 630.14 shall include the following:

Mobile telephone unites and handheld radios will not be measured and paid for separately, but shall be included in the work.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	**Pay Unit**
Traffic Control Management	Day

FORCE ACCOUNT ITEMS

DESCRIPTION

This special provision contains the Department's estimate for force account items included in the Contract. The estimated amounts marked with an asterisk will be added to the total bid to determine the amount of the performance and payment bonds. Force Account work shall be performed as directed by the Engineer.

BASIS OF PAYMENT

Payment will be made in accordance with subsection 109.04. Payment will constitute full compensation for all work necessary to complete the item.

Force Account Item	Estimated Quantity	Amount
F/A Minor Contract Revisions	F.A.	$300,000*
F/A Fuel Cost Adjustment	F.A.	$35,000
F/A Asphalt Cement Cost Adjustment	F.A.	$35,000
F/A Relocate Utilities	F.A.	$50,000*
F/A Erosion Control	F.A.	$25,000
F/A Environmental Health & Safety Management	F.A.	$10,000
F/A Dewatering	F.A.	$25,000
F/A Water	F.A.	$10,000
F/A CMGC Overrun Pool	F.A.	$330,000
F/A Risk Register	F.A.	$365,000

F/A Minor Contract Revisions - This item will cover the cost of unanticipated work that is determined to be necessary as work on the project progresses, which was not shown or described in the Contract plans and specifications. There will be no payment for this force account item unless written authorization is provided to the Contractor from the Engineer.

F/A Fuel Cost Adjustment - Adjustment will be made in accordance with subsection 109.06(i).

F/A Asphalt Cement Cost Adjustment - Adjustment will be made in accordance with the subsection 109.06(j).

F/A Relocate Utilities - This is for additional utility relocation items needed by the project. All items shall be pre-approved by the Engineer prior to being installed or will be at no cost to the project.

F/A Erosion Control - This work consists of minor erosion control work authorized and approved by the Engineer, which is not included in the contract drawings or specifications, and is necessary to accomplish the scope of work for this Contract.

F/A Environmental Health & Safety Management – This item will cover the cost of any abatement needed on the project associated with the shed removals or any other items that come up that require special environmental removals.

F/A Dewatering – This item will cover the cost of minor dewatering work authorized and approved by the Engineer, which is not included in the contract drawings or specifications and is necessary to accomplish

the scope of work for this Contract.

F/A Water – This item will cover purchase and delivery of water used to establish landscaped areas as shown in the plans until the City's irrigation system is in place and operational.

F/A CMGC Overrun Pool – This item will cover items identified in Revision 109 CMGC Overrun Pool

F/A Risk Register – This item will cover items in the Risk Register

END OF SECTION REVISION

UTILITIES

The known utilities within the limits of this project are:

UTILITY COMPANY ADDRESS	CONTACT NAME EMAIL	PHONE/FAX
CenturyLink 5325 Zuni Street, Room 728 Denver, CO 80221	Gary Crispe gcrispe@terratechllc.net	303-995-1456
City of Arvada (COA) Storm and Sanitary Utilities Department 8101 Ralston Road Arvada, CO 8002	Steve Wyant swyant@arvada.org	720-898-7771
City of Arvada (COA) Traffic/Fiber Engineering Department 8101 Ralston Road Arvada, CO 8002	Phil Neal pneal@arvada.org	720-898-7743
City of Arvada (COA) Water Utilities Department 8101 Ralston Road Arvada, CO 8002	Ben Sawaya bsawaya@arvada.org	720-898-7790
Comcast 8490 Umatilla Street Federal Heights, CO 80260	Mike Howard michael_howard2@comcast.com	720-219-0642
MCI Verizon 10000 Park Meadows Dr. Lone Tree, CO 80124	Lane Grady Lane.grady@verizon.com	303-827-9756
Xcel Energy Application for Gas and Electric Services – Builders Call Line	BCLCO@xcelenergy.com	800-628-2121
Xcel Energy – Electric and Gas Distribution 555 Zang St. Ste 250 Lakewood CO 80228	Branda Sloan Branda.L.Sloan@xcelenergy.com	303-628-2276
Zayo 1805 29th St. Ste 2050 Boulder CO 80301	James Black Jamesr.black@zayo.com	719-216-8508

The work described in these plans and specifications requires full cooperation between the Contractor and the utility owners in accordance with Subsection 105.11 in conducting their respective operations, to complete the utility work with minimum delay to the project.

All new underground facilities, including laterals up to the structure or building being served, installed as part of this project must be electronically locatable when installed, in compliance with Colorado Revised Statutes, Title 9, Article 1.5.

PART 1 – CONTRACTOR SHALL PERFORM THE WORK LISTED BELOW:

Coordinate project construction with the performance by the utility owner of each utility work element listed in Part 2 below. Perform preparatory work specified in Part 2 for each utility work element. Provide an accurate construction schedule that includes all utility work elements to the owner of each impacted utility.

Provide each utility owner with weekly updates to the schedule. Conduct detailed utility coordination meetings prior to each construction phase to coordinate all requirements and schedules, and provide other necessary accommodations as directed by the Engineer. Notify each utility owner in writing, with a copy to the Engineer, prior to the time each utility work element is to be performed by the utility owner. Provide the notice with the number of days specified in Part 2 immediately prior to the time the utility work must begin to meet the project schedule.

Provide traffic control, as directed by the Engineer, for any utility work performed by the utility owner within the project limits expected to be coordinated with construction. However, traffic control for utility work outside of typical project work hours shall be the responsibility of the utility owner.

Perform each utility work element for every utility owner listed in Part 1. Notify each utility owner in advance of any work being done by the Contractor to its facility, so that the utility owner can coordinate its inspections for final acceptance of the work with the Engineer. Obtain written acceptance from the utility owner for work performed by Contractor. The Contractor shall provide the utility owner written notice at least thirty days immediately prior to each utility work element expected to be coordinated with construction.

The Contractor shall remove abandoned utility facilities as necessary to accommodate construction of proposed work. The Contractor shall verify with the utility owner if the facility has been abandoned prior to removal.

The Contractor shall follow the utility standards of the City of Arvada (COA), as applicable.

All Utility Owners

The Contractor will contact each utility company a minimum of two (2) business days, unless otherwise noted, prior to working in the utility company's area so that the utility company can provide an inspector and/or complete any necessary adjustments or relocations.

If a need for utility work by either the Contractor or a Utility Company arises, the following shall apply:

> The Contractor shall be responsible for coordinating the adjustment of utilities on this project. The Contractor shall keep each utility company advised of any work being performed in the vicinity of their facilities, so that each utility company can coordinate any needed locates, adjustments or inspections. The Contractor shall provide the appropriate utility company ample notice, but not less than two working days, prior to commencing activities in the vicinity of their facilities. Any additional work performed by the Contractor on behalf of the impacted utility company shall not be paid for by the City of Arvada, but shall be paid by the utility company requiring the work, unless otherwise agreed to in writing by the City of Arvada Engineer.

CenturyLink

The project has a large relocation component (CP 1) that will require these utility owners to relocate their facilities in conflict with the project prior to the beginning of this construction time frame. The Contractor

shall coordinate with CenturyLink regarding the underground relocation work to be completed by CenturyLink prior to construction, as shown on the plans.

The Contractor shall verify the location and depth of CenturyLink's existing conduits where they may conflict with new lighting and electrical equipment, including new light poles, and new traffic signal equipment, and shall coordinate with CenturyLink to adjust the conduits as necessary.

The Contractor shall verify the location and depth of CenturyLink's existing conduits where they may conflict with proposed storm sewer improvements, including new inlets and manholes, and shall coordinate with CenturyLink to adjust the conduits as necessary.

The Contractor shall expose CenturyLink's existing conduit where it may conflict with the new wall from approximately STA 528+00 LT to STA 537+00 LT and STA 533+00 RT and STA 552+00 RT, and shall coordinate with CenturyLink to adjust the conduit as necessary.

The Contractor shall coordinate with CenturyLink regarding the adjustment to final grade of the CenturyLink manholes at approximately STA 519+05 LT, STA 519+15 LT, STA 526+60 LT, and STA 540+80 LT, as shown on the plans.

Timing: The Contractor shall notify CenturyLink a minimum of two weeks in advance of any construction operations commencing near CenturyLink facilities. The underground relocation work is expected to be completed prior to construction. The railroad bore is expected to be completed prior to construction. All manhole adjustments shall be coordinated with construction. It is expected to take two weeks to schedule each manhole adjustment, and one day to complete adjustment work.

The Contractor shall notify CenturyLink at least two weeks in advance of necessary conduit adjustments to be completed by CenturyLink Local forces. This work to adjust conduits shall be coordinated with construction and are expected to take two weeks to complete.

Comcast

The Contractor shall coordinate with Comcast regarding the underground relocation work for Comcast and City of Arvada facilities, to be completed by Comcast prior to construction, as shown on the plans.

The Contractor shall adhere to Comcast's moratorium of construction work on Comcast facilities from the second week of December until the second week of January each year, and other various events requiring increased demand usage.

The Contractor shall verify the location and depth of Comcast's existing conduit where it may conflict with new lighting and electrical equipment, including new light poles, and new traffic signal equipment, and shall coordinate with Comcast to adjust the conduits, as shown on the plans.

The Contractor shall coordinate with Comcast regarding the adjustment to final grade of the Comcast handhole at approximately STA 526+85 RT, as shown on the plans.

Timing: The Contractor shall notify Comcast a minimum of two weeks in advance of any construction operations commencing near Comcast facilities. The underground relocation work is expected to be completed prior to construction. The railroad bore is expected to be completed prior to construction. All handhole and vault adjustments shall be coordinated with construction. It is expected to take two weeks to schedule each handhole and vault adjustment, and one day to complete adjustment work.

City of Arvada Sanitary and Storm

All work on City of Arvada's sanitary sewer facilities shall be in accordance with the current "City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements" and in accordance with approved plans. The Contractor shall provide at least 24 hours advance notification of required inspections.

The Contractor shall notify the City of Arvada Sanitary and Storm staff at least 24 hours in advance of work being conducted in the vicinity of their facilities.

The Contractor shall relocate and install new storm sewer from approximately STA 518+00 RT/LT to STA 553+00 RT/LT and STA 61+00 RT to STA 64+00 RT/LT, as shown in the plans.

The Contractor shall install a stub out service for the sanitary sewer from approximately STA 546+50 LT, as shown in the plans.

Timing: The Contractor shall provide the utility owner written notice 5 days immediately prior to each required inspection.

City of Arvada Traffic/Fiber

All work on City of Arvada's traffic facilities shall be in accordance with the current "City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements" and in accordance with approved plans.

The Contractor shall coordinate with City of Arvada/Comcast regarding the underground relocation work for City of Arvada and Comcast facilities, to be completed by Comcast prior to construction, as shown on the plans. The Contractor will need to coordinate with the City to have new FO lines pulled through and activated for the new traffic signals as shown on the plans.

Prior to installation and final acceptance of the new traffic signals at Oak, Quail and Simms the contractor will need to work with the City of Arvada traffic staff to ensure that all of the equipment and new FO lines are in correct working order prior to abandoning the old equiptment.

Timing: The Contractor shall notify the City of Arvada staff at least 24 hours in advance of work being conducted in the vicinity of their facilities. The underground relocation work is expected to be completed prior to construction. The railroad bore is expected to be completed prior to construction. All pull box installations and relocations described here-in are expected to be completed prior to construction.

City of Arvada Water

All work on City of Arvada's water facilities shall be in accordance with the current "City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements" and in accordance with approved plans.

All work shall be done by a Contractor who is properly licensed with the City of Arvada. The licensed Contractor shall obtain all permits, give twenty-four hours written notice to the Public Works Department Engineering Division, setting forth time construction start or when work is to be resumed following a

delay. The Contractor shall maintain a complete set of approved drawings and specifications, covering the work being performed, on the project site at all times.

The Contractor shall install a new 12”/18” water line from approximately STA 518+90 to STA 552+60 RT, including water meters, side street connections and fire hydrants, as shown on the plans.

The Contractor shall support all waterlines crossing the storm main, storm laterals and sanitary sewers when they are exposed for work to be conducted beneath them.

In the event any additional waterline adjustments are required, the Engineer shall be contacted.

Timing: The Contractor shall notify the City of Arvada staff at least 24 hours in advance of work being conducted in the vicinity of their facilities. The Contractor shall provide the utility owner written notice 5 days immediately prior to each required inspection.

Xcel Energy – Electric Distribution

The Contractor shall coordinate with Xcel Energy regarding the underground and overhead electric relocation work to be completed by Xcel Energy prior to construction, as shown on the plans.

The Contractor shall keep 10-feet clearance in all directions from overhead electric lines on this project, and shall confirm any additional clearance requirements with Xcel Energy.

The Contractor shall coordinate with Xcel Energy regarding the relocation of the existing lighting by Xcel Energy to accommodate fifty-percent lighting (temporary lighting) during construction.

Any unforeseen work that has not been identified during the design phase shall be coordinated with construction.

Timing: The Contractor shall notify Xcel Energy at least two weeks in advance of construction operations commencing near Xcel Energy electric facilities. For any additional relocation work, Xcel will require a forty-five-day lead time, thirty days to design, and three months for construction by Xcel Energy forces.

Xcel Energy- Gas Distribution

The Contractor shall notify Xcel Energy at least forty-five days in advance of work being conducted in the vicinity of Xcel Energy facilities to allow for standby as needed.

The Contractor shall coordinate with Xcel Energy regarding the underground relocation gas work to be completed by Xcel Energy prior to construction, as shown on the plans.

The Contractor shall coordinate with Xcel Enery when installing the water and storm sewer lines under or over the existing gas line at the locations identified in the plans.

The Contractor shall be responsible for potholing the gas line at crossings shown in the plans prior to installing the storm or waterline to verify the depth installed by Xcel in the prior phase of construction.

The Contractor shall be responsible for removing the gas line as shown in the removal plans. Xcel shall be notified in advance prior to this removal being performed.

The Contractor shall support Xcel Energy's gas lines when they are exposed for work to be conducted beneath them if the length of the exposed pipe exceeds the maximum allowable unsupported pipe span shown on Table 7.6.1 below from Xcel.

Table 7.6.1 – Maximum Unsupported Pipe Span

COATED STEEL PIPE (see notes 1, 2, & 4)			PLASTIC PIPE (see notes 1, 3, & 4)		
Nominal Pipe Diameter (in)	Pipe Wall Thickness (in)	Allowable Unsupported Length (ft)	Nominal Pipe Diameter (in)	SDR	Allowable Unsupported Length (ft)
3/4	.113	11	1/2 CTS	7.0	4
			¾ IPS	11.0	5
1	.133	13	1 CTS	11.5	5
			1 IPS	11.0	5
1 1/4	.140	14	1-1/4 IPS	10.0	6
1-1/2	.145	15	1-1/2 IPS	11.0	7
2	.154	18	2 IPS	11.0	7
3	.156 .216	22 21	3 IPS	11.5	9
4	.156 .237	25 24	4 IPS	11.5	10
6	.188 .250	30 30	6 IPS	11.5	12
8	.219 .250	35 35	8 IPS	11.5	14
10	.219 .250	39 39			
12	.250	42			
16	.250	48			
18	.250	51			
20	.250	54			
24	.312	59			
26	.375	61			
30	.375	66			

Any unforeseen work that has not been identified during the design phase shall be coordinated with construction.

Timing: The Contractor shall notify Xcel Energy at least forty-five days in advance of work being conducted in the vicinity of Xcel Energy facilities to allow for standby as needed. For any additional relocation work, Xcel will require a forty-five-day lead time, thirty days to design, and three months for construction by Xcel Energy forces.

PART 2 UTILITY OWNERS SHALL PERFORM THE WORK LISTED BELOW:

Although the Contractor shall provide traffic control for utility work expected to be coordinated with construction, traffic control for utility work outside of typical project work hours or outside of project limits shall be the responsibility of the utility owner. The utility owner shall prepare and submit to the City of Arvada Engineer a Method of Handling Traffic for utility work to be performed outside typical project work hours or project limits. The utility owner shall obtain acceptance of the Method of Handling Traffic from the City of Arvada Engineer prior to beginning the utility work to be performed outside typical project work hours or project limits.

This work will be performed by the utility owners as necessary to avoid conflicts with construction activities. New locations shall be as indicated in the plans, and changes or new locations shall be coordinated with the Contractor and Engineer. Utility owners shall comply with schedule requirements of

the Contractor and make every effort not to impact the overall construction schedule. Unless otherwise approved by the City of Arvada Engineer, abandoned above-ground appurtenances such as pedestals shall be removed, and abandoned underground utilities and manholes/handholes shall be abandoned in place.

Utility owners shall follow the utility standards of the City of Arvada as stated in the "City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements." In cases where there are discrepancies between the standards the more stringent standard shall apply.

Utility owners shall coordinate with the Contractor and other utility owners.

Utility owners are responsible for obtaining all necessary permits from the City of Arvada, as required.

CenturyLink

CenturyLink shall relocate their overhead facilities underground along W. 72nd Ave., as shown on the plans prior to the start of this phase of construction. Any work that is not completed prior to the start of this construction phase shall be coordinated with the City's Contractor so that the two crews are able to work independently.

Timing: The Contractor shall notify CenturyLink a minimum of two weeks in advance of any construction operations commencing near CenturyLink facilities. The underground relocation work is expected to be completed prior to construction. The railroad bore is expected to be completed prior to construction. All manhole adjustments shall be coordinated with construction. It is expected to take two weeks to schedule each manhole adjustment, and one day to complete adjustment work.

The Contractor shall notify CenturyLink at least two weeks in advance of necessary conduit adjustments to be completed by CenturyLink Local forces. This work to adjust conduits shall be coordinated with construction and are expected to take two weeks to complete.

Comcast

Comcast shall relocate their overhead facilities underground along W. 72nd Ave., as shown on the plans prior to the start of this phase of construction. Any work that is not completed prior to the start of this construction phase shall be coordinated with the City's Contractor so that the two crews are able to work independently.

The Contractor shall adhere to Comcast's moratorium of construction work on Comcast facilities from the second week of December until the second week of January each year, and other various events requiring increased demand usage.

Comcast shall adjust their existing conduits where they may conflict with new lighting and electrical equipment, including new light poles, and new traffic signal equipment, and shall coordinate with the Contractor for any necessary adjustments.

Comcast shall adjust their existing conduits where they may conflict with proposed storm sewer improvements, including new inlets and manholes, and shall coordinate with the Contractor for any necessary adjustments.

Comcast shall adjust to final grade of the Comcast handhole at approximately STA 526+85 RT, as shown on the plans. Comcast shall coordinate with the Contractor for any necessary adjustments.

Timing: The Contractor shall notify Comcast a minimum of two weeks in advance of any construction operations commencing near Comcast facilities. The underground relocation work is expected to be completed prior to construction. The railroad bore is expected to be completed prior to construction. All handhole and vault adjustments shall be coordinated with construction. It is expected to take two weeks to schedule each handhole and vault adjustment, and one day to complete adjustment work.

City of Arvada Sanitary and Storm

City of Arvada staff shall inspect the utility work performed by the Contractor listed in Part 1 above.

Timing: The Contractor shall notify the City of Arvada staff at least 24 hours in advance of work being conducted in the vicinity of their facilities. The Contractor shall provide the utility owner written notice 5 days immediately prior to each required inspection.

City of Arvada Traffic/Fiber

City of Arvada Traffic/Fiber forces shall work with the contractor related to final adjustments to their facilities from the previous relocations. Any work that is not completed prior to the start of this construction phase shall be coordinated with the City's Contractor so that the two crews are able to work independently.

Timing: The Contractor shall notify the City of Arvada staff at least 24 hours in advance of work being conducted in the vicinity of their facilities. The underground relocation work is expected to be completed prior to construction. The railroad bore is expected to be completed prior to construction. All pull box installations and relocations described herein are expected to be completed prior to construction.

City of Arvada Water

City of Arvada staff shall inspect the utility work performed by the Contractor listed in Part 1 above.

Timing: The Contractor shall notify the City of Arvada staff at least 24 hours in advance of work being conducted in the vicinity of their facilities. The Contractor shall provide the utility owner written notice 5 days immediately prior to each required inspection.

Xcel Energy- Gas Distribution

Xcel Energy shall coordinate with the Contractor and shall relocate or adjust Xcel Energy gas facilities within the project limits per the City of Arvada and Xcel Energy Franchise Agreement prior to construction of this package (CP 2). When an unforeseen relocation or adjustment is necessary, Xcel Energy shall coordinate with the Contractor to schedule and facilitate the work by Xcel Energy forces.

Xcel Energy shall relocate their 3" and 4" gas main facilities in W. 72nd Ave. to accommodate proposed roadway and drainage improvements, as shown on the plans.

Xcel Energy shall coordinate with the Contractor when Xcel's gas lines need to be supported in place by the Contractor for work to be conducted beneath them.

Timing: The Contractor shall notify Xcel Energy at least forty-five days in advance of work being conducted in the vicinity of Xcel Energy facilities to allow for standby as needed. For any additional relocation work, Xcel will require a forty-five-day lead time, thirty days to design, and three months for construction by Xcel Energy forces.

Zayo

Zayo shall relocate their underground facilities underground in Oak St. crossing W. 72nd Ave., as shown on the plans.

Timing: The Contractor shall notify Zayo a minimum of two weeks in advance of any construction operations commencing near Zayo facilities. The underground relocation work is expected to be completed prior to construction. Any necessary handhole and vault adjustments shall be coordinated with construction. It is expected to take two weeks to schedule each handhole and vault adjustment, and one day to complete adjustment work.

GENERAL:

Utilities are depicted on these plans in accordance with their achieved “Quality Level” as defined in the American Society of Civil Engineer’s document ASCE 38, “Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data. Reliance upon these data for risk management purposes during bidding does not relieve the excavator or utility owner from following all applicable utility damage prevention statutes, policies, and/or procedures during excavation.

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavating or grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days, not including the actual day of notice, prior to commencing such operations. The Contractor shall contact the Utility Notification Center of Colorado (UNCC) at phone no. **811 or 1-800-922-1987**, to have locations of UNCC registered lines marked by member companies. All other underground facilities shall be located by contacting the respective owner. Utility service laterals shall also be located prior to beginning excavation or grading.

The locations of utility facilities as shown on the plan and profile sheets were obtained from the best available information. No warranty is made for the adequacy or accuracy of subsurface information provided. The Contractor shall cooperate with the utility owners in their relocation operations as provided in subsection 105.11 of the Standard Specifications for Road and Bridge Construction. No guarantee is made that utility conflicts will be resolved prior to construction activities and any delays resulting from utility relocation work shall be dealt with in accordance with subsection 108.08 of the Standard Specifications for Road and Bridge Construction as amended.

All costs incidental to the foregoing requirements will not be paid for separately, but shall be included in the work.

SHANNON & WILSON
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

February 26, 2021

Geoff Mestas, PE
Muller Engineering Company, Inc.
777 S. Wadsworth Boulevard, Suite 4-100
Lakewood, CO 80226

RE: MODULAR BLOCK RETAINING WALLS, WEST 72ND AVENUE, KIPLING STREET TO SIMMS STREET PROJECT, ARVADA, COLORADO

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Dear Mr. Mestas:

This letter presents geotechnical recommendations for five proposed Magnum Stone modular block retaining walls indicated below. Refer to Figure 1 for the approximate wall locations. Based on Muller Engineering Company's preliminary plans (Muller)[1], we understand six modular block gravity walls designated Walls A through F are proposed along W. 72nd Avenue (72nd). We understand that geotechnical recommendations are not required for Wall A as this wall is anticipated to retain less than 4 feet of soil. Retaining Walls B through F are summarized below:

- *Wall B:* 3- to 8-foot high fill wall south of 72nd approximately between Station (Sta.) 523+60 and 524+85
- *Wall C:* 2- to 8-foot high cut wall north of 72nd between Sta. 527+30 and 537+80
- *Wall D:* 6- to 9.5-foot high fill wall south of 72nd between Sta. 533+00 and 536+80
- *Wall E:* 2- to 11-foot high fill wall south of 72nd between Sta. 536+85 and 552+40
- *Wall F:* 2- to 8-foot high cut wall north of 72nd between Sta. 537+50 and 540+00

FIELD EXPLORATION AND LABORATORY TESTING

Shannon & Wilson conducted an exploratory subsurface geotechnical investigation along the 72nd corridor in 2014 and 2019. The geotechnical investigation is summarized in our

[1] Muller Engineering Company, Inc., 2020, City of Arvada, W. 72nd AVE. Improvements Construction Package No. 2, West 72nd Ave - Wall A through Wall F, General Layout, August 17, 2020 document print date.

August 3, 2019 draft Geotechnical Data Report.[2]. Thirteen borings (designated SW-101, SW-102 and SW-106 through SW-116) were completed in the vicinity of the retaining walls. Refer to Figure 1 for the approximate boring locations in relation to the proposed retaining walls. Laboratory testing completed on the near-surface soils included tests for natural water content, Atterberg limits, mechanical gradation, swell/collapse, and corrosion.

SUBSURFACE CONDITIONS

Borings SW-101 through SW-116 encountered similar subgrade soils consisting of alluvial overburden soil overlying bedrock. The overburden soil generally consists of medium stiff to very stiff clay with varying plasticity and percentages of sand. Layers of loose to medium dense clayey sand were also observed, often interbedded in the overburden clay.

The bedrock encountered consisted of weathered Denver Formation claystone and sandstone. The thickness and degree of weathering varied, but 2 to 10 feet of completely weathered bedrock was observed in borings SW-101, SW-108, SW-109, SW-111 through SW-113, SW-115, and SW-116, with penetration test blow counts indistinguishable from the overburden soils. Typically, bedrock consisted of very low strength, highly to moderately weathered claystone and sandstone. Boring SW-114 encountered very low strength, moderately weathered siltstone.

The depth to the top of bedrock varied along the project alignment. At the western extent of the project, near Wall A and B, bedrock was encountered at a depth of 20 and 25.7 feet below the ground surface (bgs), in borings SW-101 and SW-102, respectively. Bedrock was encountered at shallower depths in the other borings adjacent to Walls C through F. Typically, bedrock was encountered between 4 to 9 feet bgs, except for borings SW-107 and SW-114, where bedrock was observed at 2.3 and 3.4 feet, respectively. From boring SW-114, to boring SW-01 the depth to the top of bedrock increased to 12 feet bgs..

SWELLING SOIL AND BEDROCK

Expansive and collapsible soils are common along the Front Range of Colorado. To evaluate the potential for swell at the site, we performed Atterberg limits, moisture content,

[2] Shannon & Wilson, 2019, Draft Geotechnical Data Report, W. 72nd Avenue, Kipling Street to Simms Street, Arvada, Colorado; prepared by Shannon & Wilson, Inc. of Denver, Colorado for Muller Engineering Company; job no. 101617-001; dated September 4, 2019.

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and swell/consolidation tests on soil samples encountered in our explorations. The results are summarized in Exhibit 1.

As indicated in Exhibit 1, swell test results along 72nd generally indicated a swell of 1.5% or less where shallow claystone was observed. In addition to the swell testing, we compared the in-situ moisture content of the subgrade to the plastic limit in each test. The in-situ moisture content was greater than the plastic limit, which is consistent with low swell susceptibility. Based on the results, it is our opinion that the swell susceptibly is generally low at the proposed modular block retaining wall locations.

Exhibit 1: Summary of Laboratory Test Results

Boring	Sample Depth	USCS	AASHTO Classification	Percent[1] Fines	LL	PL	Percent Swell	Moisture Content (%)
SW-01	7.5 to 8.5 ft	SC	A-7-6 (7)	44	43	14	-0.2	22.8
SW-101	2.5 to 3.5 ft	CH	A-7-6 (42)	95	58	13	1.3	23.9
SW-102	4.5 to 5.5 ft	SC	A-6 (8)	48	39	12	-0.1	12.5
SW-103	2.5 – 3.5	CL	A-7-6 (17)	63	46	13	0.6	17.3
SW-106	4.5 to 5.5 ft	CH	A-7-6 (22)	62	56	15	1.1	17.3
SW-108	2.5 to 3.5 ft	CH	A-7-6 (40)	80	69	21	0.7	28.3
SW-112	2.5 to 3.5 ft	CH	A-7-6 (27)	65	69	18	0.2	23.8
SW-113	2.5 to 3.5 ft	SC	A-7-6 (20)	48	70	14	0.3	17.0

NOTES:

1 Fines are particles passing the No. 200 sieve.

AASHTO = American Association of State Highway; ft = feet; LL = Liquid Limit; PL = Plastic Limit;

USCS = Unified Soil Classification System

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SEISMIC HAZARDS AND GROUND MOTION DESIGN PARAMETERS

The Front Range of Colorado is an area of low risk potential for damaging earthquakes. The nearest mapped fault that may have Quaternary (less than about 2.6-million-year) movement is the Golden Fault, located approximately 6 miles to the west of the site.[3] It is our opinion that the risk for the walls incurring seismic related damage is low given the distance to the Golden Fault and the infrequent recurrence of earthquakes on the fault..

[3] U.S. Geological Survey (USGS), 2020, Earthquake Hazards, Faults, Quaternary Fault and Fold Database of the United States, accessed February 23, 2021. Available from: https://www.usgs.gov/natural-hazards/earthquake-hazards/faults?qt-

Using the AASHTO (American Association of State Highway and Transportation Officials)[4] Load and Resistance Factor Design (LRFD) Bridge Design Specifications criteria, and the subsurface conditions encountered in our borings (assuming that similar conditions are present from the maximum depth of our borings to a depth of 100 feet), Site Class D is recommended for the proposed retaining wall.

Ground motion parameters were determined for the project site using the USGS U.S. Seismic Design Map Web Application[5] and procedures recommended by AASHTO (2020). The recommended seismic design ground motion parameters are summarized in Exhibit 2.

Exhibit 2: Seismic Design Parameters

Ground Motion Parameter	Design Value
Peak Ground Acceleration[1], PGA_B	0.061 g
Site Class	D
Short-period (0.2-sec) Spectral Acceleration, S_S	0.13 g
Long-period (1.0-sec) Spectral Acceleration, S_1	0.034 g
Site Factor for PGA, F_{PGA}	1.6
Site Factor for S_S, F_a	1.6
Site Factor for S_1, F_v	2.4
Peak Design Spectral Acceleration, A_S	0.098 g
Short-period (0.2-sec) Design Spectral Acceleration, S_{DS}	0.208 g
Long-period (1.0-sec) Design Spectral Acceleration, S_{D1}	0.083 g
T_0	0.079 sec.
T_S	0.397 sec.

NOTES:

1 PGA_B refers to peak ground acceleration for a site underlain by Site Class B soil (soft rock).

g = gravity; sec. = seconds

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[4] American Association of State Highway and Transportation Officials (AASHTO), 2020, AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 9th Edition: Washington, D.C., American Association of State Highway and Transportation Officials.

[5] USGS, 2021, U.S. Seismic Design Maps Web Application, available from: http://earthquake.usgs.gov/designmaps/us/application.php.

MODULAR BLOCK RETAINING WALLS

Based on preliminary plans (Muller, 2020) and cross sections[6] of the proposed modular block walls, the exposed heights of the cut walls located along the north side of 72nd (Walls A, C, and F) range from approximately 2 to 8 feet, with backslopes ranging from horizontal to 2 horizontal to 1 vertical (2H:1V). The toe slopes are horizontal. The fill walls located along the south side of 72nd (Walls B, D, and E) will retain fill with heights ranging from approximately 2 to 11 feet, with a horizontal backslope, and toe slopes ranging from horizontal to approximately 2.5H:1V.

Based on discussions with Muller, we understand a proposed fiber optic utility corridor will be located approximately 7 feet behind the face of Walls B and D, and 9.5 feet back for portions of Wall E and that the existing utilities within this corridor will be relocated prior to construction of the modular block walls. Placement of all proposed utilities and relocations of existing utilities should be coordinated with the construction phasing and design layouts of the modular block retaining walls to avoid any conflicts.

The following design recommendations are based on the CDOT's Geotechnical Design Manual (GDM)[7] and the AASHTO LRFD Bridge Design Specifications (2020). The recommendations are based on the following design assumptions:

- The bottom of wall will be embedded a minimum of 3 feet below final grade (frost depth).
- The walls will be backfilled with Colorado Department of Transportation (CDOT) Class 1 Structure Backfill moisture-treated and compacted to 95 percent of modified proctor, or an approved equivalent backfill material, in the 1H:1V zone extending upward from a point 1.5 feet behind the heel of the wall.
- The walls will be founded on a variable subgrade ranging from stiff lean to fat clay and loose, clayey sand to sandstone (based on borings SW-101, SW-102, and SW-106 through SW-115), depending on the location.

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[6] Muller, 2021, City of Arvada, W. 72nd Ave. Improvements Construction Package No. 2, Cross Section, W. 72nd Avenue, February 4, 2021 document print date.

[7] Colorado Department of Transportation (CDOT), 2017, Geotechnical Design Manual, available to download at https://www.codot.gov/business/designsupport/materials-and-geotechnical/programs/geotech/docs/cdot-gdm.

- Drainage measures will be provided to prevent hydrostatic pressures from developing on the wall. If subsurface drainage cannot be provided, the walls should be designed for hydrostatic pressures.

Lateral Earth Pressures

Our recommended lateral load design parameters for the retaining walls are provided in Exhibit 3. Surcharge loads, such as motor vehicles and construction equipment, will induce lateral loads on retaining walls and buried structures. Consistent with AASHTO (2020) criteria, we recommend utilizing a live load traffic surcharge of 250 pounds per square foot (psf) for areas subject to motor vehicle loading and 75 psf for bikeways and sidewalks. Lateral loads due to various types of surcharges may be calculated using the earth pressure coefficients provided in Exhibit 3 and the diagrams provided in Figure 2, along with appropriate load factor(s).

Exhibit 3: Modular Block Wall Lateral Load Design Parameters

Design Parameter[1,]			Value
CDOT Class 1 Structure Backfill	Total Unit Weight (pcf)		135
	Effective Friction Angle (degrees)		34
	Cohesion (psf)		0
	Horizontal Backslope	Active Earth Pressure Coefficient, K_A	0.28
		Equivalent Fluid Density for Active Conditions (pcf)	38
	2H:1 Backslope	Active Earth Pressure Coefficient, K_A	0.42
		Equivalent Fluid Density for Active Conditions (pcf)	56

NOTES:

1 The modular block wall backfill should be free draining (i.e., no differential hydrostatic pressures are assumed).

2 Anticipated embedment depth is 3 feet. Passive resistance should be ignored.

3 For backslopes between horizontal and a 2H:1V, linear interpolation between the above values should be used.

4 Active earth pressure conditions assume the top of the modular block wall are anticipated to deflect 0.001 times the height of the walls where the wall height is defined from the top of wall to the bottom of the modular block foundation.

pcf = pounds per cubic foot; psf = pounds per square foot

Resistance to the lateral loads can be provided by sliding against the base of the retaining wall. Exhibit 4 provides our recommendations for sliding resistance .

Exhibit 4: Modular Block Retaining Wall Lateral Resistance Design Parameters

Design Parameter	Value
Nominal Coefficient of Friction for Sliding[1]	Note 1
Strength and Extreme Limit State Resistance Factor for Sliding [2]	1.0

NOTES:

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1 Nominal sliding resistance value should be determined by the modular block manufacturer based on a subgrade effective shear strength friction angle of 28 degrees with no cohesion.

2 Anticipated footing embedment depth is 3 feet. Passive pressures should be ignored.

Bearing Resistance and Global Stability

Exhibit 5 provides our recommended bearing resistance design parameters. In accordance with retaining wall design guidance provided in the GDM, the footing width provided in Exhibit 5 achieves a global stability static factor of safety value of 1.3 or higher.

Exhibit 5: Modular Block Retaining Wall Bearing Resistance Design Parameters

Wall	Maximum[1] Wall Height (ft)	72nd Ave. Stationing	Maximum[2] Toe Slope	Minimum[3, 4, 5] Retaining Wall Footing Width (ft)	Nominal Bearing[4] Resistance (ksf)
B (Fill)	8	-	Horizontal	4	5.5
	6	-	Horizontal	2	5.5
C (Cut)	8	-	Horizontal	4	5.5
	6	-	Horizontal	2	5.5
D (Fill)	9.5	533+00 to 535+00	4H:1V	4	3.9
	9	535+00 to 536+75	2.6H:1V	4	6.0 (‡)
E (Fill)	10.9	537+00 to 540+00	2.5H:1V	6	5.5 (‡)
	10	540+00 to 540+50	Horizontal	4	5.5
	6	540+50 to 542+75, 551+75 to 552+25	Horizontal	2	5.5
F (Cut)	8	-	Horizontal	4	10.0
	6	-	Horizontal	2	10.0

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NOTES:

1 Wall height is defined from the top of wall to the bottom of the modular block foundation.

2 Walls bearing on slopes are reduced by a slope reduction coefficient defined in AASHTO (2020) Section 10.6.3.1.2c

3 Nominal bearing resistance assumes wall bears on native soil prepared in accordance with this letter report. For the portions of Walls D and E indicated with (‡), a total of 24 inches of subgrade overexcavation, in place scarification, and compaction is required directly below the modular blocks foundation.

4 For all proposed walls, less than 1-inch of wall settlement is anticipated.

5 We recommend a strength limit state bearing resistance factor value of 0.45 for the modular block walls, based on AASHTO (2020), Table 10.5.5.2.2-1

ft = feet; ksf = kips per square foot; in = inch

EARTHWORK AND COMPACTION

In accordance with the City of Arvada Standards,[8] the exposed material below the base of the retaining wall should be scarified a minimum depth of 12 inches, moisture treated, and recompacted. If cohesive soils are encountered (AASHTO soil classification A-4, A-6 and A-7), we recommend subgrade soils should be compacted to 0 to 2 percent above optimum moisture content and recompacted to at least 95 percent AASHTO T99 or ASTM D-698 (standard compaction effort). If granular soils are encountered (AASHTO soil classification A-1, A-3, A-2-4 and A-2-5), subgrade soils should be compacted within 3 percent of optimum moisture content and recompacted to at least 95 percent of the maximum dry density as determined by AASHTO T180 or ASTM D-1557 (modified compaction effort).

For sections of Walls D and E indicated in Exhibit 5, due to the relatively steep toe slopes and loose subgrade conditions observed in borings SW-110 and SW-111, we recommend a total thickness of 24 inches of subgrade improvement consisting of overexcavation, in place subgrade scarification, and recompaction below the base of the retaining wall.

Excavation

We anticipate that excavation for the spread footings will occur in fill, alluvium, and bedrock. In general, we anticipate that it will be feasible to excavate the overburden and upper bedrock material at the site using conventional excavating equipment, such as a hydraulic excavator.

DRAFT

[8] Arvada, 2016, Engineering Code of Standards and Specifications; Part II – Construction Materials and Methods, Section 5 - Site Preparation, Excavation and Embankment; dated January 2016, available at: https://arvada.org/source/Engineering-Code/Section-5.Demolition-Site-Preparation-Excavation-and-Embankment.pdf

Temporary Slopes

Temporary excavations will be required to construct several of the proposed retaining walls. The Contractor will be responsible for slope and trench stability during construction. The Contractor should evaluate the stability of temporary slope and excavation configurations that may be required during construction.

The safe slope for the excavation of subsurface materials depends on many factors, including: (1) the presence of groundwater; (2) the type, density, and shear strength of the subsurface materials; (3) the depth of excavation; (4) the presence of adjacent structures; (5) surcharge loading adjacent to the excavation (including excavated material, existing dead or live loads, and construction equipment); and (6) time of construction.

To the extent that temporary excavation slopes are feasible, the following slope conditions are for cost estimating and planning purposes only and limited to slopes up to 20 feet in height. We anticipate that temporary excavations can be made at slopes of 1H:1V to 1.5H:1V in cohesive soils and 1.5H:1V in cohesionless soils, depending on variability in subsurface conditions. Flatter slopes would likely be required if groundwater is encountered during excavation. If temporary slopes will be made, they should be consistent with the Occupational Safety and Health Administration (OSHA) guidelines contained in 29 CFR 1926, Subpart P.[9]

Consistent with conventional practice, the Contractor should be responsible for the actual temporary excavation slopes and shoring, including methods, sequence, and schedule of construction. The Contractor is able to observe the nature and conditions of the subsurface materials encountered and should evaluate the factors discussed above. If instability is observed, slopes should be flattened or shored. All excavations should be compliant with local, state, and federal safety regulations.

The feasibility of temporary slopes in Walls B, D, and E will depend on the final utility locations and depths. Temporary slopes may not be feasible to an adequate excavation depth for the walls. Shoring could be required.

DRAFT

[9] Occupational Safety & Health Administration (OSHA), 1999, 29 CFR 1926, Subpart P.

If you have any questions or would like to discuss the content of this letter, please contact me at (303) 825-3800.

Sincerely,

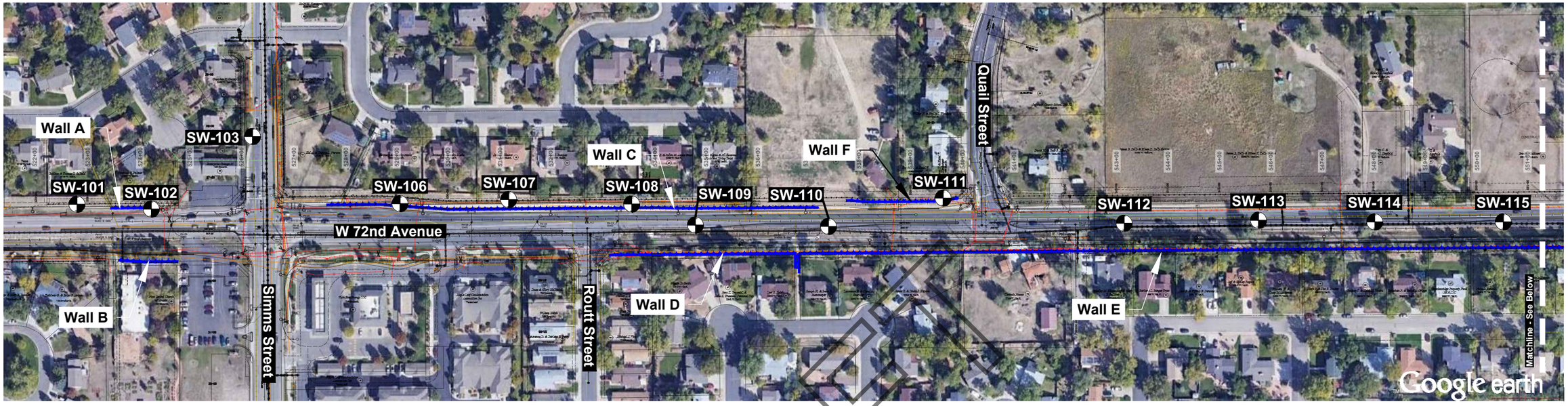
SHANNON & WILSON

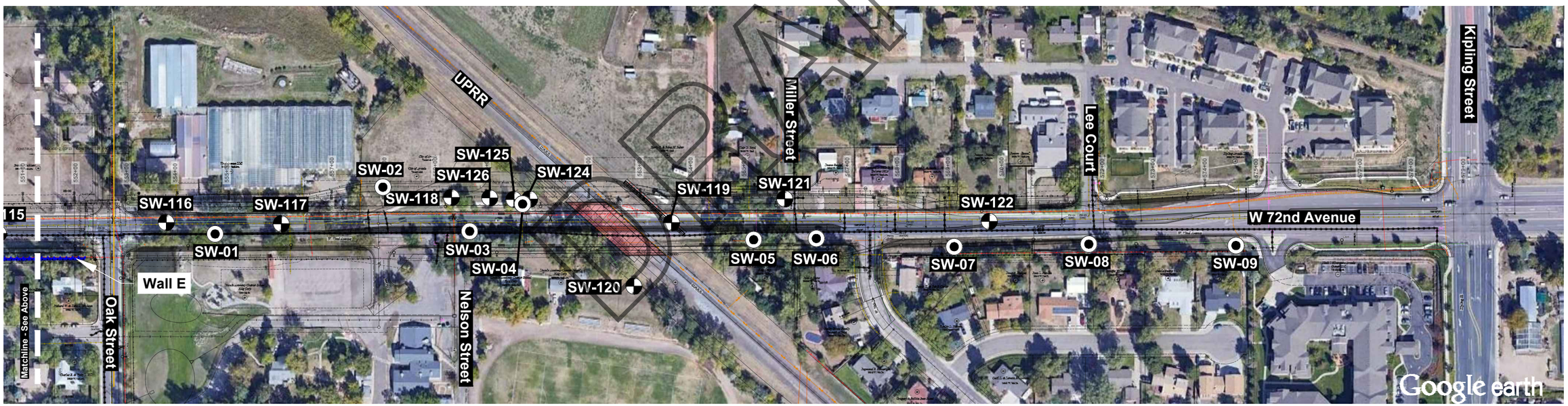
DRAFT

David Asunskis, PE.
Senior Geotechnical Engineer

DAA:DAV/daa

Enclosures:
Figure 1 – Site and Exploration Plan
Figure 2 – Recommended Surcharge Loading for Temporary and Permanent Walls





NOTE

Alignment adapted from W 72nd Ave -Roll Plot with Wall Locations (Muller) dated September 2020

Map adapted from aerial imagery provided by Google Earth Pro, reproduced by permission granted by Google Earth ™ Mapping Service.

LEGEND

2019 Boring Designation and Approximate Location — SW-101

2014 Boring Designation and Approximate Location — SW-01

Retaining Wall Designation and Approximate Location

0 200 400

Scale in Feet

N

West 72nd Avenue
Kipling Street to Simms Street
Arvada, Colorado

SITE AND EXPLORATION PLAN

February 2021 101617-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 1

DRAFT

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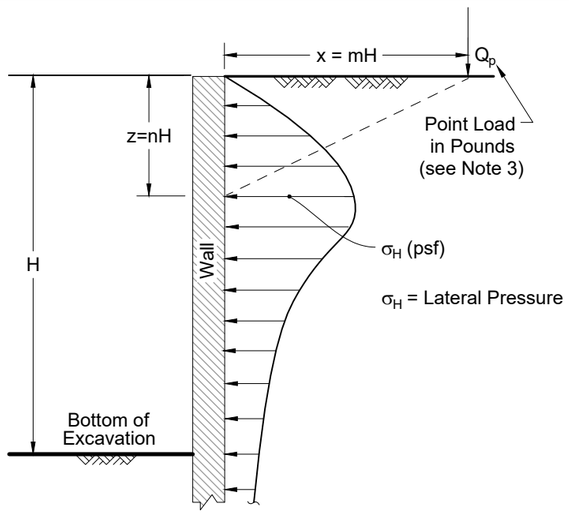
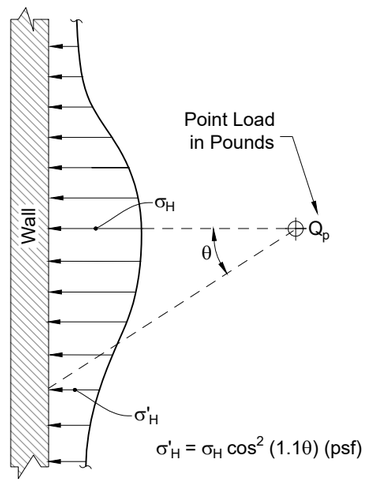


ELEVATION VIEW

For m ≤ 0.4: $\sigma_H = 0.28 \frac{Q_p}{H^2} \frac{n^2}{(0.16 + n^2)^3}$ (psf) (see Note 3)

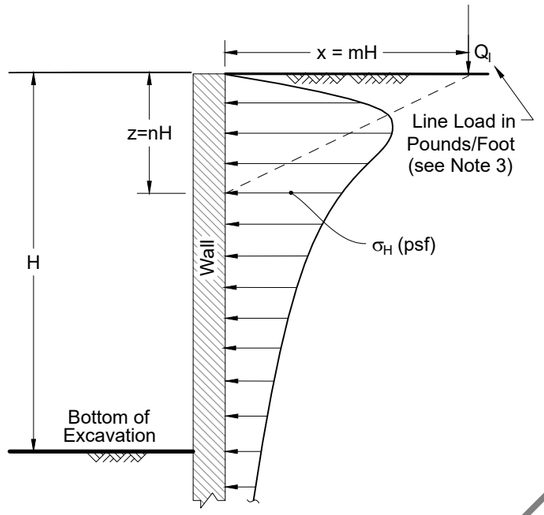
For m > 0.4: $\sigma_H = 1.77 \frac{Q_p}{H^2} \frac{m^2 n^2}{(m^2 + n^2)^3}$ (psf)



PLAN VIEW

A) LATERAL PRESSURE DUE TO POINT LOAD i.e. SMALL ISOLATED FOOTING OR WHEEL LOAD

(NAVFAC DM 7.2, 1986)



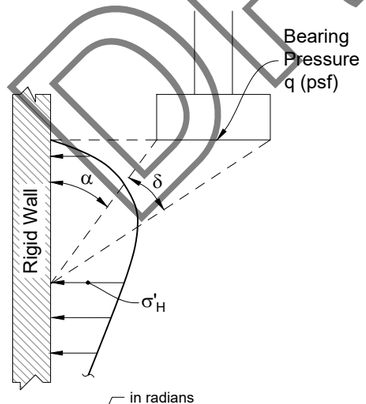
ELEVATION VIEW

For m ≤ 0.4: $\sigma_H = 0.20 \frac{Q_l}{H} \frac{n}{(0.16 + n^2)^2}$ (psf) (see Note 3)

For m > 0.4: $\sigma_H = 1.28 \frac{Q_l}{H} \frac{m^2 n}{(m^2 + n^2)^2}$ (psf)

B) LATERAL PRESSURE DUE TO LINE LOAD i.e. NARROW CONTINUOUS FOOTING PARALLEL TO WALL

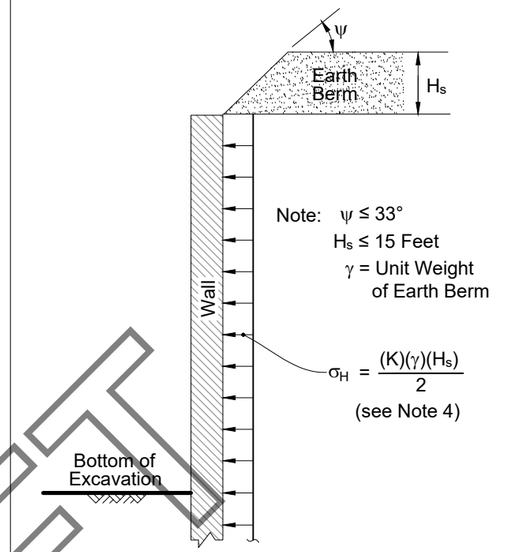
(NAVFAC DM 7.02, 1986)



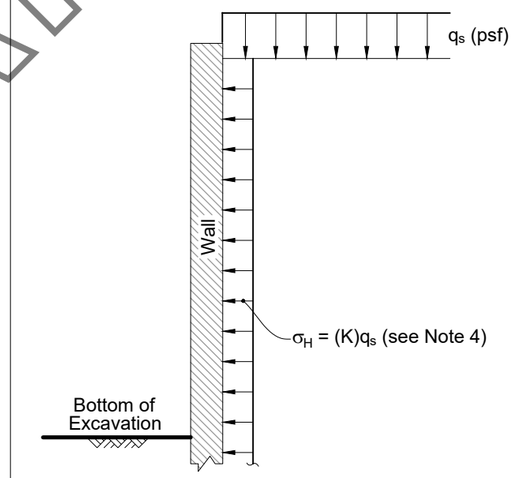
$\sigma_H = \frac{2q}{\pi} [\delta - \sin\delta \cos(\delta + 2\alpha)]$ (psf)

C) LATERAL PRESSURE DUE TO STRIP LOAD

(AASHTO LRFD Bridge Design Specifications, 2017)



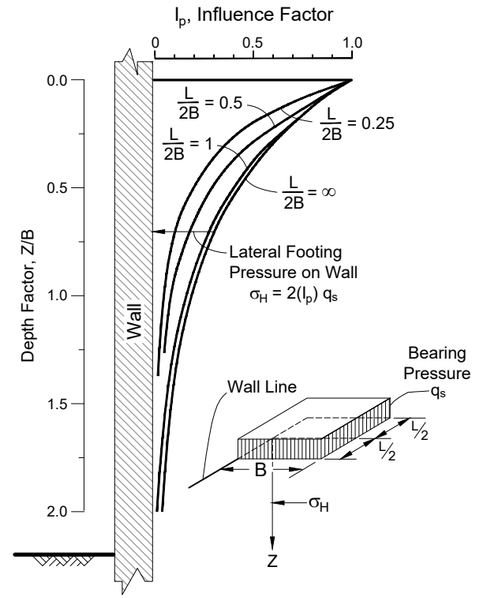
EARTH BERM



UNIFORM SURCHARGE

D) LATERAL PRESSURE DUE TO EARTH BERM OR UNIFORM SURCHARGE

(derived from Poulos and Davis, *Elastic Solutions for Soil and Rock Mechanics*, 1974; and Terzaghi and Peck, *Soil Mechanics in Engineering Practice*, 1967)



E) LATERAL PRESSURE DUE TO ADJACENT FOOTING
(see Notes 5 and 6)

(derived from NAVFAC DM 7.02, 1986; and Sandhu, *Earth Pressure on Walls Due to Surcharge*, 1974)

NOTES

1. Figures are not drawn to scale.
2. Applicable surcharge pressures should be added to appropriate permanent wall lateral earth and water pressure.
3. If point or line loads are close to the back of the wall such that m ≤ 0.4, it may be more appropriate to model the actual load distribution (i.e., Detail E) or use more rigorous analysis methods.
4. See text for recommended K values.
5. The stress is estimated on the back of the wall at the center of the length, L, of loading.
6. The estimated stress is based on a Poisson's ratio of 0.5.

W. 72nd Avenue
Kipling Street to Simms Street
Arvada Colorado

RECOMMENDED SURCHARGE LOADING FOR TEMPORARY AND PERMANENT WALLS

February 2021 102814-001

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2

DRAFT

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Exhibit 2.11.4

Detail drawings and Bid Documents prepared or issued by Arvada, Arvada's Engineer/Architect, or other Arvada consultant

FOR CONSTRUCTION

FEBRUARY 2022

TABULATION OF LENGTH & DESIGN DATA

STATION	ROADWAY FEET	ROADWAY MILES
W. 72nd AVENUE		
BEGIN CONSTRUCTION = STA. 517+87.00	3613.00	0.68
END CONSTRUCTION = STA. 554+00.00		
SIMMS STREET		
BEGIN CONSTRUCTION = STA. 22+44.00	681.00	0.13
END CONSTRUCTION = STA. 29+25.00		
ROUTT STREET		
BEGIN CONSTRUCTION = STA. 30+00.00	126.13	0.02
END CONSTRUCTION = STA. 31+26.13		
QUAIL STREET		
BEGIN CONSTRUCTION = STA. 40+00.00	408.10	0.08
END CONSTRUCTION = STA. 44+08.10		
OAK STREET		
BEGIN CONSTRUCTION = STA. 61+30.00	896.62	0.17
END CONSTRUCTION = STA. 70+47.22		
PROJECT LENGTH	**5724.85**	**1.08**

DESIGN DATA	W. 72nd AVE	SIMMS ST	ROUTT ST	QUAIL ST	OAK ST
DESIGN SPEED	45 MPH	40 MPH	30 MPH	35 MPH	35 MPH
POSTED SPEED	40 MPH	35 MPH	25 MPH	30 MPH	30 MPH
MAXIMUM GRADE	6.58%	8.86%	9.39%	7.40%	9.86%
MINIMUM GRADE	0.18%	1.21%	2.00%	2.00%	1.99%
MINIMUM S.S.D. HORIZONTAL	N/A	N/A	N/A	N/A	N/A
MINIMUM S.S.D. VERTICAL	367 FT.	221 FT.	179 FT.	418 FT.	167 FT.
CLEAR ZONE (TANGENT)	1.5 FT.	1.5 FT.	1.5 FT.	1.5 FT.	1.5 FT.
2019 DESIGN TRAFFIC (ADT)	19,500	-	-	-	-
2040 DESIGN TRAFFIC (ADT)	21,500	-	-	-	-

APPROVED:

Jacqueline K Rhodes

CITY ENGINEER — DATE: Feb 14, 2022

REVIEW IS FOR GENERAL COMPLIANCE WITH THE CITY OF ARVADA "ENGINEERING CODE OF STANDARDS AND SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS," LATEST EDITION. SOLE RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THESE DOCUMENTS SHALL REMAIN WITH THE REGISTERED PROFESSIONAL ENGINEER SEALING THESE PLANS. THE CITY DOES NOT ACCEPT LIABIILTY FOR FACILITIES DESIGNED BY OTHERS.

CONSTRUCTION DRAWINGS FOR:

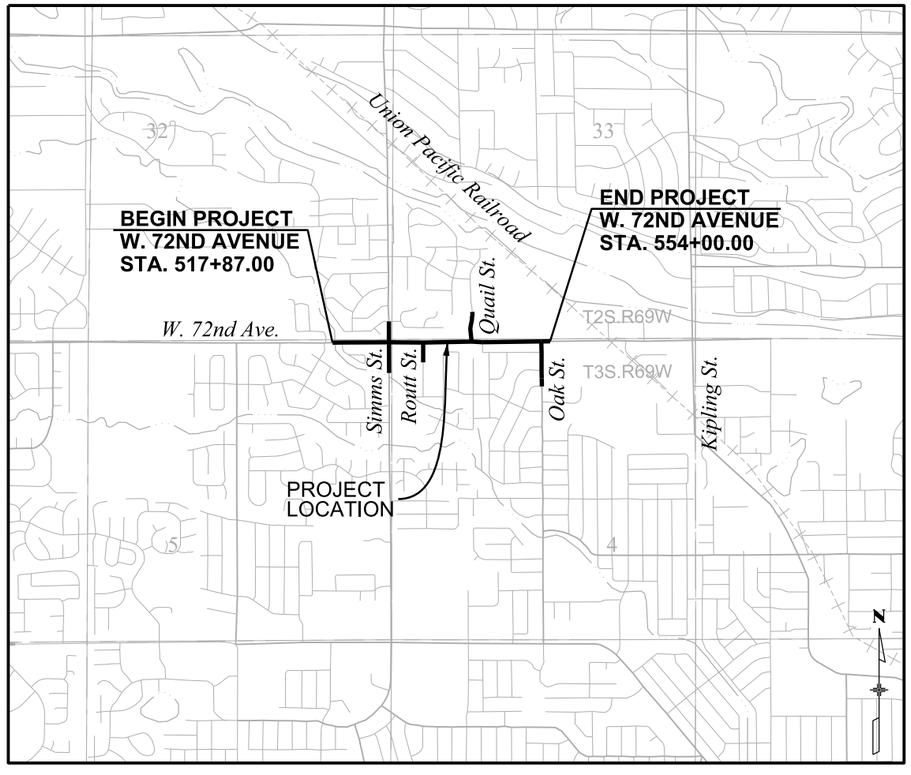
CITY OF ARVADA

West 72nd Avenue Improvements

Swadley Court to Oak Street

Construction Package No. 2

City of Arvada Project No. 18-ST-30



PROJECT LOCATION MAP

0' 1/4 MILE 1/2 MILE 1 MILE

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16 - 23	SUMMARY OF APPROXIMATE QUANTITIES
24	SUMMARY OF EARTHWORK
25	TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS
26	TABULATION OF SURFACING QUANTITIES
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COLORADO LICENSED — DANIEL K. HELLRUNG — 56232 — PROFESSIONAL ENGINEER — 02/13/2022

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MULLER ENGINEERING COMPANY					Void:

CITY OF ARVADA

Contract Information	Project No./Code
Contractor:	
Resident Engineer:	
Project Engineer:	
PROJECT STARTED: / / ACCEPTED: / /	
Comments:	Sheet Number 1

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COLORADO
DEPARTMENT OF TRANSPORTATION

M&S STANDARDS PLANS LIST

July 31, 2019

Revised on February 16, 2021

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

THE M&S STANDARD PLANS USED TO DESIGN THIS PROJECT ARE INDICATED BY A MARKED BOX ■, AND WILL BE ATTACHED TO THE PLANS. ALL THE OTHER M&S STANDARD PLANS ARE STILL ELIGIBLE FOR CONSTRUCTION IF APPROVED BY AN APPROPRIATE CDOT ENGINEER.

* ALL PLANS / DETAILS REFERENCE CDOT M&S PLANS UNLESS OTHERWISE NOTED

ALL PLANS AND DETAILS REFERENCE CDOT M& STANDARD PLANS UNLESS OTHERWISE NOTED

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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_DES_StdPlanList.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:1	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

STANDARD PLANS LIST

Designer: DKH	Structure Numbers		Project No./Code
Detailer: SAD			
Sheet Subset: GENERAL	Subset Sheets: 1 of 1		Sheet Number 2

GENERAL NOTES:

1. THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2019, CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS DATED JANUARY 2016, ALONG WITH PROJECT SPECIAL PROVISIONS AND STANDARD SPECIAL PROVISIONS, CONTROL CONSTRUCTION OF THIS PROJECT.

2. THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO ITS CONSTRUCTION.

3. FOR PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATIONS WERE USED:
   - AGGREGATE BASE COURSE @ 133 LBS. PER CU. FT.
   - HOT MIX ASPHALT @ 110 LBS. PER SQ. YD./INCH
   - TACK COAT DILUTED EMULSIFIED ASPHALT (SLOW-SETTING) @ 0.1 GALS. PER SQ. YD. (DILUTED)

4. A TACK COAT OF EMULSIFIED ASPHALT (SLOW SETTING) IS TO BE APPLIED TO IMPROVE BOND AT THE FOLLOWING LOCATIONS:
   - BEFORE PLACING NEW PAVEMENT OVER EXISTING PAVEMENT
   - ALONG THE FACE OF ALL CURBS, GUTTERS, MANHOLES, ADJACENT EXISTING PAVEMENT, AND OTHER SURFACES AGAINST WHICH ASPHALT WILL BE PLACED
   - BETWEEN PAVEMENT COURSES WHEN ORDERED BY THE ENGINEER.

5. TACK COAT (DILUTED) FOR THIS PROJECT SHALL BE ONE PART EMULSIFIED ASPHALT (SLOW SETTING) AND ONE PART WATER. RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.

6. MILLINGS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF-SITE.

7. OVERLAY OF PLANED AREAS SHALL COMMENCE WITHIN 5 WORKING DAYS FOLLOWING THE PLANING UNLESS OTHERWISE APPROVED BY THE ENGINEER.

8. ASPHALT JOINTS SHALL FALL ON LANE LINES OR MEDIAN LINES, EXCEPT WHERE STATED IN THE PLANS.

9. PRIOR TO PLACING HOT MIX ASPHALT PAVEMENT, THE PAVED SURFACE SHALL BE SWEPT AND CLEANED. THIS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE HOT MIX ASPHALT PAVEMENT ITEMS.

10. ANY LAYER OF HOT MIX ASPHALT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

11. WHERE NEW PAVEMENT IS TO ABUT EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE REMOVED TO A NEAT VERTICAL LINE USING A CUTTING SAW OR OTHER METHOD AS APPROVED BY THE ENGINEER. SAW CUTTING ASPHALT SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF REMOVAL OF ASPHALT MAT.

12. IT IS ESTIMATED THAT 40 HOURS OF ITEM 203-01597 POTHOLING WILL BE REQUIRED.

13. THE PAVEMENT SUBGRADE SHALL BE PROOF ROLLED WITH A PNEUMATIC TIRED VEHICLE LOADED TO AT LEAST 18 KIPS PER AXLE. AREAS WHICH DEFORM EXCESSIVELY UNDER THE WHEEL LOADS SHALL BE REMOVED AND REPLACED. IT IS ESTIMATED THAT **100 HOURS OF ITEM 203-01100 PROOFROLLING** WILL BE REQUIRED. UPON APPROVAL OF PROOFROLLING, INITIAL PAVEMENT SHALL BE PLACED WITHIN 48 HOURS, UNLESS THE CONDITION OF THE SUBGRADE CHANGES DUE TO WEATHER, IN WHICH CASE PROOFROLLING AND CORRECTION SHALL BE PERFORMED AGAIN AS DIRECTED BY THE ENGINEER. ADDITIONAL PROOFROLLING RELATED TO WEATHER SHALL NOT BE PAID FOR SEPARATELY.

14. SULFATE EXPOSURE FOR CONCRETE ON THIS PROJECT IS CLASS 0. SEE SPECIFICATION SECTION 601, STRUCTURAL CONCRETE, AND THE PROJECT GEOTECHNICAL REPORT.

15. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. THE CONTRACTOR SHALL PROVIDE A WATER TRUCK ON-SITE FOR DUST CONTROL. LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER. WATER SHALL NOT BE PAID FOR SEPARATELY.

16. DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:
   - FULL DEPTH OF ALL EMBANKMENTS
   - FULL DEPTH FOR AGGREGATE BASE COURSE
   - 6 INCHES FOR BASES OF CUTS AND FILLS

17. EXCAVATION REQUIRED FOR COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED AS SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

18. A GEOTECHNICAL REPORT ENTITLED "W. 72ND AVENUE, KIPLING STREET TO SIMMS STREET ARVADA, COLORADO," DATED SEPTEMBER 2019 HAS BEEN PREPARED FOR THIS PROJECT BY SHANNON & WILSON, INC.

19. THE CONTRACTOR SHALL KEEP THE WORK AREA DRY OF STANDING WATER AND SHALL KEEP THE EXCAVATION AREAS FREE FROM STORM RUN-OFF.

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF ALL SURFACE AND SUBSURFACE DRAINAGE AND GROUNDWATER ENTERING THE PROJECT AREA.

21. THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL CONSTRUCTION PROCEDURE SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS.

22. ANY DAMAGE TO PRESENT ROADWAY FACILITIES SHALL BE REPAIRED IMMEDIATELY AND PRIOR TO CONTINUING OTHER WORK. ANY MUD OR OTHER MATERIAL TRACKED OR OTHERWISE DEPOSITED ON THE ROADWAY AND SIDEWALK SHALL BE REMOVED DAILY OR AS ORDERED BY THE INSPECTOR.

23. THE CONTRACTOR SHALL NOT PARK EQUIPMENT OVERNIGHT WITHIN THE CLEAR ZONE LIMITS WITHOUT APPROVED TRAFFIC CONTROL DEVICES IN PLACE.

24. CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND OBTAINING A SUITABLE STAGING AREA.

25. PRIVATE DRIVEWAYS AND PARKING LOTS SHALL NOT BE USED AS TURNAROUNDS UNLESS WRITTEN PERMISSION IS OBTAINED FROM THE APPROPRIATE LANDOWNER.

26. ALL EXISTING SURVEY MONUMENTATION DESIGNATED TO REMAIN SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS. ANY MONUMENTS DISTURBED BY THE CONTRACTOR THAT ARE NOT DESIGNATED FOR RELOCATION, SHALL BE RESET AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR AND ENGINEER SHALL NOTE THOSE MONUMENTS IN THE FIELD PRIOR TO CONSTRUCTION.

27. ALL TREES SMALLER THAN 12 INCH CALIPER, BUSHES, AND OTHER FIXED OBJECTS WITHIN THE LIMITS OF CUT OR FILL, OR AS NOTED ON THE PLANS, SHALL BE REMOVED UNLESS OTHERWISE NOTED. ALL OTHER TREES AND BUSHES SHALL BE PROTECTED UNLESS OTHERWISE NOTED. TREES WITH A DIAMETER SMALLER THAN 12 INCH CALIPER, BUSH, AND FIXED OBJECT REMOVALS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN ITEM 201 – CLEARING AND GRUBBING

28. IT IS ESTIMATED THAT THE FOLLOWING ITEMS WILL BE REQUIRED:

ITEM NO. 201-00000 CLEARING AND GRUBBING	**1 (LUMP SUM)**
ITEM NO. 620-00002 FIELD OFFICE (CLASS 2)	**1 (EACH)**
ITEM NO. 620-00020 SANITARY FACILITY	**1 (EACH)**
ITEM NO. 625-00000 CONSTRUCTION SURVEYING	**1 (LUMP SUM)**
ITEM NO. 626-00000 MOBILIZATION	**1 (LUMP SUM)**
ITEM NO. 626-01000 PUBLIC INFORMATION SERVICES	**1 (LUMP SUM)**
ITEM NO. 629-01031 SURVEY MONUMENT (TYPE 3A)	**2 (EACH)**

MAINTENANCE OF THE SANITARY FACILITY SHALL INCLUDE CLEANING AT LEAST TWICE A WEEK.

NOTE: ALL ITEMS LISTED AND DESCRIBED HEREIN AS REQUIRED FOR THE COMPLETION OF THE PROJECT SHALL BE PLACED AS DIRECTED BY THE PROJECT ENGINEER.

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Drawing File Name: 18061_CP2_DES_GenlNote01.dgn	Date:	Comments	Init.
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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	GENERAL NOTES		
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Void:	Detailer: SAD		
	Sheet Subset: GENERAL	Subset Sheets: 1 of 4	Sheet Number 3

UTILITY GENERAL NOTES:

UTILITY LINES AS SHOWN ON THE PLAN SHEETS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION. (ASCE STANDARD QUALITY LEVEL AS NOTED ON PLANS) THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 105.11 OF THE STANDARD SPECIFICATIONS CONCERNING UTILITIES.

THE CONTRACTOR SHALL COMPLY WITH ARTICLE 1.5 OF TITLE 9, CRS ("EXCAVATION REQUIREMENTS") WHEN EXCAVATING OR GRADING IS PLANNED IN THE AREA OF UNDERGROUND UTILITY FACILITIES. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITIES AT LEAST THREE (3) BUSINESS DAYS, NOT INCLUDING THE ACTUAL DAY OF NOTICE, PRIOR TO COMMENCING SUCH OPERATIONS. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 811 TO HAVE LOCATIONS OF UNCC REGISTERED LINES MARKED BY MEMBER COMPANIES. ALL OTHER UNDERGROUND FACILITIES SHALL BE LOCATED BY CONTACTING THE RESPECTIVE OWNER. UTILITY SERVICE LATERALS SHALL ALSO BE LOCATED PRIOR TO BEGINNING EXCAVATION OR GRADING.

KNOWN UTILITIES ARE:

CENTURY LINK	TELEPHONE/FIBER OPTIC
COMCAST	CABLE & FIBER OPTIC
CITY OF ARVADA	WATER, STORM SEWER & SANITARY SEWER, SIGNALS
MCI VERIZON	TELEPHONE/FIBER OPTIC
XCEL ENERGY	ELECTRIC DISTRIBUTION
XCEL ENERGY	GAS
ZAYO	TELEPHONE/FIBER OPTIC

SEE THE UTILITIES SECTION OF THE SPECIAL PROVISIONS FOR CONTACT INFORMATION.

1. THE CONTRACTOR ASSUMES RESPONSIBILITY FOR THE PROTECTION OF ALL UTILITIES DURING THE WORK. REPAIR OF DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO ANY EXCAVATION, CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 811 AT LEAST TWO WORKING DAYS PRIOR TO DIGGING.

2. THE INFORMATION SHOWN ON THESE PLANS CONCERNING TYPE AND LOCATION OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. SOME UTILITIES MAY HAVE BEEN ADDED OR RELOCATED PRIOR TO CONSTRUCTION. ALSO, SERVICES TO INDIVIDUAL RESIDENCES, PLACES OF BUSINESS, AND OTHER PRIVATELY-OWNED UTILITY LINES ARE NORMALLY NOT SHOWN ON THE DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL LOCATIONS OF EXISTING STRUCTURES AND UTILITIES SHOWN ON THE DRAWINGS AND TO ASCERTAIN WHETHER ANY OTHER STRUCTURES AND UTILITIES MAY EXIST. EVERY REASONABLE MEANS SHALL BE USED, INCLUDING FIELD LOCATION OF THE UTILITY USING WHATEVER PROSPECTING MEANS ARE NECESSARY.

3. PROSPECTING FOR EXISTING UTILITIES WILL BE PAID FOR AS POTHOLING. USE OF THE TERM "POTHOLING" SHALL NOT BE CONSTRUED TO IMPLY ANY PARTICULAR METHOD OF PROSPECTING. IT IS ESTIMATED THAT **100 HOURS OF ITEM 203-01597 POTHOLING** WILL BE NEEDED AS PART OF THIS PROJECT. POTHOLING OF AN AREA SHALL TAKE PLACE AT LEAST 10 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION OPERATIONS IN THAT AREA. HOURS APPROVED FOR PAYMENT UNDER THIS PAY ITEM SHALL BE AT THE DISCRETION OF THE ENGINEER.

4. THE CONTRACTOR SHALL LOCATE AND POTHOLE ALL POTENTIAL CONFLICTS BETWEEN EXISTING BURIED UTILITY FACILITIES AND THE PROPOSED CONSTRUCTION AS SHOWN ON THE PLANS OR BY FIELD LOCATION MARKINGS. IF CONFLICTS EXIST, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO IDENTIFY AN APPROPRIATE COURSE OF ACTION BEFORE ANY WORK AT THIS CONFLICT CAN RESUME.

5. THE CONTRACTOR SHALL POTHOLE THE LOCATION OF THE CAISSON FOUNDATIONS TO CONFIRM THE LENGTH OF TRAFFIC SIGNAL MAST ARMS BEFORE ORDERING MATERIAL (TO ACCOMMODATE EXISTING UTILITIES).

6. THE CONTRACTOR SHALL VERIFY AND DOCUMENT THE CONDITION OF EXISTING UTILITIES (VISIBLE FACILITIES) WITH THE ENGINEER AND REPRESENTATIVES FROM THE UTILITY COMPANIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

7. WITH NOTIFICATION OF THE RESPECTIVE OWNER, ADJUST RIMS OF ALL MANHOLES, CLEANOUTS, VALVE BOXES AND SURVEY MONUMENTS TO FINISH GRADE AND PATCH AFTER FINAL LIFT PAVING.

8. THE CONTRACTOR SHALL SUBMIT AN XCEL ENERGY BUILDER'S CALL LINE APPLICATION FOR EVERY XCEL ENERGY WORK ELEMENT THAT IS TO BE COORDINATED WITH THE PROJECT. THE REQUEST IS TO BE PROCESSED THROUGH XCEL ENERGY-BUILDER'S CALL LINE AT 1-800-628-2121.

9. THE CONTRACTOR SHALL REFER TO THE UTILITIES SECTION OF THE SPECIAL PROVISIONS AND UTILITY PLANS FOR COORDINATION REQUIRED FOR UTILITY RELOCATIONS.

EXISTING UTILITY LEGEND

QUALITY LEVEL D	
	EXISTING UG ELECTRIC
	EXISTING UNSURVEYED GAS
	EXISTING TELEPHONE
	EXISTING TELEVISION
	EXISTING UNSURVEYED WATER
	EXISTING UNCONFIRMED SANITARY
	EXISTING STORM
	EXISTING STORM CULVERT
SURVEY/ABOVE GROUND FEATURES	
	EXISTING COMMUNICATION VAULT
	EXISTING COMMUNICATION MH
	EXISTING COMMUNICATION BOX
	EXISTING TELEPHONE JUNCTION BOX
	EXISTING SANITARY MH
	EXISTING STORM MH
	EXISTING STORM INLET
	EXISTING STORM INLET
	EXISTING OUTLET
	EXISTING POLE
	EXISTING PULL BOX/PEDESTAL
	EXISTING ELECTRIC TRANSFORMER
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING WATER MH
	EXISTING STREET LIGHT
	EXISTING WATER METER
	EXISTING OH ELECTRIC
	EXISTING OH TELEPHONE
	EXISTING OH CABLE TV
QUALITY LEVEL B	
	EXISTING UG ELECTRIC
	EXISTING GAS
	EXISTING TELEPHONE
	EXISTING FIBER OPTIC
	EXISTING WATER
QUALITY LEVEL A	
◯	TEST HOLE

PROPOSED UTILITY LEGEND

PROPOSED UTILITIES	
E	PROPOSED UG ELECTRIC
E (O.H.)	PROPOSED OH ELECTRIC
G	PROPOSED GAS
T	PROPOSED TELEPHONE
F.O.	PROPOSED FIBER OPTIC
	PROPOSED WATER
	PROPOSED STORM
	PROPOSED SANITARY
	PROPOSED DITCH
X · X · X · X · X · X · X · X · X · X	UTILITY TO BE REMOVED
	UTILITY ABANDONED IN PLACE
PROPOSED SURFACE FEATURES	
	PROPOSED ELECTRIC TRANSFORMER
	PROPOSED ELECTRIC CABINET
	PROPOSED ELECTRIC POLE
	PROPOSED LIGHT
	PROPOSED COMMUNICATION VAULT
	PROPOSED COMMUNICATION HANDHOLE
	PROPOSED SANITARY MANHOLE
	PROPOSED WATER VALVE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER METER

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Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_DES_GenlNote02.dgn	Date:	Comments	Init.	No Revisions:	GENERAL NOTES
Horiz. Scale: 1:1 Vert. Scale: As Noted				Revised:	Designer: DKH
Unit Information Unit Leader Initials				Void:	Detailer: SAD
MULLER ENGINEERING COMPANY					Sheet Subset: GENERAL
					Structure Numbers
CITY OF ARVADA					Subset Sheets: 2 of 4
					Project No./Code
					Sheet Number 4

CITY OF ARVADA GENERAL NOTES

GENERAL NOTES:

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE LICENSED WITH THE CITY OF ARVADA ENGINEERING DIVISION.
2. ALL WORK WILL REQUIRE A CITY OF ARVADA ENGINEERING DIVISION PUBLIC IMPROVEMENT PERMIT PRIOR TO THE START OF CONSTRUCTION. ALL CONTRACTORS AND SUBCONTRACTORS MUST OBTAIN A SEPARATE PERMIT FOR THE WORK BEING COMPLETED BY THE PARTICULAR CONTRACTOR OR SUBCONTRACTOR. ANY CONSTRUCTION WITHIN THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) RIGHT-OF-WAY WILL REQUIRE A CDOT CONSTRUCTION PERMIT PRIOR TO ANY WORK IN THEIR RIGHT-OF-WAY.
3. ALL CONTRACTORS AND SUBCONTRACTORS SHALL HAVE A SET OF APPROVED DRAWINGS SIGNED BY THE CITY ENGINEER OR DESIGNEE AND A PRINTED COPY OF THE CURRENT CITY OF ARVADA "ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS" ON SITE AT ALL TIMES.
4. THE CITY OF ARVADA ENGINEERING DIVISION SHALL BE NOTIFIED (PHONE # 720-898-7640) A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
5. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR BURIED UTILITIES. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR ALL PROJECT SAFETY INCLUDING, BUT NOT LIMITED TO, TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL AND SECURITY.
7. BENCHMARK LOCATION, ELEVATION AND DATUM ARE AS NOTED.
8. AS-BUILT DRAWINGS SHOWING ALL CHANGES FROM THE APPROVED CONSTRUCTION DRAWINGS SHALL BE SUBMITTED TO THE CITY ENGINEER OR DESIGNEE PRIOR TO INITIATION OF THE REQUIRED TWO YEAR WARRANTY PERIOD. UTILITY AS-BUILTS SHALL INCLUDE STATIONING OF ALL FITTINGS, SERVICES AND PERTINENT ELEVATIONS. CERTIFICATES OF OCCUPANCY FOR ANY BUILDINGS OR STRUCTURES WITHIN THE DEVELOPMENT WILL NOT BE ISSUED UNTIL THE AS-BUILTS HAVE BEEN RECEIVED, REVIEWED AND APPROVED BY THE CITY OF ARVADA ENGINEERING DIVISION.
9. A CITY OF ARVADA TAX CERTIFICATION FORM MUST BE COMPLETED BY ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK ON THIS PROJECT. THIS FORM DETAILS ALL MATERIALS WHICH HAVE BEEN INCLUDED IN THE WORK BY CONTRACTORS AND SUBCONTRACTORS. COPIES OF ALL PAID INVOICES FOR MATERIALS SHALL BE ATTACHED TO THE FORM. CERTIFICATES OF OCCUPANCY FOR ANY BUILDINGS OR STRUCTURES WITHIN THE DEVELOPMENT WILL NOT BE ISSUED UNTIL THIS FORM HAS BEEN RECEIVED, REVIEWED AND APPROVED BY THE CITY OF ARVADA ENGINEERING DIVISION.
10. CONTRACTOR SHALL OBTAIN A STORMWATER CONSTRUCTION PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION, PRIOR TO CLEARING, GRADING, OR EXCAVATING A SITE OF ONE (1) ACRE OR MORE OR LESS THAN ONE ACRE AND PART OF A LARGER DEVELOPMENT. A COPY OF THE APPROVED PERMIT MUST BE SUBMITTED TO THE CITY OF ARVADA ENGINEERING DIVISION PRIOR TO THE START OF CLEARING, GRADING OR EXCAVATING OF THE SITE. A COPY OF THE APPROVED PERMIT MUST ALSO BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.
11. CONTRACTOR SHALL OBTAIN A COLORADO STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT FOR ALL AREAS WHERE DEWATERING IS REQUIRED FROM AN EXCAVATION AND WATER IS DISCHARGED INTO A STORM SEWER, CHANNEL, IRRIGATION DITCH OR ANY WATERS OF THE UNITED STATES. A COPY OF THE APPROVED PERMIT MUST BE SUBMITTED TO THE CITY OF ARVADA ENGINEERING DIVISION PRIOR TO THE START OF ANY DEWATERING. A COPY OF THE APPROVED PERMIT MUST ALSO BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.
12. ALL CURB RAMPS SHALL COMPLY WITH THE LATEST CITY OF ARVADA AND ADA STANDARD. CONTRACTOR TO CHECK WITH THE CITY OF ARVADA ENGINEERING DIVISION TO VERIFY THE LATEST CURB RAMP STANDARD PRIOR TO CONSTRUCTION OF ANY RAMP.
13. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE CITY OF ARVADA ENGINEERING DIVISION. THE CITY RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS "ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS".
14. A PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE SUBMITTED TO THE CITY OF ARVADA ENGINEERING DIVISION FOR ACCEPTANCE WITH THE PUBLIC IMPROVEMENTS PERMIT APPLICATION. A PUBLIC IMPROVEMENTS CONSTRUCTION PERMIT WILL NOT BE ISSUED WITHOUT AN APPROVED TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL ON EXISTING ROADS DURING CONSTRUCTION.

STREET:

1. CONTRACTOR SHALL HAVE ON SITE A COPY OF THE CITY OF ARVADA APPROVED SUBGRADE SOILS AND PAVEMENT DESIGN REPORT SHOWING MINIMUM REQUIRED SUBGRADE PREPARATION REQUIREMENTS AND MINIMUM REQUIRED PAVEMENT THICKNESSES.
2. ALL TRENCH BACKFILL AND SUBGRADE PREPARATION SHALL BE TESTED TO ENSURE COMPLIANCE WITH CITY OF ARVADA STANDARDS AND SHALL BE TESTED AT CITY REQUIRED FREQUENCIES BY A CITY APPROVED PRIVATE SOILS TESTING FIRM. TEST RESULTS SHALL BE SUBMITTED TO, REVIEWED, AND APPROVED BY, THE CITY OF ARVADA ENGINEERING DIVISION PRIOR TO INSTALLING BASE COURSE, ASPHALT OR CONCRETE ON PREPARED SUBGRADE. ALL BASE COURSE DENSITY SHALL ALSO BE TESTED BY THE PRIVATE SOILS FIRM AT CITY REQUIRED FREQUENCIES TO ENSURE COMPLIANCE WITH CITY OF ARVADA REQUIREMENTS. BASE COURSE TEST RESULTS SHALL ALSO BE APPROVED BY THE CITY OF ARVADA ENGINEERING DIVISION PRIOR TO INSTALLING PAVEMENT. ALL CONCRETE AND ASPHALT PLACED SHALL BE TESTED IN ACCORDANCE WITH CITY OF ARVADA MINIMUM MATERIALS TESTING STANDARDS. TEST RESULTS SHALL BE REVIEWED AND APPROVED BY THE CITY OF ARVADA ENGINEERING DIVISION PRIOR TO INITIATION OF THE REQUIRED TWO YEAR WARRANTY PERIOD.
3. THE SUBGRADE MATERIAL SHALL BE REMOVED TO A DEPTH REQUIRED BY THE CITY OF ARVADA ACCORDING TO INFORMATION OBTAINED FROM LABORATORY TESTS AND/OR AS REQUIRED IN THE PAVEMENT DESIGN REPORT. ADDITIVES OR APPROVED MATERIAL MAY BE REQUIRED IF THE NATIVE MATERIAL IS UNSATISFACTORY. THE SUBGRADE SHALL BE COMPACTED TO A MINIMUM DENSITY DETERMINED IN ACCORDANCE WITH AASHTO DESIGNATION T180 OR T99 AND IN ACCORDANCE WITH CDOT STANDARD SPECIFICATIONS SECTION 203.07.
4. THE CONTRACTOR SHALL PROOF ROLL ALL SUBGRADE AND BASE COURSE IN A MANNER ACCEPTABLE TO THE CITY OF ARVADA IN ACCORDANCE WITH THE CITY OF ARVADA "ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS". PROOF ROLLING SHALL BE INSPECTED AND ACCEPTED BY THE CITY PRIOR TO INSTALLATION OF PAVEMENT AND/OR CONCRETE FLATWORK.
5. ALL CONCRETE CURB, GUTTER, SIDEWALK AND OTHER FLATWORK WITHIN THE CITY RIGHT OF WAY SHALL BE MINIMUM 6" THICKNESS. CROSSPANS SHALL BE MINIMUM 8" THICKNESS AND MINIMUM 8 FOOT WIDTH. ALL CONCRETE SHALL BE MINIMUM 4000 PSI DESIGN STRENGTH REINFORCED WITH 1.5 LBS/CY FIBERMESH IN ACCORDANCE WITH THE CITY OF ARVADA "ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS".

IRRIGATION:

1. CONTRACTOR IS TO NOTIFY AFFECTED IRRIGATION COMPANY A MINIMUM OF 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION IN IRRIGATION EASEMENTS OR ON IRRIGATION DITCHES.
2. ALL IRRIGATION PIPE JOINTS SHALL BE WATERTIGHT AND PASS A LOW AIR PRESSURE TEST.

UTILITIES:

1. CONTRACTOR SHALL NOTIFY ALL AFFECTED PARTIES, CITY OF ARVADA UTILITY AND ENGINEERIN A MINIMUM OF 24 HOURS PRIOR TO ANY WATER OR SEWER SERVICE INTERRUPTION.
2. CONTRACTOR IS TO COORDINATE THE OPERATION OF ALL WATER VALVES, FIRE HYDRANTS, APPURTENANCES WITH THE CITY'S WATER OPERATIONS DIVISION THROUGH THE CITY'S E INSPECTOR.

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MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

GENERAL NOTES

Designer:	DKH	Structure Numbers		Project No./Code
Detailer:	SAD			
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3. ALL FIRE HYDRANT BRANCH PIPE SHALL BE CLASS 200 AWWA C900 PVC OR CLASS 150 AWWA C909 PVC. ALL FIRE LINES TO BUILDINGS WITH INTERIOR SPRINKLER SYSTEMS SHALL BE CLASS 200 AWWA C900 PVC PIPE OR CLASS 200 AWWA C909 PVC PIPE ONLY.

4. ALL METALLIC FITTINGS SHALL BE WRAPPED WITH MINIMUM 8 MIL THICKNESS POLYETHYLENE ENCASEMENT.

5. ALL PVC WATER MAINS SHALL BE INSTALLED WITH WHITE #12 TYPE UF OR USE CABLE SINGLE COPPER CONDUCTOR AS A TRACER WIRE SPIRALLY WRAPPED AROUND THE PIPE. TRACER WIRE TO EXTEND FROM MAIN TO A CATHODIC PROTECTION BOX LOCATED ON THE RIGHT SIDE OF ALL FIRE HYDRANTS. TRACER WIRE SHALL BE CONNECTED TO EXISTING TRACER WIRE WHERE POSSIBLE. WHERE NO TRACER WIRE EXISTS, ENDS OF TRACER WIRE SHALL BE STRIPPED AND GROUNDED INTO NATIVE SOIL A MINIMUM OF 12" DEEP.

6. ALL METER PITS SHALL BE 24 INCH DIAMETER CONCRETE OR PLASTIC IN ACCORDANCE WITH SECTION 30 OF THE CITY OF ARVADA "ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS".

7. STORM, SANITARY AND WATER MANHOLE COVERS SHALL SAY "CITY OF ARVADA STORM, WATER OR SANITARY" WHERE APPLICABLE IN ACCORDANCE WITH THE CITY'S STANDARD LID DETAIL.

8. BLOW-OFFS, BOTH PERMANENT AND TEMPORARY, SHALL BE IN ACCORDANCE WITH CITY OF ARVADA STANDARD DETAIL DRAWING W-9.

9. ALL SANITARY SEWER MAINS INSTALLED SHALL BE HIGH PRESSURE JET CLEANED AFTER COMPLETION OF THE FINAL LIFT OF ASPHALT PLACEMENT AND PRIOR TO REQUIRED TELEVISION INSPECTION BY THE CITY'S WASTEWATER DIVISION.

EROSION CONTROL:

1. THE CITY OF ARVADA STORMWATER INSPECTOR MUST BE MET ON SITE AND PROVIDED WITH A STORMWATER MANAGEMENT PLAN AFTER INSTALLATION OF TEMPORARY BEST MANAGEMENT PRACTICES (BMPS), BUT BEFORE CONSTRUCTION OR GRADING BEGINS.

2. THERE SHALL BE NO EARTH-DISTURBING ACTIVITY OUTSIDE THE LIMITS DESIGNATED IN THE ACCEPTED PLANS.

3. ALL REQUIRED PERIMETER SILT AND CONSTRUCTION FENCING SHALL BE INSTALLED **PRIOR** TO ANY LAND DISTURBING ACTIVITY (STOCKPILING, STRIPPING, GRADING, ETC). ALL OTHER REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE APPROPRIATE TIME IN THE CONSTRUCTION SEQUENCE AS INDICATED IN THE APPROVED PROJECT SCHEDULE, CONSTRUCTION PLANS, AND STORMWATER MANAGEMENT PLAN.

4. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING ON-SITE EROSION INCLUDING KEEPING THE PROPERTY SUFFICIENTLY WATERED SO AS TO MINIMIZE WINDBLOWN SEDIMENT. THE DEVELOPER SHALL ALSO BE RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL EROSION CONTROL FACILITIES SHOWN HEREIN.

5. PRE-DISTURBANCE VEGETATION SHALL BE PROTECTED AND RETAINED WHEREVER POSSIBLE. REMOVAL OR DISTURBANCE OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREA(S) REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS, AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME.

6. ALL SOILS EXPOSED DURING LAND DISTURBING ACTIVITY (STRIPPING, GRADING, UTILITY INSTALLATIONS, STOCKPILING, FILLING, ETC.) SHALL BE KEPT IN A ROUGHENED CONDITION BY RIPPING OR DISKING ALONG LAND CONTOURS UNTIL MULCH, VEGETATION, OR OTHER PERMANENT EROSION CONTROL BMPS ARE INSTALLED. NO DISTURBED AREAS, EXCEPT THOSE WITHIN THE PROJECT STREET RIGHTS-OF-WAY, SHALL REMAIN EXPOSED FOR MORE THAN THIRTY (30) DAYS BEFORE TEMPORARY OR PERMANENT EROSION CONTROL (E.G. SEED/MULCH, LANDSCAPING, ETC.) IS INSTALLED, UNLESS OTHERWISE APPROVED BY THE CITY OF ARVADA STORMWATER INSPECTOR.

7. IN ORDER TO MINIMIZE EROSION POTENTIAL, ALL TEMPORARY (STRUCTURAL) EROSION CONTROL MEASURES SHALL:

   - BE INSPECTED AT A MINIMUM OF ONCE EVERY FOURTEEN (14) DAYS AND AFTER EACH SIGNIFICANT STORM EVENT AND REPAIRED OR RECONSTRUCTED AS NECESSARY IN ORDER TO ENSURE THE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.
   - REMAIN IN PLACE UNTIL SUCH TIME AS ALL THE SURROUNDING DISTURBED AREAS ARE SUFFICIENTLY STABILIZED. THE CITY OF ARVADA STORMWATER INSPECTOR MUST BE NOTIFIED PRIOR TO REMOVAL.
   - BE REMOVED WHEN THEY ARE NO LONGER FUNCTIONAL OR AFTER THE SITE HAS BEEN SUFFICIENTLY STABILIZED AS DETERMINED BY THE STORMWATER INSPECTOR. THE CITY OF ARVADA STORMWATER INSPECTOR MUST BE NOTIFIED PRIOR TO REMOVAL.

8. WHEN TEMPORARY EROSION CONTROL MEASURES ARE REMOVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN UP AND REMOVAL OF ALL SEDIMENT AND DEBRIS FROM ALL DRAINAGE INFRASTRUCTURE AND OTHER PUBLIC FACILITIES.

9. THE CONTRACTOR SHALL IMMEDIATELY CLEAN UP ANY CONSTRUCTION MATERIALS INADVERTENTLY DEPOSITED ON EXISTING STREETS, SIDEWALKS, OR OTHER PUBLIC RIGHTS OF WAY, AND MAKE SURE STREETS AND WALKWAYS ARE CLEANED AT THE END OF EACH WORKING DAY.

10. ALL SOIL STOCKPILES SHALL NOT BE PLACED WITHIN ONE HUNDRED (100) FEET OF A DRAINAGEWAY, WHERE POSSIBLE, AND SHALL BE PROTECTED FROM SEDIMENT TRANSPORT BY APPROPRIATE EROSION CONTROL METHODS. ANY SOIL STOCKPILE THAT WILL BE DORMANT FOR OVER THIRTY (30) DAYS SHALL BE SEEDED.

11. THE STORMWATER VOLUME CAPACITY OF DETENTION PONDS WILL BE RESTORED AND STORM SEWER LINES WILL BE CLEANED UPON COMPLETION OF THE PROJECT AND BEFORE TURNING THE MAINTENANCE OVER TO THE PROPERTY OWNER OR HOMEOWNERS ASSOCIATION (HOA).

12. CITY ORDINANCE REQUIREMENTS MAKE IT UNLAWFUL TO DISCHARGE OR ALLOW THE DISCHARGE OF ANY POLLUTANT OR CONTAMINATED WATER FROM CONSTRUCTION SITES. POLLUTANTS INCLUDE, BUT ARE NOT LIMITED TO DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, OIL AND GAS PRODUCTS, LITTER, AND SANITARY WASTE. THE DEVELOPER SHALL AT ALL TIMES TAKE WHATEVER MEASURES ARE NECESSARY TO ASSURE THE PROPER CONTAINMENT AND DISPOSAL OF POLLUTANTS ON THE SITE IN ACCORDANCE WITH ANY AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.

13. A DESIGNATED AREA SHALL BE PROVIDED ON SITE FOR CONCRETE TRUCK CHUTE WASHOUT. THE AREA SHALL BE CONSTRUCTED SO AS TO CONTAIN WASHOUT MATERIAL AND LOCATED AT LEAST FIFTY (50) FEET AWAY FROM ANY WATERWAY DURING CONSTRUCTION. UPON COMPLETION OF CONSTRUCTION ACTIVITIES THE CONCRETE WASHOUT MATERIAL WILL BE REMOVED AND PROPERLY DISPOSED OF PRIOR TO THE AREA BEING RESTORED.

14. MASONRY ACTIVITIES WILL BE CONTAINED WITH APPROPRIATE LOT-SPECIFIC BMPS, SUCH AS STOCKPILE PERIMETER CONTROL AND BERMED WASHOUT PITS. ALL WASTE PRODUCTS FROM MASONRY ACTIVITIES WILL BE REMOVED AND DISPOSED OF PROPERLY.

15. TO ENSURE THAT SEDIMENT DOES NOT MOVE OFF OF INDIVIDUAL LOTS SEDIMENT/EROSION CONTROL BMPS SHALL BE INSTALLED AND MAINTAINED AT ONE OR MORE OF THE FOLLOWING LOCATIONS UNTIL THE LOTS ARE LANDSCAPED.

   - BELOW ALL GUTTER DOWNSPOUTS.
   - OUT TO DRAINAGE SWALES.
   - ALONG LOT PERIMETER.
   - OTHER LOCATIONS, IF NEEDED.

16. A VEHICLE TRACKING PAD SHALL BE INSTALLED WHEREVER IT IS NECESSARY FOR CONSTRUCTION EQUIPMENT INCLUDING BUT NOT LIMITED TO PERSONAL VEHICLES EXITING EXISTING UNPAVED AREAS ONTO ROADWAYS. NO EARTHEN MATERIALS, I.E., STONE, DIRT, ETC., SHALL BE PLACED IN THE CURB & GUTTER OR ROADWAY AS A RAMP TO ACCESS TEMPORARY STOCKPILES, CONSTRUCTION MATERIALS AND/OR BUILDING SITES

17. CONDITIONS IN THE FIELD MAY WARRANT EROSION CONTROL MEASURES IN ADDITION TO WHAT IS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL IMPLEMENT WHATEVER MEASURES ARE DETERMINED NECESSARY, AS DIRECTED BY THE CITY OF ARVADA.

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

GENERAL NOTES

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Detailer: SAD				
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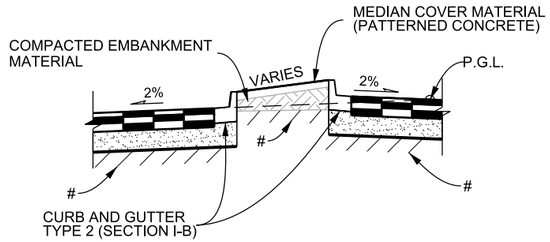

EASTBOUND LEFT TURN BAY PROFILE GRADE LINE DETAIL

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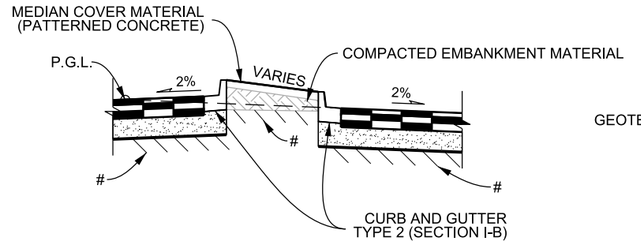

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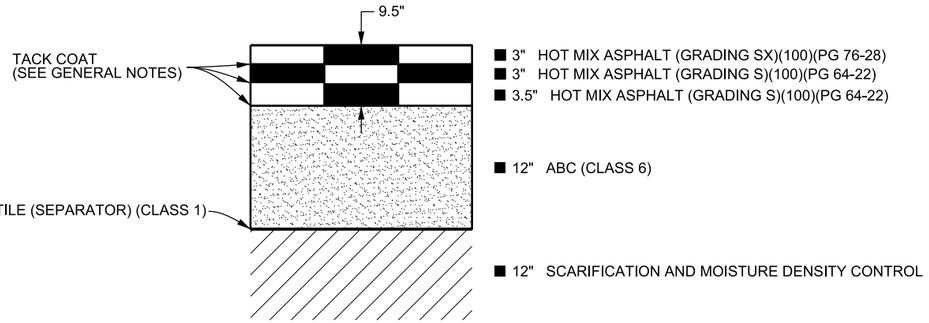

FULL DEPTH PAVEMENT SECTION FOR W. 72ND AVE AND SIDESTREETS

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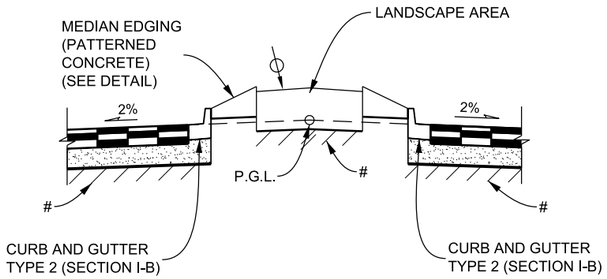

RAISED MEDIAN PROFILE GRADE LINE DETAIL

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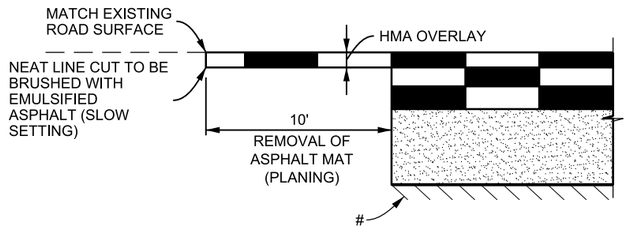

FEATHERED JOINT DETAIL

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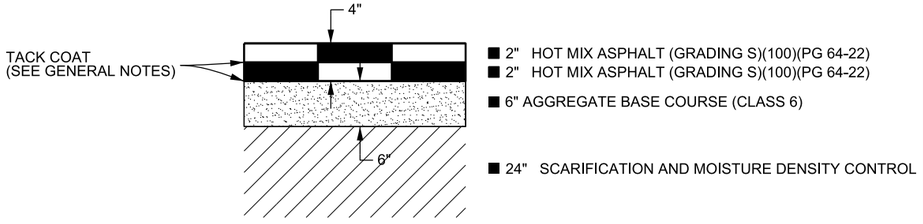

FULL DEPTH PAVEMENT SECTION FOR PARKING LOTS

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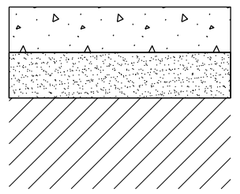
TYPICAL SECTION NOTES

1. ○ P.G.L. - PROFILE GRADE LINE
2. H.M.A. - HOT MIX ASPHALT
3. P.O.S.S. - POINT OF SLOPE SELECTION
4. REFER TO THE ROADWAY PLANS FOR ADDITIONAL INFORMATION REGARDING WORK LOCATIONS AND LOCATION OF FULL HMA PAVEMENT RECONSTRUCTION.
5. THE CONTRACTOR WILL BE REQUIRED TO PLACE 6 INCHES OF TOPSOIL IN AREAS WHERE SOD WILL BE PLACED, 12 INCHES OF TOPSOIL IN SHRUB BED AREAS, AND 18 INCHES OF TOPSOIL WHERE TREES ARE TO BE PLACED. SEE LANDSCAPING PLANS FOR ADDITIONAL INFORMATION.
6. ▲ BREAKPOINTS IN SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE.
7. 2% ROADWAY CROSS SLOPE (TYPICAL). FOR SPECIFIC CROSS SLOPES AND SUPERELEVATION LIMITS SEE PROFILE SHEETS AND CROSS SECTIONS.
8. ✱ SIDE SLOPES: ALL SLOPES SHALL BE 4:1 OR FLATTER UNLESS NOTED OTHERWISE. SLOPES MAY VARY IN ACCORDANCE WITH THE CROSS SECTIONS AND SPECIAL GRADING DETAILS.
9. ■ APPROXIMATE THICKNESS (MINIMUM)
10. □ SEE ROADWAY AND PAVEMENT MARKING PLANS FOR SPECIFIC WIDTHS AND LOCATION OF TAPERS.
11. # DEPTH OF SCARIFICATION AND MOISTURE - DENSITY CONTROL AT BASES OF CUTS AND FILLS SHALL BE 12 INCHES. SEE SPECIFICATIONS.
12. SEE ROADWAY PLANS AND PROFILES FOR CONTROL LINE GEOMETRY.
13. BOMACRON PATTERNED CONCRETE IS TO BE USED FOR ALL MEDIAN COVER MATERIAL (PATTERNED CONCRETE).



CONCRETE PAVEMENT SECTIC

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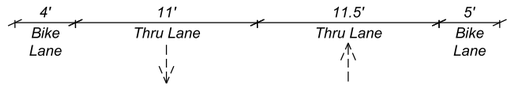

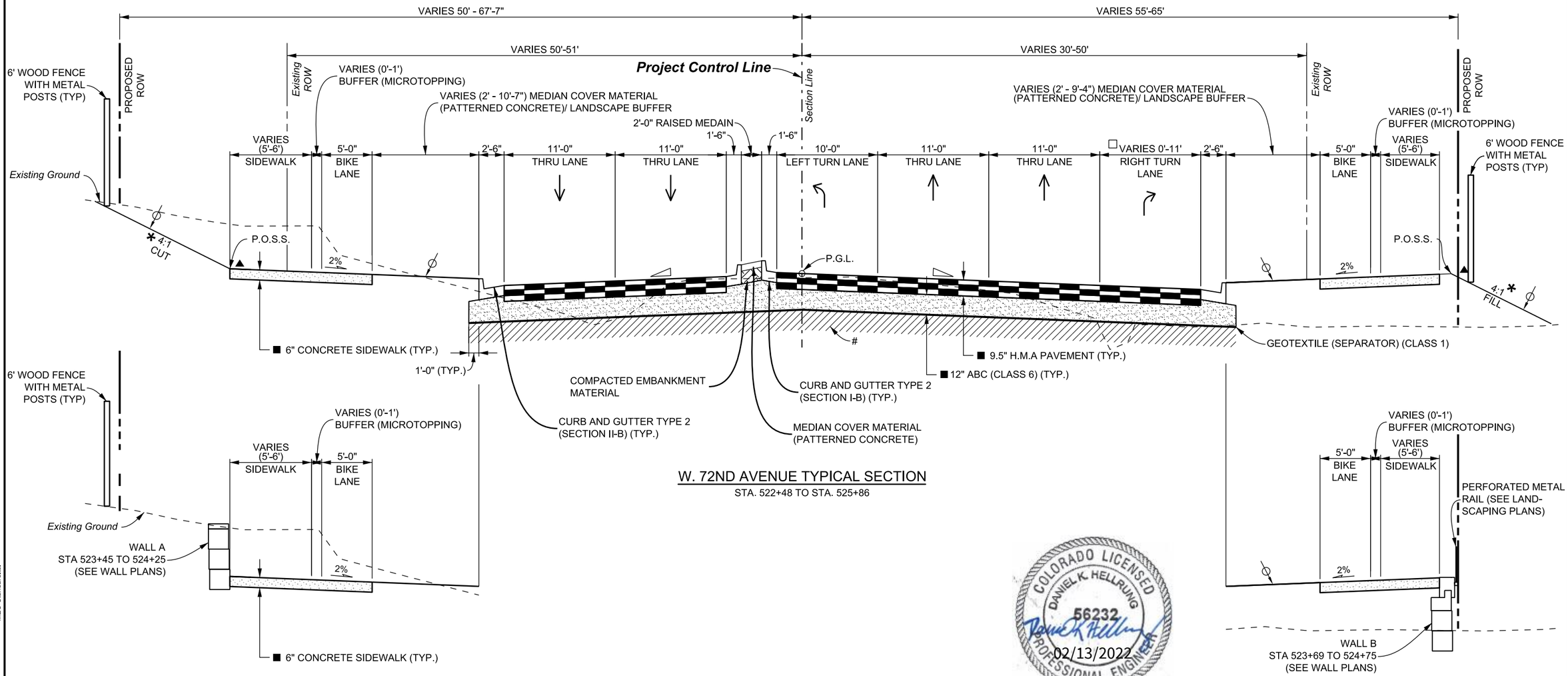

W. 72ND AVENUE TYPICAL SECTION

STA. 522+48 TO STA. 525+86

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As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
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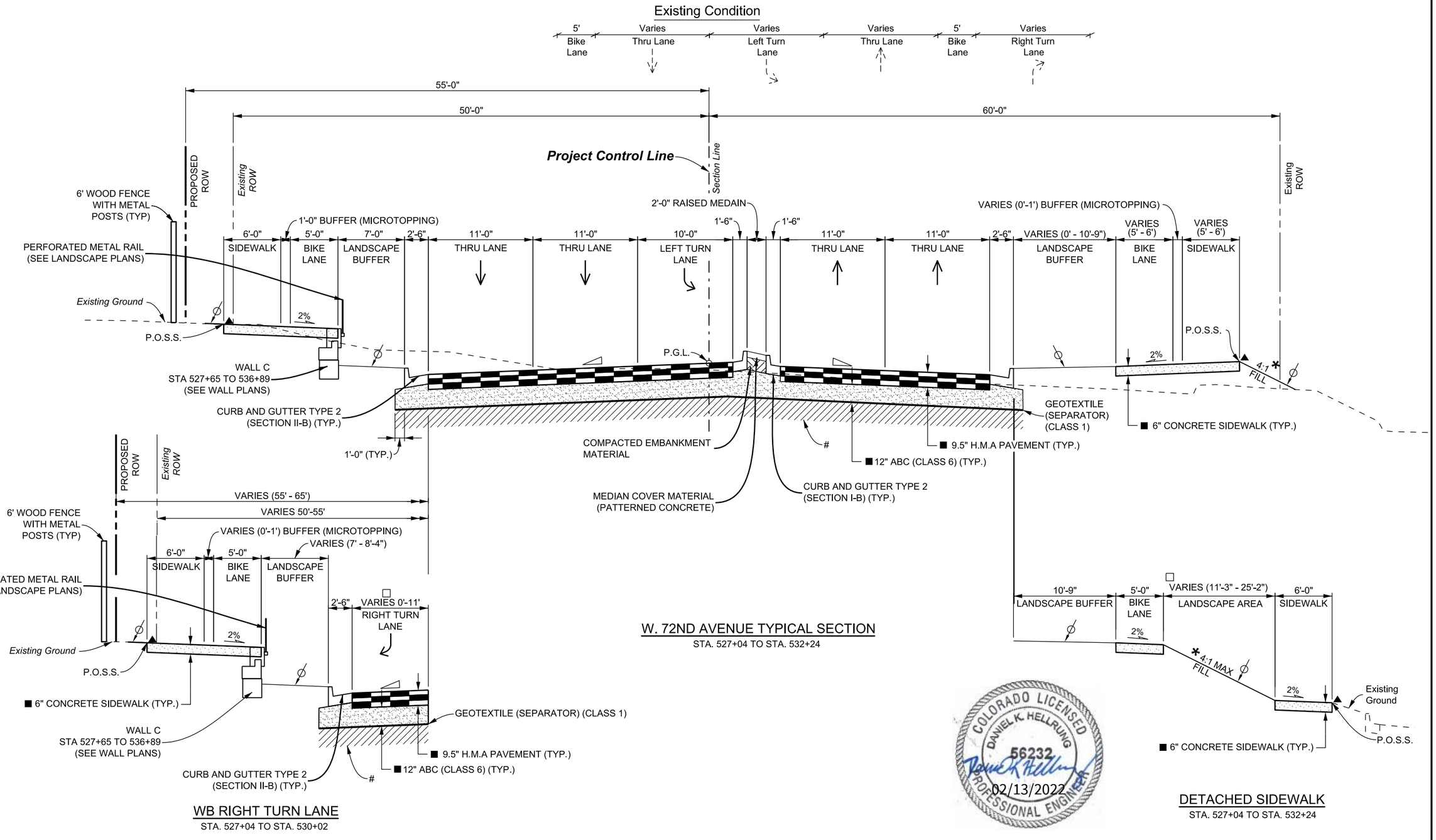

WB RIGHT TURN LANE

STA. 527+04 TO STA. 530+02

W. 72ND AVENUE TYPICAL SECTION

STA. 527+04 TO STA. 532+24

DETACHED SIDEWALK

STA. 527+04 TO STA. 532+24

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CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	TYPICAL SECTIONS W. 72ND AVENUE			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
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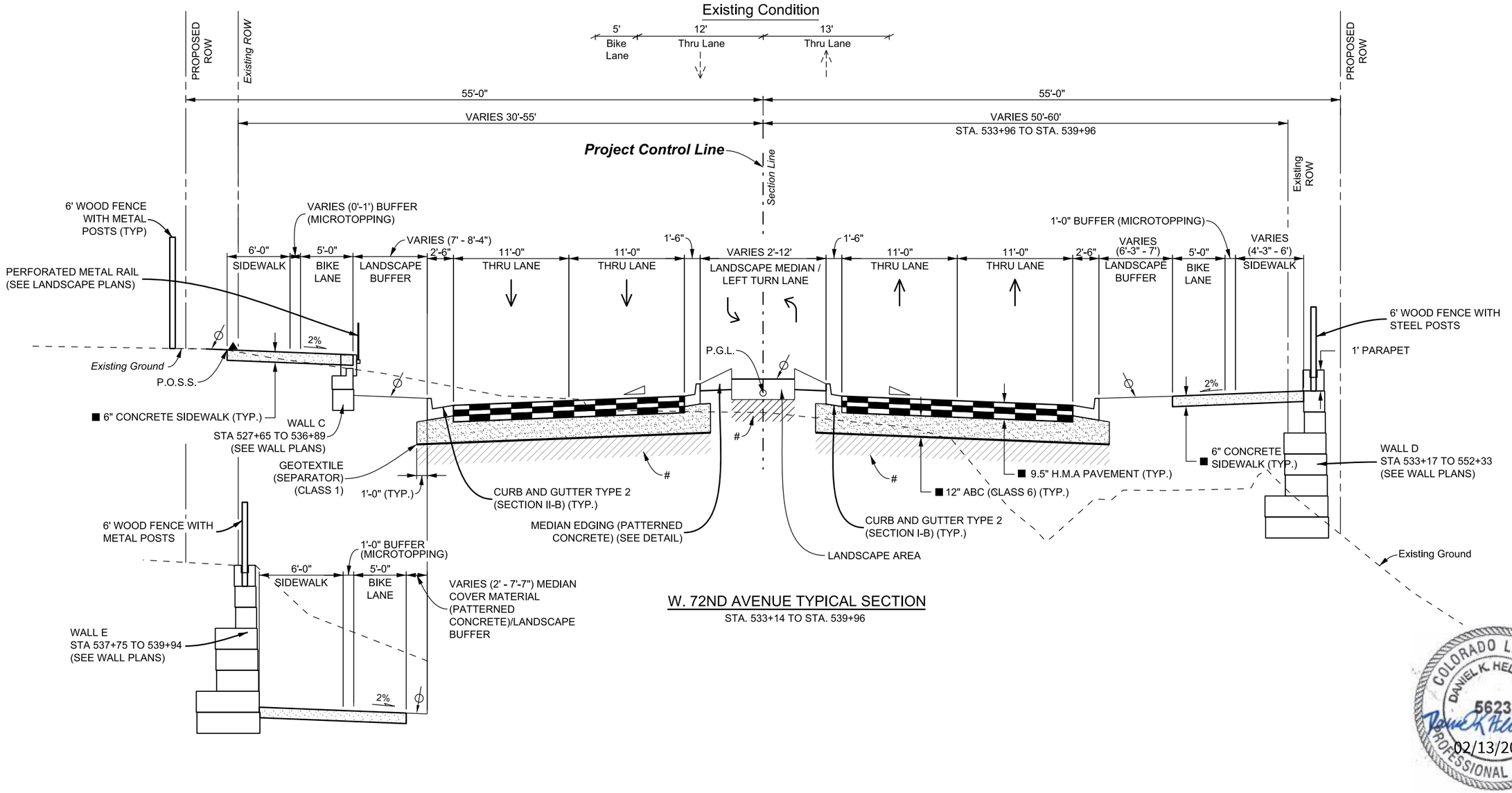

W. 72ND AVENUE TYPICAL SECTION

STA. 533+14 TO STA. 539+96

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DANIEL K. HELLRUNG
56232
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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	TYPICAL SECTIONS W. 72ND AVENUE			
Revised:	Designer: RML	Structure Numbers		
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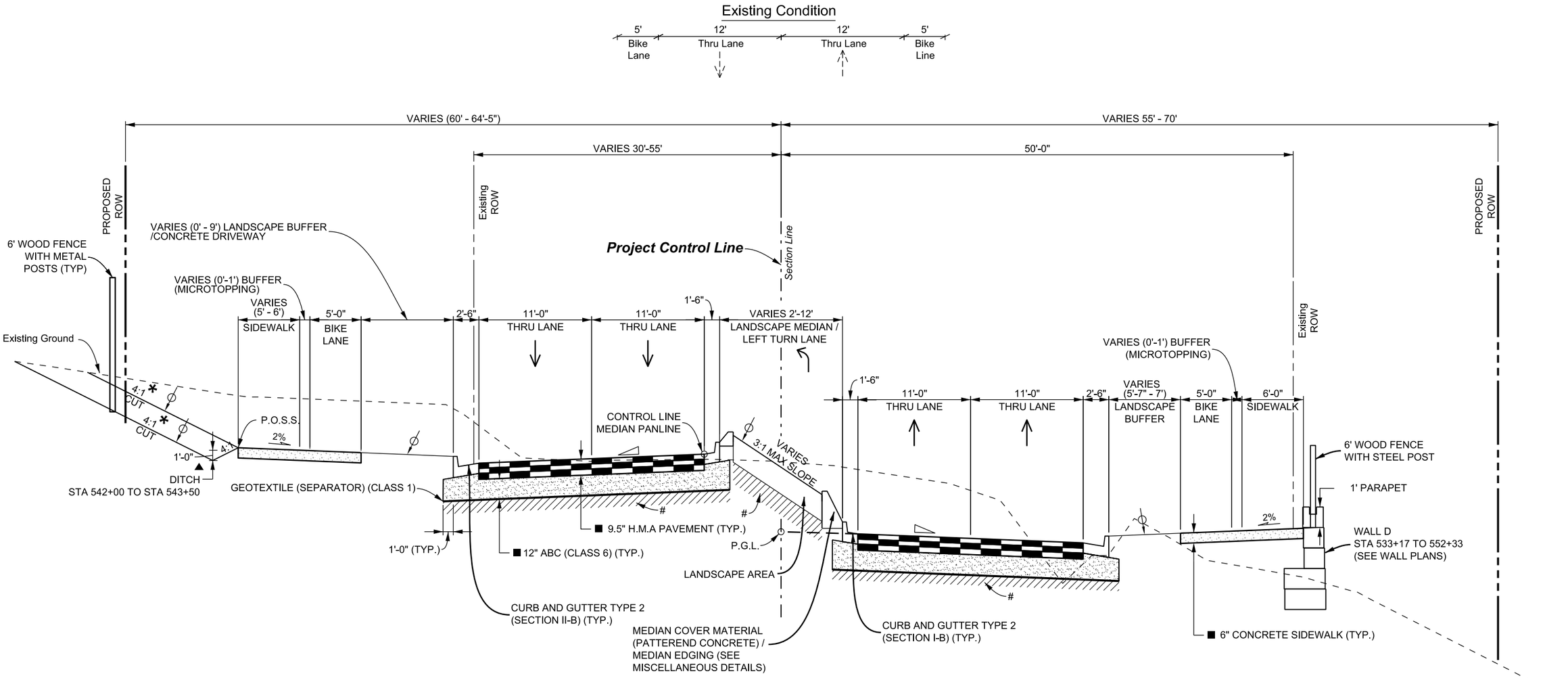

W. 72ND AVENUE TYPICAL SECTION

STA. 540+92 TO STA. 552+20

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Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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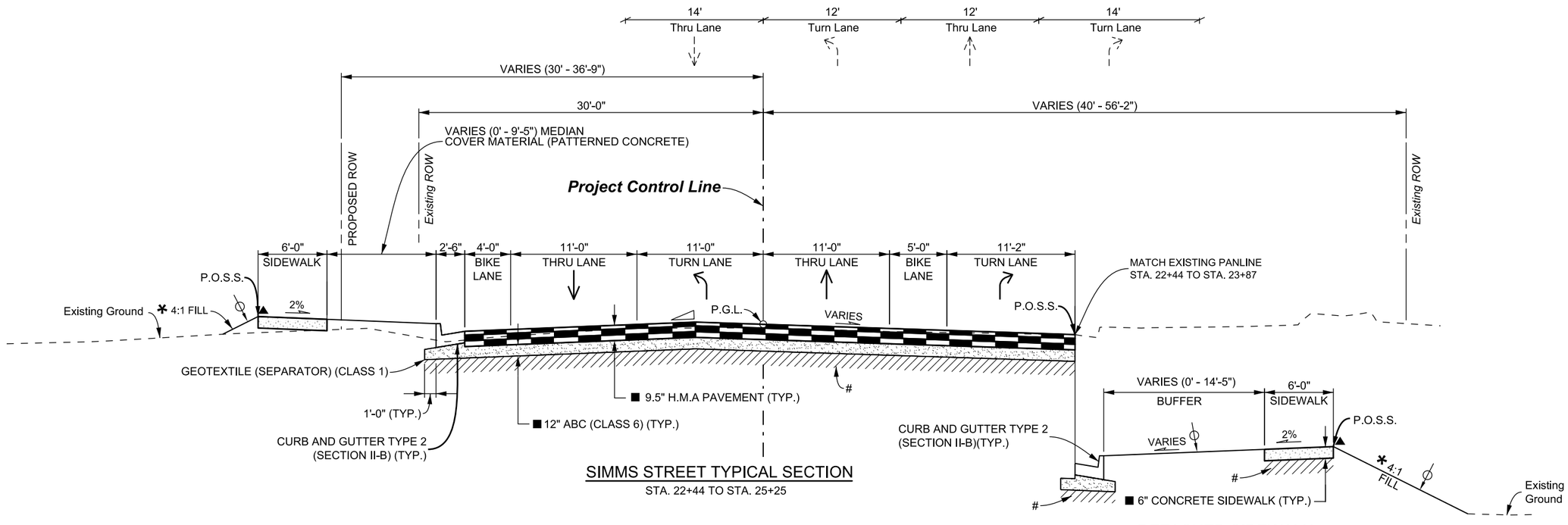
Horiz. Scale: 1:10 Vert. Scale: As Noted				Revised:	Designer: RML / Detailer: SAD / Sheet Subset: TYPICALS / Structure Numbers / Subset Sheets: 5 of 9
Unit Information Unit Leader Initials				Void:	Project No./Code
MULLER ENGINEERING COMPANY					Sheet Number 11

CITY OF ARVADA

Existing Condition

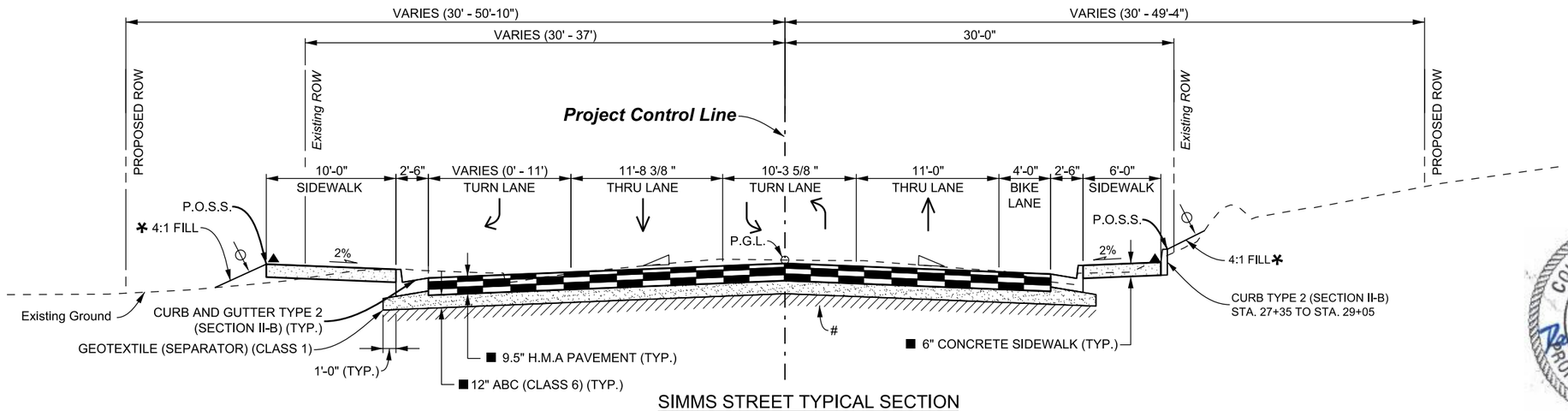


SIMMS STREET TYPICAL SECTION

STA. 22+44 TO STA. 25+25

DETACHED SIDEWALK

STA. 23+87 TO STA. 25+25



SIMMS STREET TYPICAL SECTION

STA. 26+69 TO STA. 29+25

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Drawing File Name: 18061_CP2_DES_Typicals06.dgn	Date:	Comments	Init.
Horiz. Scale: 1:10 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

TYPICAL SECTIONS
SIMMS STREET

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	TYPICALS	Subset Sheets:	6 of 9

Project No./Code

Sheet Number 12

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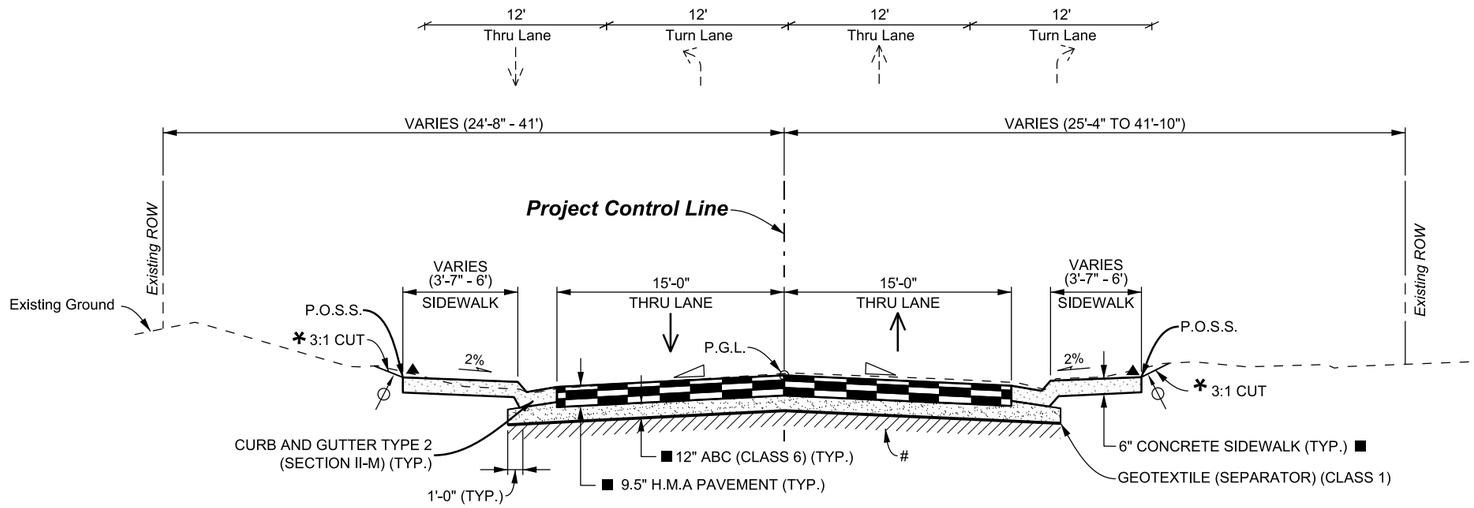
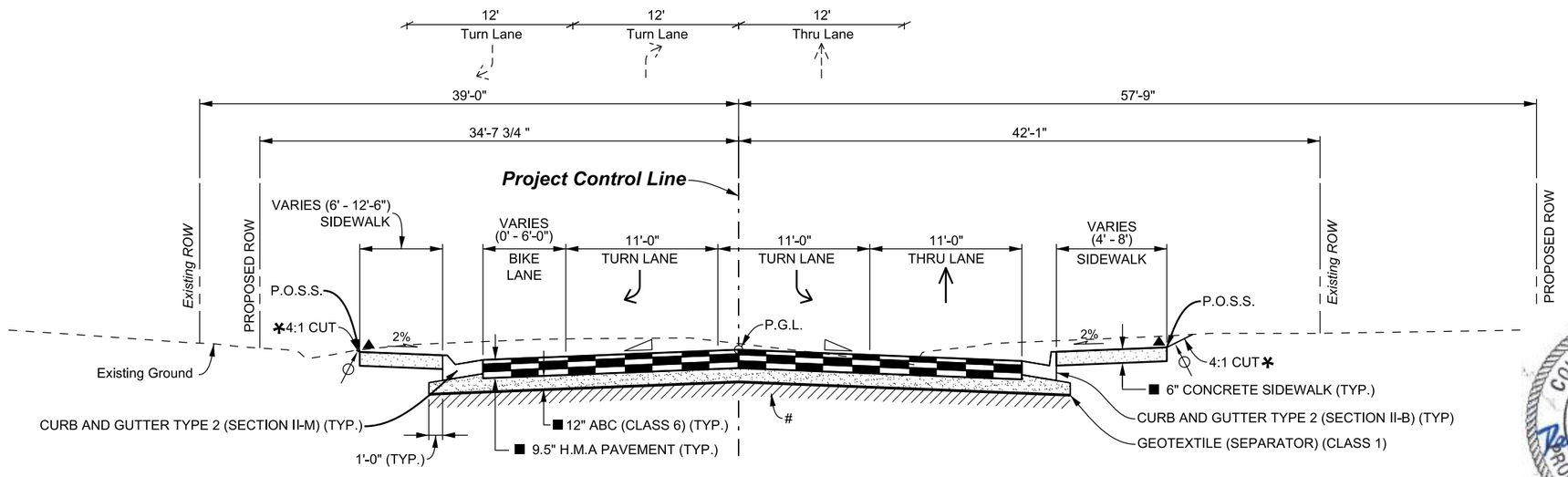
Existing Condition



ROUTT STREET TYPICAL SECTION

STA. 30+61 TO STA. 31+26

Existing Condition



QUAIL STREET TYPICAL SECTION

STA. 40+61 TO STA. 44+07

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Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2	Project No./Code
Drawing File Name: 18061_CP2_DES_Typicals07.dgn	Date:	Comments	Init.	No Revisions:	TYPICAL SECTIONS ROUTT STREET AND QUAIL STREET	
Horiz. Scale: 1:10 Vert. Scale: As Noted				Revised:	Designer: RML / Detailer: SAD / Sheet Subset: TYPICALS	Structure Numbers
Unit Information Unit Leader Initials				Void:	Subset Sheets: 7 of 9	Sheet Number 13
MULLER ENGINEERING COMPANY				CITY OF ARVADA		

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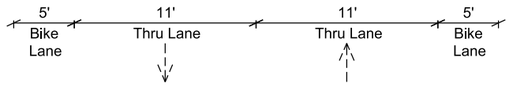
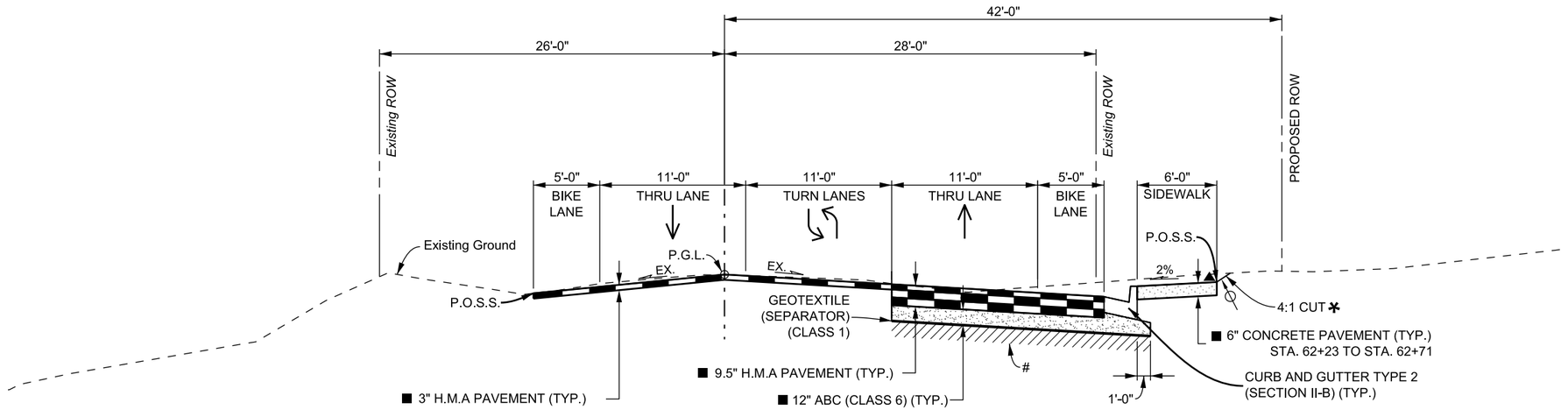
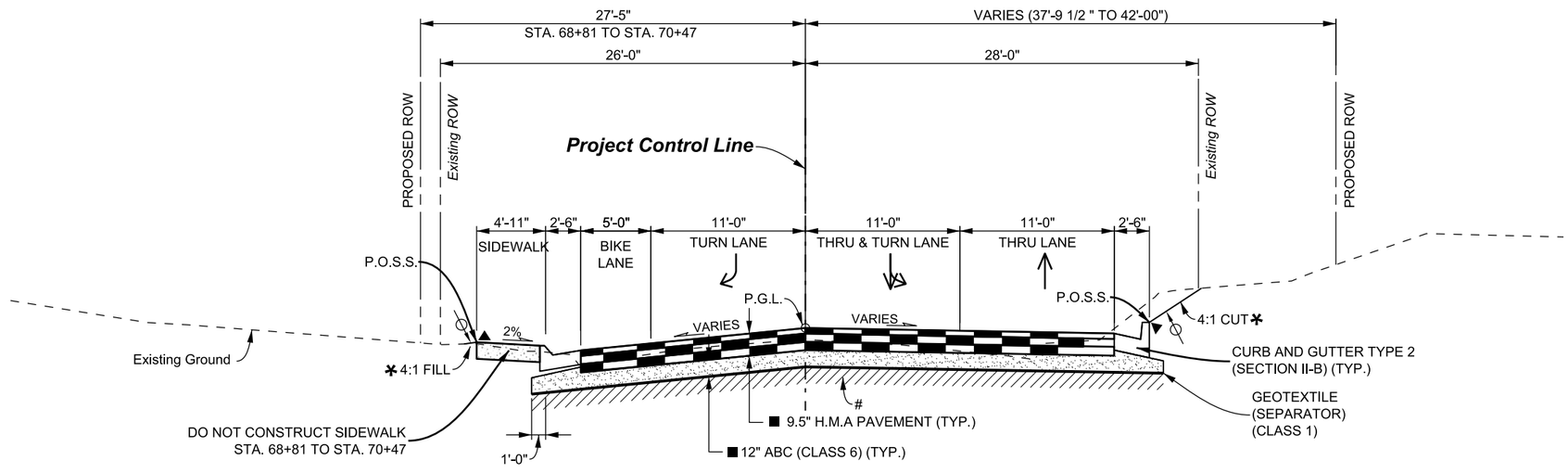




OAK STREET - WIDENING TYPICAL SECTION

STA. 61+50 TO STA. 66+47



OAK STREET TYPICAL SECTION

STA. 66+47 TO STA. 70+47

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Drawing File Name: 18061_CP2_DES_Typicals08.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:10	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

TYPICAL SECTIONS
OAK STREET

Designer:	RML	Structure Numbers	
Detailer:	PDP		
Sheet Subset:	TYPICALS	Subset Sheets:	8 of 9

Project No./Code

Sheet Number 14

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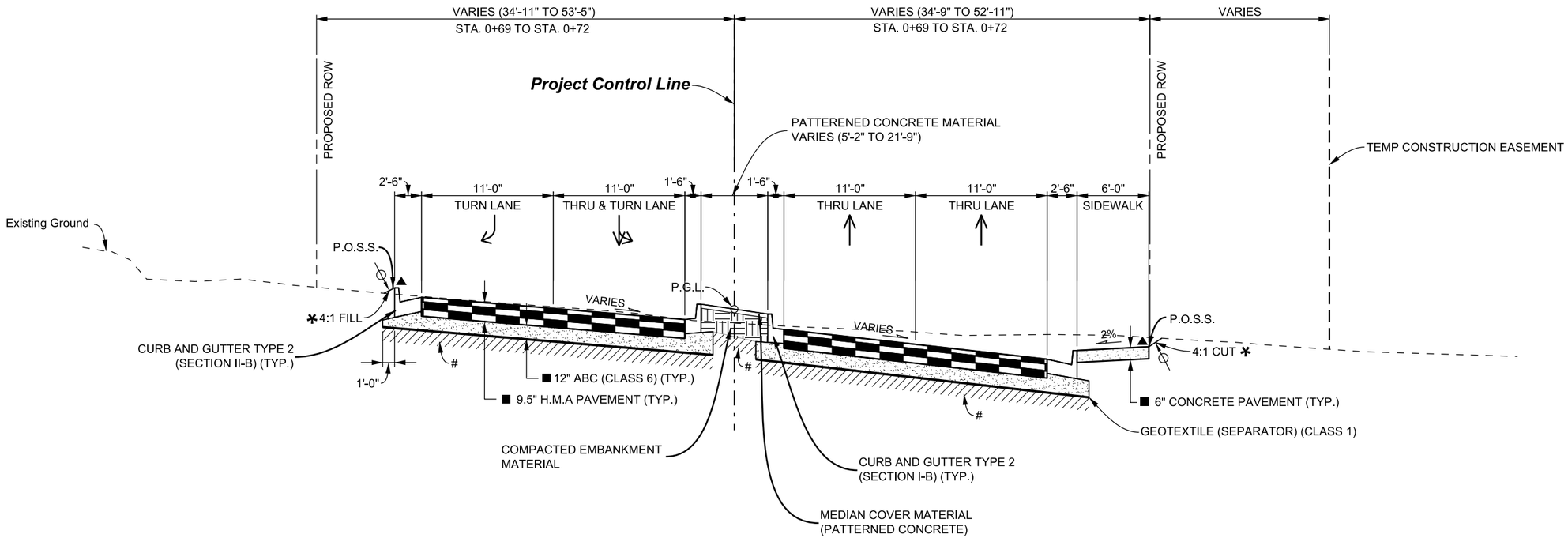

LINCOLN ACADEMY TYPICAL SECTION

STA. 0+69 TO STA. 1+69

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Print Date: 9/17/2021		Sheet Revisions			CITY OF ARVADA
Drawing File Name: 18061_CP2_DES_Typicals09.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:10 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
MULLER ENGINEERING COMPANY					

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	TYPICAL SECTIONS LINCOLN ACADEMY			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: PDP			Sheet Number 15
	Sheet Subset: TYPICALS	Subset Sheets:	9 of 9	

SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			201	CLEARING AND GRUBBING	L S	1												1	
			202	REMOVAL OF ASBESTOS CEMENT PIPE	LF	15												15	
			202	REMOVAL OF SAMPLING STATION	EACH	1												1	
			202	REMOVAL OF WATER METER	EACH	5												5	
			202	ABANDON STORM PIPE	LF	100												100	
			202	REMOVAL OF TREE	EACH	86												86	
			202	REMOVAL OF INLET	EACH	10												10	
			202	REMOVAL OF MANHOLE	EACH	7												7	
			202	REMOVAL OF RIPRAP	SY	251												251	
			202	REMOVAL OF STORM PIPE	LF	2,747												2,747	
			202	REMOVAL OF GAS LINE	LF	3,327												3,327	
			202	REMOVAL OF WATER LINE	LF	1,072												1,072	
			202	REMOVAL OF FIRE HYDRANT	EACH	3												3	
			202	REMOVAL OF VALVE	EACH	6												6	
			202	REMOVAL OF END SECTION	EACH	7												7	
			202	REMOVAL OF DELINEATOR	EACH	33												33	
			202	REMOVAL OF WALL	LF	582												582	
			202	REMOVAL OF CONCRETE MEDIAN COVER MATERIAL	SY	32												32	
			202	REMOVAL OF SIDEWALK	SY	4,545												4,545	
			202	REMOVAL OF CURB AND GUTTER	LF	6,919												6,919	
			202	REMOVAL OF WHEEL STOP	EACH	58												58	
			202	REMOVAL OF CONCRETE CURB RAMP	SY	224												224	
			202	REMOVAL OF CONCRETE PAVEMENT	SY	1,092												1,092	
			202	REMOVAL OF ASPHALT MAT	SY	28,300												28,300	
			202	REMOVAL OF ASPHALT MAT (PLANING)	SY	2,078												2,078	
			202	REMOVAL OF PAVEMENT MARKING	SF	9,000												9,000	
			202	REMOVAL OF SHED	EACH	5												5	
			202	REMOVAL OF LIGHT STANDARD FOUNDATION	EACH	14												14	
			202	REMOVAL OF GROUND SIGN	EACH	44												44	
			202	REMOVAL OF SIGN PANEL	EACH	11												11	
			202	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	1												1	
			202	REMOVAL OF FENCE	LF	5,932												5,932	
			202	REMOVAL OF GATE	EACH	5												5	

Item selection only. Quantities were developed through the cap process. Sheets 16-23

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DANIEL K. HELLRUNG
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02/13/2022

SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			202	REMOVAL OF GUARDRAIL TYPE 3	LF	427												427	
			202	REMOVAL OF END ANCHORAGE	EACH	2												2	
			202	PLUG CULVERT	EACH	9												9	
			203	UNSUITABLE MATERIAL	CY	250												250	
			203	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	19,640												19,640	
			203	PROOFROLLING	HOUR	100												100	
			203	BLADING	HOUR	50												50	
			203	DOZING	HOUR	50												50	
			203	POTHOLING	HOUR	100												100	
			206	STRUCTURE BACKFILL (FLOWFILL)	CY	100												100	
			207	TOPSOIL IMPORT	CY	2,592												2,592	
			207	TOPSOIL (ONSITE)	CY	3,021												3,021	
			208	(SEDIMENT CONTROL LOG) EROSION LOG TYPE 1 (12 INCH)	LF	8,610												8,610	
			208	SILT FENCE	LF	100												100	
			208	(ROCK SOCK) AGGREGATE BAG	LF	990												990	
			208	CONCRETE WASHOUT STRUCTURE	EACH	3												3	
			208	STORM DRAIN INLET PROTECTION (TYPE I) (CURB INLETS)	EACH	26												26	
			208	STORM DRAIN INLET PROTECTION (TYPE II) (COMBINATION INLETS)	EACH	5												5	
			208	STORM DRAIN INLET PROTECTION (TYPE III) (AREA INLETS)	EACH	15												15	
			208	PRE-FABRICATED VEHICLE TRACKING PAD	EACH	5												5	
			208	REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)	HOUR	20												20	
			208	REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)	HOUR	20												20	
			208	SWEEPING (SEDIMENT REMOVAL)	HOUR	100												100	
			208	EROSION CONTROL MANAGEMENT (ECM)	LS	1												1	
			210	PIPE SCOPE	EACH	1												1	
			210	RESET IRRIGATION EQUIPMENT (SPECIAL)	LS	1												1	
			210	ADJUST FIRE HYDRANT	EACH	1												1	
			210	RESET VINYL FENCE	LF	104												104	
			210	RESET SIGN SPECIAL	EACH	3												3	
			210	RESET MAILBOX STRUCTURE	EACH	11												11	
			210	RELAY PIPE (30 INCH)	LF	67												67	
			210	ABANDON VALVE BOX	EACH	2												2	
			210	ADJUST MANHOLE	EACH	16												16	

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SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			210	MODIFY MANHOLE	EACH	8												8	
			210	ADJUST VALVE BOX	EACH	7												7	
			212	SEEDING (NATIVE)	ACRE	8.4												8	
			212	SEEDING (WETLANDS)	ACRE	0.1												0	
			212	SOIL CONDITIONING	ACRE	5.6												6	
			212	PLANTING - SOD	SF	37,385												37,385	
			213	MULCH	SF	494												494	
			213	MULCHING (WEED FREE)	ACRE	5.6												6	
			213	MULCH TACKIFIER	LB	1,124												1,124	
			214	PLANTING - PERENNIALS (1 GAL)	EACH	189												189	
			214	PLANTING - SHRUBS (5 GAL)	EACH	956												956	
			214	PLANTING - TREE (2.5" CAL)	EACH	181												181	
			215	LANDSCAPE WARRANTY AND MAINTENANCE - 2 YEAR	L S	1												1	
			216	(EROSION CONTROL BLANKET) SOIL RETENTION BLANKET (COCONUT)	SY	1,736												1,736	
			304	AGGREGATE BASE COURSE (CLASS 6)	TON	22,559												22,559	
			403	HOT MIX ASPHALT (PATCHING) (ASPHALT)	TON	358												358	
			403	HOT MIX ASPHALT (GRADING S) (100) (PG 64-22)	TON	12,122												12,122	
			403	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28)	TON	5,487												5,487	
			409	PED-BIKE BUFFER-CONCRETE WITH COLORED MICROTOPPING	SF	4,818												4,818	
			411	EMULSIFIED ASPHALT (SLOW SETTING)	GAL	5,228												5,228	
			412	PATTERNED CONCRETE PAVEMENT (6 INCH) (SPECIAL)	SY	130												130	
			412	CONCRETE PAVEMENT (6 INCH)	SY	1,422												1,422	
			420	GEOTEXTILE (DRAINAGE) (CLASS 2)	SY	168												168	
			420	GEOTEXTILE (SEPARATOR) (CLASS 1)	SY	36,498												36,498	
			503	DRILLED CAISSON (18 INCH)	LF	32												32	
			503	DRILLED CAISSON (36 INCH)	LF	158												158	
			504	MAGNUM STONE WALL	SF	18,600												18,600	
			506	GROUTED BOULDERS (24 INCH)	EACH	3												3	
			506	GROUTED BOULDERS (36 INCH)	EACH	32												32	
			506	SOIL RIPRAP (12 INCH)	CY	130												130	
			506	VOID FILLED RIPRAP (6 INCH)	CY	5												5	
			506	VOID FILLED RIPRAP (12 INCH)	CY	25												25	
			514	METAL HANDRAIL	LF	64												64	

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Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUMMARY OF APPROXIMATE QUANTITIES

Designer: DKH
Detailer: SAD
Sheet Subset: SAQ
Structure Numbers
Subset Sheets: 3 of 8

Project No./Code

Sheet Number 18

SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			514	PERFORATED METAL RAIL	LF	1,080												1,080	
			514	PERFORATED METAL RAIL WITH HANDRAIL	LF	101												101	
			601	CONCRETE (CLASS B): 24" TOEWALL	CY	2												2	
			601	CONCRETE (CLASS B): CURB WALL	CY	14												14	
			601	CONCRETE (CLASS B): FOREBAY BASE	CY	15												15	
			603	12 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	4												4	
			603	15 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	136												136	
			603	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	2,079												2,079	
			603	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	2,106												2,106	
			603	30 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	843												843	
			603	36 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	LF	70												70	
			603	38X24 INCH REINFORCED CONCRETE PIPE ELLIPTICAL	LF	361												361	
			603	45X29 INCH REINFORCED CONCRETE PIPE ELLIPTICAL	LF	338												338	
			603	12 INCH REINFORCED CONCRETE END SECTION	EACH	1												1	
			603	24 INCH REINFORCED CONCRETE END SECTION	EACH	1												1	
			603	45X29 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	EACH	1												1	
			603	6 INCH PLASTIC PIPE	LF	5												5	
			603	8 INCH PLASTIC PIPE	LF	183												183	
			604	DRAIN BASIN	EACH	2												2	
			604	MEDIAN INLET	EACH	2												2	
			604	12 INCH SIDEWALK CHASE DRAIN	LF	16												16	
			604	INLET TYPE C (5 FOOT)	EACH	5												5	
			604	INLET TYPE C (10 FOOT)	EACH	2												2	
			604	INLET TYPE 16 (DOUBLE) (10 FOOT)	EACH	1												1	
			604	INLET TYPE 16 (TRIPLE) (10 FOOT)	EACH	2												2	
			604	INLET SPECIAL (TRENCH DRAIN)(8 INCH WIDTH)	LF	47												47	
			604	INLET TYPE R L5 (5 FOOT)	EACH	5												5	
			604	INLET TYPE R L5 (10 FOOT)	EACH	3												3	
			604	INLET TYPE R L10 (5 FOOT)	EACH	5												5	
			604	INLET TYPE R L10 (10 FOOT)	EACH	4												4	
			604	INLET TYPE R L10 (15 FOOT)	EACH	1												1	
			604	INLET TYPE R L15 (10 FOOT)	EACH	3												3	
			604	OUTLET STRUCTURE 1	EACH	1												1	

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUMMARY OF APPROXIMATE QUANTITIES

Designer: DKH
Detailer: SAD
Sheet Subset: SAQ
Structure Numbers
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Sheet Number 19

SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			604	MANHOLE SLAB BASE (5 FOOT)	EACH	3												3	
			604	MANHOLE SLAB BASE (10 FOOT)	EACH	12												12	
			604	MANHOLE SLAB BASE (15 FOOT)	EACH	6												6	
			607	FENCE WOOD WITH METAL POSTS	LF	3,701												3,701	
			607	FENCE (TEMPORARY)	LF	1,900												1,900	
			607	FENCE (PLASTIC)	LF	1,317												1,317	
			607	FENCE CHAIN LINK (60 INCH)	LF	685												685	
			607	4 FOOT GATE	EACH	2												2	
			607	15 FOOT GATE	EACH	1												1	
			607	20 FOOT GATE	EACH	2												2	
			608	CIP CONCRETE STAIRS	CY	59												59	
			608	CONCRETE SIDEWALK (6 INCH)	SY	8,446												8,446	
			608	CONCRETE CURB RAMP	SY	1,210												1,210	
			609	RIBBON CURB	LF	323												323	
			609	CURB (SPECIAL)	LF	165												165	
			609	CURB TYPE 2 (SECTION B)	LF	501												501	
			609	CURB AND GUTTER TYPE 2 (SECTION I-B)	LF	6,159												6,159	
			609	CURB AND GUTTER TYPE 2 (SECTION II-B)	LF	8,715												8,715	
			609	CURB AND GUTTER TYPE 2 (SECTION II-M)	LF	790												790	
			609	GUTTER TYPE 2 (8 FOOT)	LF	48												48	
			610	MEDIAN COVER MATERIAL (PATTERNED CONCRETE)	SF	9,116												9,116	
			610	MEDIAN COVER MATERIAL (CONCRETE)	SF	130												130	
			610	MEDIAN EDGING (PATTERNED CONCRETE)	LF	2,151												2,151	
			612	DELINEATOR TYPE I (CRYSTAL)	EACH	17												17	
			612	DELINEATOR (FLEXIBLE) (SURFACE MOUNTED)	EACH	185												185	
			613	TYPE LG PULL BOX	EACH	12												12	
			613	2 INCH ELECTRICAL CONDUIT (BORED)	LF	2,000												2,000	
			613	3 INCH ELECTRICAL CONDUIT (BORED)	LF	1,750												1,750	
			613	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	6,190												6,190	
			613	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	1,385												1,385	
			613	WIRING (TRAFFIC SIGNALS)	LS	1												1	
			613	WIRING (LIGHTING)	LS	1												1	
			613	LUMINAIRE (LED)	EACH	11												11	

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUMMARY OF APPROXIMATE QUANTITIES

Designer: DKH
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Project No./Code

Sheet Number 20

SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			613	LUMINAIRE (LED) (9,600 LUMENS) LSXX	EACH	30												30	
			613	LUMINAIRE (LED) (9,600 LUMENS) LTXX	EACH	7												7	
			613	LIGHTING STANDARD STEEL (30 FOOT)	EACH	30												30	
			613	CONCRETE FOUNDATION PAD	EACH	2												2	
			613	LIGHT STANDARD FOUNDATION	EACH	30												30	
			613	LIGHTING CONTROL CENTER (SPECIAL)	EACH	2												2	
			613	SERVICE METER CABINET	EACH	3												3	
			614	SIGN SUPPORT (2 INCH X 2 INCH STEEL SLEEVE)	LF	156												156	
			614	SIGN SUPPORT (3 INCH SLEEVE)	EACH	20												20	
			614	SIGN PANEL (CLASS 1)	SF	751												751	
			614	STEEL SIGN POST (1.75 X 1.75 INCH TUBING)	LF	546												546	
			614	SIGNAL HEAD BACKPLATES	EACH	27												27	
			614	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	20												20	
			614	TRAFFIC SIGNAL FACE (12-12-12)	EACH	26												26	
			614	TRAFFIC SIGNAL FACE (12-12-12-12)	EACH	18												18	
			614	TRAFFIC SIGNAL FACE (12-12-12-12-12)	EACH	4												4	
			614	TRAFFIC SIGNAL CONTROLLER CABINET	EACH	3												3	
			614	PEDESTRIAN PUSH BUTTON	EACH	20												20	
			614	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EACH	3												3	
			614	FIRE PREEMPTION UNIT AND TIMER (DUAL EYE)	EACH	6												6	
			614	MICROWAVE VEHICLE RADAR DETECTOR	EACH	17												17	
			614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-30 FOOT MAST ARM)	EACH	1												1	
			614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EACH	7												7	
			614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	EACH	1												1	
			614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)	EACH	2												2	
			614	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EACH	8												8	
			614	TRAFFIC SIGNAL CONTROLLER (SS)(FA)(8 PHASE)	EACH	3												3	
			614	UNINTERRUPTED POWER SUPPLY	EACH	3												3	
			614	CCTV CAMERA (TRAFFIC SURVEILLANCE)	EACH	3												3	
			619	ABANDON EXISTING PIPE	EACH	12												12	
			619	SAMPLING STATION	EACH	1												1	
			619	WATER METER	EACH	5												5	
			619	CONNECT TO EXISTING WATERLINE	EACH	8												8	

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Print Date: 2/11/2022
Drawing File Name: 18061_CP2_DES_SAQ06.dgn
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUMMARY OF APPROXIMATE QUANTITIES

Designer: DKH
Detailer: SAD
Sheet Subset: SAQ
Structure Numbers
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Project No./Code

Sheet Number 21

SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			619	6 INCH PLASTIC PIPE	LF	51												51	
			619	8 INCH PLASTIC PIPE	LF	515												515	
			619	12 INCH PLASTIC PIPE	LF	2,619												2,619	
			619	18 INCH PLASTIC PIPE	LF	766												766	
			619	24 INCH PLASTIC PIPE	LF	10												10	
			619	6 INCH GATE VALVE	EACH	1												1	
			619	8 INCH GATE VALVE	EACH	7												7	
			619	12 INCH GATE VALVE	EACH	12												12	
			619	18 INCH BUTTERFLY VALVE	EACH	4												4	
			619	6 INCH FIRE HYDRANT	EACH	9												9	
			619	2 INCH AIR AND VACUUM VALVE	EACH	1												1	
			620	FIELD OFFICE (CLASS 2)	EACH	1												1	
			620	SANITARY FACILITY	EACH	1												1	
			621	DETOUR PAVEMENT	SY	8,700												8,700	
			623	IRRIGATION	LS	1												1	
			623	AUTOMATIC IRRIGATION CONTROLLER (FURNISH AND INSTALL)	EACH	4												4	
			623	3/4 INCH PLASTIC IRRIGATION PIPE	LF	470												470	
			625	CONSTRUCTION SURVEYING	L S	1												1	
			626	MOBILIZATION	L S	1												1	
			626	PUBLIC INFORMATION SERVICES	L S	1												1	
			627	1110 SERIES HIGH BUILD WATERBORNE ACRYLIC TRAFFIC PAINT	GAL	61												61	
			627	PREFORMED THERMOPLASTIC BURN DOWN	SF	511												511	
			627	PREFORMED THERMOPLASTIC BURN DOWN (WORD - SYMBOL)	SF	943												943	
			627	PREFORMED THERMOPLASTIC BURN DOWN (XWALK - STOPLINE)	SF	1,339												1,339	
			627	PREFORMED THERMOPLASTIC BURN DOWN (BIKE XWALK - GREEN)	SF	3,016												3,016	
			627	PREFORMED THERMOPLASTIC BURN DOWN (WHEELCHAIR SYMBOL - BLUE)	SF	35												35	
			627	PAVEMENT MARKING PAINT (WATERBORNE)	GAL	95												95	
			629	SURVEY MONUMENT (TYPE 3A)	EACH	2												2	
			630	FLAGGING	HOUR	2,000												2,000	
			630	UNIFORMED TRAFFIC CONTROL	HOUR	100												100	
			630	TRAFFIC CONTROL INSPECTION	DAY	217												217	
			630	TRAFFIC CONTROL MANAGEMENT	DAY	543												543	
			630	BARRICADE (TYPE 3 M-B) (TEMPORARY)	EA	4												4	

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUMMARY OF APPROXIMATE QUANTITIES

Designer: DKH
Detailer: SAD
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Project No./Code

Sheet Number 22

SUMMARY OF APPROXIMATE QUANTITIES

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	TOTAL	AS CONST.
			630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EA	133												133	
			630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EA	24												24	
			630	PORTABLE MESSAGE SIGN PANEL	EA	6												6	
			630	DRUM CHANNELIZING DEVICE	EA	44												44	
			630	CONCRETE BARRIER (TEMPORARY)	LF	3,700												3,700	
			630	TRAFFIC SIGNAL (TEMPORARY)	EA	3												3	
			630	IMPACT ATTENTUATOR (TEMPORARY)	EA	8												8	
			700	F/A MINOR CONTRACT REVISIONS	FA	1												1	
			700	F/A FUEL COST ADJUSTMENT	FA	1												1	
			700	F/A ASPHALT CEMENT COST ADJUSTMENT	FA	1												1	
			700	F/A RELOCATE UTILITIES	FA	1												1	
			700	F/A EROSION CONTROL	FA	1												1	
			700	F/A ENVIRONMENTAL HEALTH & SAFETY MANAGEMENT	FA	1												1	
			700	F/A DEWATERING	FA	1												1	
			700	F/A WATER	FA	1												1	
			700	F/A CMGC OVERRUN POOL	FA	1												1	
			700	F/A RISK REGISTER	FA	1												1	

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SUMMARY OF APPROXIMATE QUANTITIES

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Sheet Number 23

SUMMARY OF EARTHWORK

PAY ITEMS		PLAN	FINAL	UNIT
UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)				
ROADWAY				
W. 72nd AVENUE		12,327		CY
SIDE STREETS		5,217		CY
DRIVEWAYS		768		CY
FIRST UNITED CHURCH OF ARVADA		538		CY
GRANGE 25		183		CY
WATER QUALITY POND		607		CY
	TOTAL FOR PAY QUANTITY	**19,640**		**CY**
TOPSOIL IMPORT	**TOTAL FOR PAY QUANTITY**	**2,592**		**CY**
TOPSOIL (ONSITE)	**TOTAL FOR PAY QUANTITY**	**3,021**		**CY**
UNSUITABLE MATERIAL	**TOTAL FOR PAY QUANTITY**	**250**		**CY**

FOR INFORMATION ONLY				UNIT
EMBANKMENT MATERIAL				
ROADWAY				
W. 72nd AVENUE		14,039		CY
SIDE STREETS		500		CY
DRIVEWAYS		200		CY
FIRST UNITED CHURCH OF ARVADA		323		CY
GRANGE 25		75		CY
FOR STORM PIPE		3,178		CY
FOR WATERLINE		1,985		CY
WATER QUALITY POND		366		CY
	TOTAL	20,667		CY
STRUCTURE EXCAVATION				
FOR STORM SEWER		7,687		CY
FOR WATERLINE		3,130		CY
	TOTAL	10,817		CY
STRUCTURE BACKFILL (CLASS 1)				
FOR STORM SEWER		1,293		CY
	TOTAL	1,293		CY
STRUCTURE BACKFILL (CLASS 2)				
FOR STORM SEWER		2,173		CY
	TOTAL	2,173		CY

EARTHWORK BALANCE - FOR INFORMATION ONLY			UNIT
EMBANKMENT	20,667		CY
EMBANKMENT x 1.15 (COMPACTION FACTOR)	23,767		CY
TOTAL EXCAVATION = UNCL EX + STRUCT EX	30,457		CY
APPROXIMATE EXCESS MATERIAL	6,690		CY

NOTES:

1. MATERIALS QUANTITIES ARE ACTUAL IN-PLACE QUANTITIES AND DO NOT REPRESENT UNCOMPACTED VOLUMES.
2. UNCLASSIFIED EXCAVATION VOLUMES DO NOT INCLUDE THE EXISTING PAVEMENT. REMOVAL OF EXISTING PAVEMENT SECTION IS PAID FOR UNDER REMOVAL OF ASPHALT MAT. EXISTING ASPHALT PAVEMENT THICKNESS IS ASSUMED TO BE 8-INCHES THICK BASED ON THE PAVEMENT REPORT BY SHANNON & WILSON DATED JUNE 30, 2015.
3. CONTRACTOR SHALL REFER TO PAVEMENT DESIGN FOR ALL PAVEMENT RELATED ISSUES.
4. ROADWAY QUANTITIES BALANCE DOES NOT REFLECT THE EARTHWORK REQUIRED IN EACH CONSTRUCTION PHASE. THE PROJECT MAY REQUIRE ADDITIONAL EMBANKMENT OR EXCAVATION PER PHASE. THE COST OF ADDITIONAL EMBANKMENT, EXCAVATION, HAULING, AND HANDLING WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE ORIGINAL PLAN QUANTITIES.
5. FOR EMBANKMENT AND EXCAVATION, THE MINIMUM DEPTH OF SCARIFICATION, MOISTURE AND DENSITY CONTROL SHALL BE 12-INCHES AND SHALL BE INCLUDED IN THE COST OF THE PAY ITEM UNCLASSIFIED EXCAVATION (COMPLETE-IN-PLACE).
6. UNCLASSIFIED EXCAVATION (COMPLETE-IN-PLACE) CONSISTS OF EXCAVATION, HAULING, DISPOSAL, PLACEMENT AND COMPACTION OF ALL MATERIALS ENCOUNTERED WITHIN THE LIMITS OF WORK, INCLUDING CONSTRUCTION OF BERMS, EXCAVATION FOR DITCHES AND WATER QUALITY POND, NECESSARY FOR THE CONSTRUCTION OF THE ROADWAY IN ACCORDANCE WITH THE CONTRACT.

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Drawing File Name: 18061_CP2_DES_Tab_Earthwork.dgn
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUMMARY OF EARTHWORK

Designer: DKH
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Sheet Subset: TAB
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Sheet Number 24

TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS

STATION	SIDE	REMOVAL OF TREE	REMOVAL OF DELINEATOR	REMOVAL OF WALL	REMOVAL OF WHEEL STOP	REMOVAL OF SHED	REMOVAL OF GUARDRAIL TYPE 3	REMOVAL OF END ANCHORAGE	PLUG CULVERT	REMOVAL OF INLET	REMOVAL OF MANHOLE	REMOVAL OF RIPRAP	REMOVAL OF STORM PIPE	REMOVAL OF GAS LINE	REMOVAL OF WATER LINE	REMOVAL OF END SECTION	ABANDON STORM PIPE	PIPE SCOPE	RELAY PIPE (30 INCH)	RESET SIGN (SPECIAL)	ADJUST FIRE HYDRANT	RESET MAILBOX STRUCTURE	ABANDON VALVE BOX	ADJUST MANHOLE	MODIFY MANHOLE	ADJUST VALVE BOX	COMMENTS
		EA	EA	LF	EA	EA	LF	EA	EA	EA	EA	SY	LF	LF	LF	EA	LF	EA	LF	EA	EA	EA	EA	EA	EA	EA	
WEST 72ND AVENUE																											
517+50 TO 523+00		3	4	5					2				49	438	16		41							2			
523+00 TO 528+50		16	13	35	4				2	2			160	410				1	67	1			1		4	2	
528+50 TO 534+00						1					2		827	157	412								1			1	SHED REMOVAL FOR PARCEL 16
534+00 TO 539+50		8		287			296	1		1	3	139	780	651		1											
539+50 TO 545+00		26	5	26		1	131	1	1	5	1	80	771	688	461	3						2		3			SHED REMOVAL FOR PAREL 75
545+00 TO 550+50		17	5									3		633								3		1			
550+50 TO 553+38			6						2	1	1	29	119	350		3	38					2		3		4	
SIDE STREETS																											
SIMMS ST																											
22+44 TO 25+00		5			5															1							
25+00 TO 26+25		3		229	8																						
ROUTT ST																						1					
QUAIL ST															183							3		2			
PIERSON ST						1																					SHED REMOVAL FOR PARCEL 76
OAK ST																											
61+51 TO 65+50		3							2	1							21							1			
65+50 TO 70+47		5																			1			1			
LINCOLN ACADEMY													41							1							
FIRST UNTIED CHURCH OF ARVADA					41	2																					
From Tabulation of Drainage Items																								3	4		
PROJECT TOTALS		86	33	582	58	5	427	2	9	10	7	251	2,747	3,327	1,072	7	100	1	67	3	1	11	2	16	8	7	

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Print Date: 1/19/2022
Drawing File Name: 18061_CP2_DES_TabRemovals.dgn
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TABULATION OF REMOVALS, RESETS AND ADJUSTMENTS

Designer: RML
Detailer: SAD
Sheet Subset: TAB
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Sheet Number 25

TABULATION OF SURFACING QUANTITIES

STATION	REMOVAL OF CONCRETE PAVEMENT SY	REMOVAL OF ASPHALT MAT SY	REMOVAL OF ASPHALT MAT (PLANING) SY	HOT MIX ASPHALT (PATCHING) (ASPHALT)[1] TON	HOT MIX ASPHALT (GRADING S) (100) (PG 64-22) BOTTOM TON	HOT MIX ASPHALT (GRADING S) (100) (PG 64-22) MIDDLE TON	HOT MIX ASPHALT (GRADING S) (100) (PG 64-22) MIDDLE TON	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28) TOP TON	EMULSIFIED ASPHALT (SLOW SETTING) GAL	CONCRETE PAVEMENT (6 INCH) SY	GEOTEXTILE (SEPARATOR) (CLASS 1) SY	AGGREGATE BASE COURSE (CLASS 6) TON
WEST 72ND AVENUE												
517+50 TO 523+00		1,650	82		575	493	0	506	452		3,148	1,885
523+00 TO 528+50		4,050			869	745	0	745	677		5,182	3,102
528+50 TO 534+00	68	3,800	31	18	737	632	0	637	576		4,496	2,691
534+00 TO 539+50	46	2,550			587	504	0	504	458		3,783	2,265
539+50 TO 545+00	4	2,750			593	508	0	508	462		3,757	2,249
545+00 TO 550+50		2,150			532	456	0	456	415		3,494	2,092
550+50 TO 552+37		1,650	41		407	349	0	355	319		2,357	1,411
SIDE STREETS												
SIMMS ST												
22+44 TO 25+00	142	1,550	60		292	250	0	260	230	26	1,699	1,025
25+00 TO 26+25		1,400	45		286	245	0	252	225		1,700	1,018
ROUTT ST	50	250	34		42	36	0	42	34		266	160
QUAIL ST		1,650	40		276	237	0	243	217		1,675	1,003
PIERSON ST		50	19									0
OAK ST												
61+51 TO 65+50		200	1,726		121	104	0	389	181		782	468
65+50 TO 70+47		400			222	190	0	190	173	72	1,333	837
LINCOLN ACADEMY	99	850		323	162	139	0	139	127		1,088	652
From Tabulation of Driveways	683	200			20	20	0		18	1,207		562
From Tabulation of Parking Lots		3,150			458	458	0		415	90		27
From Tabulation of Drainage Items										27		38
SUBTOTAL	1,092	28,300	2,078	341	6,179	5,366	0	5,226	4,979	1,422	34,760	21,485
5% FOR IRREGULARITIES				17	309	268	0	261	249		1,738	1,074
SUB TOTALS	**1,092**	**28,300**	**2,078**	**358**	**6,488**	**5,634**	**0**	**5,487**	**5,228**	**1,422**	**36,498**	**22,559**
PROJECT TOTALS	**1,092**	**28,300**	**2,078**	**358**		**12,122**		**5,487**	**5,228**	**1,422**	**36,498**	**22,559**

NOTES:

1. SEE PAVEMENT PLAN FOR HMA (PATCHING) AREAS.

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
TABULATION OF SURFACING QUANTITIES

Designer: RML
Detailer: SAD
Sheet Subset: TAB
Structure Numbers
Subset Sheets: 1 of 1

Project No./Code

Sheet Number 26

TABULATION OF CONCRETE ITEMS

STATION	SIDE	REMOVAL OF CONCRETE MEDIAN COVER MATERIAL	REMOVAL OF SIDEWALK	REMOVAL OF CURB AND GUTTER	REMOVAL OF CONCRETE CURB RAMP	PED-BIKE BUFFER-CONCRETE WITH COLORED MICROTOPPING	CONCRETE SIDEWALK (6 INCH)	CONCRETE CURB RAMP	CURB AND GUTTER TYPE 2 (SECTION I-B)	CURB AND GUTTER TYPE 2 (SECTION II-B)	CURB AND GUTTER TYPE 2 (SECTION II-M)	GUTTER TYPE 2 (8 FOOT)	CURB TYPE 2 (SECTION B)	MEDIAN COVER MATERIAL (PATTERNED CONCRETE)	MEDIAN COVER MATERIAL (CONCRETE)	MEDIAN EDGING (PATTERNED CONCRETE)
		SY	SY	LF	SY	SF	SY	SY	LF	LF	LF	LF	LF	SF	SF	LF
WEST 72ND AVENUE																
517+50 TO 523+00	RT		382			283	432	38		300				583		
	LT					36	42	23		52				92		
	MEDIAN								104					91	11	
523+00 TO 528+50	RT		135	190	11	212	525	133		429	34			470		
	LT		130	85	28	303	459	201		470				505		
	MEDIAN	32	15	147					864					836	21	
528+50 TO 534+00	RT		269	486	58	178	411	213		492				742		
	LT		485			550	673			550						
	MEDIAN								762					706	42	
534+00 TO 539+50	RT		21	1,060		550	675			550						
	LT		471	362		550	673			550				266		
	MEDIAN								1101					1208		403
539+50 TO 545+00	RT			396		490	638	55		540						
	LT		395	103	38	332	496	151		477	13			303		
	MEDIAN								911					84	39	801
545+00 TO 550+50	RT					550	673			550						
	LT		508	550		463	678			550						
	MEDIAN								1100					403		948
550+50 TO 552+37	RT		8	16	43	160	197	76		179				204		
	LT		291	188		161	203	67		185		24		49		
	MEDIAN								340					331	11	
SIDE STREETS																
SIMMS ST																
22+44 TO 25+00	RT		87	103	26		85	29		103						
	LT		171	328			120	37		199				286		
	MEDIAN								63							
25+00 TO 26+25	RT		133	281			180			305			170	155		
	LT		172	278			279	38		296				390	6	
ROUTT ST	RT		22	62			31			12	65					
	LT		14	61			25			12	65					
QUAIL ST	RT		140	285			235			222	49					
	LT		134	374			180			53	310					
PIERSON ST			5	14			10				52					
OAK ST																
61+51 TO 65+50	RT		226	394	20		32	56		477						
	LT		1	2			2				4					
65+50 TO 70+47	RT		66	127						202	71					
	LT		40	130			66			186	107					
	MEDIAN															
LINCOLN ACADEMY	RT		63	33			126			211						
	LT			13						93						
	MEDIAN			29					332					1107		
From Tabulation of Driveways			6	400			39	28		184	20	24	330	126		
From Tabulation of Parking Lots			112	421			261	65	582	286				177		
PROJECT TOTALS		32	4502	6919	224	4818	8446	1210	6159	8715	790	48	501	9116	130	2151

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TABULATION OF CONCRETE ITEMS

Designer: RML
Detailer: SAD
Sheet Subset: TAB
Structure Numbers
Subset Sheets: 1 of 1

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Sheet Number 27

TABULATION OF DRIVEWAYS AND PARKING LOTS

STREET NAME	REMOVAL OF CURB AND GUTTER[1]	REMOVAL OF SIDEWALK[1]	REMOVAL OF CONCRETE PAVEMENT[2]	REMOVAL OF ASPHALT MAT[2]	UNCLASSIFIED EXCAVATION (CIP)[3]	EMBANKMENT MATERIAL (CIP)[3]	HOT MIX ASPHALT (GRADING S) (100) (PG 64-22)[2]		EMULSIFIED ASPHALT (SLOW SETTING)[2]	PATTERNED CONCRETE PAVEMENT (6 INCH) (SPECIAL)	CONCRETE PAVEMENT (6 INCH)[2]	AGGREGATE BASE COURSE (CLASS 6)[2]	FENCE PLASTIC[4]	FENCE WOOD WITH METAL POSTS[4]	CONCRETE SIDEWALK (6 INCH)[1]	CONCRETE CURB RAMP[1]	MEDIAN COVER MATERIAL (FATTERNED CONCRETE)[1]	RIBBON CURB	INLET SPECIAL (TRENCH DRAIN) (8 INCH WIDTH)	CURB TYPE 2 (SECTION B)[1]	CURB AND GUTTER TYPE 2 (SECTION I-B)[1]	CURB AND GUTTER TYPE 2 (SECTION II-B)[1]	CURB AND GUTTER TYPE 2 (SECTION II-M)[1]	GUTTER TYPE 2 (8 FOOT)[1]
							BOTTOM	TOP																
	LF	SY	SY	SY	CY	CY	TON	TON	GALLONS	SY	SY	TON	LF	LF	SY	SY	SF	LF	LF	LF	LF	LF	LF	LF
DRIVEWAYS																								
DRIVEWAY 523+48 RT					12	57					23	63		55										
DRIVEWAY 21+33					27	135					49	31			11	28	126					92		
DRIVEWAY 23+92					75	0						0			22			215				91		24
DRIVEWAY 31+04 LT			89		17	0					84	28												
DRIVEWAY 31+18 RT			47		9	0					43	15												
DRIVEWAY 41+50 LT			76		43	0					88	32		6										
DRIVEWAY 42+11 LT			61		25	0					77	29												
DRIVEWAY 43+19 LT			45		11	0					54	22												
DRIVEWAY 43+63 LT			34		11	0					41	18												
DRIVEWAY 50+64 RT			42		29	6					143	43		42										
DRIVEWAY 541+81 LT					19	0					61	49												
DRIVEWAY 548+66 LT	380			200	180	0	20	20	18		39	73								330				
DRIVEWAY 549+35 LT			289		283	0					375	116												
DRIVEWAY PARCEL 65	20	6			25	0				130	130	43			6								20	
PARKING LOTS																								
FIRST UNITIED CHURCH OF ARVADA	421	112		2400	538	323	409	409	371			0	53	58	261	65		98			400	286		
GRANGE 25				750	183	75	49	49	44		90	27					177	9	47		181			
SUBTOTAL OF DRIVEWAYS	400	6	683	200	768	200	20	20	18	130	1,207	562	0	103	39	28	126	215	0	330	0	184	20	24
SUBTOTAL OF PARKING LOTS	421	112	0	3150	721	398	458	458	415	0	90	27	53	58	261	65	177	108	47	0	582	286	0	0
TOTALS	821	118	683	3,350	1,489	599	478	478	433	130	1,297	589	53	161	300	93	303	323	47	330	582	469	20	24

NOTES:
1) QUANTITY CARRIED FORWARD TO CONCRETE TAB.
2) QUANTITY CARRIED FORWARD TO SURFACING TAB.
3) QUANTITY CARRIED FORWARD TO EARTHWORK TAB.
4) QUANTITY CARRIED FORWARD TO FENCING TAB.

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TABULATION OF DRIVEWAY ITEMS

Designer: RML
Detailer: SAD
Sheet Subset: TAB
Structure Numbers
Subset Sheets: 1 of 1

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Sheet Number 28

TABULATION OF FENCING

STATION	SIDE	REMOVAL OF FENCE[5]	REMOVAL OF GATE	RESET VINYL FENCE	FENCE WOOD WITH METAL POSTS	FENCE (TEMPORARY)	FENCE (PLASTIC)	FENCE CHAIN LINK (60 INCH)	4 FOOT GATE	15 FOOT GATE	20 FOOT GATE	COMMENTS
		LF	EA	LF	LF	LF	LF	LF	EA	EA	EA	
WEST 72ND AVENUE						1,900						
517+50 TO 523+00	LT	79			79							
	RT	441			412							
523+00 TO 528+50	LT	192			160							
	RT	128	1		33		421		1			WOOD GATE`
528+50 TO 534+00	LT											
	RT	102			90		70					
534+00 TO 539+50	LT	378		104	384		53					
	RT	669			592		299	49				
539+50 TO 545+00	LT	384			104		53					
	RT	549			545							
545+00 TO 550+50	LT	444										
	RT	579			550							
550+50 TO 552+37	LT	139										
	RT	239			171							
SIDE STREETS												
NORTH SIMMS ST	LT	225			161		53					
	RT											
SOUTH SIMMS ST	LT	552					53					
	RT											
ROUTT ST	LT											
	RT											
QUAIL ST	LT		1		34				1	1		WOOD GATES
	RT	106	1				211	104		1		CHAIN LINK GATE
PIERSON ST	LT						53					
NORTH OAK ST	LT	99			100						1	WOOD GATE
	RT	138						85				
SOUTH OAK ST	LT	21			17							
	RT	467						446				
LINCOLN ACADEMY	LT											
	RT											
From Tabulation of Driveways					103							
From Tabulation of Parking Lots					58		53					
PROJECT TOTALS		5,932	3	104	3,594	1,900	1,317	685	2	2	1	

NOTES:

1. IT IS ESTIMATED THAT 15 END POSTS AND 168 CORNER AND LINE BRACE POSTS WILL BE REQUIRED.
2. SEE STANDARD PLAN M-607-01 FOR ADDITIONAL DETAILS.
3. METAL LINE POSTS AND METAL CORNER AND LINE BRACE POSTS WILL BE REQUIRED ON THIS PROJECT.
4. WIRE TIES WILL BE REQUIRED ON EACH WIRE AT EACH METAL POST.
5. PARCEL 82 AND PARCEL 94 - FENCE PANELS TO STAY ON PROPERTY; CONTRACTOR TO COORDINATE WITH PROPERTY OWNER.

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Sheet Number 29

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

Format *

- ☐ 3D Design Modeling Electronic Files
- ■ Horizontal Control — AS SHOWN ON PLAN
- ■ Vertical Control — AS SHOWN ON PLAN
- ■ Roadway Alignment — AS SHOWN ON PLAN
- ☐ Original Terrain Data
- ☐ Other:

* Specify the information format, ie., plan sheet, computer disk, computer printout, or other.
The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- ■ Landscaping
- ■ Signalization
- ☐ Safety Improvement
- ☐ Asphalt Overlay
- ☐ Concrete Overlay
- ☐ Minor Widening
- ■ Major Reconstruction
- ☐ New Roadway Construction
- ☐ Bridge Replacement
- ☐ Bridge Widening
- ☐ New Bridge
- ☐ Other:

SURVEY WORK TO BE PERFORMED BY OTHERS:

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 625:

- ___ ■ A complete passing Base Line report (completed within 6 months prior to the start of the project)
- ___ ■ An instrument calibration Certification (completed within 6 months prior to the start of the project)
- ___ ■ Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- ___ ■ Verification and Maintenance of Horizontal and Vertical Control
- ___ ■ Verify or Determine existing grades and alignments
- ___ ■ Verify or Determine existing topography
- ___ ☐ Clearing and Grubbing Limits (Section 201)
- ___ ■ Removal Limits (Section 202)
- ___ ☐ Reset Items (Section 210)
- ___ ■ Excavation and Embankment (Section 203)
  - ___ ■ Excavation
    - ___ ■ Unclassified
    - ___ ☐ Stripping
    - ___ ■ Muck
    - ___ ☐ Rock
    - ___ ☐ Borrow
    - ___ ☐ Other:
    - ___ ☐ Potholing
  - ___ ■ Embankment
  - ___ ☐ Site Grading
  - ___ ☐ Erosion Control (Perm)
  - ___ ☐ Other:
  - ___ ☐ As Staked Earthwork Quantities (See General Notes)

	Slope Staking (Y/N)	Grid (Y/N)	Grade (Y/N)	Special Interval
Excavation	Y	-	Y	50 FT
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
Embankment	Y	-	Y	50 FT
	-	-	-	-
	-	-	-	-
	-	-	-	-

- ___ ■ Landscaping
  - ___ ☐ Top Soil (Section 207)
  - ___ ☐ Seeding (Section 212)
  - ___ ☐ Mulching (Section 213)
  - ___ ■ Planting (Section 214)
  - ___ ☐ Herbicide (Section 217)
  - ___ ☐ Other:
- ___ ☐ Erosion Control (Section 208)
  - ___ ☐ Seeding (Temp)
  - ___ ☐ Silt Fence
  - ___ ☐ Erosion Bales
  - ___ ☐ Erosion Logs
  - ___ ☐ Riprap (Temp)
  - ___ ☐ Other:
- ___ ■ Roadway Bases
  - ___ ☐ Untreated Subgrade
  - ___ ☐ Treated Subgrade
  - ___ ■ Aggregate Base Course (Section 304)
  - ___ ☐ Reconditioning
  - ___ ☐ PMBB - Plant Mix Bituminous Base
  - ___ ☐ Other:

	Grid (Y/N)	Grade (Y/N)	Special Interval	Special Offset
Roadway Bases	-	-	-	-
	-	-	-	-
	Y	-	50 FT	-
	-	-	-	-
	-	-	-	-
	-	-	-	-

- ___ ■ Pavements
  - ___ ■ HMA - Hot Mix Asphalt (Section 403)
  - ___ ■ Concrete (Section 412)
  - ___ ☐ Heating & Scarifying Treatment
  - ___ ☐ Prime Coat, Tack Coat & Rejuvenating Agent (Section 407)
  - ___ ☐ Seal Coat or Chip Seal (Section 409)
  - ___ ☐ Other:
- ___ ■ Roadway Elements
  - ___ ■ Curb and Gutter (Section 609)
  - ___ ■ Drop inlets - alignment and grades (Section 604)
  - ___ ■ Retaining Walls
  - ___ ☐ Guard Rail (Section 606)
  - ___ ■ Sidewalk (Section 608)
  - ___ ☐ Overlay Stationing
  - ___ ☐ Other:
- ___ ☐ Riprap (Perm) (Section 506)
- ___ ☐ Slope and Ditch Paving (Section 507)
- ___ ■ Minor Structures
  - ___ ☐ Structure Excavation limits (Section 206)
  - ___ ■ Culverts (Section 603)
  - ___ ☐ Culverts w/ Headwalls and Wingwalls (Section 601)
  - ___ ☐ Concrete Box Culverts w/ Headwalls and Wingwalls
  - ___ ■ Pipes (Section 603)
    - ___ ■ Sanitary Sewer
    - ___ ■ Storm Sewer
    - ___ ■ Water
    - ___ ☐ Irrigation
    - ___ ☐ Miscellaneous
  - ___ ■ Manholes (Section 604)
  - ___ ■ Inlets (Section 604)
  - ___ ■ Permanent Water Quality BMP (Section 208)
  - ___ ☐ Other:
- ___ ☐ Major Structures - Overhead Signs (Section 614), Concrete Box Culverts, Bridges - and all other structures assigned a structure number
  - ___ ☐ Structure Excavation limits (Section 206)
  - ___ ☐ Concrete Box Culverts (Section 603) w/ Headwalls and Wingwalls (Section 601)
  - ___ ☐ Piling locations and cut off elevations (Section 502)
  - ___ ☐ Caisson locations and elevations (Section 503)
  - ___ ☐ Footing locations, alignment, and elevations
  - ___ ☐ Abutment/Pier locations, alignment, and elevations
  - ___ ☐ Wingwall skew angles/offsets
  - ___ ☐ Structural concrete form locations
  - ___ ☐ Substructure As-constructed survey required for Bridges (Subsection 601 .12) and Overhead signs (S-614-50)
  - ___ ☐ Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
  - ___ ☐ Deck grades at Girder 10th or "n" th point locations and elevations
  - ___ ☐ Slope and Ditch Paving (Section 507)
  - ___ ☐ Other:
- ___ ■ Fencing (Section 607)
  - ___ ☐ Temporary
  - ___ ■ Permanent
  - ___ ☐ Sound Barrier
  - ___ ☐ Other:
- ___ ■ Delineators (Section 612)
  - ___ ☐ Temporary
  - ___ ■ Permanent
- ___ ■ Lighting (Section 613) and Traffic Control Devices (Permanent) (Section 614)
  - ___ ■ Signal pole locations and elevations
  - ___ ■ Light pole locations and elevations
  - ___ ■ Sign locations
  - ___ ☐ Field verify sign post locations, elevations, and lengths before fabrication.
  - ___ ☐ Other:

	Grid (Y/N)	Special Interval	Special Offset
Pavements	-	50 FT	-
	-	50 FT	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

	Tangent Interval	Curve Interval	Special Offset
Curb & Gutter	-	10 FT	-

	Left Interval	Center Interval	Right Interval
Stationing	-	-	-

- ___ ■ Pavement Marking (Section 627)
  - ___ ☐ Striping (Temp)
  - ___ ■ Striping (Perm)
  - ___ ■ Symbols
  - ___ ☐ Other:
- ___ ☐ Temporary Lighting and Construction Traffic Control Devices (Section 630)
  - ___ ☐ Signal pole locations and elevations (Temp)
  - ___ ☐ Light pole locations and elevations (Temp)
  - ___ ☐ Sign Locations (Temp)
  - ___ ☐ Other:
- ___ ■ All Easements (Temp Staking by P.L.S. Only)
- ___ ■ Right of Way (Temp Staking by P.L.S. Only)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 629:

- ___ ■ Monumentation (Section 629)
  - ___ ■ Control
  - ___ ■ Right of Way
  - ___ ■ Land corners, Aliquot corners
  - ___ ■ Easements
  - ___ ☐ Reference the specified existing monuments: **
  - ___ ■ Replace the specified existing monuments: ** SEE ROADWAY PLANS
  - ___ ☐ Locate monuments. It is estimated hours are required.

NOTE: All 629 items shall include adequate research, calculations, and evaluations of evidence for monuments to be set.

** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

1. Unless indicated otherwise on this Survey Tabulation Sheet, all survey work and staking intervals shall be done in accordance with the latest edition of the CDOT Survey Manual.
2. Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.
3. The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer ___ days prior to the Presurvey Conference - Construction Survey.
4. Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.
5. The Contractor shall furnish an As Staked (or 3D Design Modeling Electronic Files) Earthwork Quantity report to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual. A printed copy of the As Staked (or 3D Design Modeling Electronic Files) Earthwork data report and a computer disk with that information on it, in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at a maximum 500 feet intervals.
6. Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within specified tolerance.
7. The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.
8. The Contractor shall coordinate construction staking on the project with any utility work.
9. Fieldbooks shall contain daily records of points set and or measurements observed. The information recorded shall contain: date, crew members' names, point no., description, staking information, and sketches. If the survey information is collected electronically, information recorded shall be provided to the Project Engineer in a hard copy format that is intuitive, clear and related to the supplemental information recorded in the field books. All linear surveys, such as slope stakes and blue tops, shall have the station and offset information related to the measured information. Non-linear surveys such as structures staking shall have sketches relating electronic information, such as point numbers, to the sketch.
10. The Contractor's surveyor shall submit the following fieldbooks to the Engineer:
    - ■ Horizontal Control (Primary & Secondary)
    - ■ Vertical Control (i.e. Benchmarks)
    - ■ Property Pin Ties
    - ■ Horizontal Alignment
    - ■ Grading
    - ■ Slope Staking
    - ■ Minor Structures
    - ☐ Major Structures
    - ■ One fieldbook for each work category shown on this sheet
    - ☐ Other Fieldbook(s):
11. The Contractor's surveyor shall submit the following (prior to surveying on the project) to the
    - ☐ All required Instrument Calibrations

COLORADO LICENSED — DANIEL K. HELLRUNG — 56232 — PROFESSIONAL ENGINEER — 02/13/2022

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Print Date:	9/17/2021
Drawing File Name:	18061_CP2_DES_Surv_Tab.dgn
Horiz. Scale: 1:1	Vert. Scale: As Noted
Unit Information	Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:	
Revised:	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

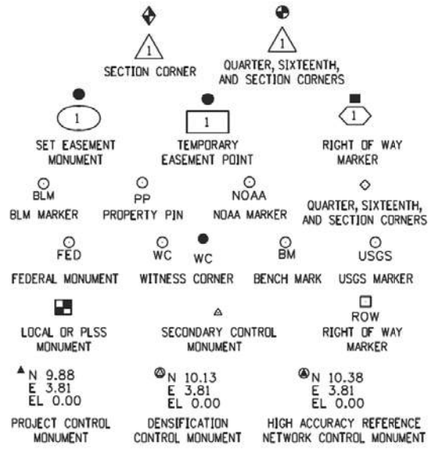
SURVEY TABULATION SHEET

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SURV TAB	Subset Sheets:	1 of 1

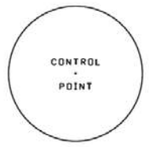
Project No./Code	
Sheet Number	30

PROJECT CONTROL DIAGRAM

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
City of Arvada, County of Jefferson, State of Colorado



Note: For a complete listing of symbololgy used within this set of plans, please refer to the M-100-1 Standard Symbols of the Colorado Department of Transportation M&S Standards Publication. Existing features are shown as screened weight (gray scale). Proposed or new features are shown as full weight without screening.

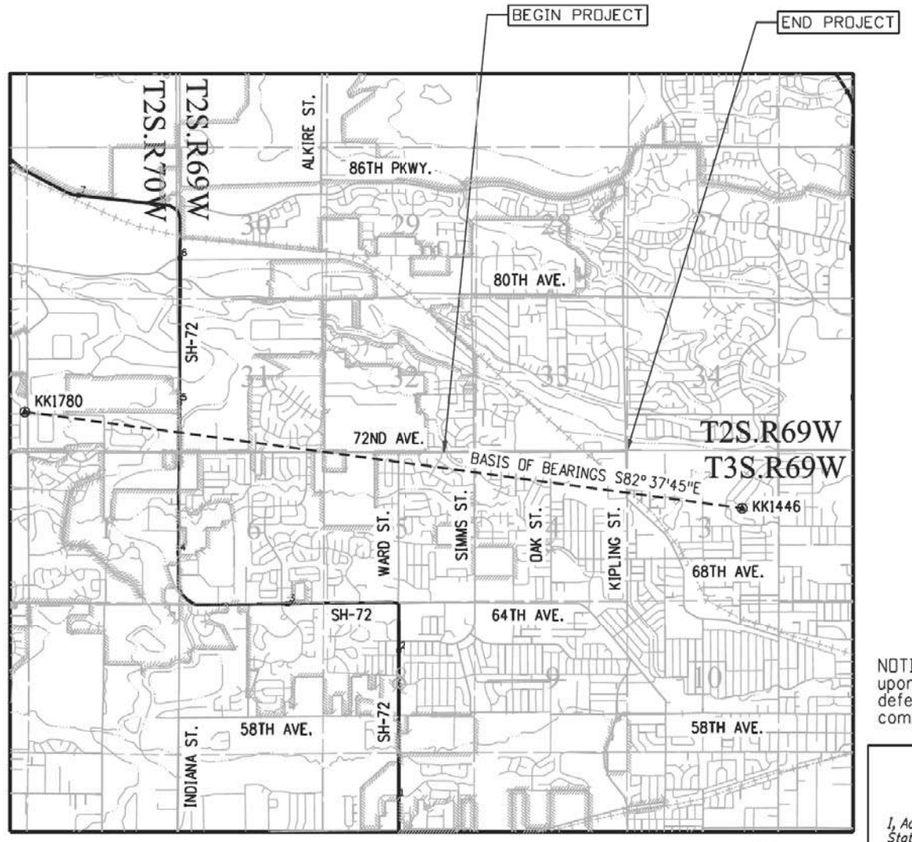


Typical Control Monument Cap
Not to Scale

▲ Project Control Point Monuments set by Harris Kocher Smith. Monuments are a 1-½" green plastic cap, stamped "CONTROL POINT" (as shown) on a 18"x⅝" rebar.

General Notes:

1. This Project Control Diagram is not a boundary survey of the adjoining property and is prepared for the project purposes only.
2. This plan set is subject to change and may not be the most current set. It is the user's responsibility to verify with the City of Arvada that this set is the most current. The information contained on the attached drawing is not valid unless this copy bears an original signature of the Professional Land Surveyor hereon named.



PROJECT LOCATION MAP

0' 0.5mi. 1mi. 2mi.
Lineal Units = U.S. Survey Feet

N

SHEET NO.	INDEX OF SHEETS	
3.01	(1)	Title Sheet
3.02	(1)	Coordinate Tables
3.03-3.05	(3)	Plan Sheet
	(5)	Total Sheets

Basis of Bearings: Bearings are grid bearings of the Colorado State Plane Coordinate System of 1983 (1992), Central Zone (0502). The line between NGS point "27 RESET" (PID KK1780) and NGS point "DOVER" (PID KK1446), both points are standard NGS disks (3.5" Brass) marked appropriately for their position, bears S82° 37'45"E, a distance of 25,254.14 feet with all bearings referenced herein relative thereto.

Basis of Elevations: Project elevations are based on NGS Bench Mark "DOVER", PID: KK1446, a standard bench mark disk set on top of a concrete monument, with a NAVD 88 elevation of 5641.01ft. KK1446 is a First order, class II vertical benchmark.

COORDINATE DATUM: Project coordinates are modified Colorado State Plane Central Zone NAD '83/(2011) coordinates. The combined elevation/scale factor used to modify the coordinates from state plane to project coordinates is 1.0002483200. The CHARN is based on the NAD '83(2011) datum.

Project Coordinates Northing US Survey Feet = (State Plane Coordinate Northing * 1.0002483200)
Project Coordinates Easting US Survey Feet = (State Plane Coordinate Easting * 1.0002483200)

NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

SURVEYOR STATEMENT (PROJECT CONTROL DIAGRAM)

I, Aaron Murphy, a professional land surveyor licensed in the State of Colorado, do hereby state to the Colorado Department of Transportation this Project Control Diagram was prepared and the field survey it represents was performed under my responsible charge and, based upon my knowledge, information and belief is in accordance with applicable standards of practice defined by Colorado Department of Transportation publications. This statement is not a guaranty or warranty, either expressed or implied.

PLS No. 38162

COLORADO LICENSED
AARON MURPHY
38162
11-4-2020
PROFESSIONAL LAND SURVEYOR

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Print Date: 11/4/2020
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HKS HARRIS KOCHER SMITH

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
Revised:
Void:

W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
PROJECT CONTROL DIAGRAM

Designer:	DJH	Structure Numbers		Sheet Number
Detailer:	DJH			
Sheet Subset:	SURVEY	Subset Sheets:	1 OF 5	

PROJECT CONTROL DIAGRAM

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
City of Arvada, County of Jefferson, State of Colorado

GEODETIC COORDINATE TABLE

Point No.	Geodetic Coordinates NAD-83(11) (CHARN)		Ellp Height (NAVD88)(ft)	Ortho Height (ft)	NAD 83(11) Zone 0502		Description
	Latitude(N)	Longitude(W)			SP Northing(ft)	SP Easting(ft)	
1	N39°49'39.13077"	W105°06'35.73808"	5493.61	5548.06	1726547.27	3109559.84	SITE BM, CHISELED "+" IN BOX
800	N39°49'37.92464"	W105°07'53.05740"	5386.97	5440.97	1726400.04	3103527.95	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
801	N39°49'37.87394"	W105°07'57.36933"	5390.07	5444.05	1726393.55	3103191.56	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
802	N39°49'37.25589"	W105°07'45.85906"	5385.44	5439.48	1726334.65	3104089.84	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
803	N39°49'37.89673"	W105°07'43.16810"	5389.35	5443.41	1726410.48	3104299.48	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
806	N39°49'37.84945"	W105°07'31.97542"	5407.22	5461.35	1726399.16	3105172.79	SET CUT "X"
807	N39°49'37.86354"	W105°07'27.57266"	5424.81	5478.96	1726402.00	3105516.29	SET CUT "X"
809	N39°49'38.64787"	W105°06'36.00748"	5492.10	5546.55	1726498.32	3109539.03	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
810	N39°49'37.44529"	W105°06'44.06912"	5482.55	5536.95	1726373.94	3108910.59	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
812	N39°49'37.57640"	W105°06'52.84230"	5479.69	5534.04	1726384.30	3108226.05	SET MAG NAIL W/1.5" HKS ALUMINUM TAG
813	N39°49'38.03683"	W105°07'01.22939"	5470.56	5524.86	1726428.12	3107571.50	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
825	N39°49'38.01369"	W105°06'55.43996"	5481.54	5535.87	1726427.69	3108023.20	SET CUT "X"
826	N39°49'37.94095"	W105°07'08.92193"	5465.43	5519.69	1726415.89	3106971.37	SET CUT "X"
827	N39°49'37.88773"	W105°07'15.70186"	5450.80	5505.02	1726408.30	3106442.43	SET MAG NAIL W/1.5" HKS ALUMINUM TAG
833	N39°49'37.51996"	W105°07'04.04421"	5467.07	5521.35	1726374.89	3107352.11	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
900	N39°49'38.05337"	W105°07'42.64331"	5391.65	5445.72	1726416.57	3104387.21	SET NO. 5 REBAR W/GREEN PLASTIC CAP, STAMPED "CONTROL POINT"
903	N39°49'38.26941"	W105°07'42.25932"	5393.17	5447.24	1726438.36	3104370.27	SET CUT "X"
904	N39°49'36.70580"	W105°07'41.92796"	5387.68	5441.75	1726280.25	3104396.77	SET CUT "X"
905	N39°49'37.03373"	W105°07'38.97147"	5394.21	5448.29	1726314.37	3104627.30	SET CUT "X"
906	N39°49'37.00193"	W105°07'38.43224"	5395.86	5449.94	1726311.33	3104669.38	SET CUT "X"
907	N39°49'37.27513"	W105°07'33.19395"	5402.26	5456.38	1726340.65	3105077.96	SET MAG NAIL
908	N39°49'37.29486"	W105°07'31.22981"	5404.66	5458.79	1726343.28	3105231.19	SET MAG NAIL
1826	N39°49'37.90451"	W105°07'08.94718"	5411.18	5465.43	1726412.20	3106969.42	SET CUT "X"
1849	N39°49'37.68639"	W105°07'54.11539"	5388.06	5442.05	1726375.60	3103445.51	SET MAG NAIL

PROJECT COORDINATE TABLE

Point No.	Project Coordinates		Elev(ft) (NAVD88)	Description
	Northing(ft)	Easting(ft)		
1	1726976.01	3110332.01	5548.06	SITE BM, CHISELED "+" IN BOX
800	1726828.74	3104298.62	5440.97	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
801	1726822.25	3103962.15	5444.05	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
802	1726763.34	3104860.65	5439.48	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
803	1726839.18	3105070.34	5443.41	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
806	1726827.86	3105943.87	5461.35	SET CUT "X"
807	1726830.70	3106287.45	5478.96	SET CUT "X"
809	1726927.05	3110311.19	5546.55	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
810	1726802.64	3109682.59	5536.95	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
812	1726812.99	3108997.89	5534.04	SET MAG NAIL W/1.5" HKS ALUMINUM TAG
813	1726856.83	3108343.17	5524.86	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
825	1726856.39	3108794.98	5535.87	SET CUT "X"
826	1726844.60	3107742.90	5519.69	SET CUT "X"
827	1726837.00	3107213.82	5505.02	SET MAG NAIL W/1.5" HKS ALUMINUM TAG
833	1726803.59	3108123.73	5521.35	SET NO. 5 REBAR W/PINK PLASTIC CAP, STAMPED "CONTROL POINT"
900	1726845.27	3105158.10	5445.72	SET NO. 5 REBAR W/GREEN PLASTIC CAP, STAMPED "CONTROL POINT"
903	1726867.07	3105141.15	5447.24	SET CUT "X"
904	1726708.92	3105167.66	5441.75	SET CUT "X"
905	1726743.05	3105398.24	5448.29	SET CUT "X"
906	1726740.01	3105440.34	5449.94	SET CUT "X"
907	1726769.34	3105849.01	5456.38	SET MAG NAIL
908	1726771.97	3106002.29	5458.79	SET MAG NAIL
1826	1726840.90	3107740.94	5465.43	SET CUT "X"
1849	1726804.29	3104216.16	5442.05	SET MAG NAIL

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Sheet Revisions		
Date:	Comments	Init.

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Void:

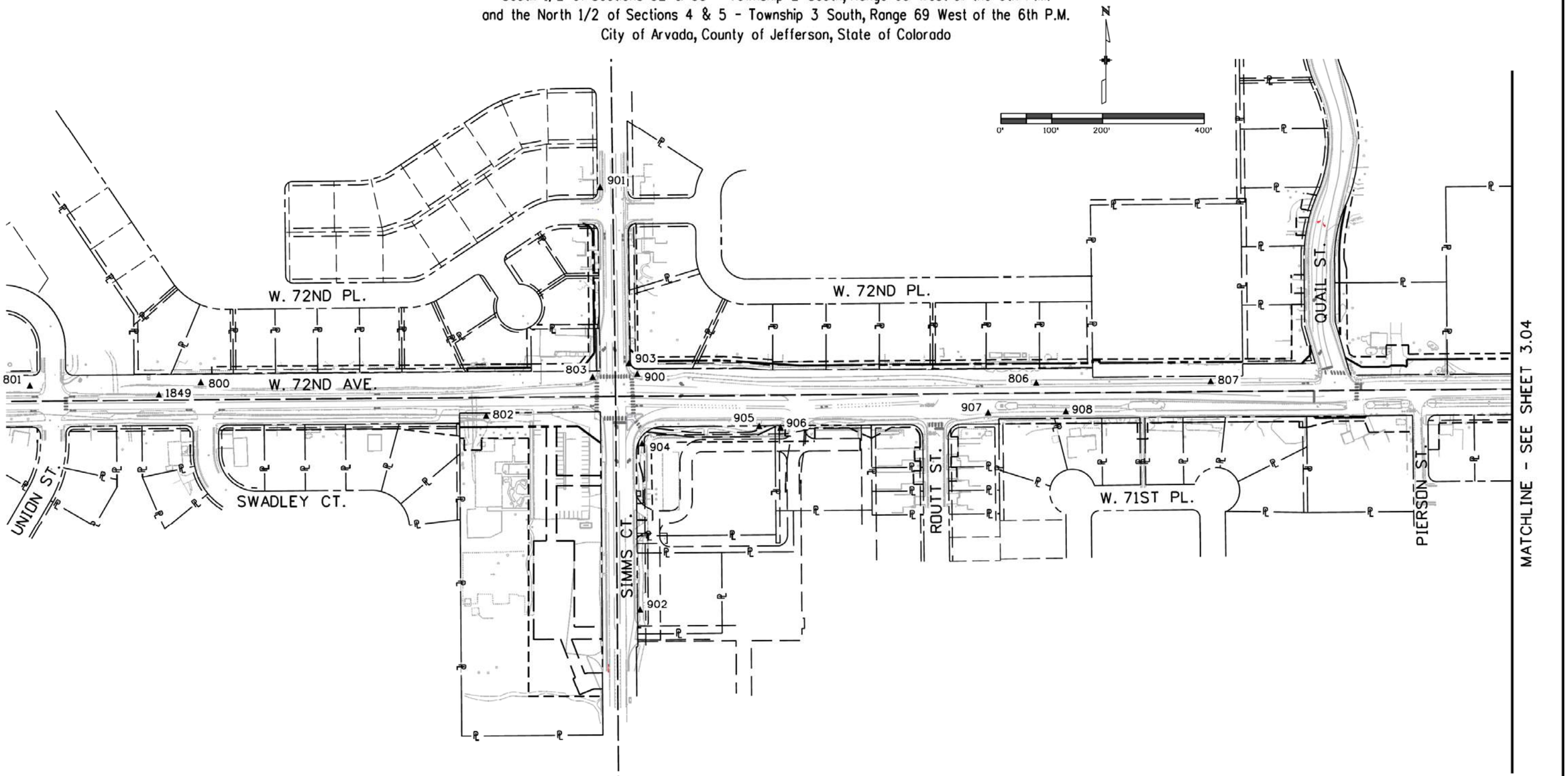
W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
PROJECT CONTROL DIAGRAM

Designer: DJH
Detailer: DJH
Sheet Subset: SURVEY
Structure Numbers:
Subset Sheets: 2 OF 5

Sheet Number
32

PROJECT CONTROL DIAGRAM

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
City of Arvada, County of Jefferson, State of Colorado



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Sheet Revisions		
Date:	Comments	Init.

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W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
PROJECT CONTROL DIAGRAM

Designer:	DJH	Structure Numbers		Sheet Number
Detailer:	DJH			33
Sheet Subset:	SURVEY	Subset Sheets:	3 OF 5	

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PROJECT CONTROL DIAGRAM

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
City of Arvada, County of Jefferson, State of Colorado

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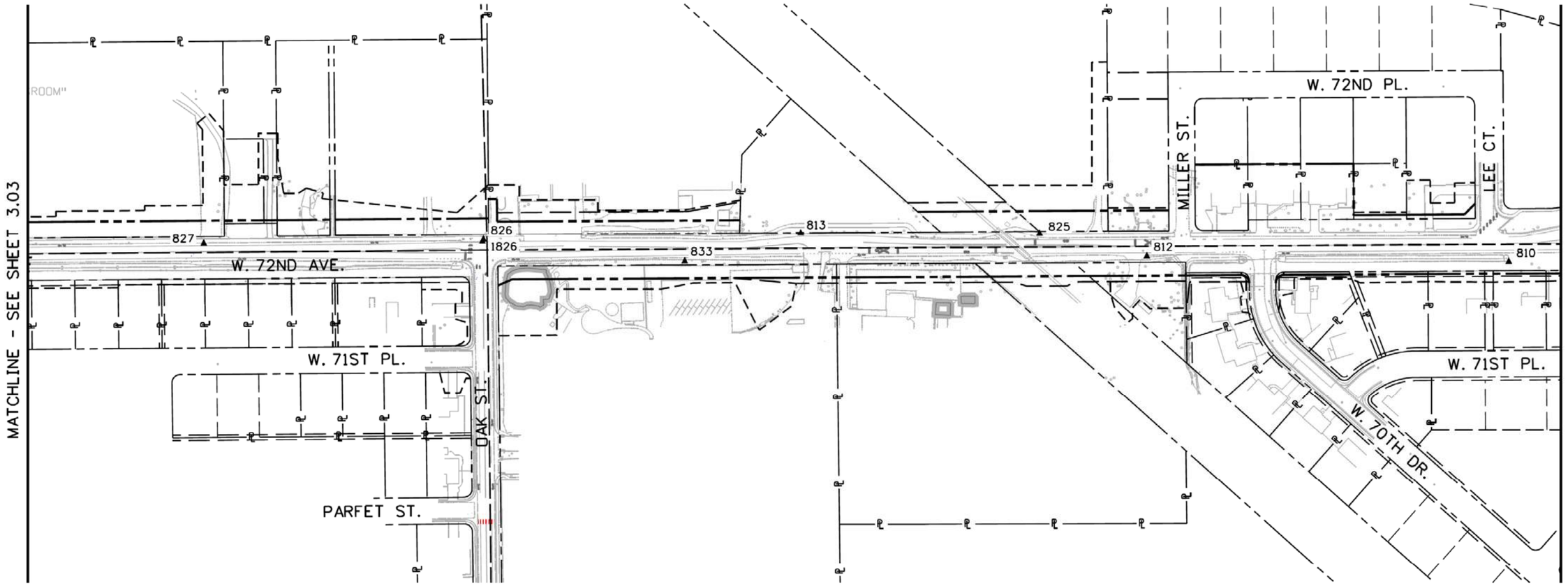
0' 100' 200' 400'



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CITY OF ARVADA

W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
PROJECT CONTROL DIAGRAM

Designer:	DJH	Structure Numbers		Sheet Number
Detailer:	DJH			34
Sheet Subset:	SURVEY	Subset Sheets:	4 OF 5	

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PROJECT CONTROL DIAGRAM

W. 72nd Avenue - Swadley Ct. to Kipling St.
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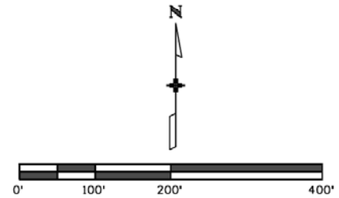
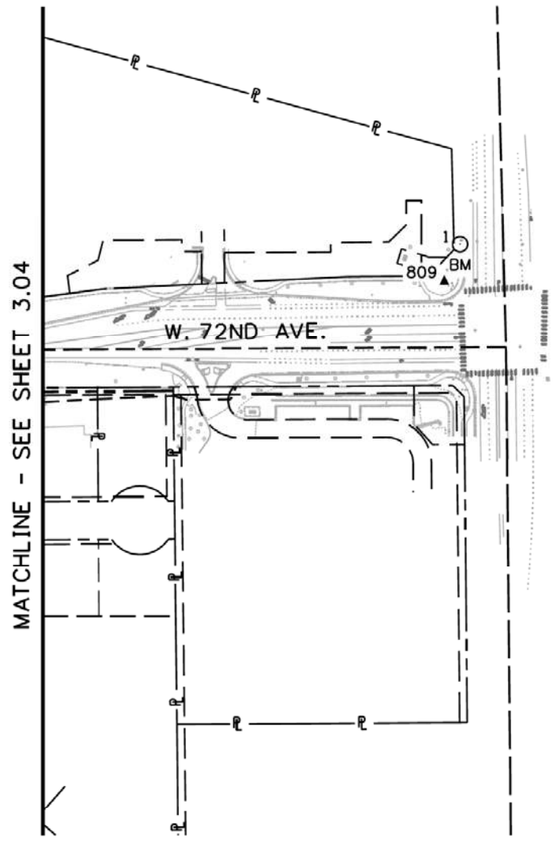
City of Arvada, County of Jefferson, State of Colorado





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Sheet Revisions		
Date:	Comments	Init.

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W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
PROJECT CONTROL DIAGRAM

Designer:	DJH	Structure Numbers		Sheet Number
Detailer:	DJH			35
Sheet Subset:	SURVEY	Subset Sheets:	5 OF 5	

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado

OWNERSHIP MAP

PARCEL NO.	AIN/PARCEL ID	OWNER	PROPERTY ADDRESS	MAILING ADDRESS	REC. NO.
9	29-324-03-023	SALKELD BOBBIJO	11720 W 72ND PL, ARVADA, CO 80005	11720 W 72ND PL, ARVADA, CO 80005	2018085808
10	29-324-03-025	PALMER GRETCHEN S	11680 W 72ND PL, ARVADA, CO 80005	11680 W 72ND PL, ARVADA, CO 80005	F0260451
11	29-324-00-023	ENTERPRISE GRANGE 25	7203 SIMMS ST, ARVADA, CO 80005	7275 S LIMA ST, CENTENNIAL, CO 80112	BOOK 403 PG 81
12	29-324-03-026	REICHARD JAMES K	11670 W 72ND PL, ARVADA, CO 80005	11670 W 72ND PL, ARVADA, CO 80005	89006499
13	29-324-03-028	GENTRY GRETCHEN KEILI	11600 W 72ND PL, ARVADA, CO 80005	11600 W 72ND PL, ARVADA, CO 80005	F1835163
14	29-333-09-040	PURDY JAMES A JR	11590 W 72ND PL, ARVADA, CO 80005	11590 W 72ND PL, ARVADA, CO 80005	F0938350
15	29-333-09-041	PIERSON HAL A	11560 W 72ND PL, ARVADA, CO 80005	11560 W 72ND PL, ARVADA, CO 80005	78043878
16	29-333-09-042	MARKS BRITTANY & TIMOTHY	11530 W 72ND PL, ARVADA, CO 80005	11530 W 72ND PL, ARVADA, CO 80005	2016112234
17	29-333-09-043	TSURUMI SHINICHI & JANICE HUNT	11500 W 72ND PL, ARVADA, CO 80005	11500 W 72ND PL, ARVADA, CO 80005	80000635
18	29-333-09-044	BRUNER SUZANNE P	11470 W 72ND PL, ARVADA, CO 80005	11470 W 72ND PL, ARVADA, CO 80005	2019095195
19	29-333-09-045	BUMPAS JOYA J	11440 W 72ND PL, ARVADA, CO 80005	11440 W 72ND PL, ARVADA, CO 80005	2016060970
20	29-333-09-046	STONEROOK THOMAS D & LA DONNA J	11410 W 72ND PL, ARVADA, CO 80005	11410 W 72ND PL, ARVADA, CO 80005	2016034666
21	29-333-09-047	JON S AASEN TRUST & ROBIN MARKS AASEN TRUST	11380 W 72ND PL, ARVADA, CO 80005	11380 W 72ND PL, ARVADA, CO 80005	2006061290
22	29-333-09-048	BYRON BLAINE FLATELAND LIVING TRUST & JILL SUZANNE FLATELAND LIVING TRUST	11350 W 72ND PL, ARVADA, CO 80005	11350 W 72ND PL, ARVADA, CO 80005	F2011030
23	29-333-00-006	7212 QUEEN LLC	7212 QUEEN ST, ARVADA, CO 80005	7303 ELLIS ST, ARVADA, CO 80005	2019069428
24	29-333-09-049	HARTBARGER THOMAS L & HAZEL V	7201 QUAIL ST, ARVADA, CO 80005	7201 QUAIL ST, ARVADA, CO 80005	BOOK 2695 PG 551
25	29-333-09-050	WOODSON WILBUR F JR & PHYLLIS I	7221 QUAIL ST, ARVADA, CO 80005	7221 QUAIL ST, ARVADA, CO 80005	83002838
25A	29-333-09-051	VISSER PENNY S & RICHARD A	7241 QUAIL ST, ARVADA, CO 80005	7241 QUAIL ST, ARVADA, CO 80005	2014102566
26	29-333-00-007	JEFFERSON COUNTY SCHOOL DIST R1	7300 QUAIL ST, ARVADA, CO 80005	1829 DENVER WEST DR , GOLDEN, CO 80401	
27	29-333-00-008	MACKLIN DAVID M & RUTH S	11205 W 72ND AVE, ARVADA, CO 80005	11205 W 72ND AVE, ARVADA, CO 80005	BOOK 1898 PG 637
28	29-333-00-009	SUNRISE VILLAGE LLC	11301 W 72ND AVE, ARVADA, CO 80005	6143 S WILLIAMS DR STE 300, GREENWOOD VILLAGE, CO 80111	2020063748
29	29-333-00-010	KENFIELD GARY C & SHIRLEY J	VACANT LAND	11027 W 72ND AVE, ARVADA, CO 80005	79059693

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer: DJH
Detailer: DJH
Sheet Subset: OWNERSHIP
Structure Numbers:
Subset Sheets: 1 OF 9

Sheet Number
36

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado

OWNERSHIP MAP

PARCEL NO.	AIN/PARCEL ID	OWNER	PROPERTY ADDRESS	MAILING ADDRESS	REC. NO.
30	29-333-00-011	KENFIELD GARY C & SHIRLEY J	11027 W 72ND AVE, ARVADA, CO 80005	11027 W 72ND AVE, ARVADA, CO 80005	79059692
31	29-333-00-012	HILL JAMES THOMAS & MALIS RACHEL ALESSANDRA	11021 W 72ND AVE, ARVADA, CO 80005	11021 W 72ND AVE, ARVADA, CO 80005	2020037698
32	29-333-00-013	SUMMIT DEVELOPERS LLC	10815 W 72ND AVE, ARVADA, CO 80005	8761 W 20TH AVE, LAKEWOOD, CO 80005	2019105901
33	29-334-00-003	72ND AVENUE LLC	10795 W 72ND AVE, ARVADA, CO 80005	1950 W BELLERIVE LN 109, COEUR D ALENE, ID 83814	2016032663
36	29-334-00-005	BAKER HARRY C & EDNA M	10585 W 72ND AVE, ARVADA, CO 80005	10585 W 72ND AVE, ARVADA, CO 80005	F0799310
37	29-334-00-006	BOYD CLAIR D	10405 W 72ND AVE, ARVADA, CO 80005	10405 W 72ND AVE, ARVADA, CO 80005	2015118071
38	29-334-14-006	CITY OF ARVADA	10355 W 72ND AVE, ARVADA, CO 80005	8101 RALSTON RD, ARVADA, CO	2019054755
39	29-334-14-005	CITY OF ARVADA	10325 W 72ND AVE, ARVADA, CO 80005	8101 RALSTON RD, ARVADA, CO	2019080141
40	29-334-14-009	MITCHELL DEBRA P & DAVID L	10255 W 72ND AVE, ARVADA, CO 80005	10255 W 72ND AVE, ARVADA CO 80005	F1760354
41	29-334-14-003	ROSS MARLENE A, ROSSON HERBERT W RUSSELL JAMES B & JOLENE A	10225 W 72ND AVE, ARVADA, CO 80005	10101 W 72ND AVE, ARVADA CO 80005	2016062702
42	29-334-14-002	RUSSELL JAMES B	10101 W 72ND AVE, ARVADA, CO 80005	10101 W 72ND AVE, ARVADA, CO 80005	2016062718
43	29-334-13-007	KIPLING ARVADA LLC	10125 W 72ND AVE, ARVADA, CO 80005	133 W DE LA GUERRA ST, SANTA BARBARA, CA 93101	2016100416
44	39-041-01-009	MACH I SILVERSTONE ARVADA OWNER LLC	7175 KIPLING ST, ARVADA, CO 80004	5404 WISCONSIN AVE 410, CHEVY CHASE, MD 20815	2014047202
45	39-041-01-001	YOUNG JACOB	10155 W 71ST PL, ARVADA, CO 80004	10155 W 71ST PL, ARVADA, CO 80004	2015020957
46	39-041-01-002	GENTLE HEARTS 1 LLC	10185 W 71ST PL, ARVADA, CO 80004	10185 W 71ST PL, ARVADA, CO 80004	2017038530
47	39-041-01-008	WILCZEWSKI JENNIFER	10215 W 71ST PL, ARVADA, CO 80004	10215 W 71ST PL, ARVADA, CO 80004	2015133525
48	39-041-01-003	CLARK MICHAEL E	VACANT LAND , ARVADA, CO 80004	100 JEFFERSON COUNTY PKWY 2520, GOLDEN, CO 80419	92003288
49	39-041-01-004	PUTNAM ROSS L	10245 W 71ST PL, ARVADA, CO 80004	10245 W 71ST PL, ARVADA, CO 80004	2011072481
50	39-041-01-005	HODGES P DOUG	10275 W 71ST PL, ARVADA, CO 80004	10275 W 71ST PL, ARVADA, CO 80004	2008060512
51	39-041-01-007	CARTER JOSEPH K & TOK S	10261 W 70TH DR, ARVADA, CO 80004	10261 W 70TH DR, ARVADA, CO 80004	2008109698
58	39-041-03-012	BOTOS JOHN J	10282 W 70TH DR, ARVADA, CO 80004	10282 W 70TH DR, ARVADA, CO 80004	2008097948
61	39-041-00-026	LINCOLN ACADEMY CHARTER SCHOOL BLDG CORP	10550 W 72ND AVE, ARVADA, CO 80005	6980 PIERCE ST, ARVADA, CO 80003	2013125159
62	39-041-00-003	LINCOLN ACADEMY CHARTER SCHOOL BLDG CORP	7180 OAK ST, ARVADA, CO 80004	6980 PIERCE ST, ARVADA, CO 80003	2013125159
65	39-042-01-001	ERICKSON RICHARD W & KARA A	10821 W 71ST PL, ARVADA, CO 80004	10821 W 71ST PL, ARVADA, CO 80004	2015055398
66	39-042-01-002	HANSEN NICHOLE	10841 W 71ST PL, ARVADA, CO 80004	10841 W 71ST PL, ARVADA, CO 80004	2015109574
67	39-042-01-003	MEZA MICHELLE & STANKIE SAM	10881 W 71ST PL, ARVADA, CO 80004	10881 W 71ST PL, ARVADA, CO 80004	2018116439

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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer: DJH
Detailer: DJH
Sheet Subset: OWNERSHIP
Structure Numbers:
Subset Sheets: 2 OF 9

Sheet Number
37

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado

OWNERSHIP MAP

PARCEL NO.	AIN/PARCEL ID	OWNER	PROPERTY ADDRESS	MAILING ADDRESS	REC. NO.
68	39-042-01-004	GRIGGS JONATHAN P & SASHA AVEESHA	10931 W 71ST PL, ARVADA, CO 80004	10931 W 71ST PL, ARVADA, CO 80004	2017022031
69	39-042-01-005	RIVERA RODNEY J, HEIDI M & AARON J	10951 W 71ST PL, ARVADA, CO 80004	10951 W 71ST PL, ARVADA, CO 80004	2020045636
70	39-042-01-006	BOOKER MARK T & KIM S	10971 W 71ST PL, ARVADA, CO 80004	10971 W 71ST PL, ARVADA, CO 80004	F0582932
71	39-042-01-007	LEEZURE 14E VENTURES LLC	11021 W 71ST PL, ARVADA, CO 80004	12734 W GIRARD DR, MORRISON, CO 80465	2020020665
72	39-042-01-008	ROGERS JEFF & SHIRLEY	11041 W 71ST PL, ARVADA, CO 80004	11041 W 71ST PL, ARVADA, CO 80004	F1765756
73	39-042-01-009	JOHANNA PARSONS TIFFANY E & PARSONS LEVI EVERETT	11061 W 71ST PL, ARVADA, CO 80004	11061 W 71ST PL, ARVADA, CO 80004	2017124245
74	39-042-01-010	BARBARA L BURCAR TRUST	11081 W 71ST PL, ARVADA, CO 80004	11081 W 71ST PL, ARVADA, CO 80004	2013083624
75	39-042-01-011	SULLIVAN MARY & BLICKENSTAFF BRADLEY M	7150 PIERSON CT, ARVADA, CO 80004	7150 PIERSON CT, ARVADA, CO 80004	2017091223
76	39-042-00-001	PINCUS KENNETH	11200 W 72ND AVE, ARVADA, CO 80005	11200 W 72ND AVE, ARVADA, CO 80005	2018065873
77	39-042-04-034	HAYDEN JAMES ROBERT MACK & LINDA JEAN	11321 W 71ST PL, ARVADA, CO 80004	11321 W 71ST PL, ARVADA, CO 80004	F1536290
78	39-042-04-035	SOURBEER LAWRENCE E & CAROL A	11331 W 71ST PL, ARVADA, CO 80004	11331 W 71ST PL, ARVADA, CO 80004	F1687673
79	39-042-04-036	BUERSMEYER JOSEPH M & IRENE R	11341 W 71ST PL, ARVADA, CO 80004	11341 W 71ST PL, ARVADA, CO 80004	BOOK 2609 PG 900
80	39-042-04-037	KUBIK LORI R & RICHARD	11351 W 71ST PL, ARVADA, CO 80004	11351 W 71ST PL, ARVADA, CO 80004	F1815934
81	39-042-04-038	TRUESDELL JANE K & TRUESDELL JANE K PERSONAL REP	11361 W 71ST PL, ARVADA, CO 80004	11361 W 71ST PL, ARVADA, CO 80004	2006053470
82	39-042-04-039	SMITH MARTIN D	11371 W 71ST PL, ARVADA, CO 80004	11371 W 71ST PL, ARVADA, CO 80004	F1535360
83	39-042-04-067	POWELL NATHAN A	7190 ROUTT ST, ARVADA, CO 80004	7190 ROUTT ST, ARVADA, CO 80004	2015113861
88	39-042-05-001	MCDANIEL DEAN & GLORY	7195 ROUTT ST, ARVADA, CO 80004	7195 ROUTT ST, ARVADA, CO 80004	2011037470
89	39-042-05-033	MAPLE LEAF CONDOMINIUM ASSOCIATION INC	VACANT LAND, CO	9555 S KINGSTON CT 200, ENGLEWOOD, CO 80112	2006048136
90	39-042-05-019	TWIN STAR ENERGY LLC	7190 SIMMS ST, ARVADA, CO 80004	7671 SHAFFER PKWY, LITTLETON, CO 80127	2013054269
91	39-042-05-034	MAPLE LEAF CONDOMINIUM ASSOCIATION INC	VACANT LAND, CO	9555 S KINGSTON CT 200, ENGLEWOOD, CO 80112	2006085461
93	39-051-00-001	FIRST UNITED CHURCH OF ARVADA	7195 SIMMS ST, ARVADA, CO 80004	7195 SIMMS ST, ARVADA, CO 80004	79026030
94	39-051-01-005	ARONOW KATHLEEN GRACE & BRIAN SCOTT	7122 SWADLEY CT, ARVADA, CO 80004	7122 SWADLEY CT, ARVADA, CO 80004	2017053106
95	39-051-01-004	ROSALES JORGE AND MARY E	7132 SWADLEY CT, ARVADA, CO 80004	7132 SWADLEY CT, ARVADA, CO 80004	86075693
96	39-051-01-003	BAKER KARALEE J	7142 SWADLEY CT, ARVADA, CO 80004	7142 SWADLEY CT, ARVADA, CO 80004	2011078133
97	39-051-01-002	LORBERAU JEREMY	7152 SWADLEY CT, ARVADA, CO 80004	7152 SWADLEY CT, ARVADA, CO 80004	2009111865
98	39-051-01-001	HACK CHRISTINA & HENNINGSEN MATTHEW	7172 SWADLEY CT, ARVADA, CO 80004	7172 SWADLEY CT, ARVADA, CO 80004	2020027570

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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

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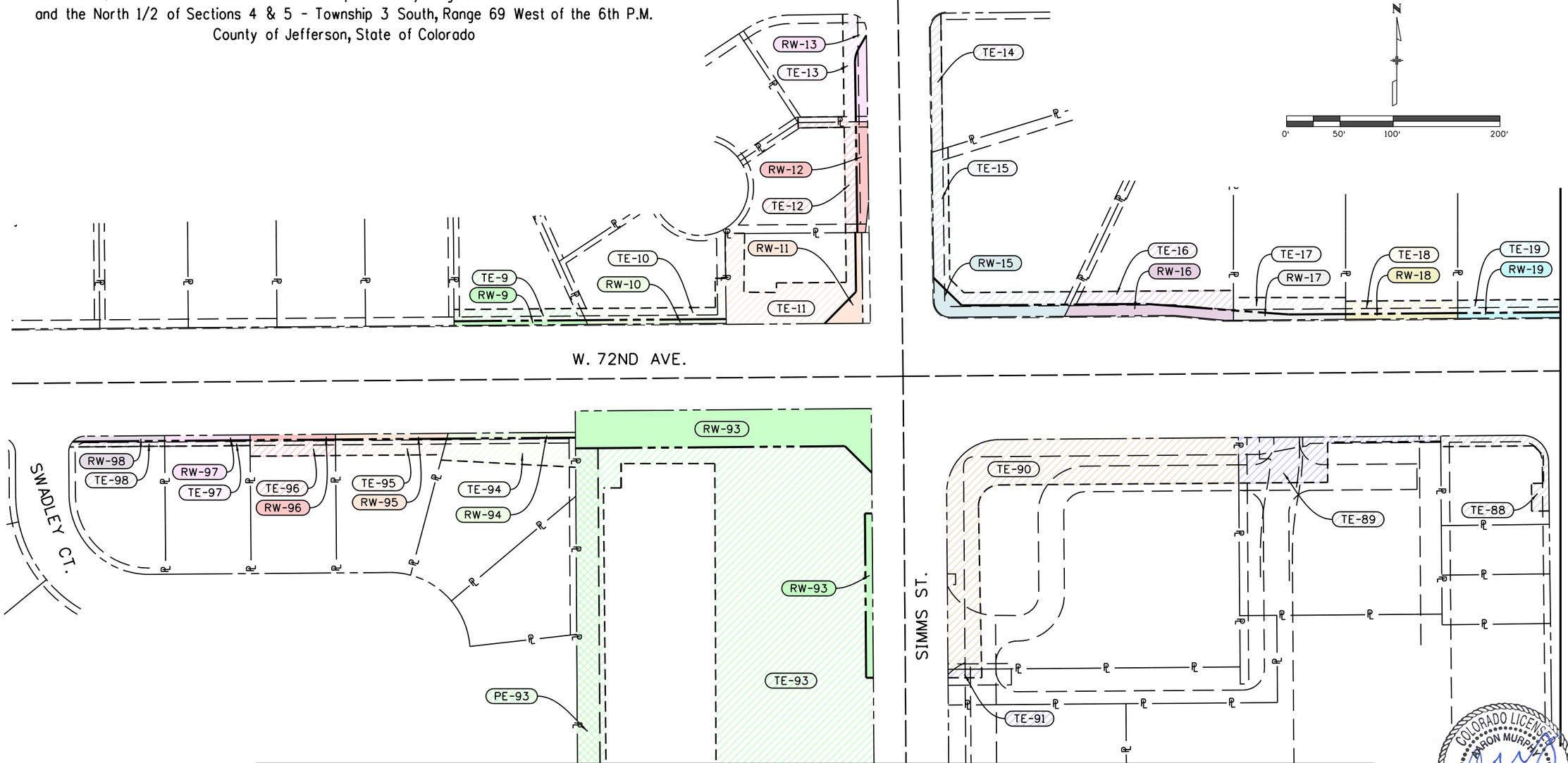
W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer: DJH
Detailer: DJH
Sheet Subset: OWNERSHIP
Structure Numbers
Subset Sheets: 3 OF 9

Sheet Number
38

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado



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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer:	DJH	Structure Numbers	
Detailer:	DJH		
Sheet Subset:	OWNERSHIP	Subset Sheets:	4 OF 9

Sheet Number 39

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado

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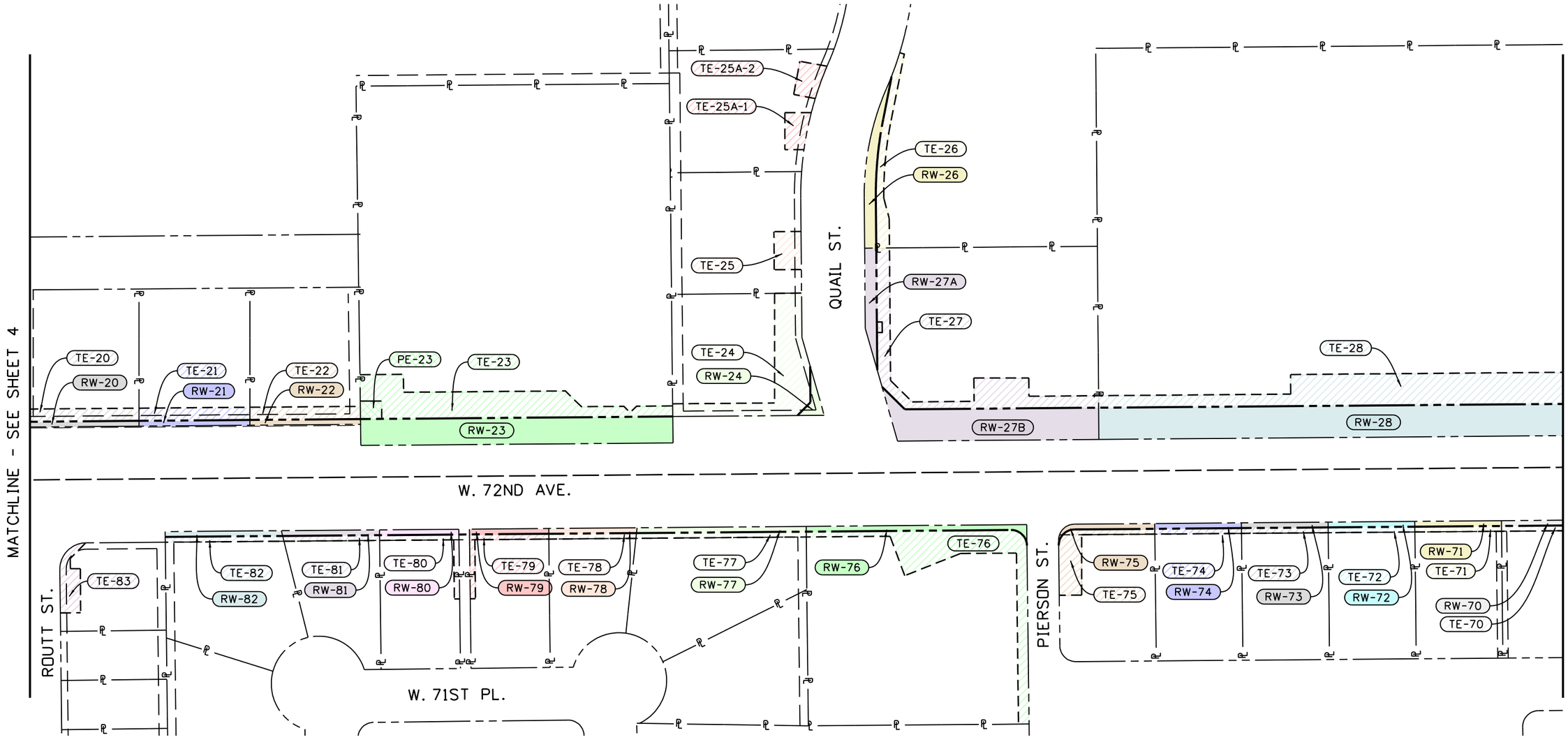
02/14/2022



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CITY OF ARVADA

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Revised:
Void:

W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer:	DJH	Structure Numbers	
Detailer:	DJH		
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Sheet Number 40

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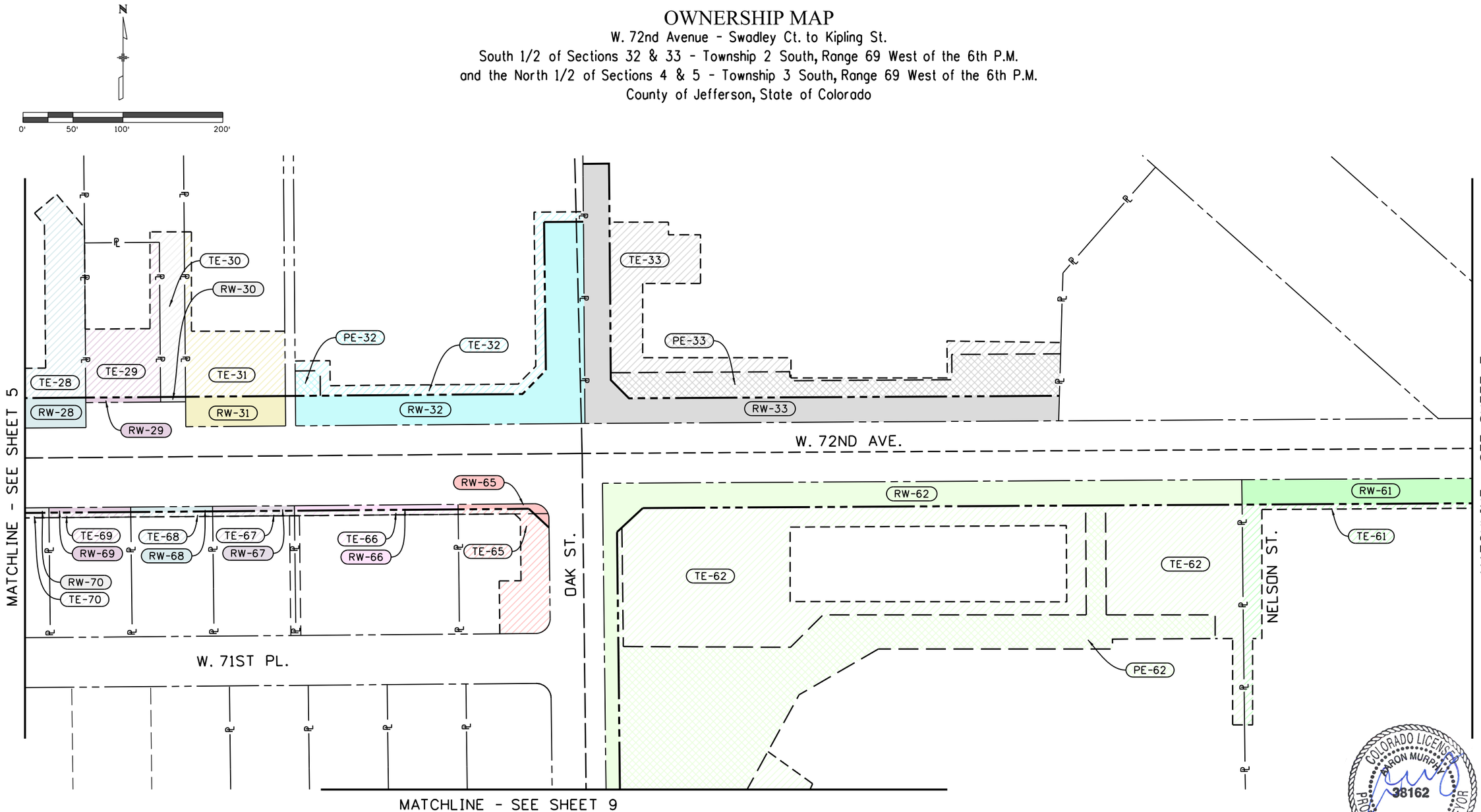
OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado



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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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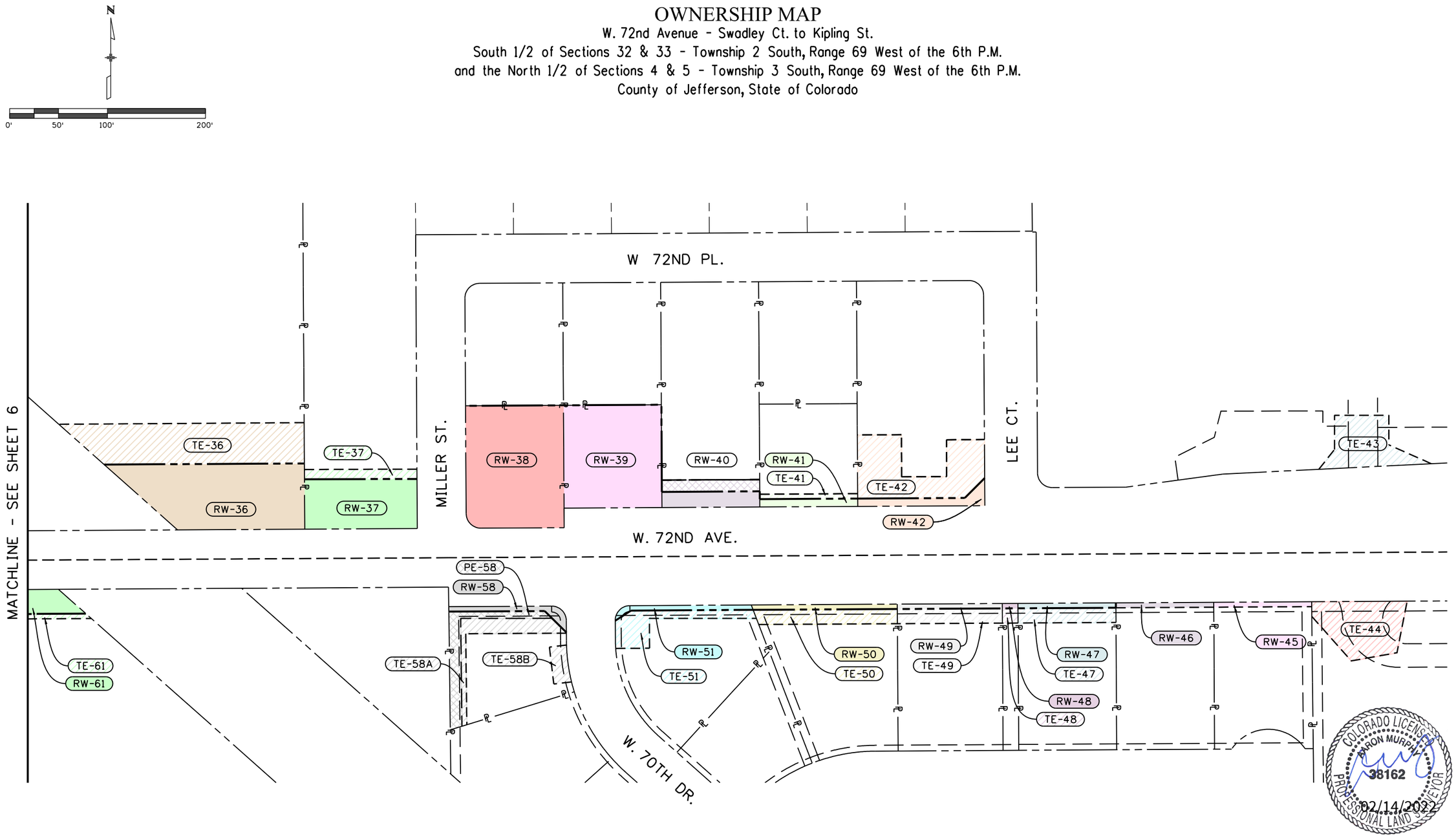
W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer: DJH
Detailer: DJH
Sheet Subset: OWNERSHIP
Structure Numbers
Subset Sheets: 6 OF 9

Sheet Number
41

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado



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CITY OF ARVADA

W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST. OWNERSHIP MAP			
Designer: DJH	Structure Numbers		Sheet Number
Detailer: DJH			42
Sheet Subset: OWNERSHIP	Subset Sheets:	7 OF 9	

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado

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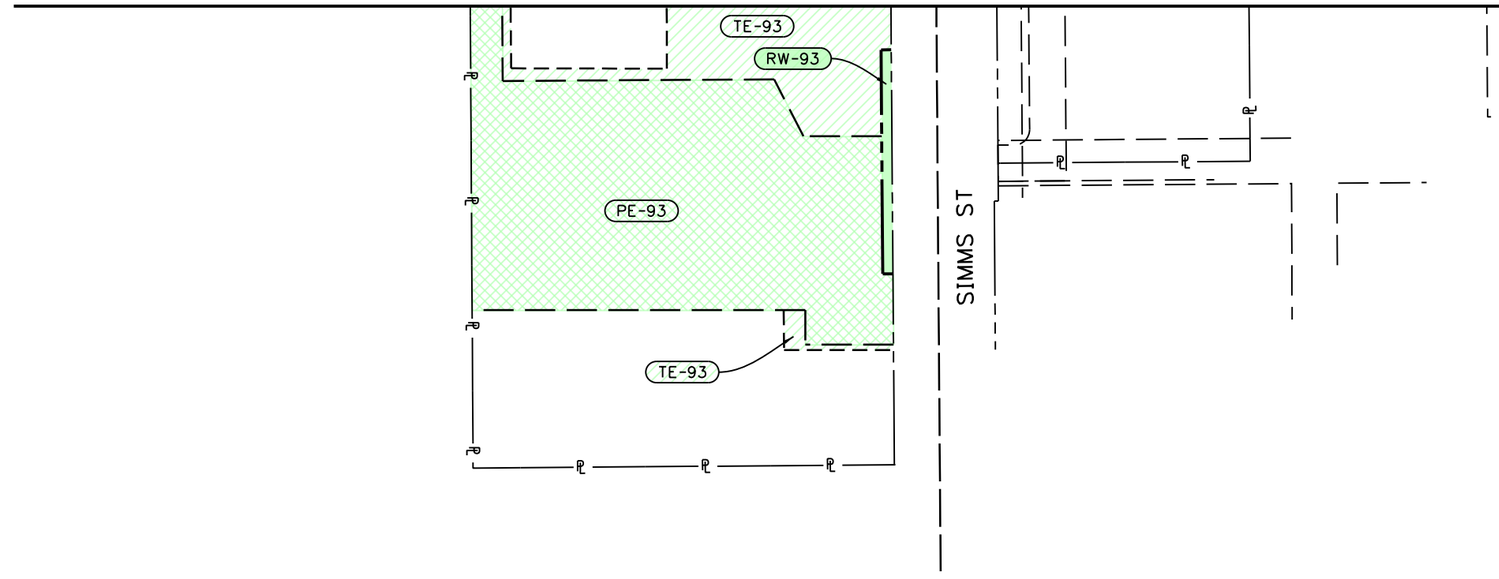
MATCHLINE - SEE SHEET 4



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Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer:	DJH	Structure Numbers	
Detailer:	DJH		
Sheet Subset:	OWNERSHIP	Subset Sheets:	8 OF 9

Sheet Number
43

OWNERSHIP MAP

W. 72nd Avenue - Swadley Ct. to Kipling St.
South 1/2 of Sections 32 & 33 - Township 2 South, Range 69 West of the 6th P.M.
and the North 1/2 of Sections 4 & 5 - Township 3 South, Range 69 West of the 6th P.M.
County of Jefferson, State of Colorado

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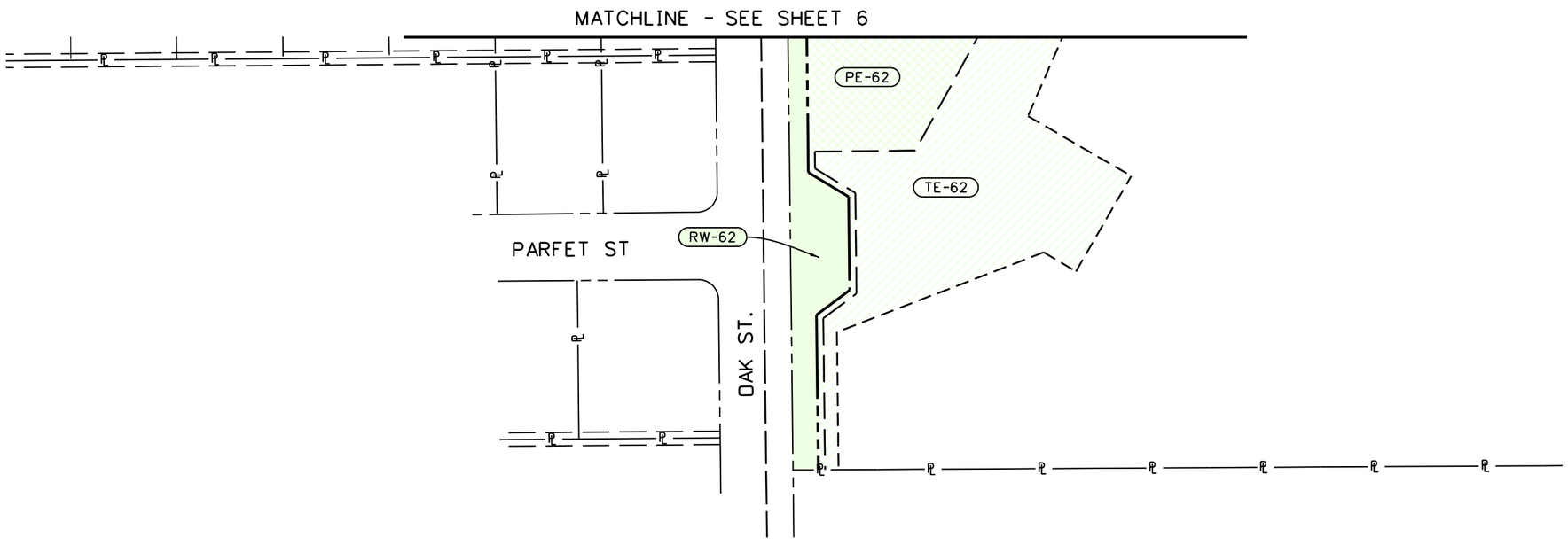

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CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVENUE - SWADLEY CT. TO KIPLING ST.
OWNERSHIP MAP

Designer:	DJH	Structure Numbers	
Detailer:	DJH		
Sheet Subset:	OWNERSHIP	Subset Sheets:	9 OF 9

Sheet Number 44

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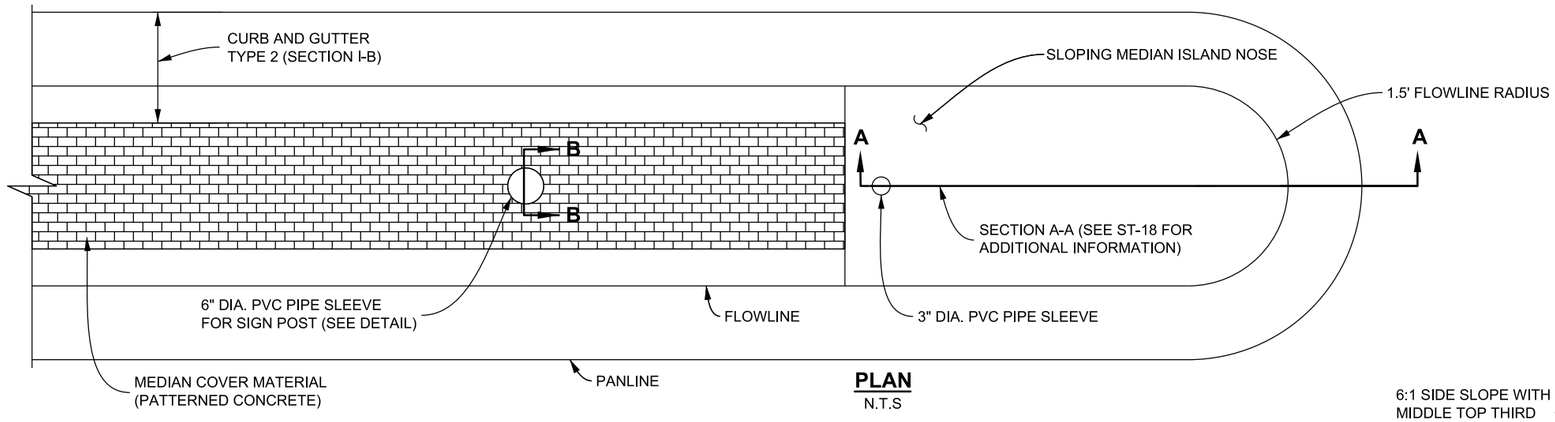

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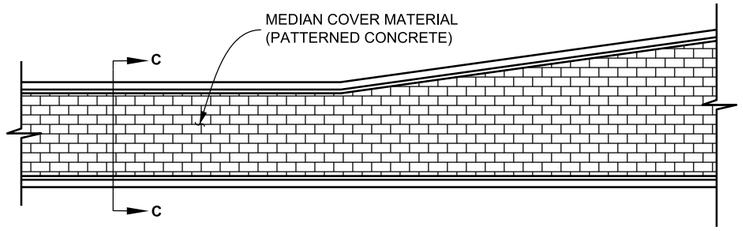

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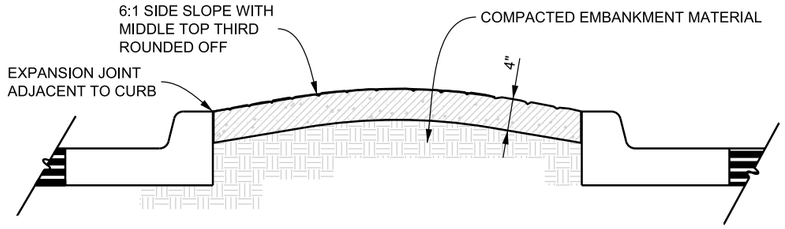
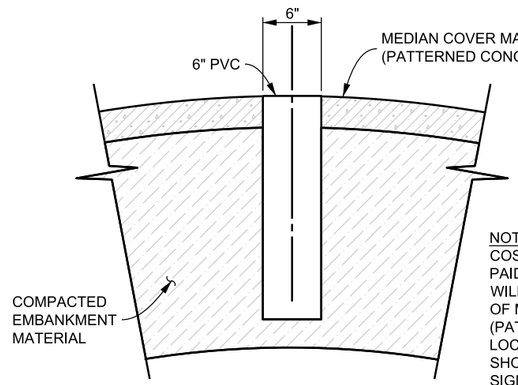


NOTES:
1. COORDINATE FINAL MEDIAN SIGN LOCATIONS WITH PROJECT ENGINEER BEFORE PLACING MEDIAN COVER. CORING INTO MEDIAN COVER FOR SIGN POSTS WILL NOT BE ALLOWED. SEE SLEEVE FOR SIGN POST DETAIL (THIS SHEET).
2. BOMACRON PATTERN IS TO BE USED FOR ALL MEDIAN COVER MATERIAL (PATTERNED CONCRETE).

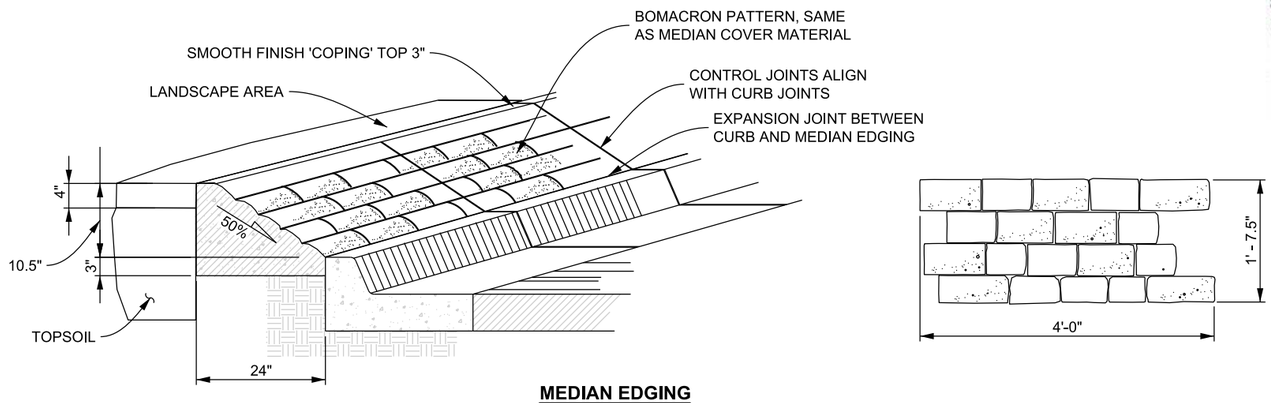
CROSS SECTION COVER MATERIAL
SECTION C-C
N.T.S.



NOTE:
COST OF SLEEVE WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE COST OF MEDIAN COVER MATERIAL (PATTERNED CONCRETE). LOCATION OF POSTS ARE AS SHOWN ON TABULATION OF SIGNS.

SLEEVE FOR SIGN POST OR DELINEATOR POST IN CONCRETE MEDIAN COVER MATERIAL
SECTION B-B
N.T.S.

NOTE:
1. MEDIAN EDGING HAS THE SAME COLOR FINISH AS THE MEDIAN COVER MATERIAL; TILE RED MANUFACTURED BY L.M. SCOFIELD.
2. COMPACT EMBANKMENT SO THERE IS MINIMAL DIFFERENTIAL SETTLEMENT.
3. TOP OF FINISHED GRADE TOP SOIL SHALL BE 4" BELOW THE TOP OF THE MEDIAN EDGING.



MEDIAN EDGING
N.T.S.

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021	Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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Unit Information Unit Leader Initials					Void:	Structure Numbers / Subset Sheets: 1 of 3
MULLER ENGINEERING COMPANY						Project No./Code / Sheet Number 45

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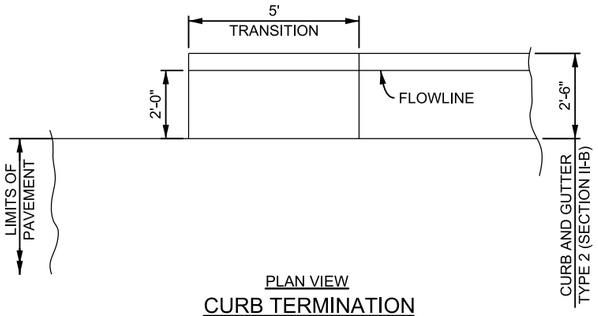
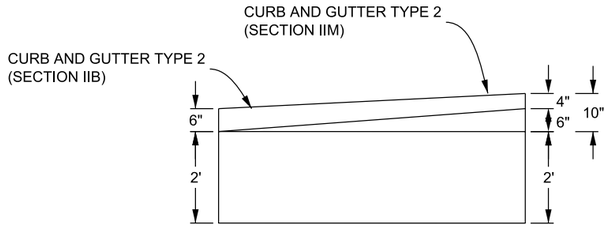


PLAN VIEW

CURB TERMINATION

N.T.S.

NOTE:
TRANSITION TO BE PAID FOR AS
CURB AND GUTTER TYPE 2 (SECTION II-B)

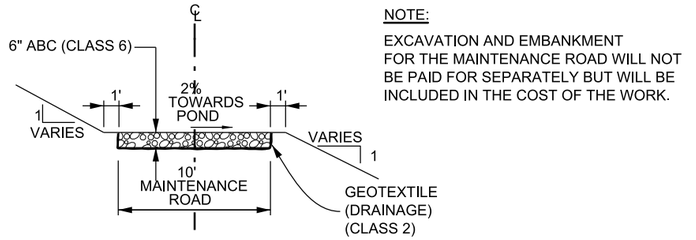


PLAN VIEW

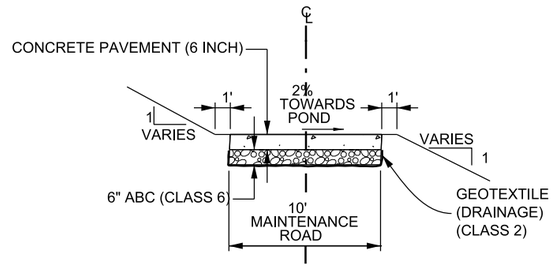
PLAN-CURB AND GUTTER TRANSITION DETAIL

N.T.S.

NOTE:
TRANSITION TO BE PAID FOR AS "CURB
AND GUTTER TYPE 2 (SECTION IIB)"

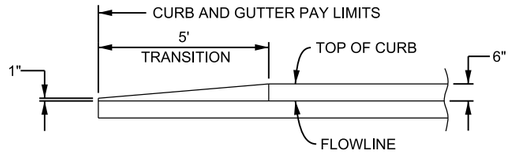


NOTE:
EXCAVATION AND EMBANKMENT
FOR THE MAINTENANCE ROAD WILL NOT
BE PAID FOR SEPARATELY BUT WILL BE
INCLUDED IN THE COST OF THE WORK.



WATER QUALITY POND MAINTENANCE ROAD DETAILS

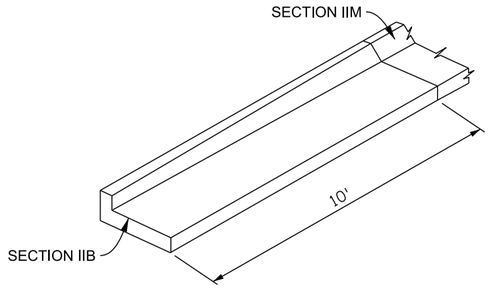
N.T.S.



ELEVATION VIEW

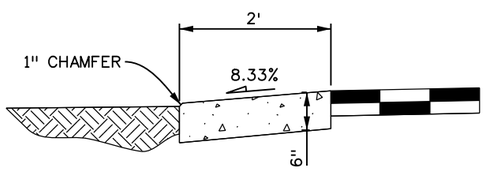
CURB TERMINATION

N.T.S.



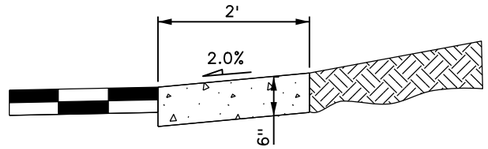
CURB AND GUTTER TRANSITION DETAIL

N.T.S.



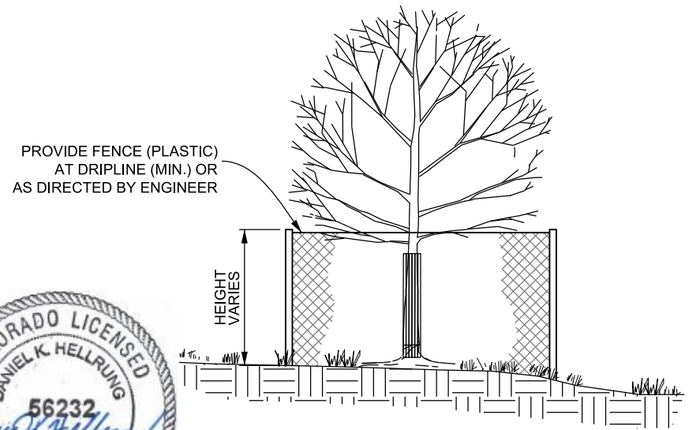
RIBBON CURB

N.T.S.



RIBBON CURB (UPSLOPE)

N.T.S.



TREE PROTECTION DETAIL

N.T.S.

COLORADO LICENSED
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56232
02/13/2022
PROFESSIONAL ENGINEER

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9/17/2021

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MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

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As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

MISCELLANEOUS DETAILS

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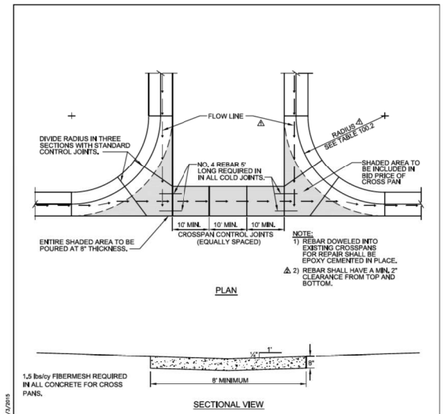
Detailer:	SAD		
Sheet Subset:	DETAILS	Subset Sheets:	2 of 3

Project No./Code

Sheet Number 46



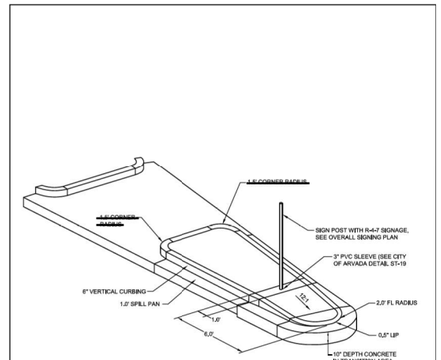
KBC	5/04/15	REBAR CLEARANCE NOTE		
SSV	5/14/09	MISC. NOTE & DIM. REVISIONS		
DWN	DATE	REVISION		

ARVADA

CROSS PAN
(XP)

APPROVED:
DATE: 6-2015 | SCALE: NTS | DWN: D.D.V.
PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

ST-8



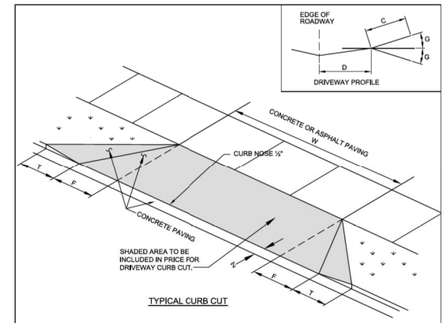
NO	DWN	DATE	REVISION	

ARVADA

SPLITTER ISLAND BULLNOSE

APPROVED:
DATE: 6-2015 | SCALE: NTS | DWN: KBC
PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

ST-18



STREET TYPE	WIDTH OF THROAT W		D	FLARE F	TRANSITION T	MAXIMUM DRIVEWAY GRADE CHANGE G		
	SINGLE FAMILY	OTHER USES				DESIRABLE	ABSOLUTE	CONTROL DISTANCE C
MINOR OR LOCAL	8-30'	20-30'	4'-6"	0'	⚠ 5'	≤ 6%	VEHICLE CLEARANCE	10'
COLLECTOR	12-30'	20-30'	7'	0'	6'	≤ 3%	≤ 6%	10'
PARKWAY	12-30'	20-30'	10'	4'	6'	0%	≤ 3%	40'

1). REFER TO THE STANDARD SPECIFICATIONS FOR CONCRETE TYPE. THICKNESS SHALL BE 6".
2). FIBER MESH REINFORCED CONCRETE 1.5lbs. per c.y.
3). ALL CURB CUTS ON COLLECTOR AND PARKWAY STREETS OR ANY NON-SINGLE FAMILY RESIDENTIAL USE MUST BE APPROVED BY THE TRAFFIC ENGINEER.
4). WHERE SITE OR OTHER CONDITIONS WARRANT, THE TRAFFIC ENGINEER MAY REQUIRE AN ALTERNATE CURB CUT DESIGN.
5). ALL WORK TO BE DONE IN ACCORDANCE WITH FED. REGISTER 1, VOL. 59, 117, 6/20/94 AND LATEST REVISIONS.
6). FLARED SECTION OF CURB CUT SHALL NOT EXTEND BEYOND PROPERTY LINE.

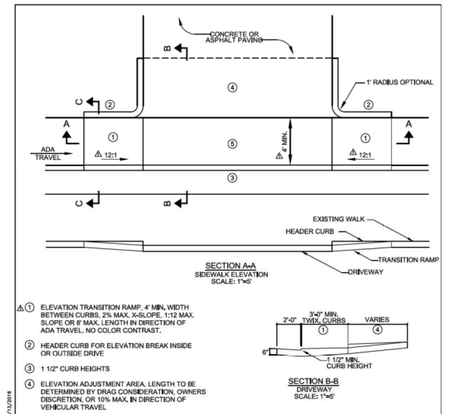
D.D.V.	1/28/06	Grammar Change		
DWN	DATE	REVISION		

ARVADA

CURB CUT DESIGN
DETACHED SIDEWALK

APPROVED:
DATE: 6-2015 | SCALE: NTS | DWN: D.D.V.
PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION
Sht 1 of 2

ST-25



KBC	5/04/15	ADD DIMENSIONS, MODIFY NOTES		
DWN	DATE	REVISION		

ARVADA

OPTIONAL CURB CUT FOR DRIVEWAY

APPROVED:
DATE: 6-2015 | SCALE: NTS | DWN: KBC
PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

ST-27

For selection only.

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02/13/2022

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MULLER ENGINEERING COMPANY				

CITY OF ARVADA

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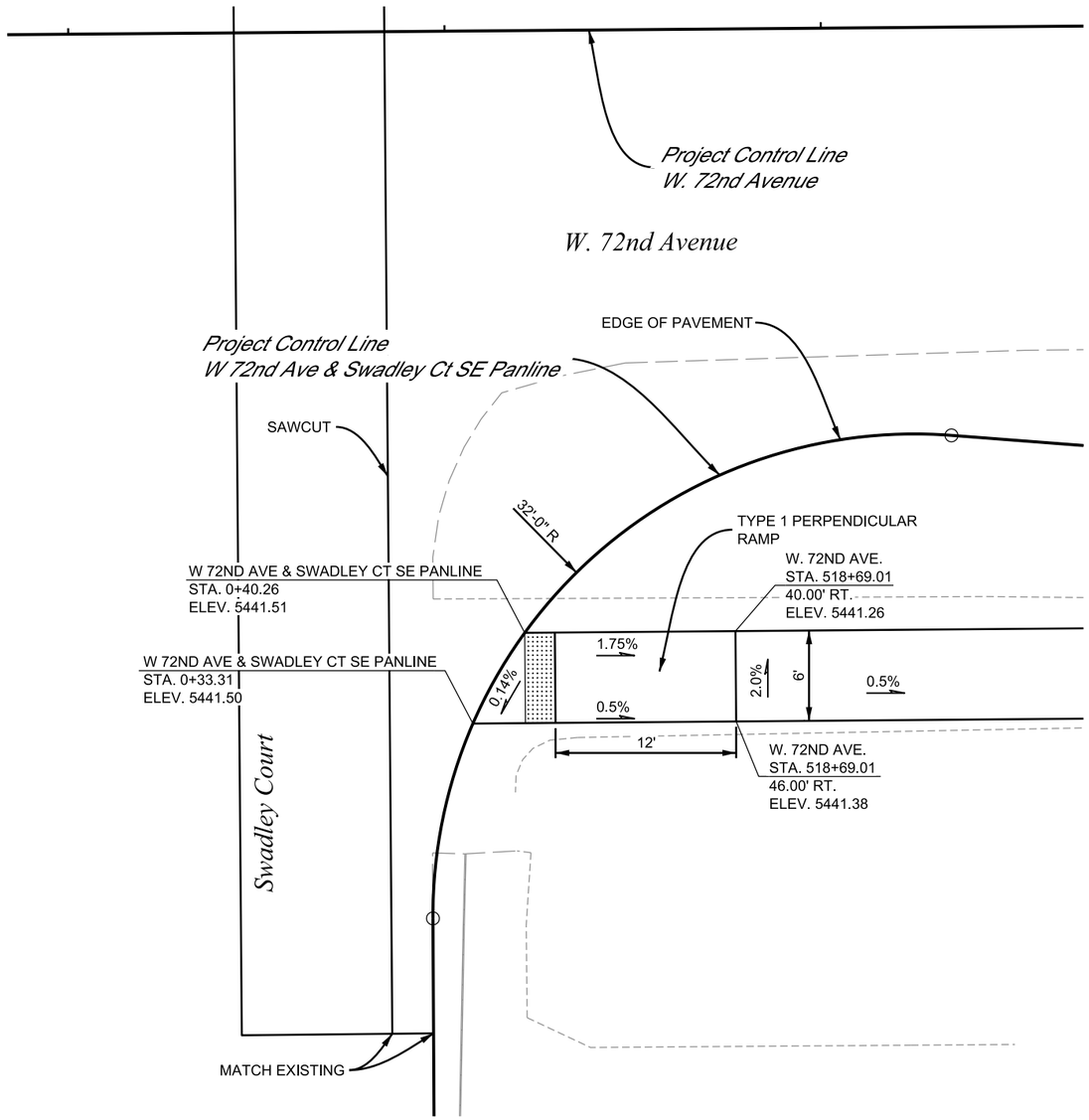
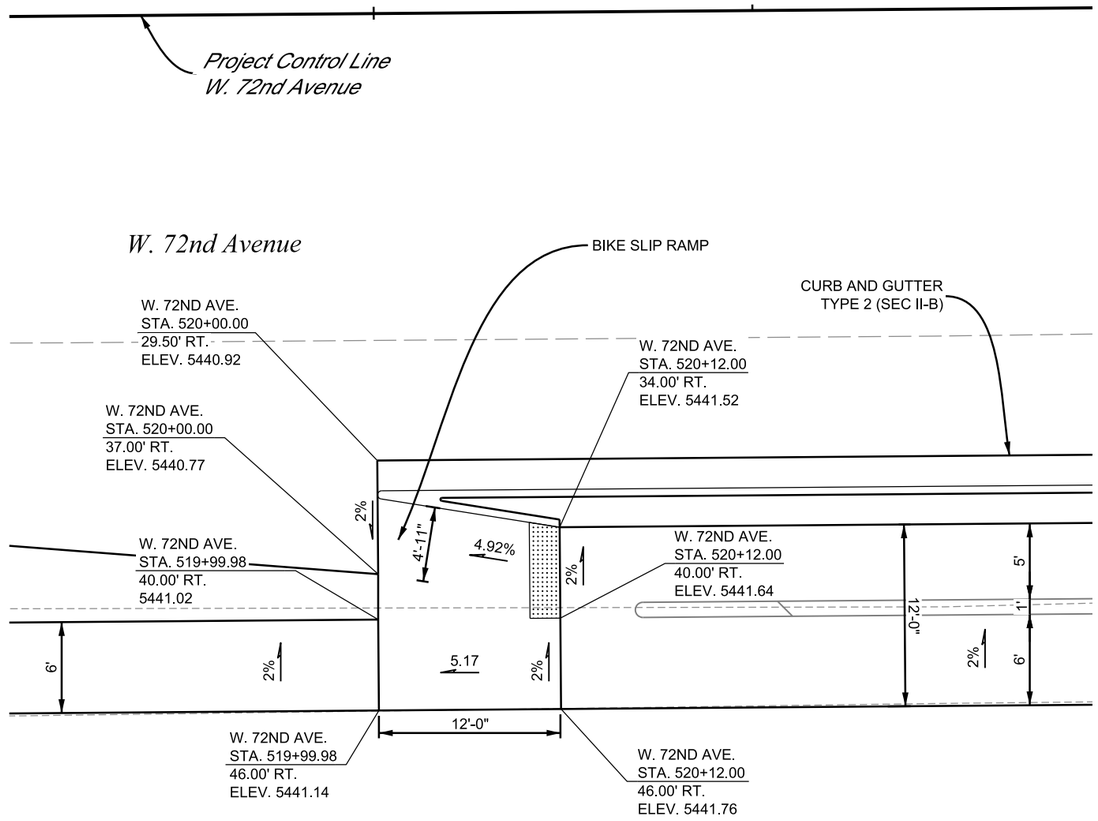


W 72ND AVENUE AND SWADLEY COURT
SE CURB RAMP



W 72ND AVENUE BIKE SLIP RAMP
EB OFF STREET TRANSITION

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 5' 10' 20'

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CITY OF ARVADA

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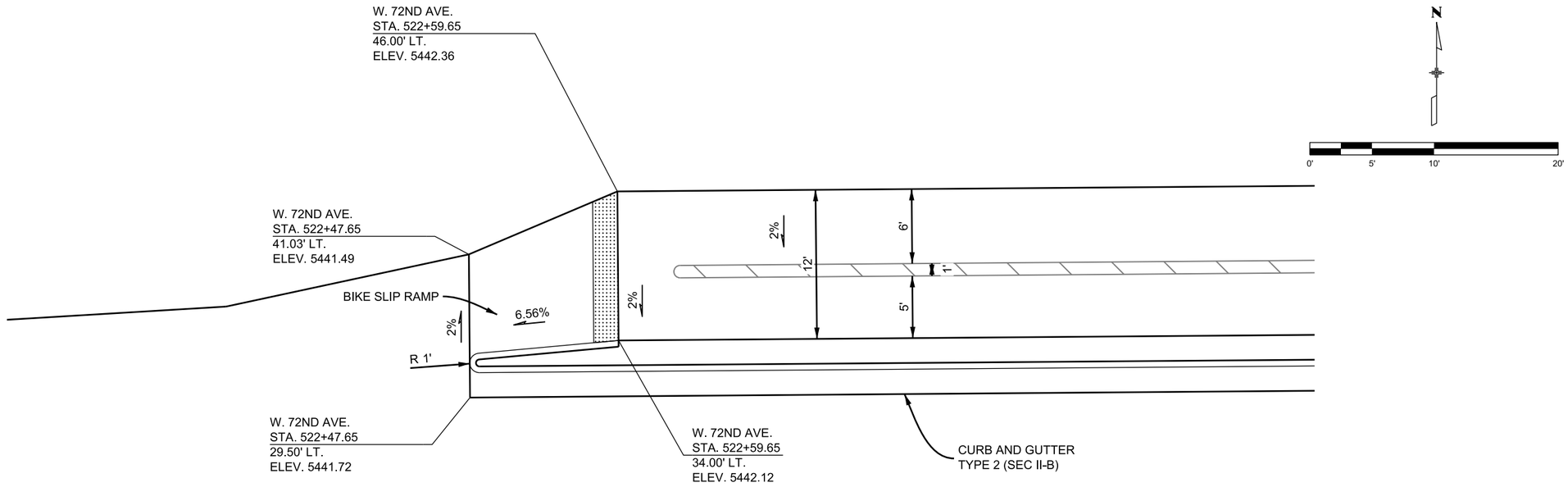

W 72ND AVENUE BIKE SLIP RAMP
WB ON STREET TRANSITION

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02/13/2022

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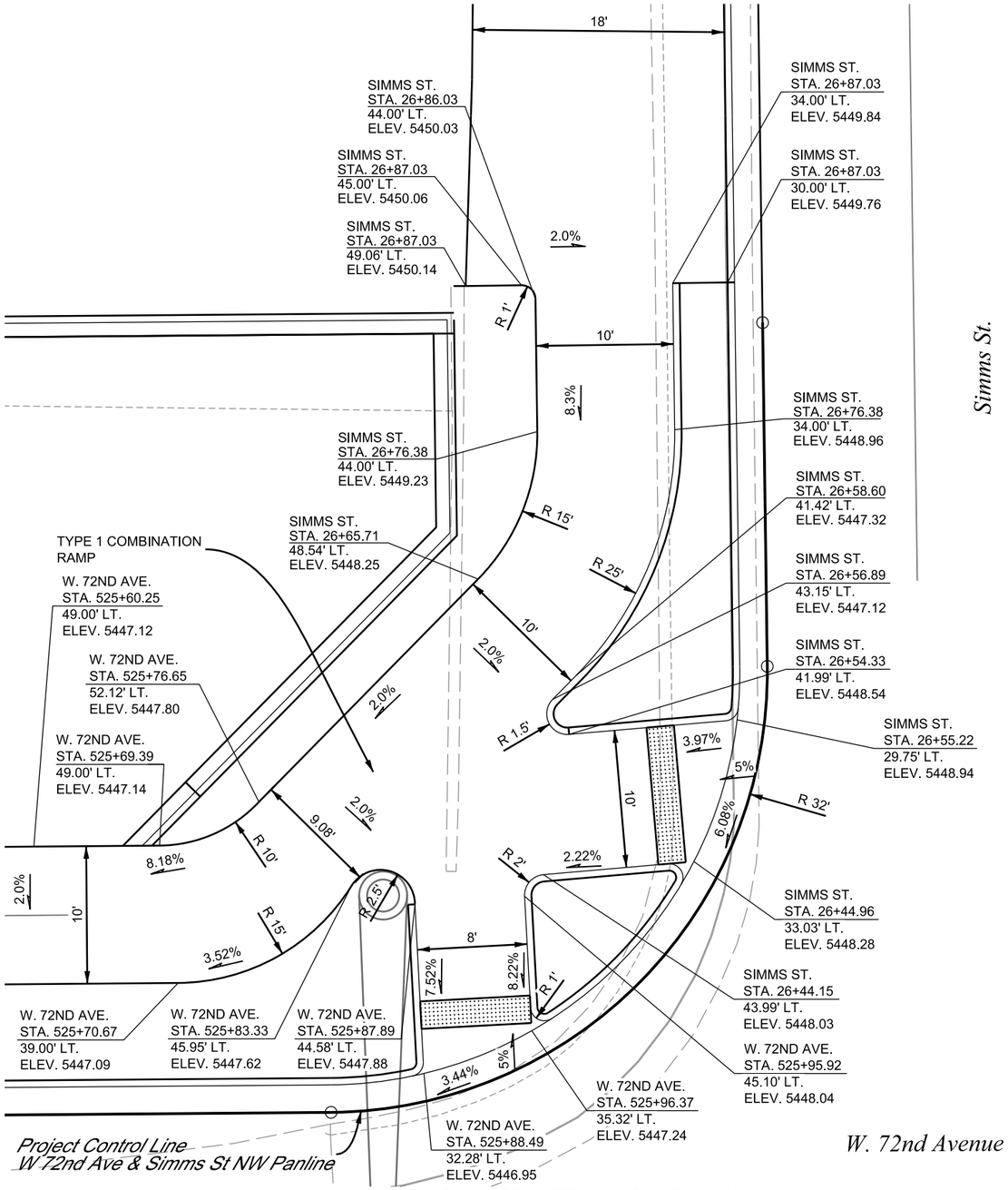
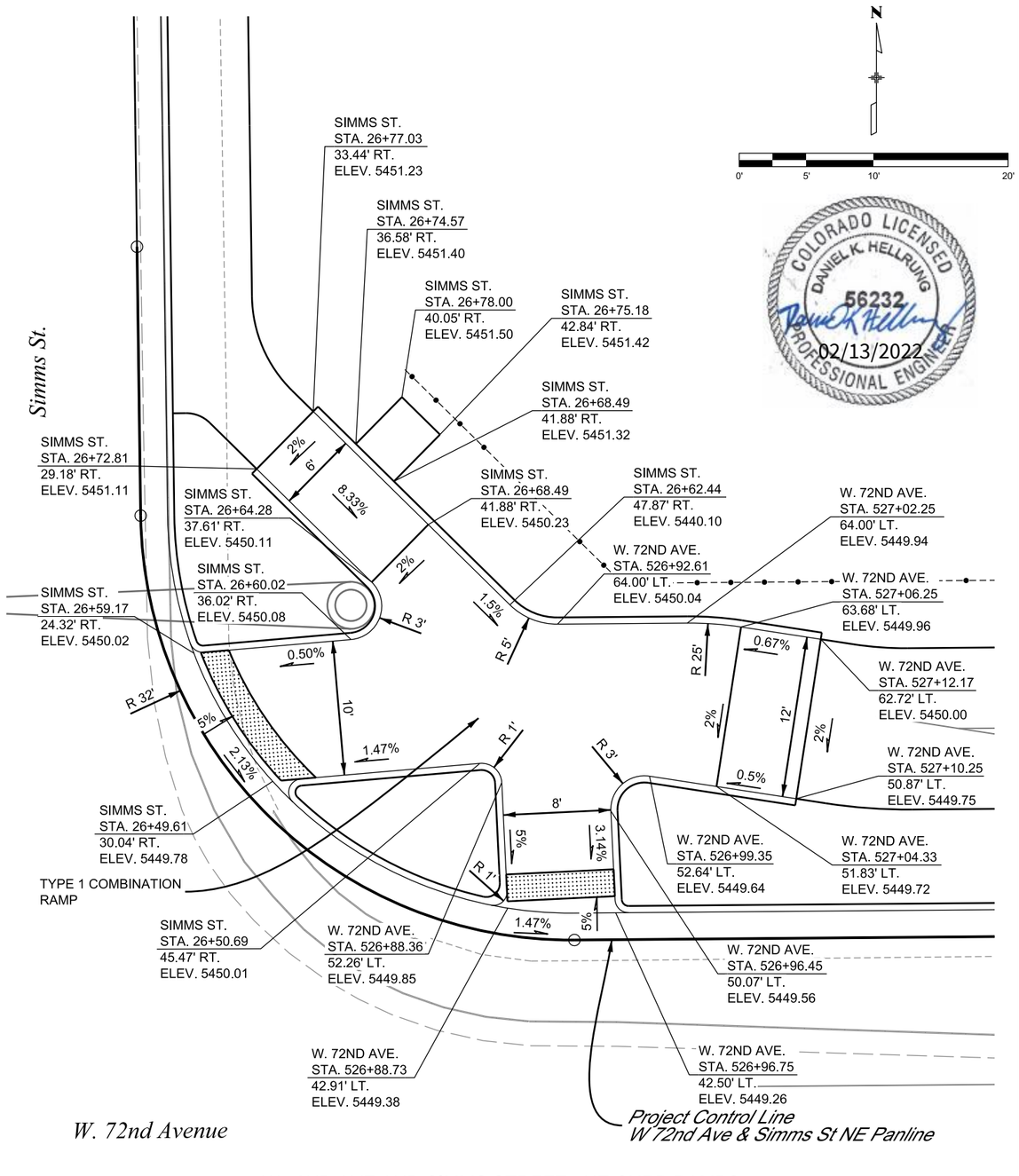
MULLER ENGINEERING COMPANY				CITY OF ARVADA		



W 72ND AVE AND SIMMS STREET - NW CURB RAMPS



W 72ND AVE AND SIMMS STREET - NE CURB RAMPS

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56232
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02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
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CITY OF ARVADA

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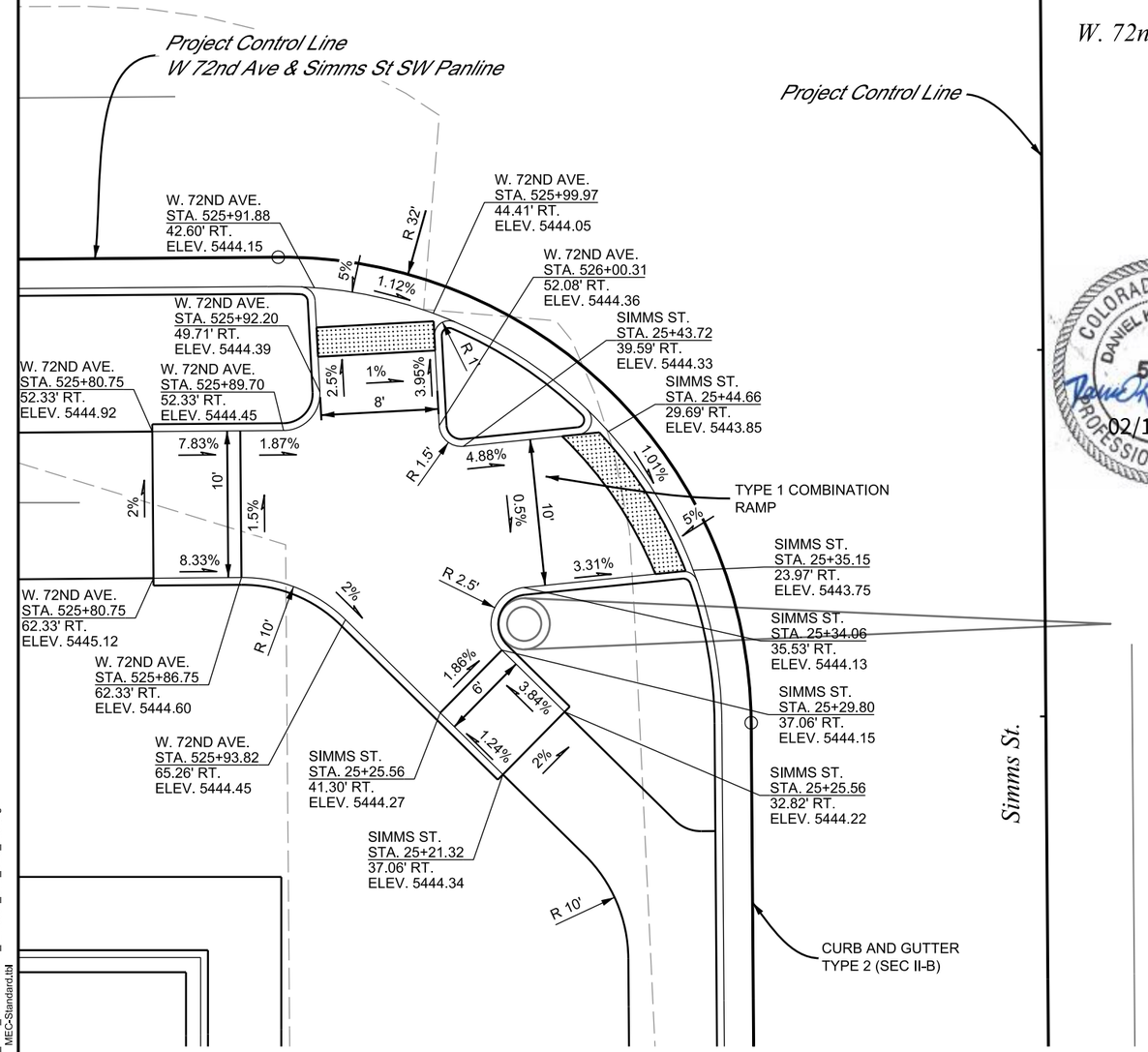

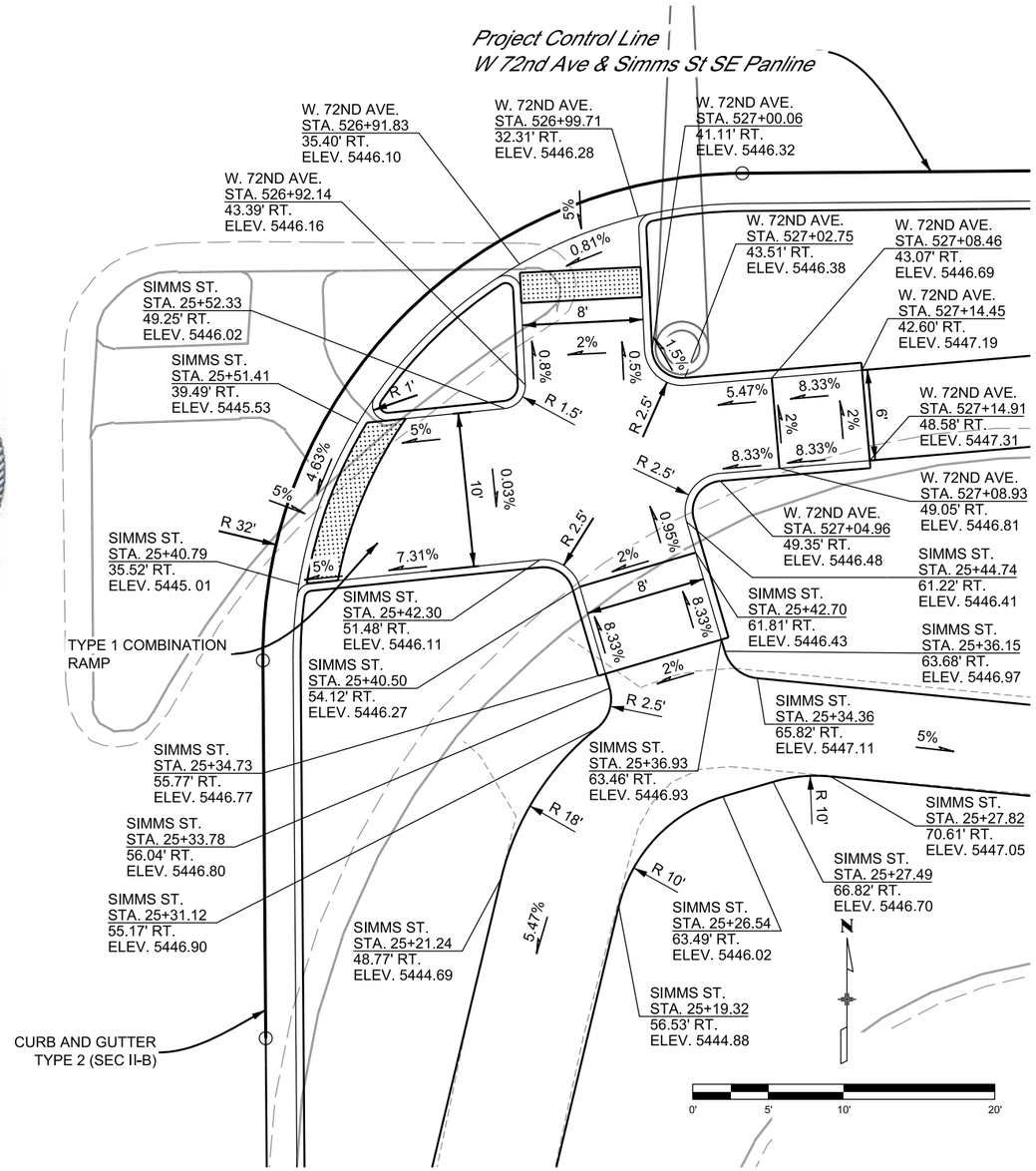

W 72ND AVENUE AND SIMMS STREET - SW CURB RAMPS

W 72ND AVENUE AND SIMMS STREET - SE CURB RAMPS

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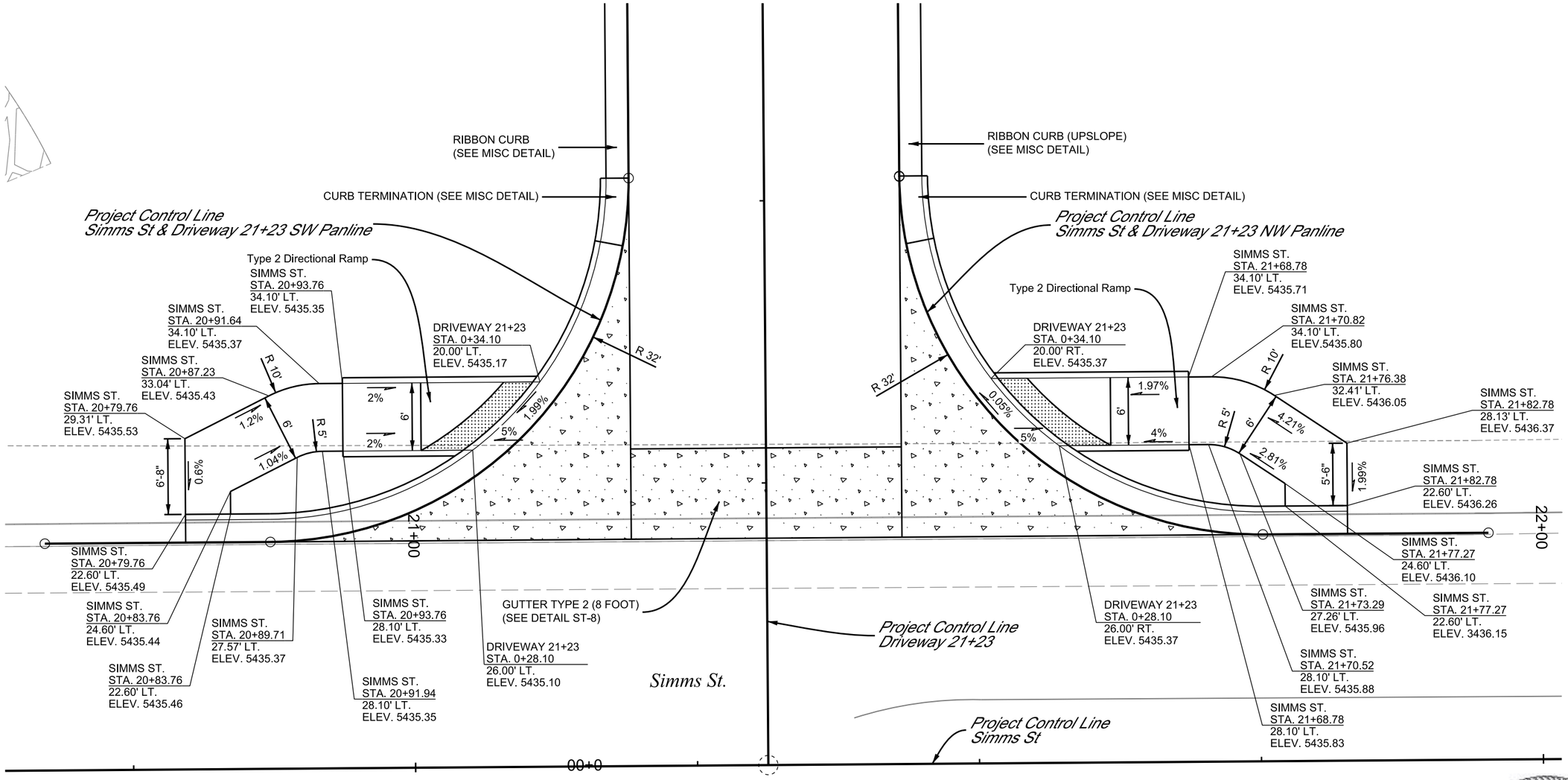

SIMMS STREET & DRIVEWAY 21+23 SW CURB RAMP

SIMMS STREET & DRIVEWAY 21+23 NW CURB RAMP

N

0' 5' 10' 20'

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02/13/2022

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:	
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CURB RAMP DETAILS

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Sheet Number	52

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56232
PROFESSIONAL ENGINEER
02/13/2022

CURB AND GUTTER TYPE 2 (SEC II-B)

Project Control Line Driveway 23+92

CURB AND GUTTER TYPE 2 (SEC II-B)

Project Control Line Simms St & Driveway 23+92 SW Panline

Project Control Line Simms St & Driveway 23+92 SW Panline

SIMMS ST.
STA. 23+48.42
33.60' LT.
ELEV. 5438.34

SIMMS ST.
STA. 23+51.47
33.60' LT.
ELEV. 5438.40

SIMMS ST.
STA. 23+43.94
32.54' LT.
ELEV. 5438.25

TYPE 2 DIRECTIONAL RAMP

SIMMS ST.
STA. 23+38.17
29.66' LT.
ELEV. 5438.10

DRIVEWAY 23+92
STA. 0+33.60
23.54' LT.
ELEV. 5437.94

SIMMS ST.
STA. 23+33.69
28.60' LT.
ELEV. 5438.01

SIMMS ST.
STA. 23+42.85
25.29' LT.
ELEV. 5438.09

SIMMS ST.
STA. 23+41.47
23.05' LT.
ELEV. 5438.02

SIMMS ST.
STA. 23+41.47
22.60' LT.
ELEV. 5438.01

SIMMS ST.
STA. 23+46.42
27.07' LT.
ELEV. 5438.18

SIMMS ST.
STA. 23+48.65
27.60' LT.
ELEV. 5438.23

SIMMS ST.
STA. 23+51.47
27.60' LT.
ELEV. 5438.28

CURB AND GUTTER TYPE 2 (SEC II-B)

DRIVEWAY 23+92
STA. 0+40.75
2.58' LT.
ELEV. 5438.29

DRIVEWAY 23+92
STA. 0+33.60
3.95 LT.
ELEV. 5438.37

DRIVEWAY 23+92
STA. 0+27.60
7.05 LT.
ELEV. 5438.42

DRIVEWAY 23+92
STA. 0+25.64
9.52' LT.
ELEV. 5438.43

DRIVEWAY 23+92
STA. 0+27.60
29.84' LT.
ELEV. 5437.85

SIMMS ST.
STA. 23+84.45
22.10' LT.
ELEV. 5438.53

CURB AND GUTTER TYPE 2 (SEC I-B)

DRIVEWAY 23+92
STA. 0+40.75
2.27' RT.
ELEV. 5438.39

DRIVEWAY 23+92
STA. 0+33.60
3.64' RT.
ELEV. 5438.62

DRIVEWAY 23+92
STA. 0+33.60
23.23' RT.
ELEV. 5439.15

DRIVEWAY 23+92
STA. 0+27.60
6.74' RT.
ELEV. 5438.75

DRIVEWAY 23+92
STA. 0+27.30
29.53' RT.
ELEV. 5439.28

DRIVEWAY 23+92
STA. 0+25.64
9.21' RT.
ELEV. 5438.87

SIMMS ST.
STA. 23+99.51
22.10' LT.
ELEV. 5438.90

TYPE 2 DIRECTIONAL RAMP

SIMMS ST.
STA. 24+31.50
33.60' LT.
ELEV. 5440.05

SIMMS ST.
STA. 24+31.50
27.60' LT.
ELEV. 5440.07

CURB AND GUTTER TYPE 2 (SEC II-B)

SIMMS ST.
STA. 24+53.30
27.60' LT.
ELEV. 5441.14

SIMMS ST.
STA. 24+55.54
27.07' LT.
ELEV. 5441.21

SIMMS ST.
STA. 24+59.10
25.29' LT.
ELEV. 5441.31

SIMMS ST.
STA. 24+53.54
33.60' LT.
ELEV. 5441.23

SIMMS ST.
STA. 24+38.50
33.60' LT.
ELEV. 5440.19

SIMMS ST.
STA. 24+58.01
32.54' LT.
ELEV. 5441.16

SIMMS ST.
STA. 24+63.79
29.66' LT.
ELEV. 5441.38

SIMMS ST.
STA. 24+68.26
28.60' LT.
ELEV. 5441.75

SIMMS ST.
STA. 24+60.48
23.05' LT.
ELEV. 5441.32

SIMMS ST.
STA. 24+60.48
22.60' LT.
ELEV. 5441.31

Project Control Line Simms St.

09+0

24+00

SIMMS ST & DRIVEWAY 23+92 SW CURB RAMP

SIMMS ST & DRIVEWAY 23+92 MEDIAN CURB RAMP

SIMMS ST & DRIVEWAY 23+92 NW CURB RAMP

0' 5' 10' 20'

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Drawing File Name: 18061_CP2_DES_Int06.dgn		Date:	Comments / Init.
Horiz. Scale: 1:10	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

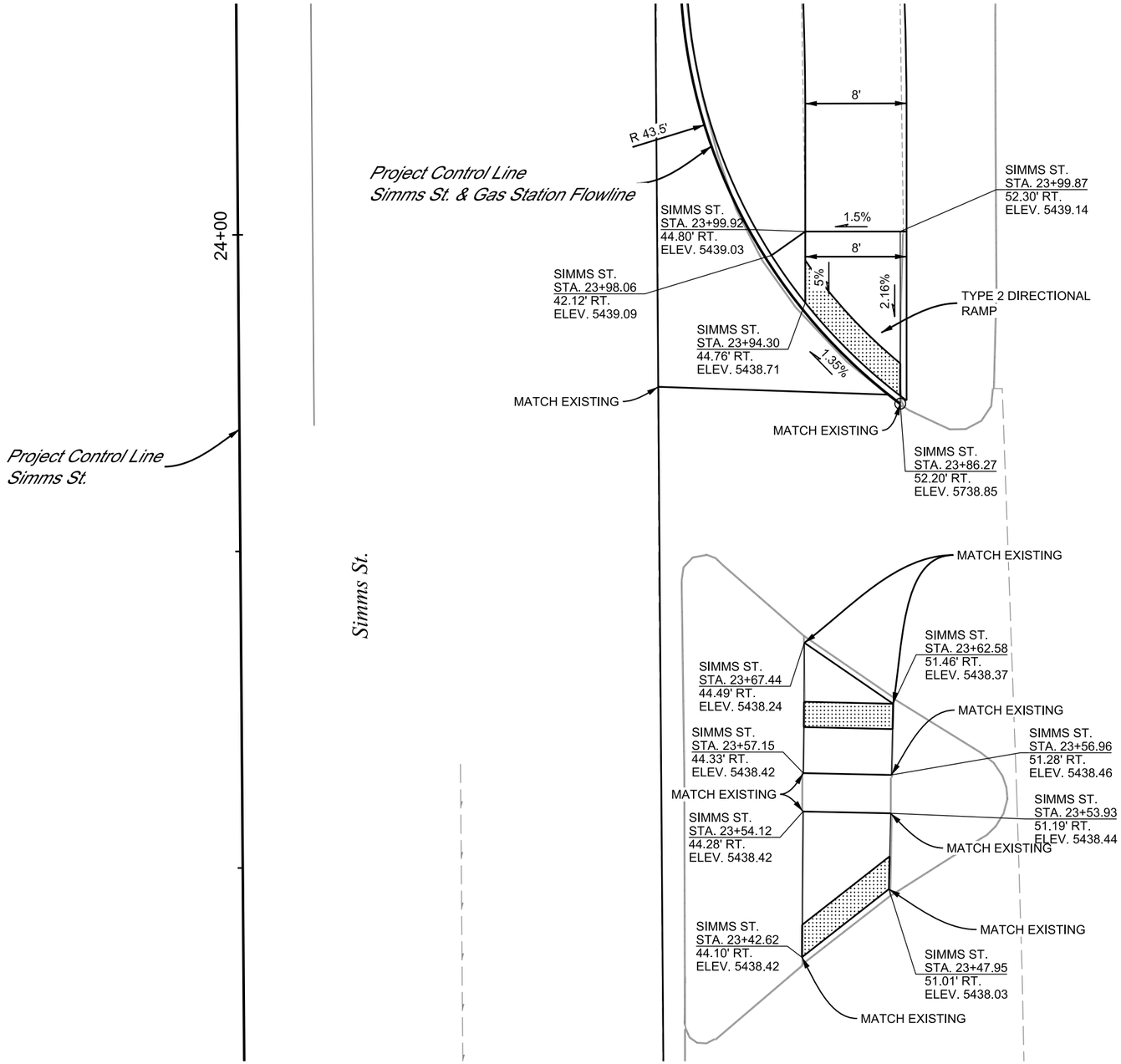
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CURB RAMP DETAILS

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	CURB RAMPS	Subset Sheets:	6 of 16

Project No./Code

Sheet Number 53



SIMMS STREET - GAS STATION CURB RAMPS

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 5' 10' 20'

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9/17/2021
tplotdrvm.plt

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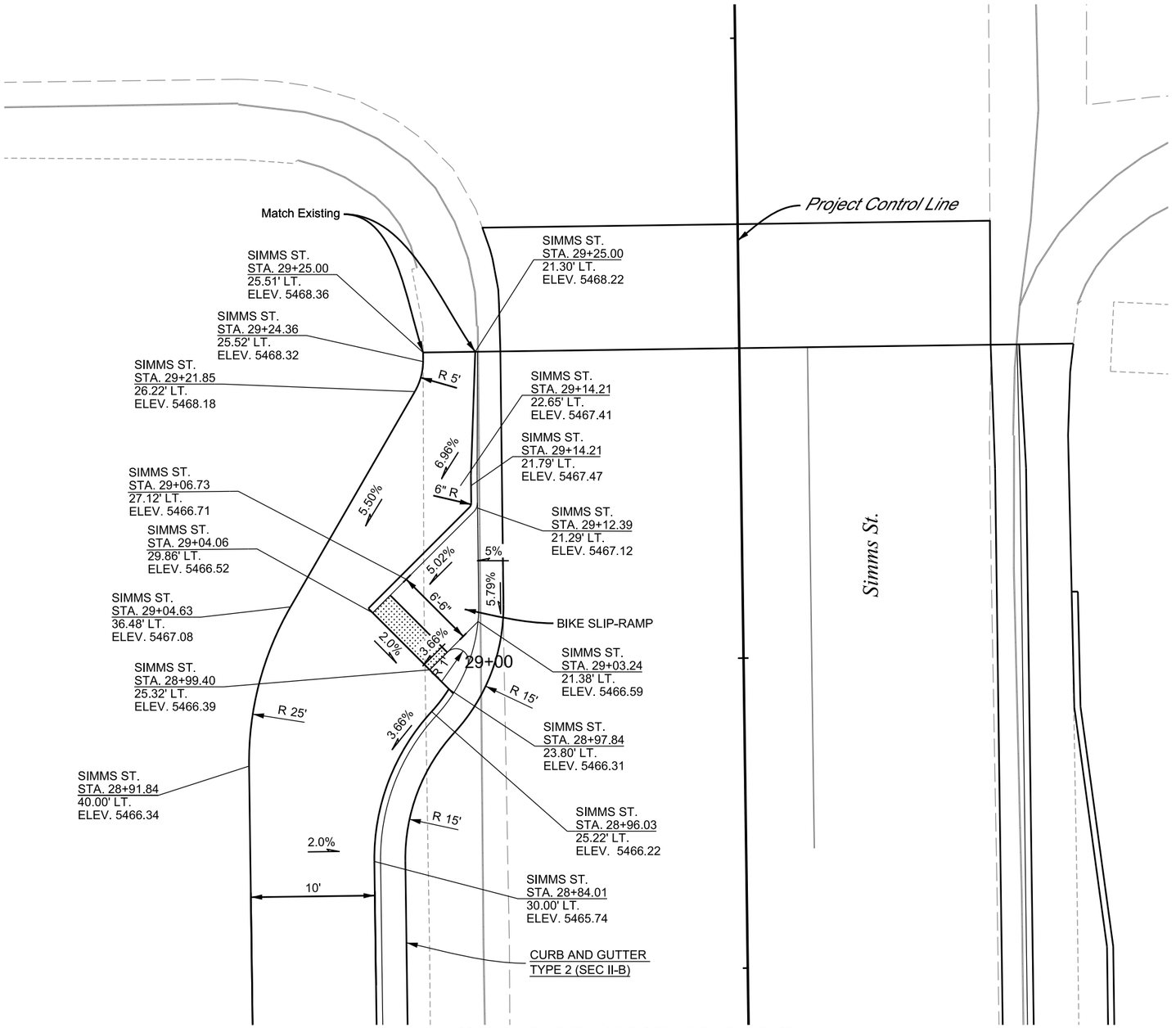
Horiz. Scale: 1:10 Vert. Scale: As Noted				
Unit Information Unit Leader Initials				
MULLER ENGINEERING COMPANY				

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CURB RAMP DETAILS			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 54
	Sheet Subset: CURB RAMPS	Subset Sheets:	7 of 16	



SIMMS STREET - OFF STREET BIKE SLIP RAMP

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_Int08.dgn	Date:	Comments	Init.
Horiz. Scale: 1:10 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
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Revised:	Designer: RML	Structure Numbers	
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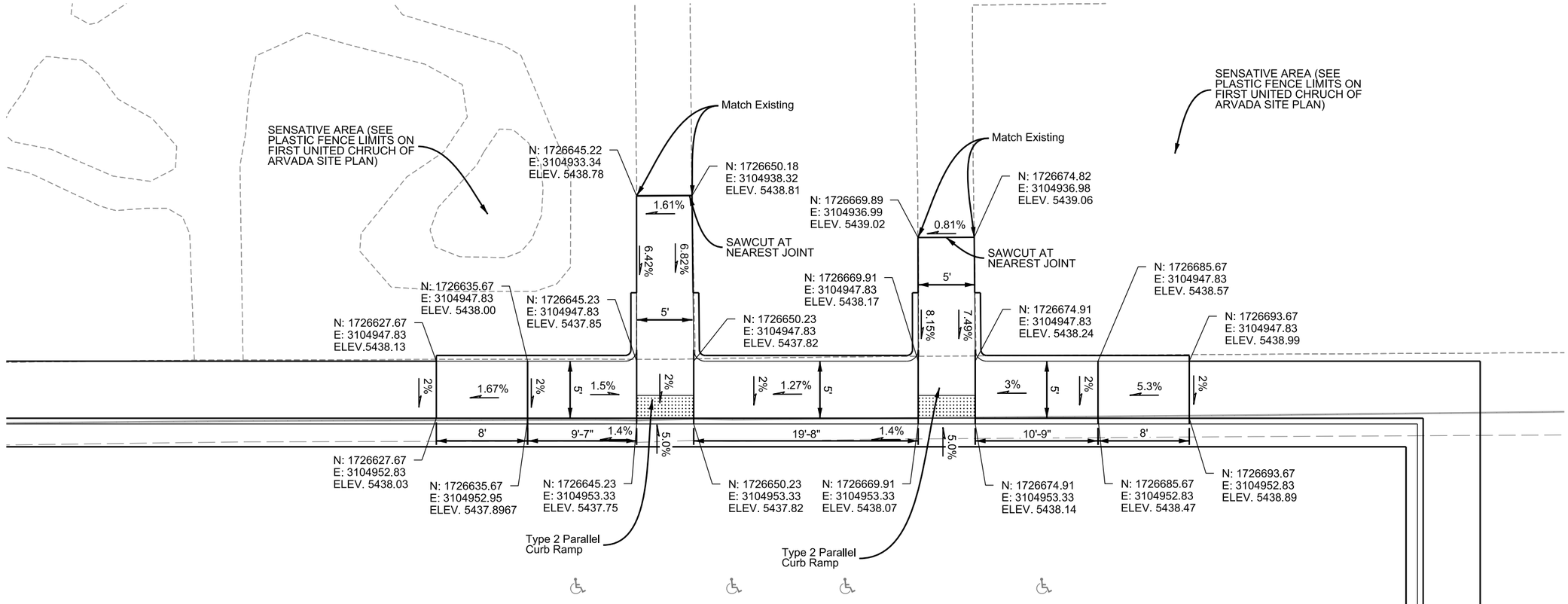
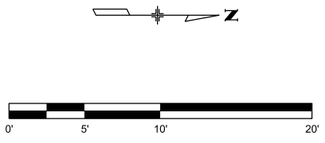
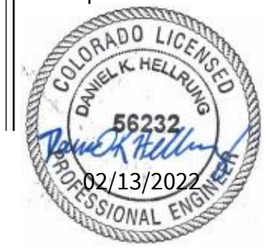


PROPOSED PARKING LOT

FIRST UNITED CHURCH OF ARVADA - CURB RAMPS





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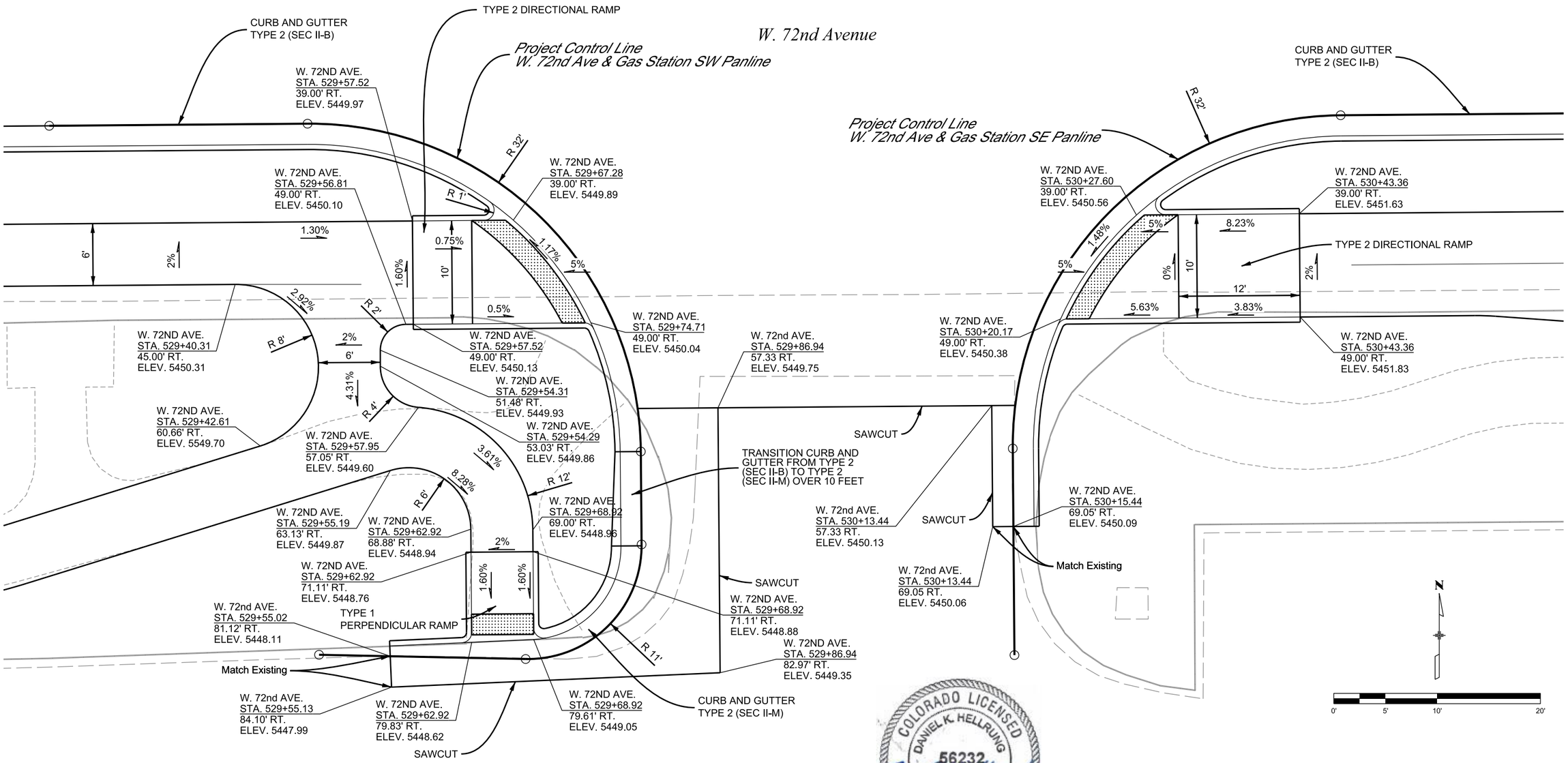
MULLER ENGINEERING COMPANY							Project No./Code / Sheet Number 56



W 72ND AVENUE & GAS STATION SW CURB RAMPS

W 72ND AVENUE & GAS STATION SE CURB RAMP

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02/13/2022

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Horiz. Scale: 1:10 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	CURB RAMP DETAILS		
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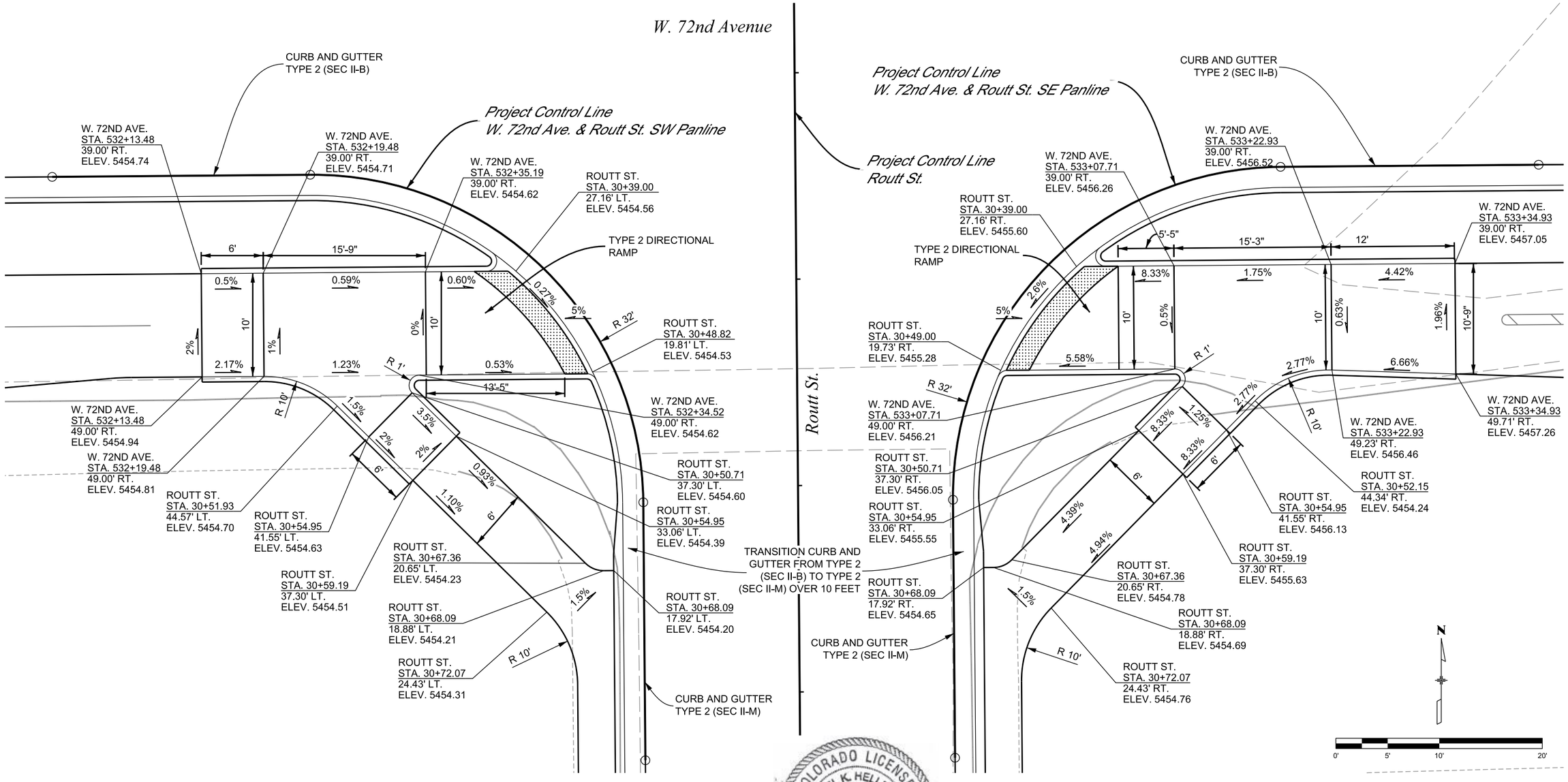

W. 72ND AVE & ROUTT ST. SW CURB RAMP

W. 72ND AVE & ROUTT ST. SE CURB RAMP

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56232
PROFESSIONAL ENGINEER
02/13/2022

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Horiz. Scale: 1:10	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CURB RAMP DETAILS

Designer:	RML	Structure Numbers	
Detailer:	SAD		
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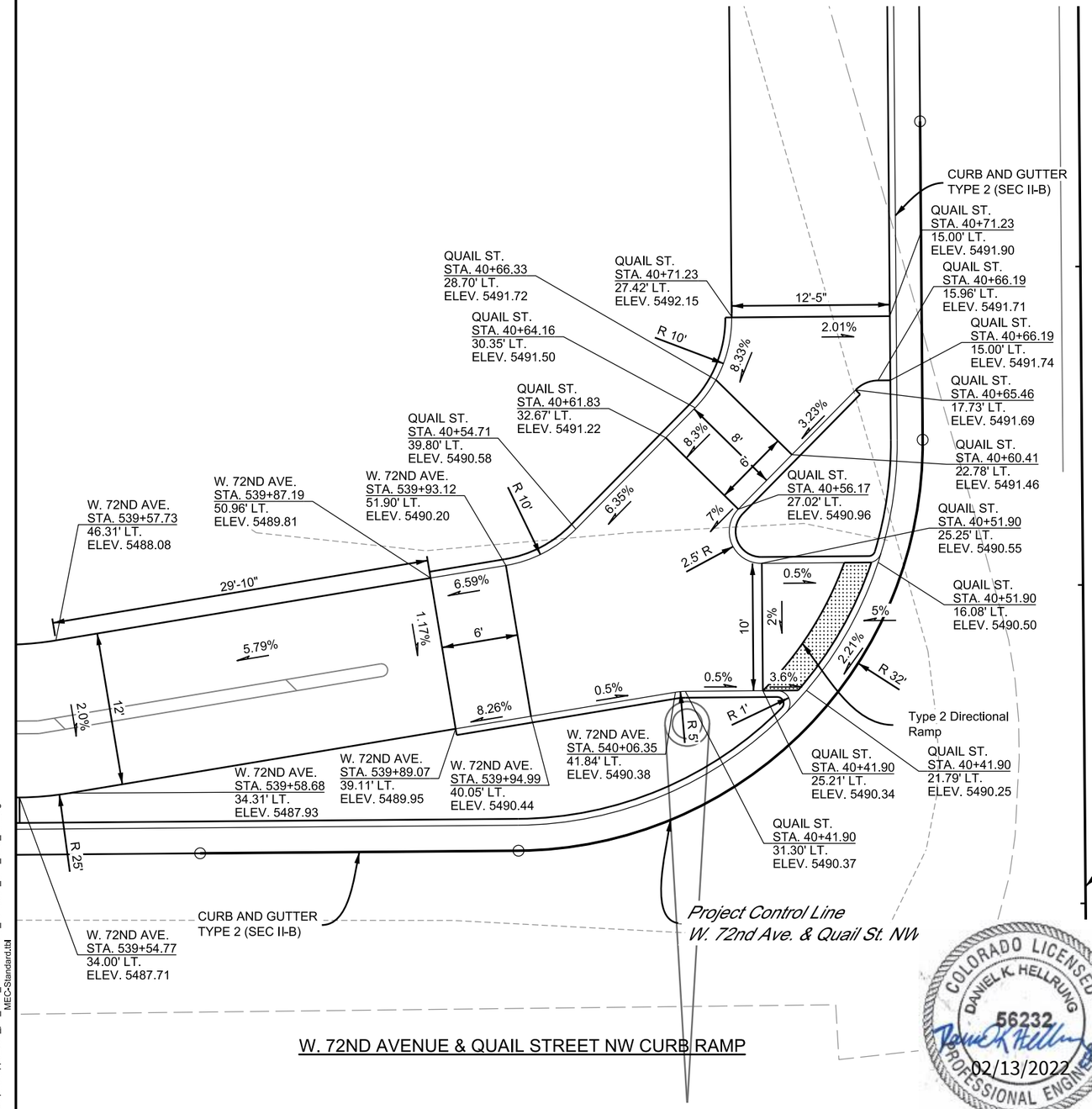
Project No./Code

Sheet Number 58



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56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021		Sheet Revisions			As Constructed
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Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CURB RAMP DETAILS

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	CURB RAMPS	Subset Sheets:	12 of 16

Project No./Code

Sheet Number 59

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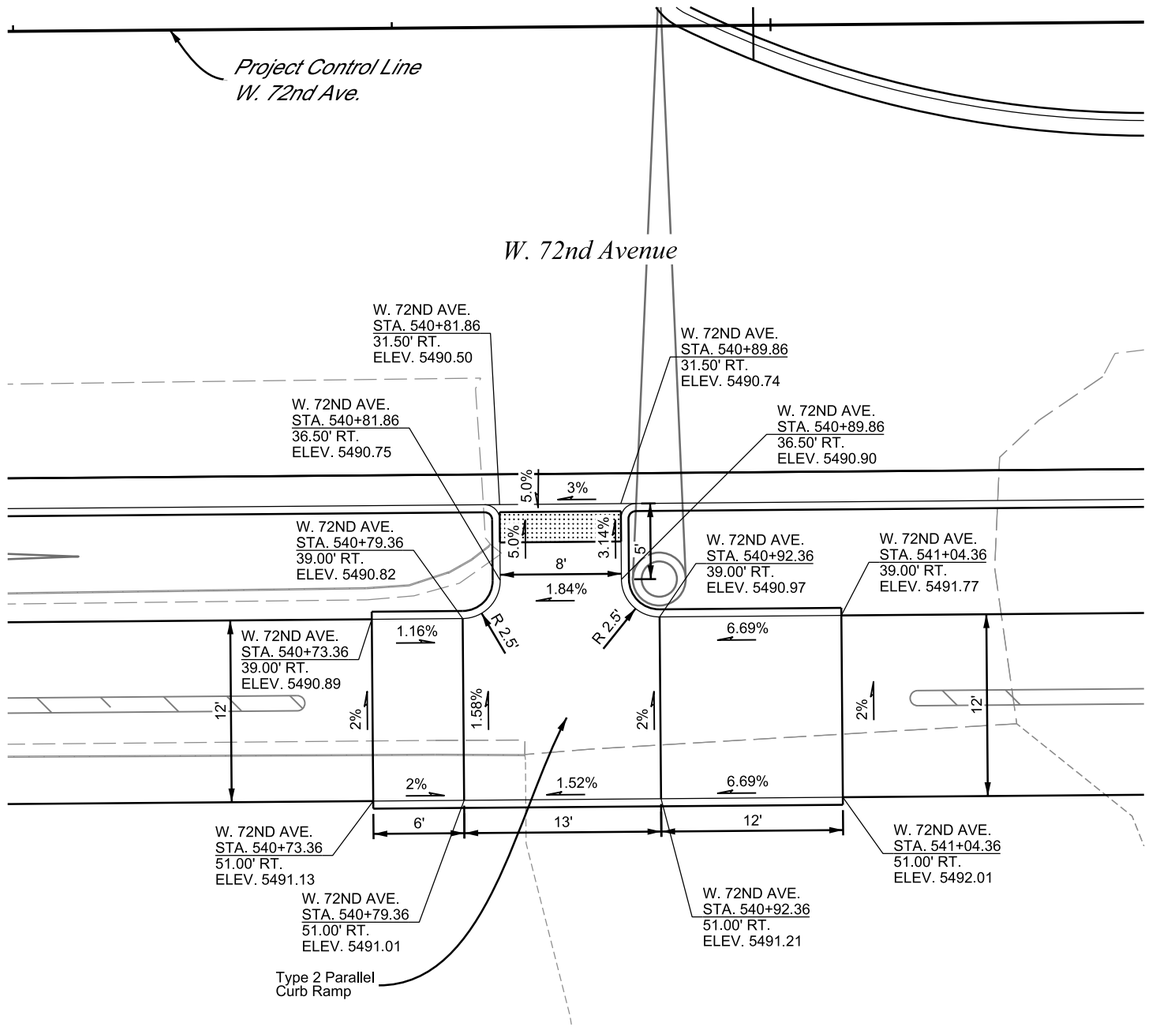
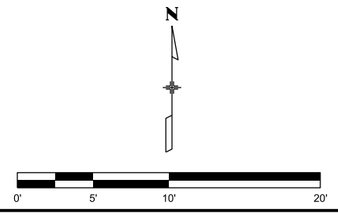


W. 72ND AVENUE AND QUAIL STREET SE CURB RAMP



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56232
PROFESSIONAL ENGINEER
02/13/2022

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9/17/2021

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Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CURB RAMP DETAILS

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Designer:	RML	Structure Numbers		
Detailer:	SAD			
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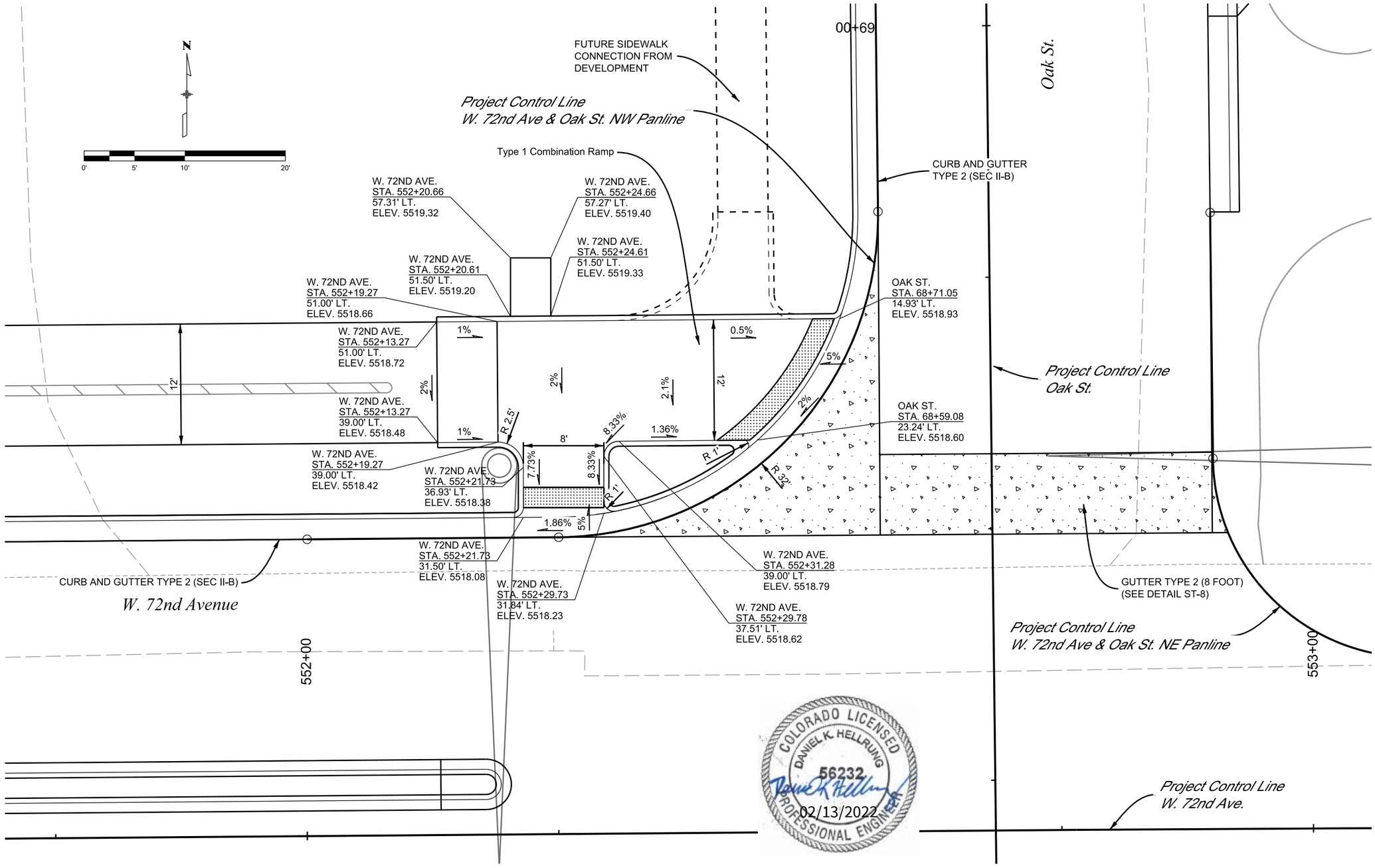

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56232
PROFESSIONAL ENGINEER
02/13/2022

W 72ND AVENUE & OAK STREET NW CURB RAMP

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_Int14.dgn	Date:	Comments	Init.
Horiz. Scale: 1:10 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CURB RAMP DETAILS			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: CURB RAMPS	Subset Sheets: 14 of 16		Sheet Number 61

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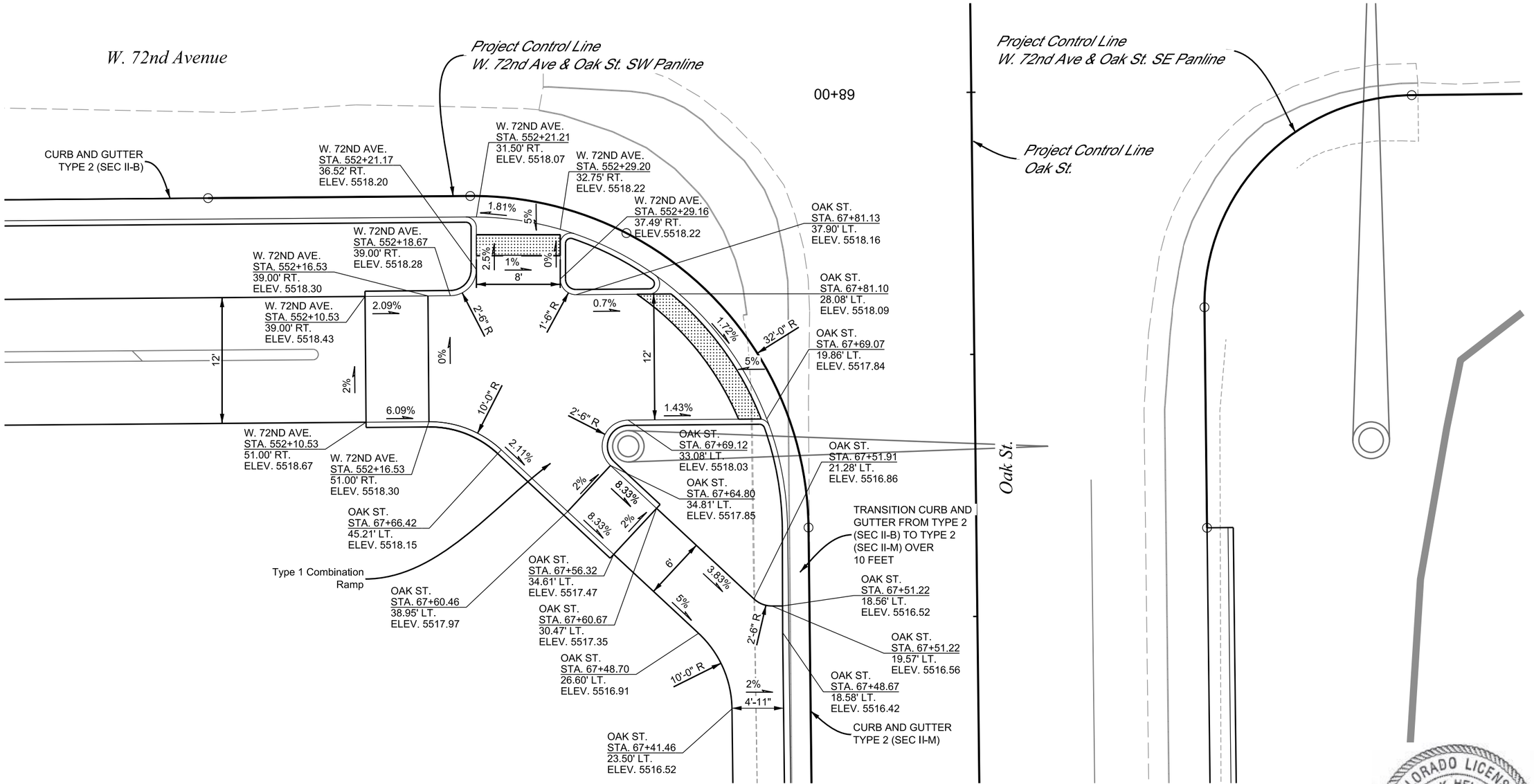

W. 72ND AVENUE & OAK STREET SW CURB RAMP

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DANIEL K. HELLRUNG
56232
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02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_Int15.dgn	Date:	Comments	Init.
Horiz. Scale: 1:10 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CURB RAMP DETAILS			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: CURB RAMPS	Subset Sheets: 15 of 16		Sheet Number 62

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9/17/2021
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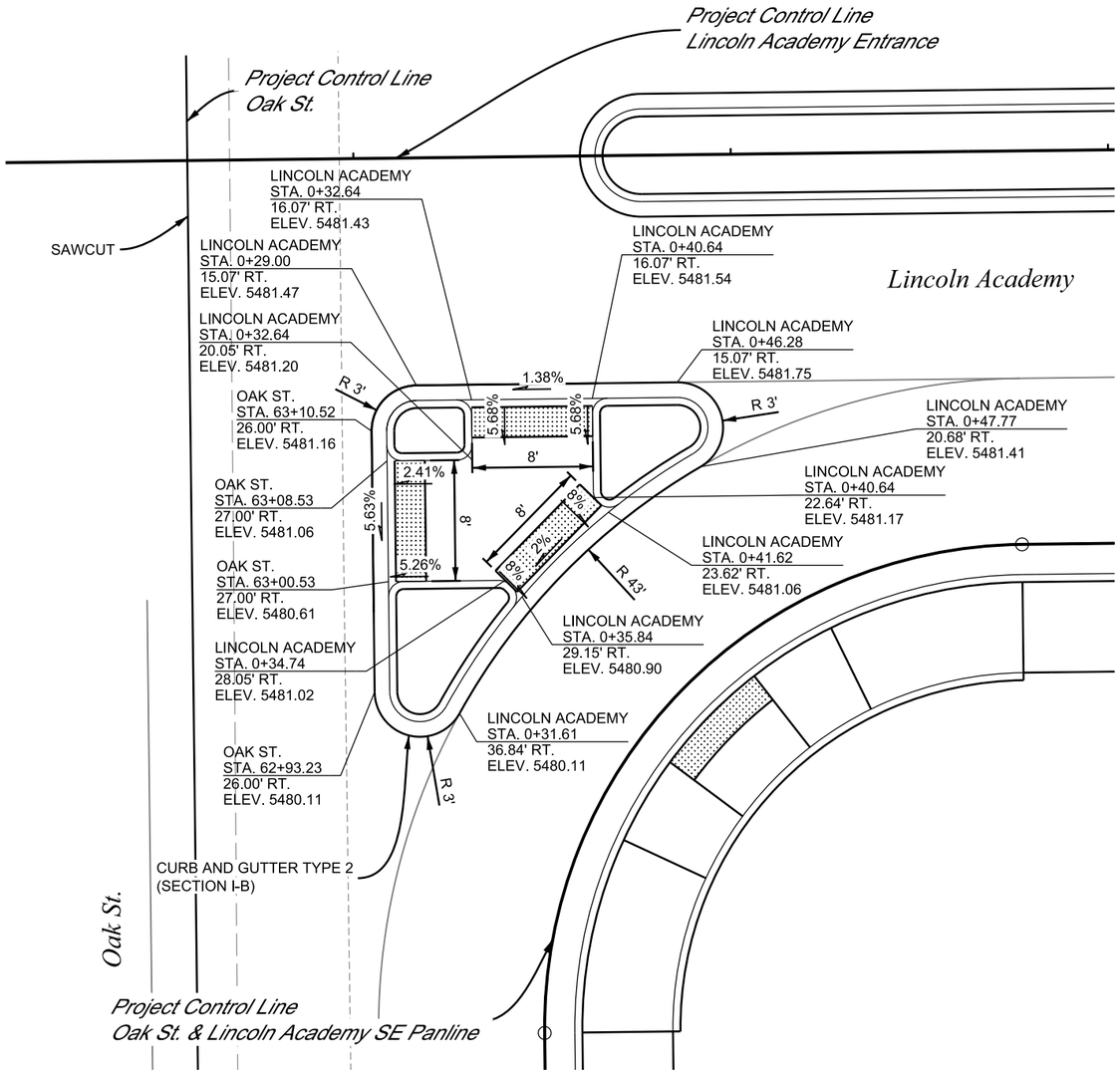
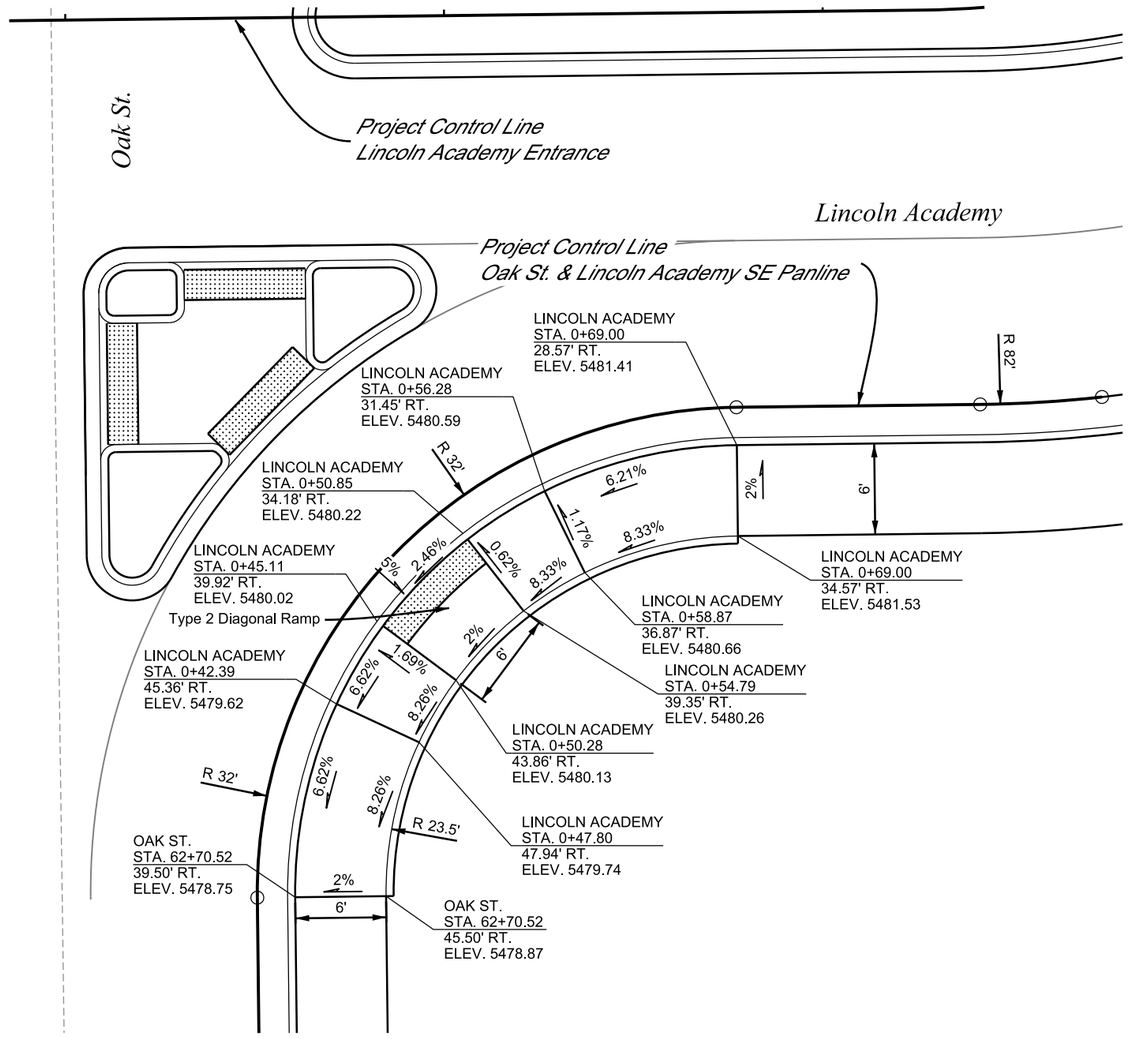


OAK STREET AND LINCOLN ACADEMY ISLAND CURB RAMP



OAK STREET AND LINCOLN ACADEMY SE CURB RAMP

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
02/13/2022
PROFESSIONAL ENGINEER

N

0' 5' 10' 20'

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Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

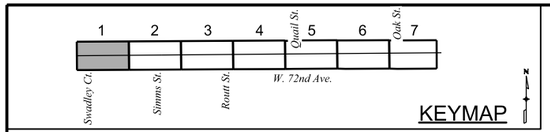
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

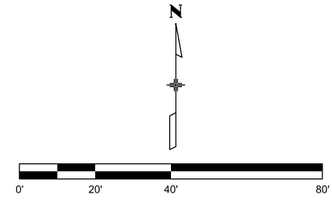
CURB RAMP DETAILS

Designer: RML
Detailer: SAD
Sheet Subset: CURB RAMPS
Structure Numbers
Subset Sheets: 16 of 16

Project No./Code

Sheet Number 63





Angela M. & Rosanne M. Cole
11860 W. 72nd Pl.
3

Lisa & Nicholas K. Rayburn
11830 W. 72nd Pl.
4

Kelly M. Steele
11800 W. 72nd Pl.
5

Joshua and Heidi Tietjen
11780 W. 72nd Pl.
6

Joseph G. & Patricia M. Pollack
11760 W. 72nd Pl.
7

Steven M. Gillespie
11740 W. 72nd Pl.
8

Bobbijo & Thomas L. Salkeld
11720 W. 72nd Pl.
9

518+00
519+00
520+00
521+00
522+00

STA. 522+47.65
38.00 LT.
EL. 5441.69

STA. 522+59.65
46.00 LT.
EL. 5442.48

STA. 522+47.65
29.50 LT.
EL. 5441.72

STA. 517+87.00
14.03 LT.
EL. 5441.86

STA. 517+87.00
7.50 LT.
EL. MATCH EXISTING

STA. 518+46.00
7.50 LT.
EL. MATCH EXISTING

Project Control Line
W. 72nd Avenue

STA. 522+50.19
7.50 LT.
EL. 5442.13

R 2.5'

N89°32'27"E
1141.56'

STA. 522+50.19
2.50 LT.
EL. 5442.33

W. 72nd Avenue

MATCH LINE STA. 523+00

STA. 518+83.47
27.11 RT.
EL. 5441.35

R 32'

STA. 517+50.00
BEGIN PROJECT
N: 1726795.21
E: 3104223.90

Swadley Court

6' SIDEWALK

12' SIDEWALK / BIKE LANE

STA. 520+00.00
37.00 RT.
EL. 5441.35

STA. 520+00.00
29.50 RT.
EL. 5440.92

STA. 522+60.78
29.50 RT.
EL. 5441.78

STA. 518+48.76
58.92 RT.
EL. 5441.34

Project Control Line
W 72nd Ave & Swadley Ct SE Panline

STA. 518+46.00
66.56 RT.
EL. MATCH EXISTING

STA. 518+48.74
66.55 RT.
EL. MATCH EXISTING

99
Taylor J. Meddles & Cassidy M. Winchip
7183 Swadley Ct.

98
Christina Hack & Matthew Henningsen
7172 Swadley Ct.

97
Jeremy Lorberau
7152 Swadley Ct.

96
Karalee J. Baker
7142 Swadley Ct.

95
Jorge & Mary E. Rosales
7132 Swadley Ct.

94
Kathleen G. & Bria...
7122 Swadley

NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE SIDE STREET GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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56232
PROFESSIONAL ENGINEER
02/13/2022

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Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

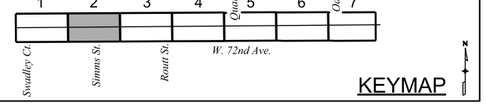
As Constructed
No Revisions:
Revised:
Void:

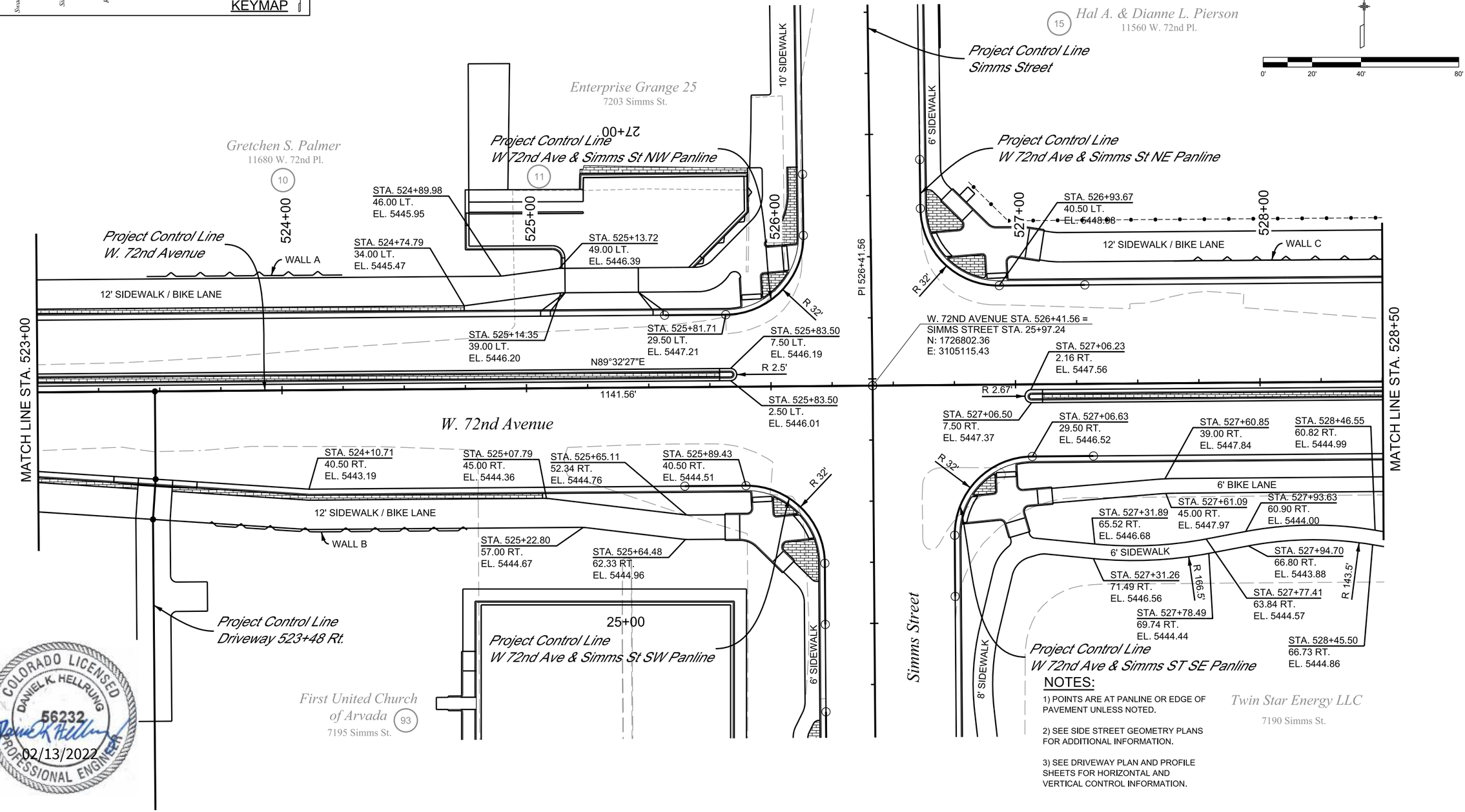
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
GEOMETRY PLANS
W. 72ND AVE STA. 517+50 TO STA. 523+00

Designer: DKH
Detailer: SAD
Sheet Subset: GEOMETRY
Structure Numbers
Subset Sheets: 1 of 7

Project No./Code

Sheet Number 64





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02/13/2022

NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE SIDE STREET GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

Print Date: 9/17/2021	Sheet Revisions		
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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	GEOMETRY PLANS		
Revised:	W. 72ND AVE STA. 523+00 TO STA. 528+50		
Void:	Designer: DKH	Structure Numbers	
	Detailer: SAD		
	Sheet Subset: GEOMETRY	Subset Sheets: 2 of 7	Sheet Number 65

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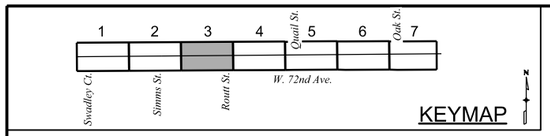

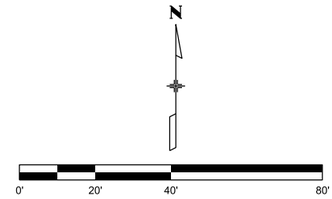

Brittany & Timothy Marks
11530 W. 72nd Pl.
16

Janice H. & Shinichi Tsurumi
11500 W. 72nd Pl.
17

Suzanne P. Bruner
11470 W. 72nd Pl.
18

Joya J. Bumpas
11440 W. 72nd Pl.
19

Thomas D. & La Donna J. Stonerook
11410 W. 72nd Pl.
20

Jon S. & Robin M. Aasen Trust
11380 W. 72nd Pl.

529+00
530+00
531+00
532+00
533+00

Project Control Line
W. 72nd Avenue

12' SIDEWALK / BIKE LANE

WALL C

MATCH LINE STA. 528+50

MATCH LINE STA. 534+00

STA. 528+68.71
40.50 LT.
EL. 5449.94

STA. 530+02.37
29.50 LT.
EL. 5450.69

STA. 529+62.93
2.50 RT.
EL. 5450.63

N89°31'54"E
2634.84'

STA. 530+46.50
2.50 RT.
EL. 5451.78

STA. 532+21.62
2.50 RT.
EL. 5455.39

W. 72ND AVENUE STA. 532+71.12 =
ROUTT STREET STA. 30+00.00
N: 1726807.50
E: 3105744.96

STA. 533+16.50
2.50 RT.
EL. 5456.87

R 2.5'

STA. 529+62.93
7.50 RT.
EL. 5450.43

STA. 530+46.50
7.50 RT.
EL. 5451.58

STA. 532+21.62
7.50 RT.
EL. 5454.87

STA. 533+16.50
7.50 RT.
EL. 5456.67

STA. 529+40.31
45.00 RT.
EL. 5450.31

STA. 529+47.44
29.50 RT.
EL. 5449.80

STA. 530+47.44
29.50 RT.
EL. 5451.16

STA. 532+24.12
29.50 RT.
EL. 5454.47

STA. 533+18.12
29.50 RT.
EL. 5456.26

R 32'

6' BIKE LANE

12' SIDEWALK / BIKE LANE

WALL D

STA. 528+94.69
69.40 RT.
EL. 5447.24

R 50.5'

STA. 529+42.61
60.66 RT.
EL. 5449.70

STA. 530+61.27
49.00 RT.
EL. 5452.06

STA. 530+87.27
51.00 RT.
EL. 5452.58

STA. 531+81.60
50.92 RT.
EL. 5454.38

STA. 532+05.61
49.00 RT.
EL. 5454.79

6' SIDEWALK

STA. 528+93.63
75.31 RT.
EL. 5447.12

STA. 529+18.13
68.04 RT.
EL. 5448.42

STA. 529+19.86
73.78 RT.
EL. 5448.30

STA. 529+55.19
63.13 RT.
EL. 5449.87

W. 72nd Avenue

Project Control Line
W 72nd Ave &
Gas Station SW Panline

Project Control Line
W 72nd Ave & Gas Station SE Panline

Project Control Line
W 72nd Ave & Routt St SW Panline

Project Control Line
W 72nd Ave & Routt St SE Panline

Routt Street

Project Control Line
Routt Street

31+00

89
Maple Leaf Condominium Association Inc
Vacant Land

88
Dean & Glory McDaniel
7195 Routt St.

83
Nathan A. Powe
7190 Routt St.

NOTES:

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3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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9/17/2021

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Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

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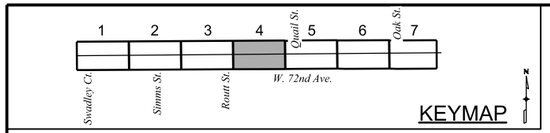
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
GEOMETRY PLANS
W. 72ND AVE STA. 528+50 TO STA. 534+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GEOMETRY	Subset Sheets:	3 of 7

Project No./Code

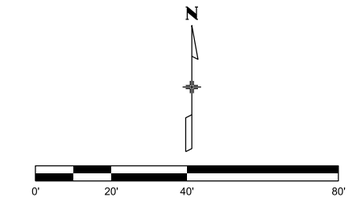
Sheet Number 66



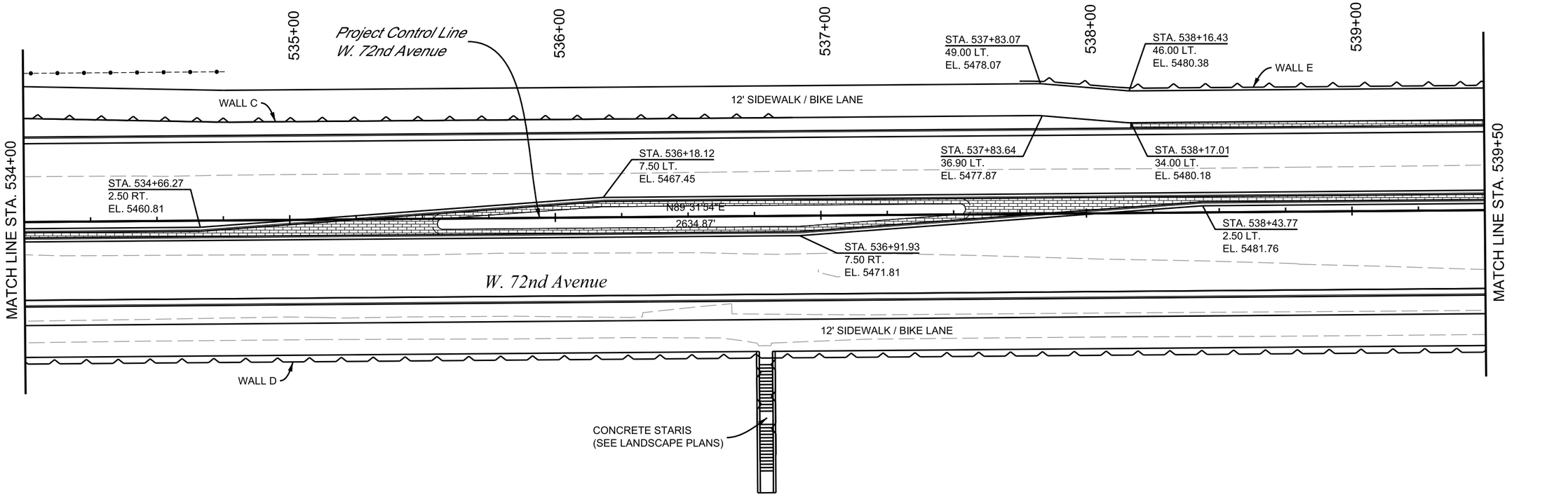
Jon S. & Robin M. Aasen Trust
11380 W. 72nd Pl.
21

Byron Blaine & Jill Suzanne Flateland Living Trust
11350 W. 72nd Pl.
22

7212 Queen LLC
Jan M. Christensen
7212 Queen St.
23



Thomas L. & Hazel V. Hartbarger
7201 Quail St.
24



Martin D. Smith
11371 W. 71st Pl.

81

Jane K. Truesdell & Jane K. Truesdell Personal Rep
11361 W. 71st Pl.

Lori R. & Richard Kubik
11351 W. 71st Pl.
80

Joseph M. & Irene R. Buersmeyer
11341 W. 71st. Pl.
79

Lawrence E. & Carol A. Sourbeer
11331 W. 71st Pl.
78

James R. & Linda J.
11321 W. 71st Pl.
77

NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE SIDE STREET GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
Revised:
Void:

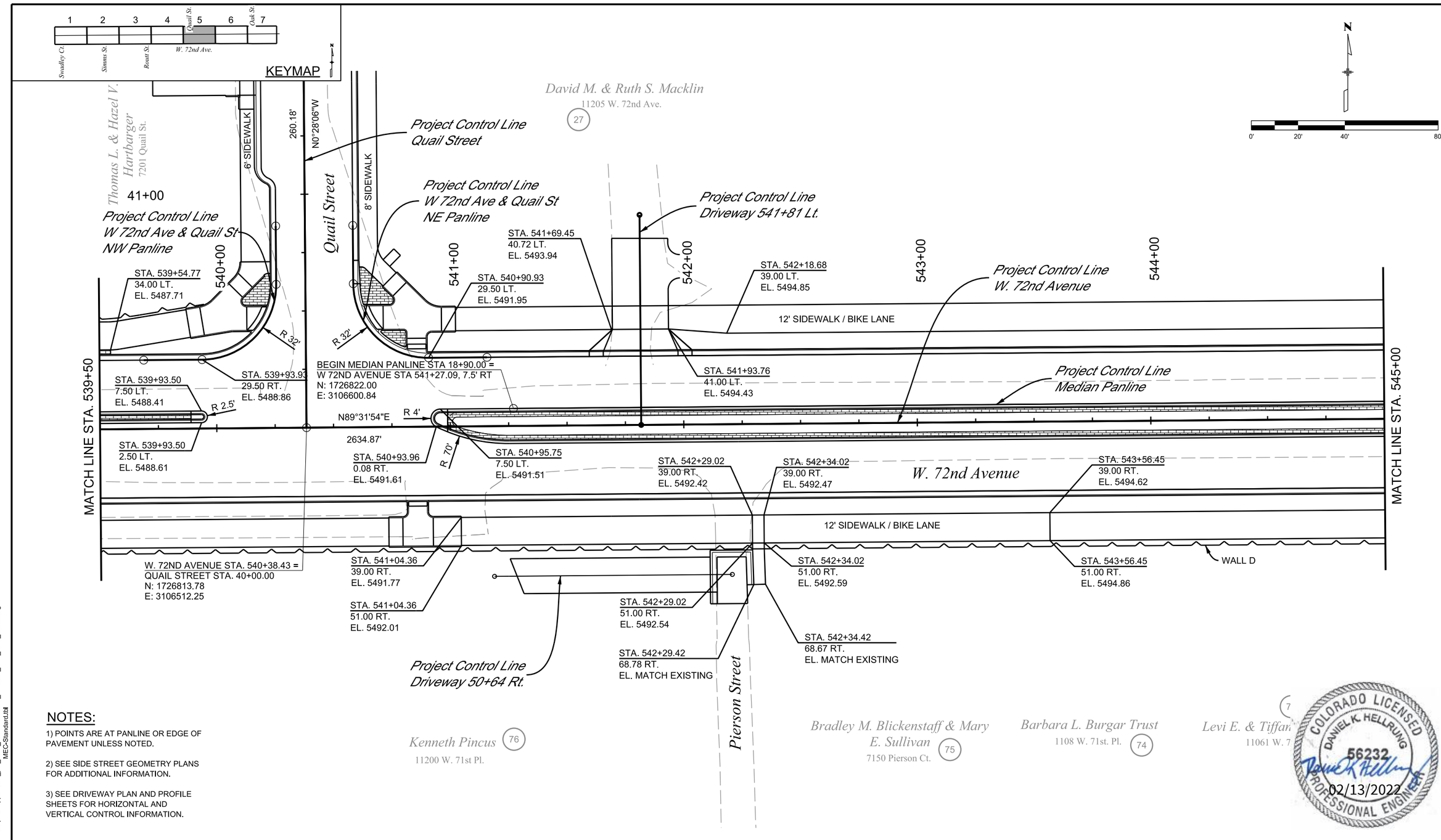
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

GEOMETRY PLANS

W. 72ND AVE STA. 534+00 TO STA. 539+50

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GEOMETRY	Subset Sheets:	4 of 7

Project No./Code	
Sheet Number	67



NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE SIDE STREET GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	GEOMETRY PLANS W. 72ND AVE STA. 539+50 TO STA. 545+00			
Revised:	Designer: DKH	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: GEOMETRY	Subset Sheets: 5 of 7		Sheet Number 68

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NOTES:

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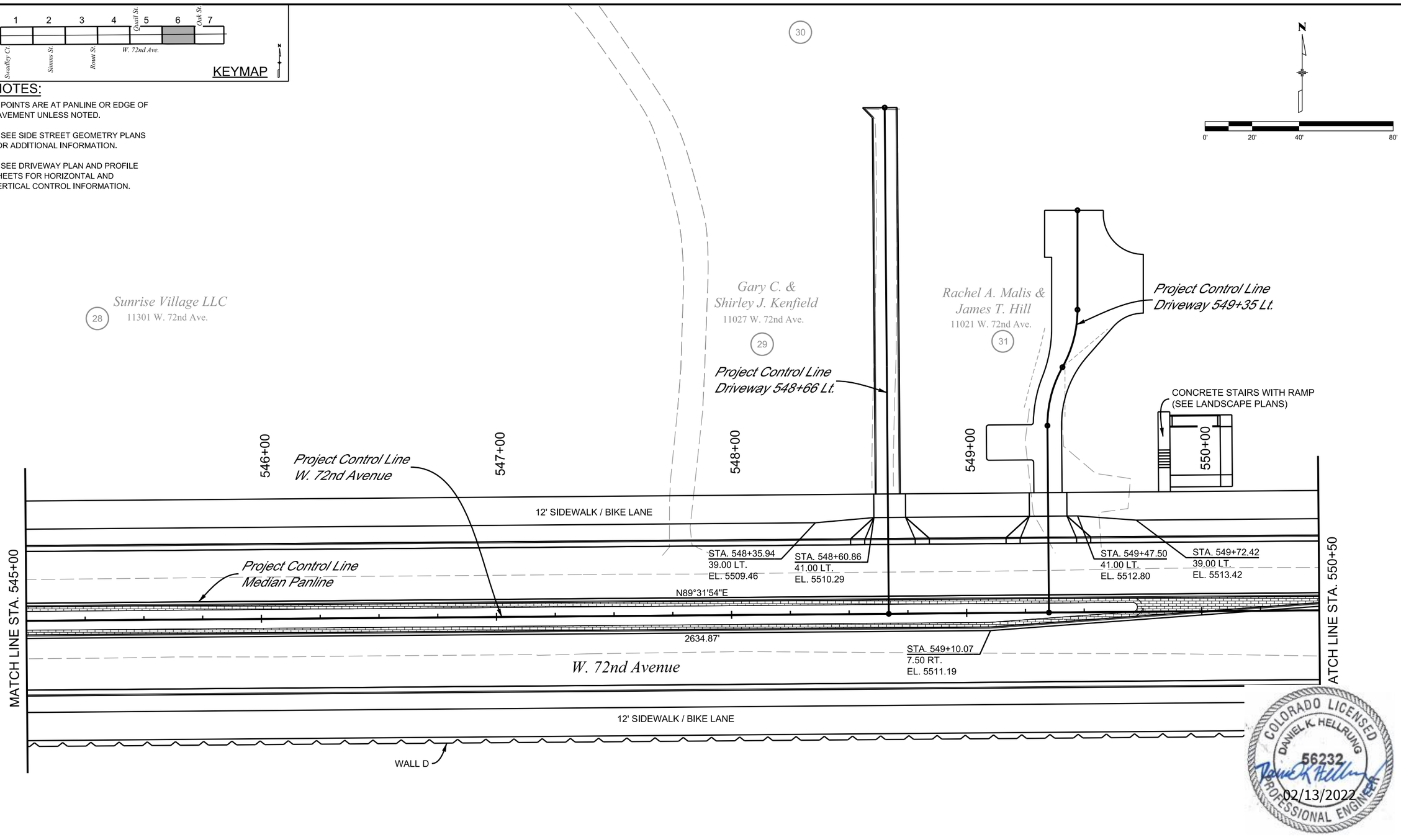
2) SEE SIDE STREET GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.



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Unit Information	Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY						

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

GEOMETRY PLANS

W. 72ND AVE STA. 545+00 TO STA. 550+50

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GEOMETRY	Subset Sheets:	6 of 7

Project No./Code

Sheet Number 69

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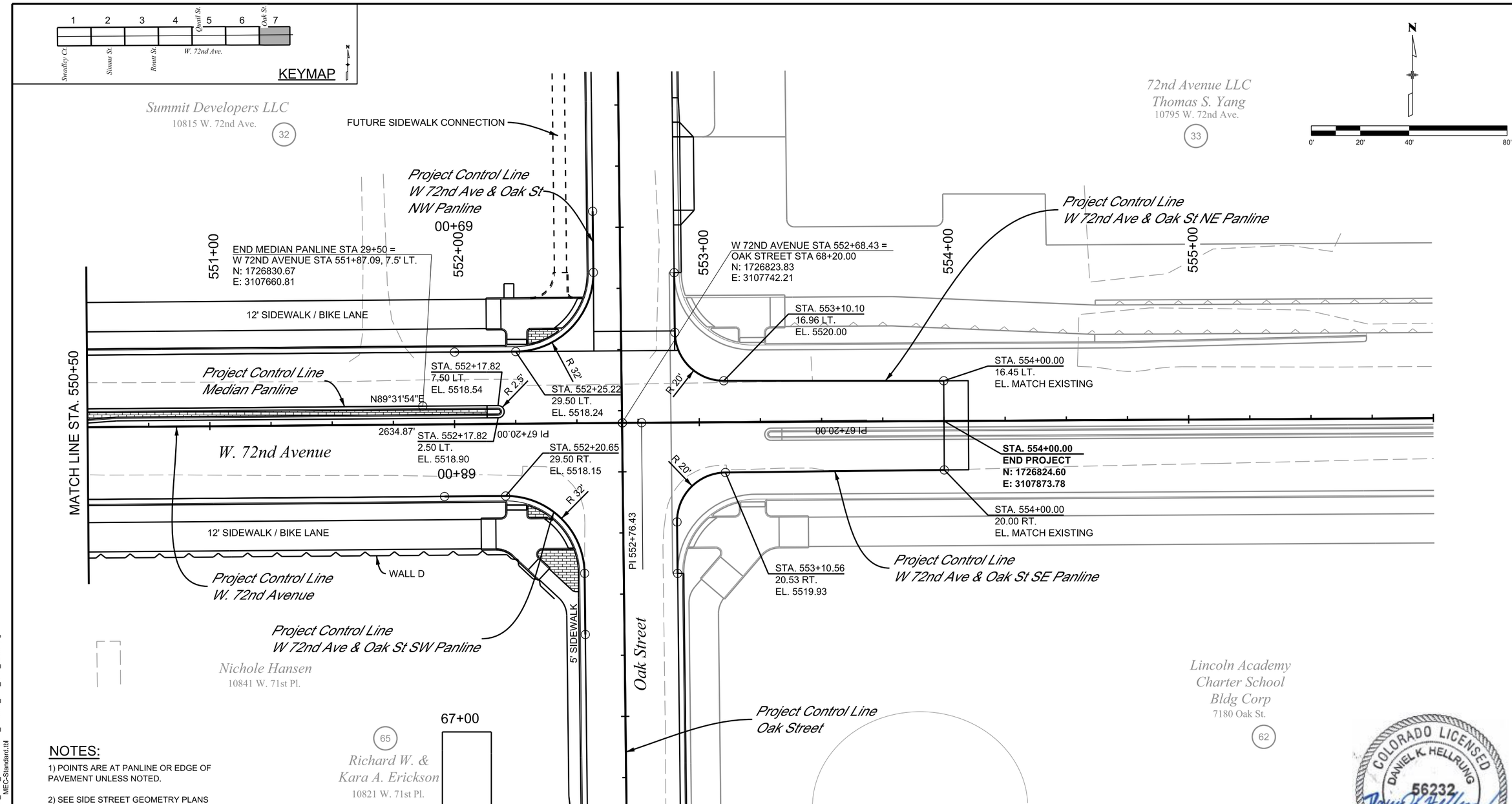

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3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	GEOMETRY PLANS		
Revised:	W. 72ND AVE STA. 550+50 TO STA. 555+50		
Void:	Designer: DKH	Structure Numbers	
	Detailer: SAD		
	Sheet Subset: GEOMETRY	Subset Sheets: 7 of 7	Sheet Number 70

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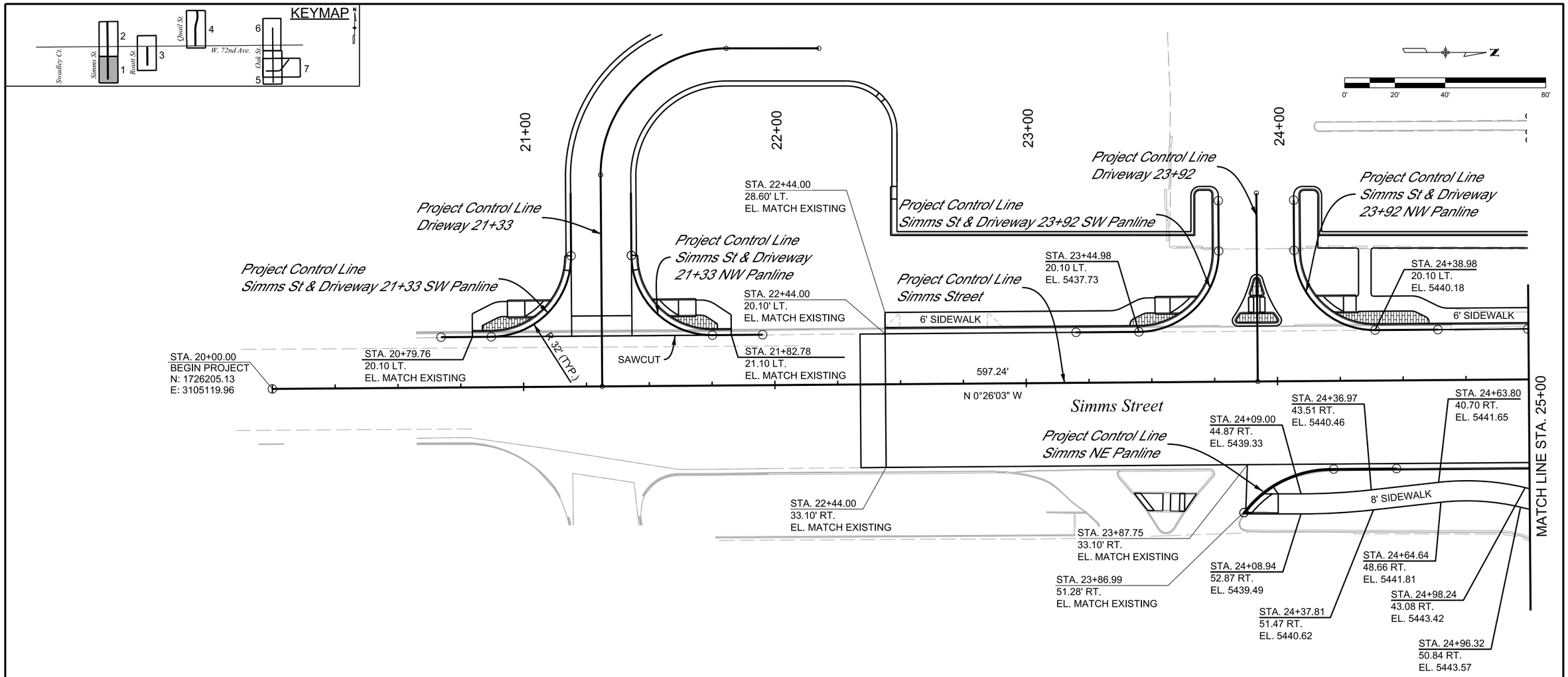

NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE W. 72nd AVENUE GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Unit Information Unit Leader Initials				
MULLER ENGINEERING COMPANY				

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET GEOMETRY PLANS
SIMMS STREET STA. 20+00 TO STA. 25+00

Designer: DKH
Detailer: SAD
Sheet Subset: GEOMETRY
Structure Numbers
Subset Sheets: 1 of 7

Project No./Code

Sheet Number 71

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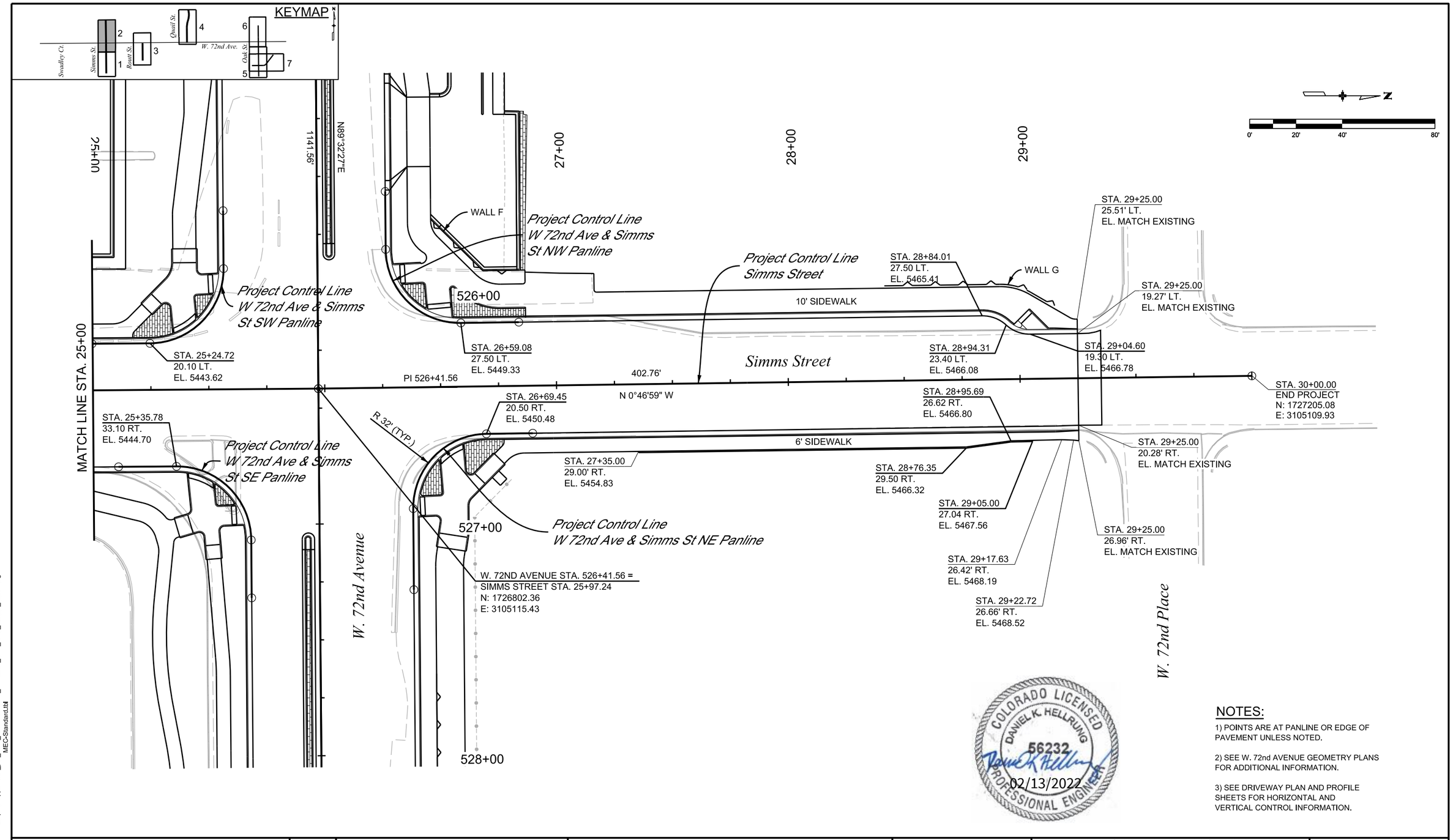

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NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

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3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed

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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET GEOMETRY PLANS

SIMMS STREET STA. 25+00 TO STA. 30+00

Designer: DKH

Detailer: SAD

Sheet Subset: GEOMETRY

Structure Numbers

Subset Sheets: 2 of 7

Project No./Code

Sheet Number 72

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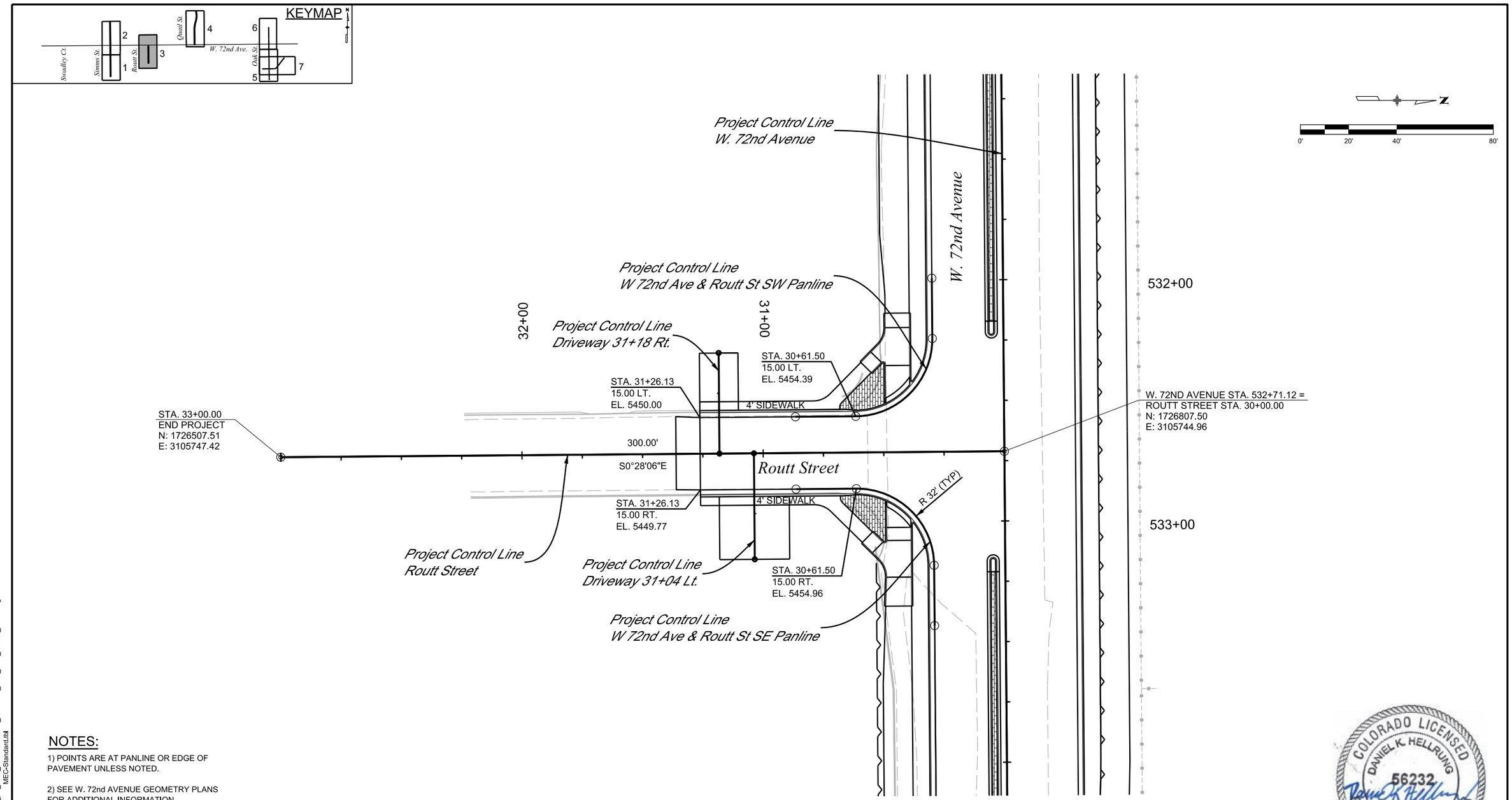

NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE W. 72nd AVENUE GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

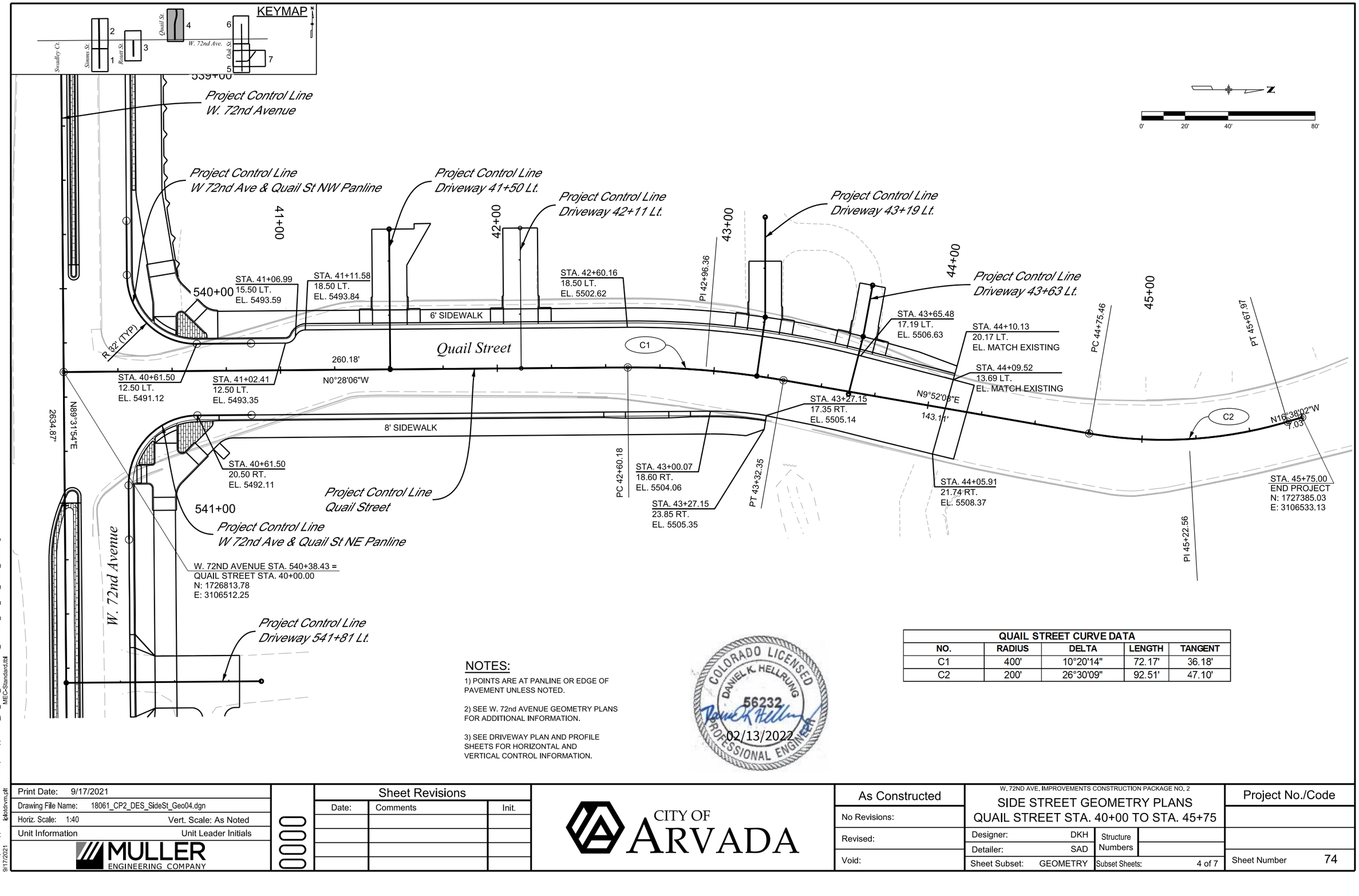
SIDE STREET GEOMETRY PLANS

ROUTT STREET STA. 30+00 TO STA. 33+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GEOMETRY	Subset Sheets:	3 of 7

Project No./Code

Sheet Number 73



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02/13/2022

QUAIL STREET CURVE DATA				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	400'	10°20'14"	72.17'	36.18'
C2	200'	26°30'09"	92.51'	47.10'

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Print Date: 9/17/2021
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Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

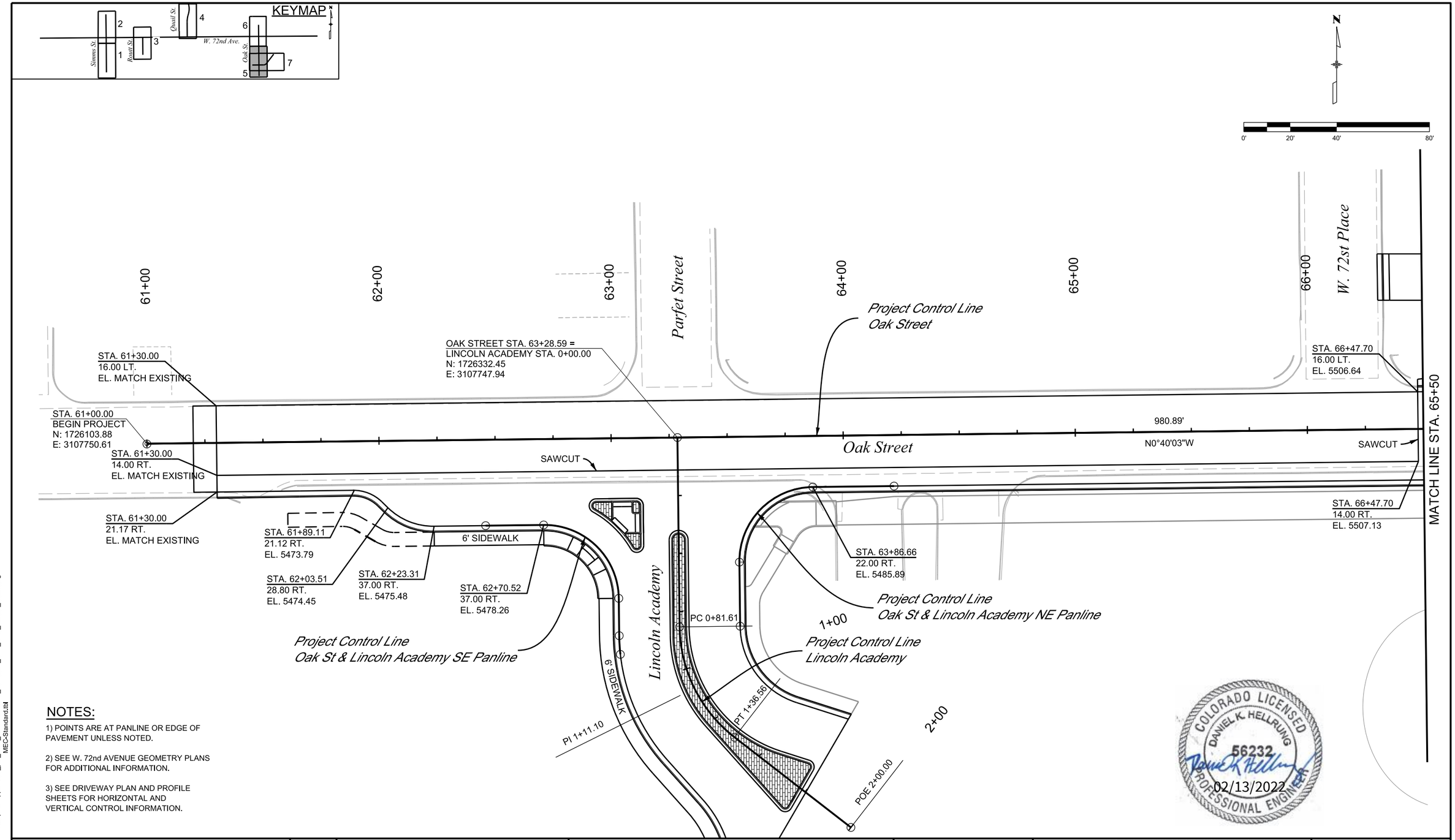
SIDE STREET GEOMETRY PLANS
QUAIL STREET STA. 40+00 TO STA. 45+75

Designer: DKH
Detailer: SAD
Sheet Subset: GEOMETRY
Structure Numbers
Subset Sheets: 4 of 7

Project No./Code

Sheet Number 74

KEYMAP



NOTES:

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3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Horiz. Scale:	1:40	Vert. Scale:	As Noted
Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:	
Revised:	
Void:	

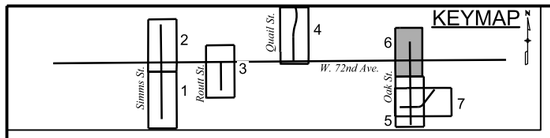
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

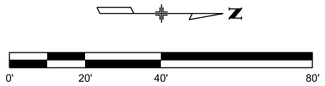
SIDE STREET GEOMETRY PLANS
OAK STREET STA. 61+00 TO STA. 65+50

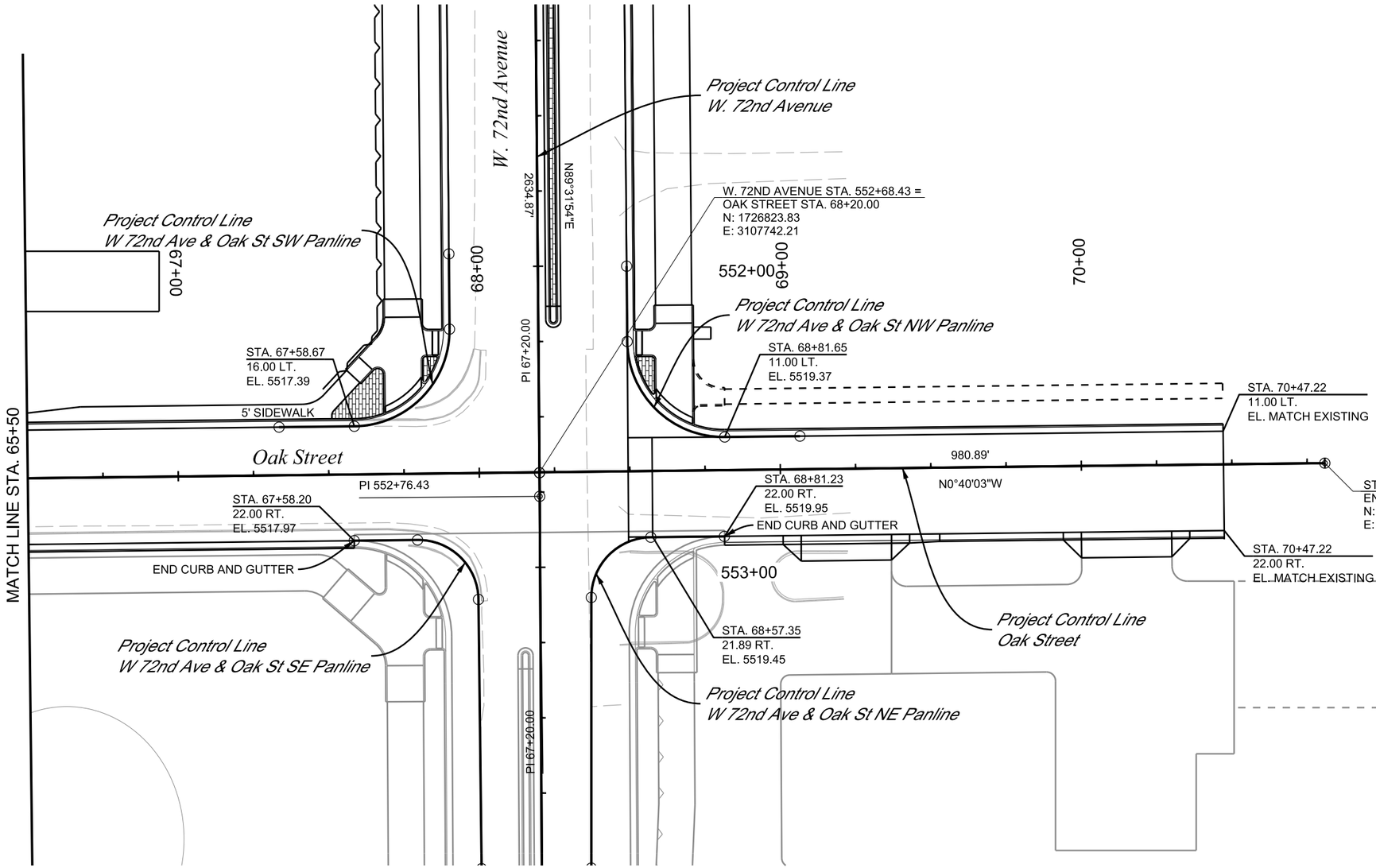
Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GEOMETRY	Subset Sheets:	5 of 7

Project No./Code

Sheet Number 75







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56232
PROFESSIONAL ENGINEER
02/13/2022

NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE W. 72nd AVENUE GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Drawing File Name: 18061_CP2_DES_SideSt_Geo06.dgn		Date:	Comments	Init.	
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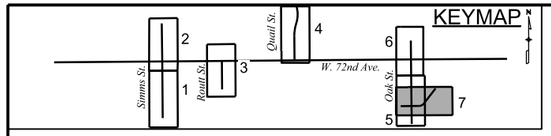
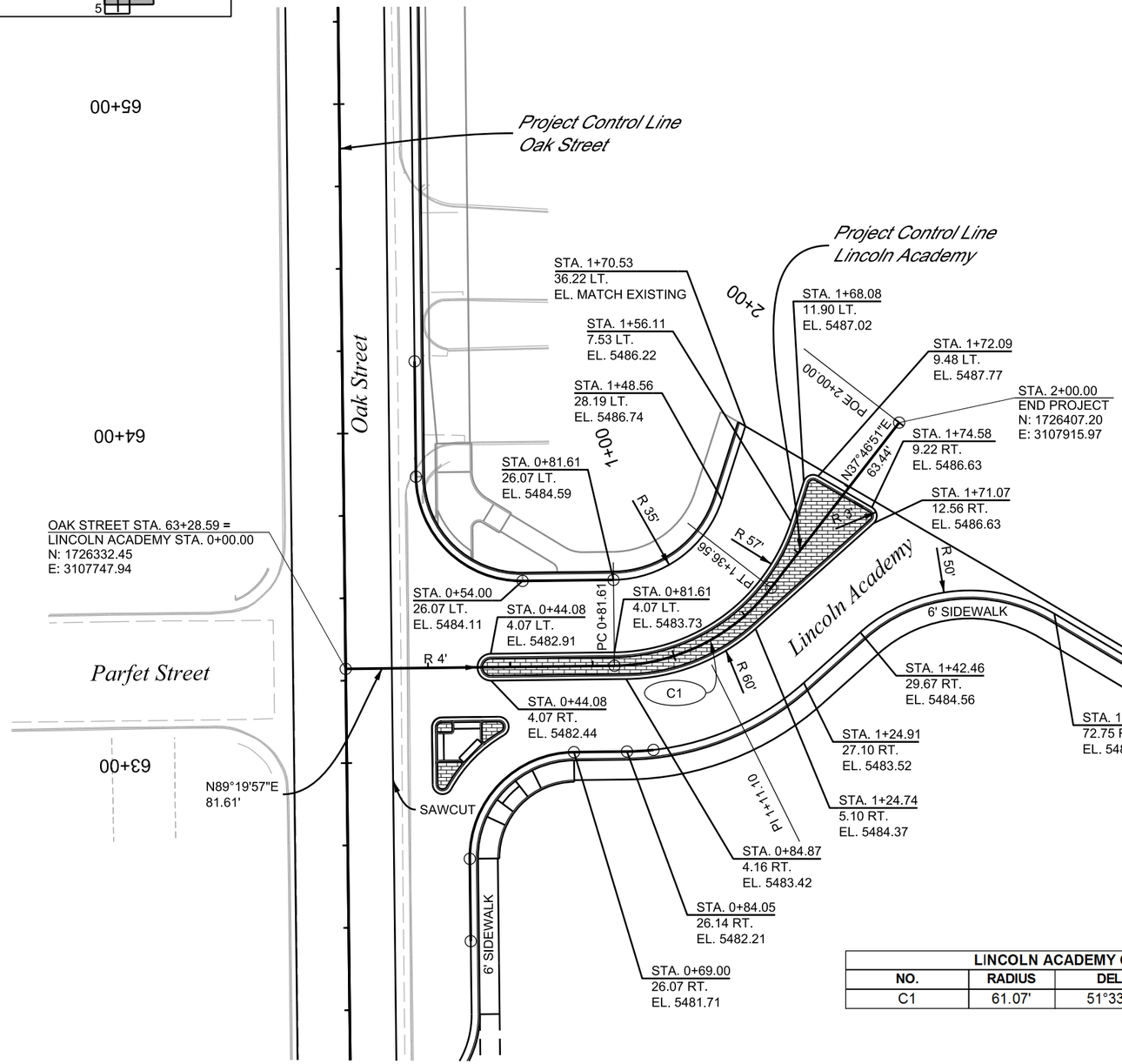
Unit Information	Unit Leader Initials				
MULLER ENGINEERING COMPANY					

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SIDE STREET GEOMETRY PLANS OAK STREET STA. 65+50 TO STA. 70+80			
Revised:	Designer: DKH	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 76
	Sheet Subset: GEOMETRY	Subset Sheets:	6 of 7	





LINCOLN ACADEMY CURVE DATA				
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	61.07'	51°33'05"	54.95'	29.49'

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56232
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02/13/2022

NOTES:

1) POINTS ARE AT PANLINE OR EDGE OF PAVEMENT UNLESS NOTED.

2) SEE W. 72nd AVENUE GEOMETRY PLANS FOR ADDITIONAL INFORMATION.

3) SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR HORIZONTAL AND VERTICAL CONTROL INFORMATION.

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Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_DES_SideSt_Geo07.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
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Sheet Revisions		
Date:	Comments	Init.

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Revised:	
Void:	

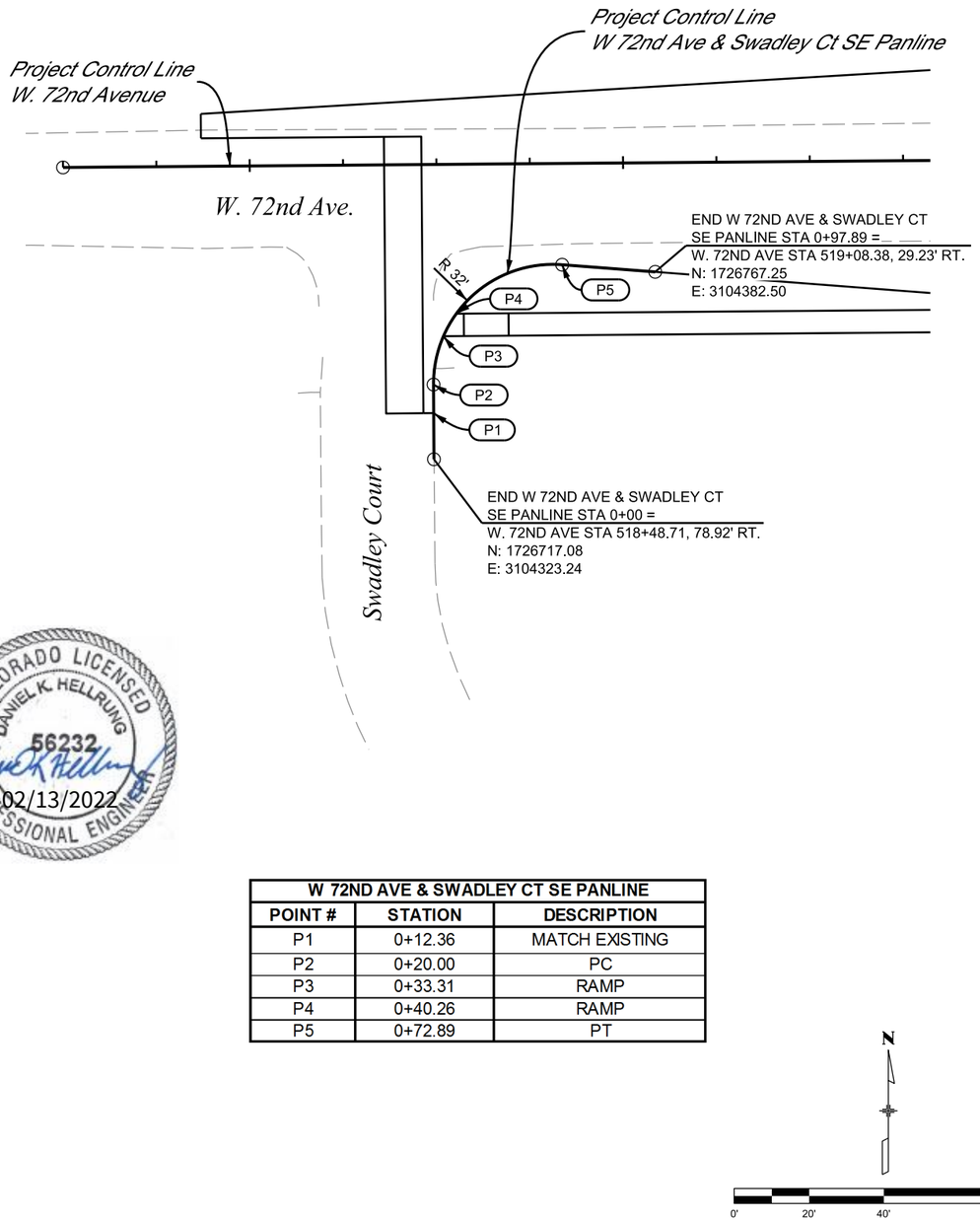
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET GEOMETRY PLANS
LINCOLN ACADEMY STA. 0+00 TO STA. 2+00

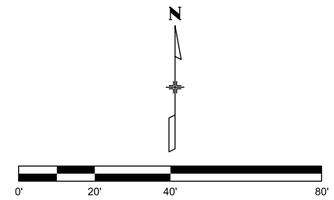
Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GEOMETRY	Subset Sheets:	7 of 7

Project No./Code

Sheet Number 77

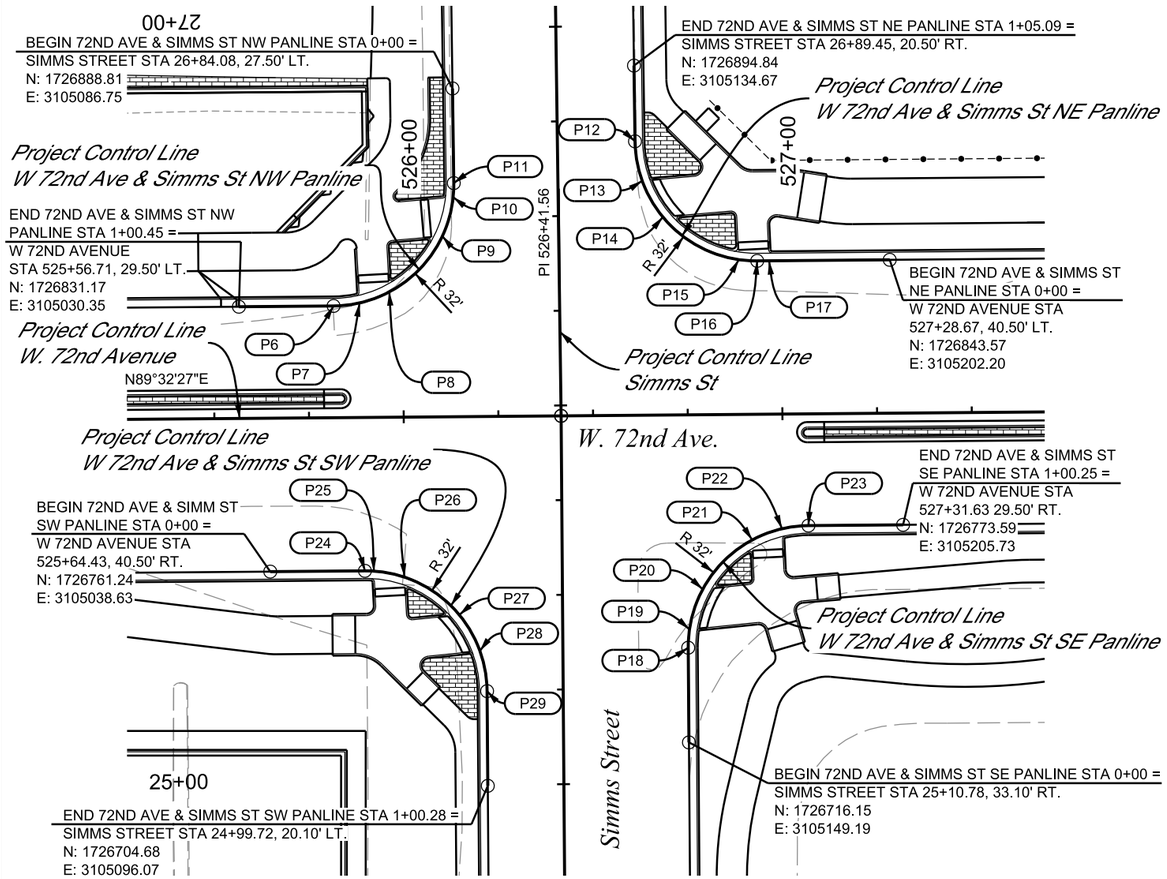


W 72ND AVE & SWADLEY CT SE PANLINE		
POINT #	STATION	DESCRIPTION
P1	0+12.36	MATCH EXISTING
P2	0+20.00	PC
P3	0+33.31	RAMP
P4	0+40.26	RAMP
P5	0+72.89	PT



W 72ND AVE & SIMMS ST NW PANLINE		
POINT #	STATION	DESCRIPTION
P6	0+25.00	PC
P7	0+28.72	RAMP
P8	0+39.44	RAMP
P9	0+60.12	RAMP
P10	0+68.52	RAMP
P11	0+75.45	PT

W 72ND AVE & SIMMS ST NE PANLINE		
POINT #	STATION	DESCRIPTION
P12	0+85.09	PT
P13	0+74.46	RAMP
P14	0+63.39	RAMP
P15	0+39.87	RAMP
P16	0+35.00	PC
P17	0+31.83	RAMP



W 72ND AVE & SIMMS ST SW PANLINE		
POINT #	STATION	DESCRIPTION
P24	0+25.00	PT
P25	0+27.36	RAMP
P26	0+35.63	RAMP
P27	0+53.44	RAMP
P28	0+64.44	RAMP
P29	0+75.28	PC

W 72ND AVE & SIMMS ST SE PANLINE		
POINT #	STATION	DESCRIPTION
P18	0+25.00	PC
P19	0+29.83	RAMP
P20	0+41.05	RAMP
P21	0+59.76	RAMP
P22	0+68.20	RAMP
P23	0+75.25	PT

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Drawing File Name: 18061_CP2_DES_GeoPanline01.dgn
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Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

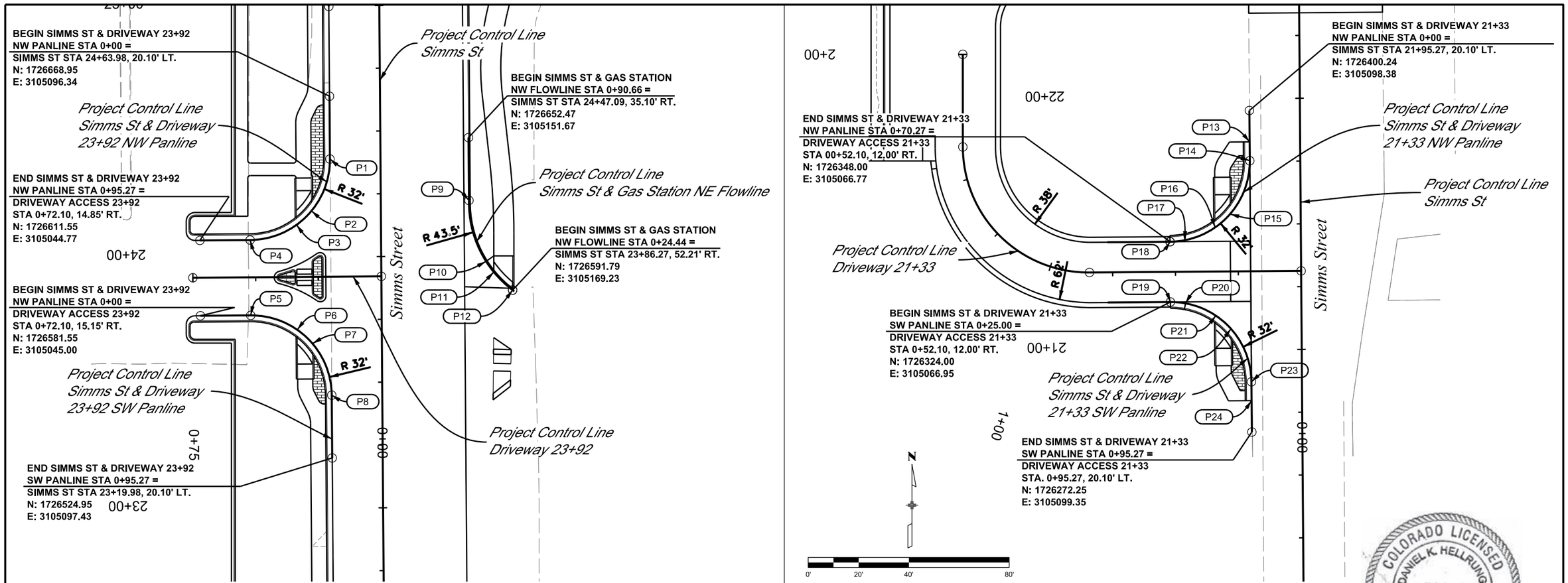
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE GEOMETRY PLANS

Designer: RML
Detailer: SAD
Sheet Subset: PANLINE
Structure Numbers
Subset Sheets: 1 of 5

Project No./Code

Sheet Number 78



SIMMS ST & DRIVEWAY 23+92 NW PANLINE		
POINT #	STATION	DESCRIPTION
P1	0+25.00	PC
P2	0+47.36	RAMP
P3	0+55.54	RAMP
P4	0+75.27	PT

SIMMS ST & DRIVEWAY 23+92 SW PANLINE		
P5	0+20.00	PC
P6	0+39.73	RAMP
P7	0+47.90	RAMP
P8	0+70.27	PT

SIMMS ST & GAS STATION NE FLOWLINE		
P9	0+65.66	PT
P10	0+40.10	RAMP
P11	0+34.86	RAMP
P12	0+24.44	PC/RAMP

SIMMS ST & DRIVEWAY 21+33 NW PANLINE		
P13	0+12.49	EOP
P14	0+20.00	PC
P15	0+43.13	RAMP
P16	0+51.15	RAMP
P17	0+64.23	START OF TRANSITION
P18	0+70.37	PT

SIMMS ST & DRIVEWAY 21+33 SW PANLINE		
P19	0+25.00	PC
P20	0+31.04	START OF TRANSITION
P21	0+44.12	RAMP
P22	0+52.14	RAMP
P23	0+75.27	PT
P24	0+82.78	EOP

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Print Date: 9/17/2021
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Date:	Comments	Init.

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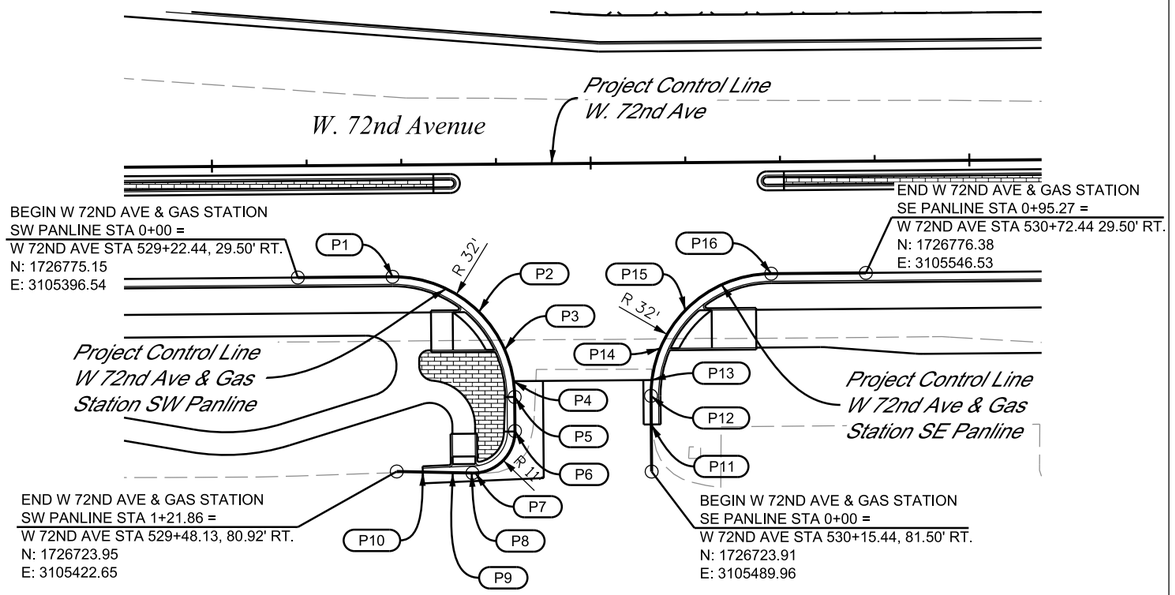
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

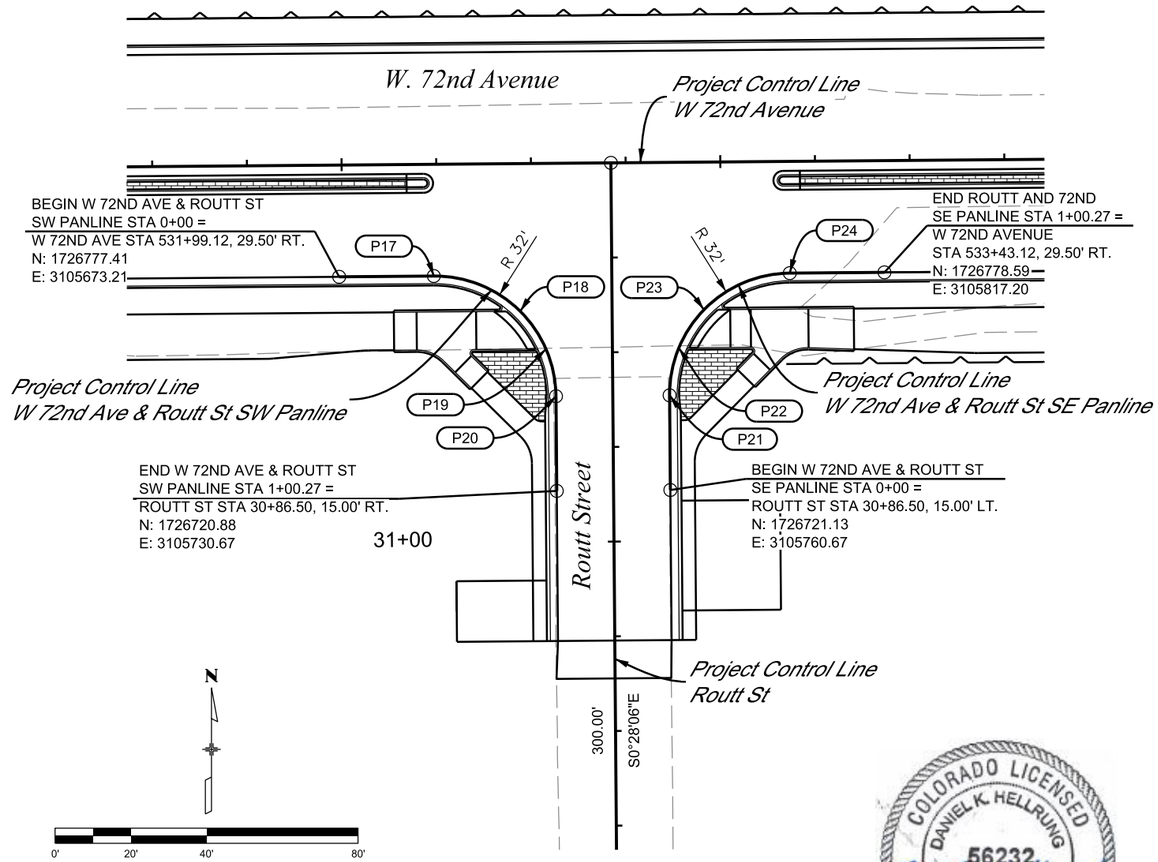
PANLINE GEOMETRY PLANS

Designer: RML
Detailer: SAD
Sheet Subset: PANLINE
Structure Numbers
Subset Sheets: 2 of 5

Project No./Code

Sheet Number 79





W 72ND AVE & GAS STATION SW PANLINE		
POINT #	STATION	DESCRIPTION
P1	0+25.00	PC
P2	0+50.31	RAMP
P3	0+62.42	RAMP
P4	0+71.08	EOP
P5	0+75.27	PT
P6	0+84.26	PC
P7	1+01.06	PT
P8	1+02.06	RAMP
P9	1+07.06	RAMP
P10	1+14.96	EOP

W 72ND AVE & GAS STATION SE PANLINE		
POINT #	STATION	DESCRIPTION
P11	0+12.45	EOP
P12	0+20.00	PC
P13	0+24.18	EOP
P14	0+32.84	RAMP
P15	0+44.95	RAMP
P16	0+70.27	PT

W 72ND AVE & ROUTT ST SW PANLINES		
POINT #	STATION	DESCRIPTION
P17	0+25.00	PC
P18	0+50.31	RAMP
P19	0+62.42	RAMP
P20	0+75.27	PT

W 72ND AVE & ROUTT ST SE PANLINES		
POINT #	STATION	DESCRIPTION
P21	0+25.00	PC
P22	0+37.84	RAMP
P23	0+49.95	RAMP
P24	0+75.27	PT

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Print Date: 9/17/2021
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Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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Revised:
Void:

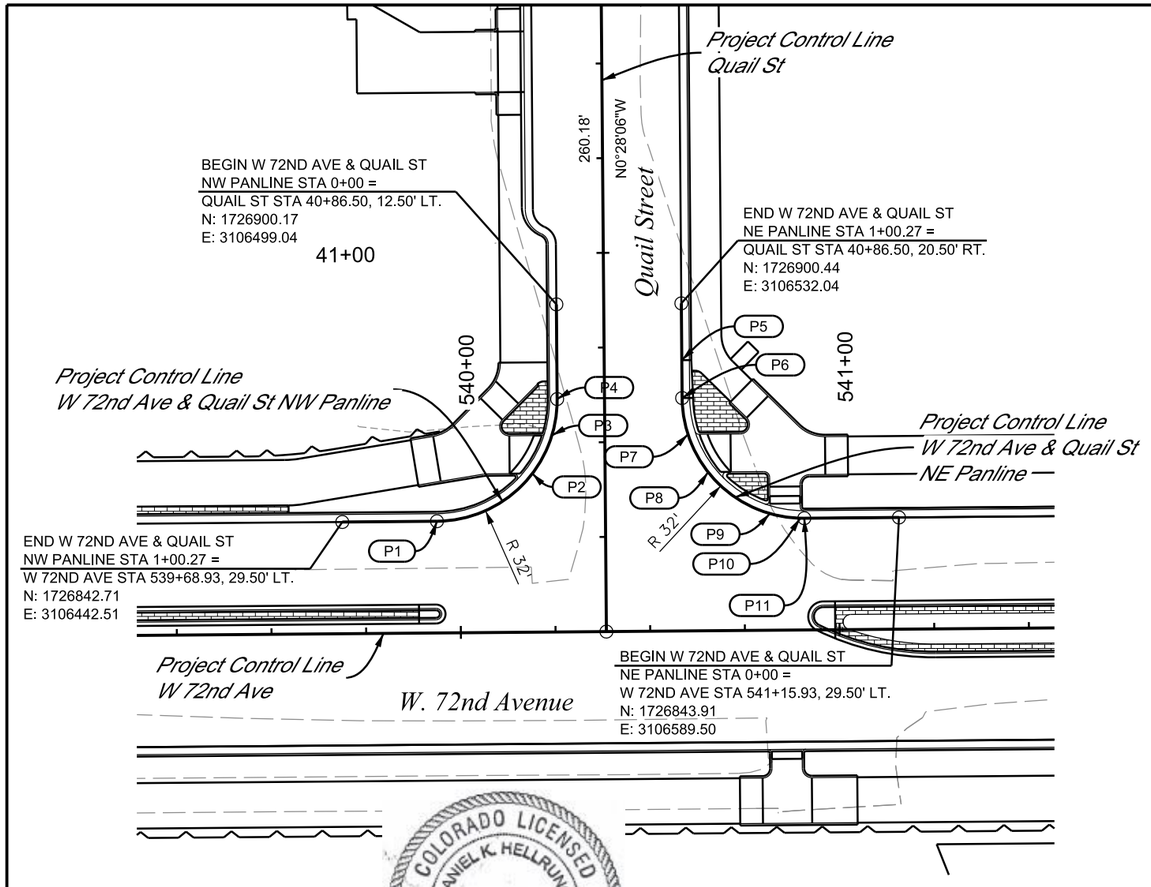
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE GEOMETRY PLANS

Designer: RML
Detailer: SAD
Sheet Subset: PANLINE
Structure Numbers
Subset Sheets: 3 of 5

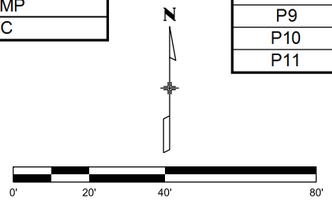
Project No./Code

Sheet Number 80



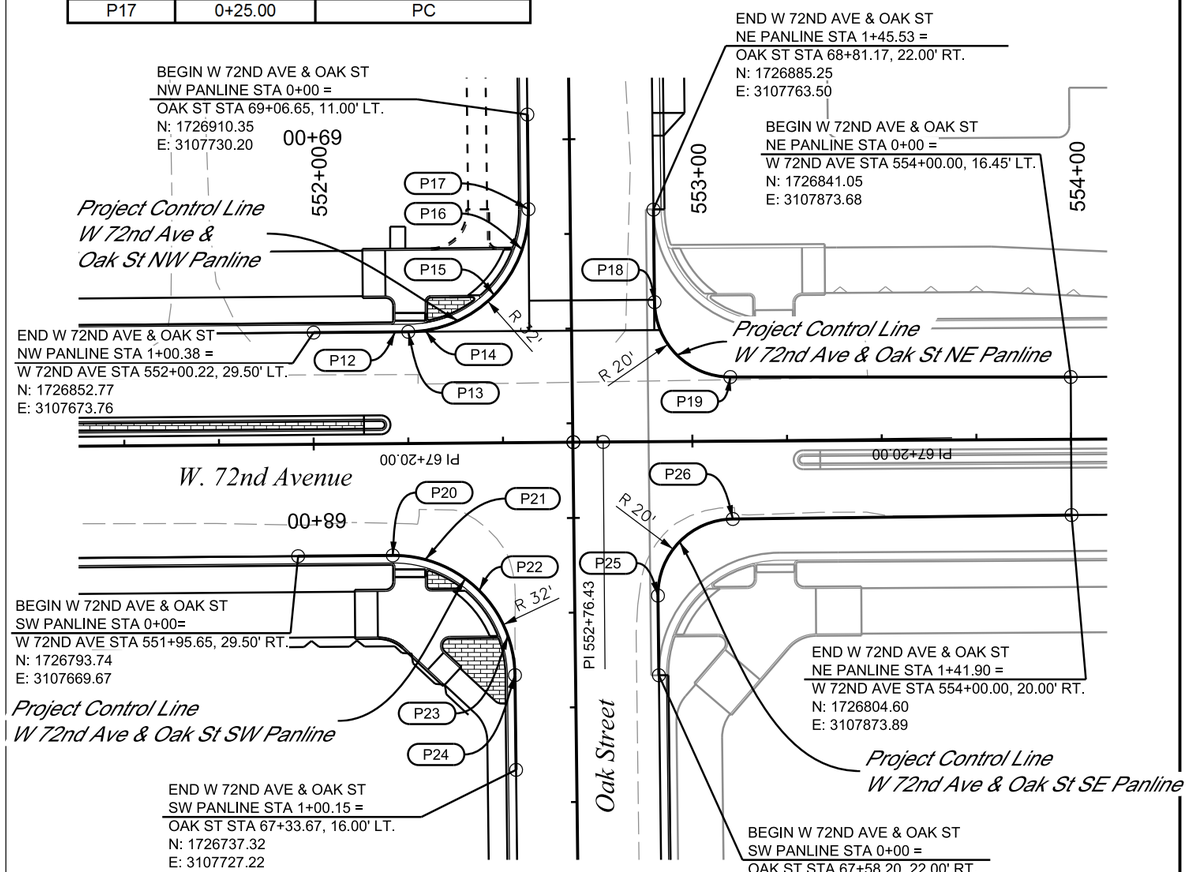
W 72ND AVE & QUAIL ST NW PANLINE		
POINT #	STATION	DESCRIPTION
P1	0+75.27	PT
P2	0+46.09	RAMP
P3	0+34.75	RAMP
P4	0+25.00	PC

W 72ND AVE & QUAIL ST NE PANLINE		
POINT #	STATION	DESCRIPTION
P5	0+85.27	END OF TRANSITION
P6	0+75.27	PT
P7	0+65.52	RAMP
P8	0+54.17	RAMP
P9	0+34.19	RAMP
P10	0+26.07	RAMP
P11	0+25.00	PC



W 72ND AVE & OAK ST NW PANLINE		
POINT #	STATION	DESCRIPTION
P12	0+78.88	RAMP
P13	0+75.38	PT
P14	0+70.87	RAMP
P15	0+50.07	RAMP
P16	0+35.81	RAMP
P17	0+25.00	PC

W 72ND AVE & OAK ST NE PANLINE		
POINT #	STATION	DESCRIPTION
P18	1+21.08	PC
P19	0+89.90	PT



W 72ND AVE & OAK ST SW PANLINE		
POINT #	STATION	DESCRIPTION
P20	0+25.00	PC/RAMP
P21	0+33.68	RAMP
P22	0+50.31	RAMP
P23	0+64.57	RAMP
P24	0+75.15	PT

W 72ND AVE & OAK ST SW PANLINE		
POINT #	STATION	DESCRIPTION
P25	0+21.04	PC
P26	0+52.46	PT

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Unit Information		Unit Leader Initials	

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Sheet Revisions		
Date:	Comments	Init.

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

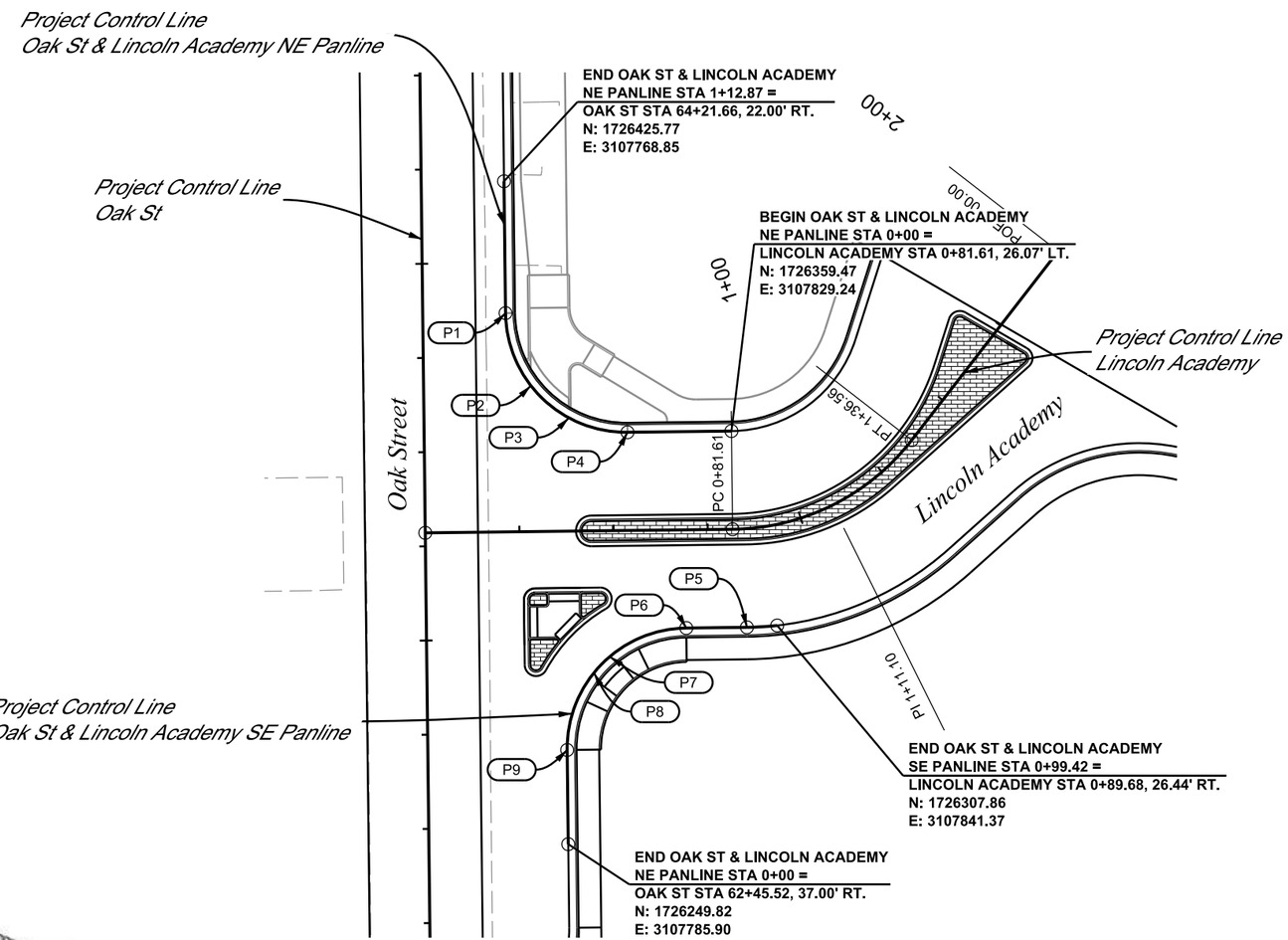
PANLINE GEOMETRY PLANS

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PANLINE	Subset Sheets:	4 of 5

Project No./Code	
Sheet Number	81

OAK ST & LINCOLN ACADEMY NE PANLINE		
POINT #	STATION	DESCRIPTION
P1	0+77.87	PT
P2	0+57.11	RAMP
P3	0+43.79	RAMP
P4	0+27.61	PC

OAK ST & LINCOLN ACADEMY SE PANLINE		
POINT #	STATION	DESCRIPTION
P5	0+91.36	PC
P6	0+75.27	PT
P7	0+53.14	RAMP
P8	0+47.13	RAMP
P9	0+25.00	PC



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02/13/2022

Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_DES_GeoPanline05.dgn	Date:	Comments	Init.	No Revisions:	PANLINE GEOMETRY PLANS
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	Designer: RML / Detailer: SAD / Sheet Subset: PANLINE
Unit Information Unit Leader Initials				Void:	Structure Numbers / Subset Sheets: 5 of 5
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code / Sheet Number 82

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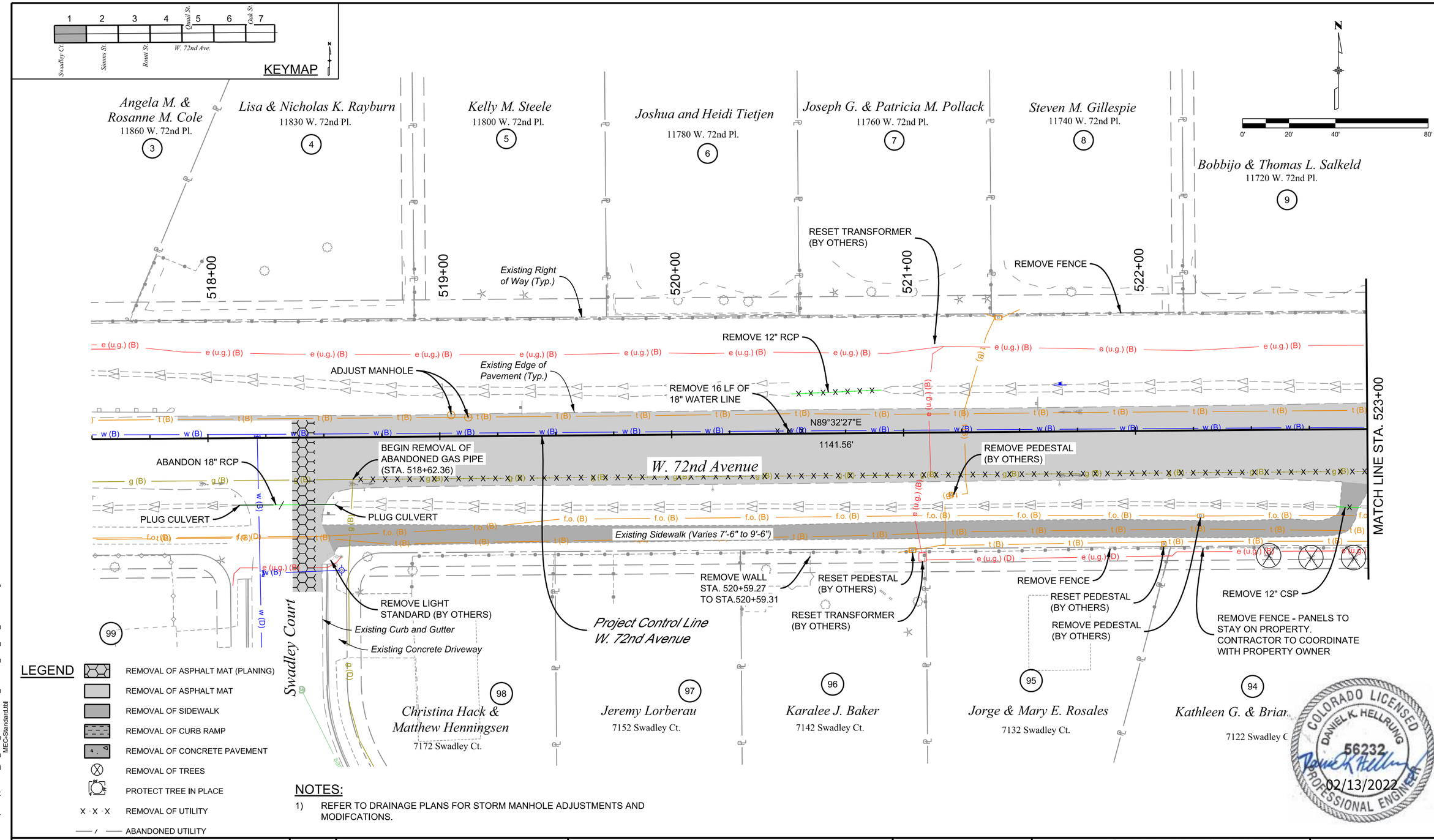

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- REMOVAL OF UTILITY
- ABANDONED UTILITY

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFCATIONS.

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Drawing File Name:	18061_CP2_DES_Removal01.dgn		
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Unit Information		Unit Leader Initials	

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Sheet Revisions		
Date:	Comments	Init.

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No Revisions:

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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

REMOVAL PLAN W. 72ND AVENUE
STA. 517+50.00 TO STA. 523+00.00

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	REMOVAL	Subset Sheets:	1 of 7

Project No./Code

Sheet Number 83

KEYMAP

1 2 3 4 5 6 7

Swadley Ct. | Simms St. | Routt St. | Quail St. | Oak St. | W. 72nd Ave.

COLORADO LICENSED PROFESSIONAL ENGINEER
DANIEL K. HELLRUNG
56232
02/13/2022

SEE SIDE STREET REMOVAL PLANS FOR ADDITIONAL INFORMATION

Enterprise Grange 25
7203 Simms St.

Gretchen S. Palmer
11680 W. 72nd Pl.

10

11

15 Hal A. & Dianne L. Pierson
11560 W. 72nd Pl.

First United Church of Arvada
7195 Simms St.

93

Project Control Line
W. 72nd Avenue

Project Control Line
Simms St.

Simms Street

W. 72nd Avenue

524+00

525+00

526+00

527+00

528+00

25+00

MATCH LINE STA. 523+00

MATCH LINE STA. 528+50

N89°32'27"E

1141.5(

REMOVE FENCE
REMOVE CHAIN-LINK FENCE
MODIFY MANHOLE
REMOVE PLANTER
REMOVE CURB AND GUTTER
REMOVE WALL STA. 26+44.52 TO STA. 26+87.04
REMOVE LIGHT STANDARD (BY OTHERS)
REMOVE WALL STA. 525+81.66 TO STA. 27+38.08
REMOVE CURB AND GUTTER
PROTECT PEDESTAL
REMOVE INLET AND 18" RCP
REMOVE LIGHT STANDARD (BY OTHERS)
RESET PEDESTAL (BY OTHERS)
REMOVE INLET
REMOVE 30" RCP
RELOCATE PEDESTAL (BY OTHERS)
PLUG PIPE
30" RCP TO REMAIN
INSPECT 67 LF 30" RCP. REMOVE AND RELAY AT ENGINEER'S DIRECTION.
REMOVE 26 LF OF 24" RCP
REMOVE 267 LF OF GAS LINE
END REMOVAL OF ABANDONED GAS PIPE (STA. 523+58.74)
REMOVE 12" CSP
REMOVE LIGHT STANDARD (BY OTHERS)
REMOVE MONUMENT (TYPE 3A)
ADJUST VALVE
ABANDON VALVE
ADJUST VALVE
REMOVE WHEEL STOP (TYP.)
REMOVE CONCRETE MEDIAN COVER MATERIAL
MODIFY MANHOLE
REMOVE LIGHT STANDARD (BY OTHERS)
REMOVE CURB AND GUTTER
REMOVE 24" CSP
REMOVE CURB AND GUTTER
REMOVE WHEEL STOP (TYP.)
REMOVE CURB AND GUTTER
REMOVE CURB AND GUTTER
RESET SIGN (SPECIAL)
RESET PEDESTAL (BY OTHERS)
REMOVE LIGHT STANDARDS (BY OTHERS)
REMOVE GATE
REMOVE SHED
REMOVE FENCE - PANELS TO STAY ON PROPERTY. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER
RESET PEDESTAL (BY OTHERS)

Existing Right of Way (Typ.)
Existing Edge of Pavement (Typ.)
Existing Parking Lot Entrance
Existing Gravel Driveway
Existing 4' Sidewalk
Existing 6' Sidewalk
Existing 8' Sidewalk
Existing 5'-6' Sidewalk

SEE SIDE STREET REMOVAL PLANS FOR ADDITIONAL INFORMATION

0' 20' 40' 80'

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- X X X REMOVAL OF UTILITY
- ABANDONED UTILITY

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) SEE TRAFFIC SIGNAL PLANS FOR REMOVAL OF TRAFFIC SIGNAL ITEMS ON W. 72ND AVE AND SIMMS ST.
3) SEE FIRST UNITED CHURCH OF ARVADA PARKING LOT PLANS FOR THE LOCATION OF TWO ADDITIONAL TREE REMOVALS.

SEE SIDE STREET REMOVAL PLANS FOR ADDITIONAL INFORMATION

Print Date:	12/10/2021
Drawing File Name:	18061_CP2_DES_Removal02.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

REMOVAL PLAN W. 72ND AVENUE
STA. 523+00.00 TO STA. 528+50.00

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	REMOVAL	Subset Sheets:	2 of 7

Project No./Code	
Sheet Number	84

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12/10/2021 tplotdrvm.plt
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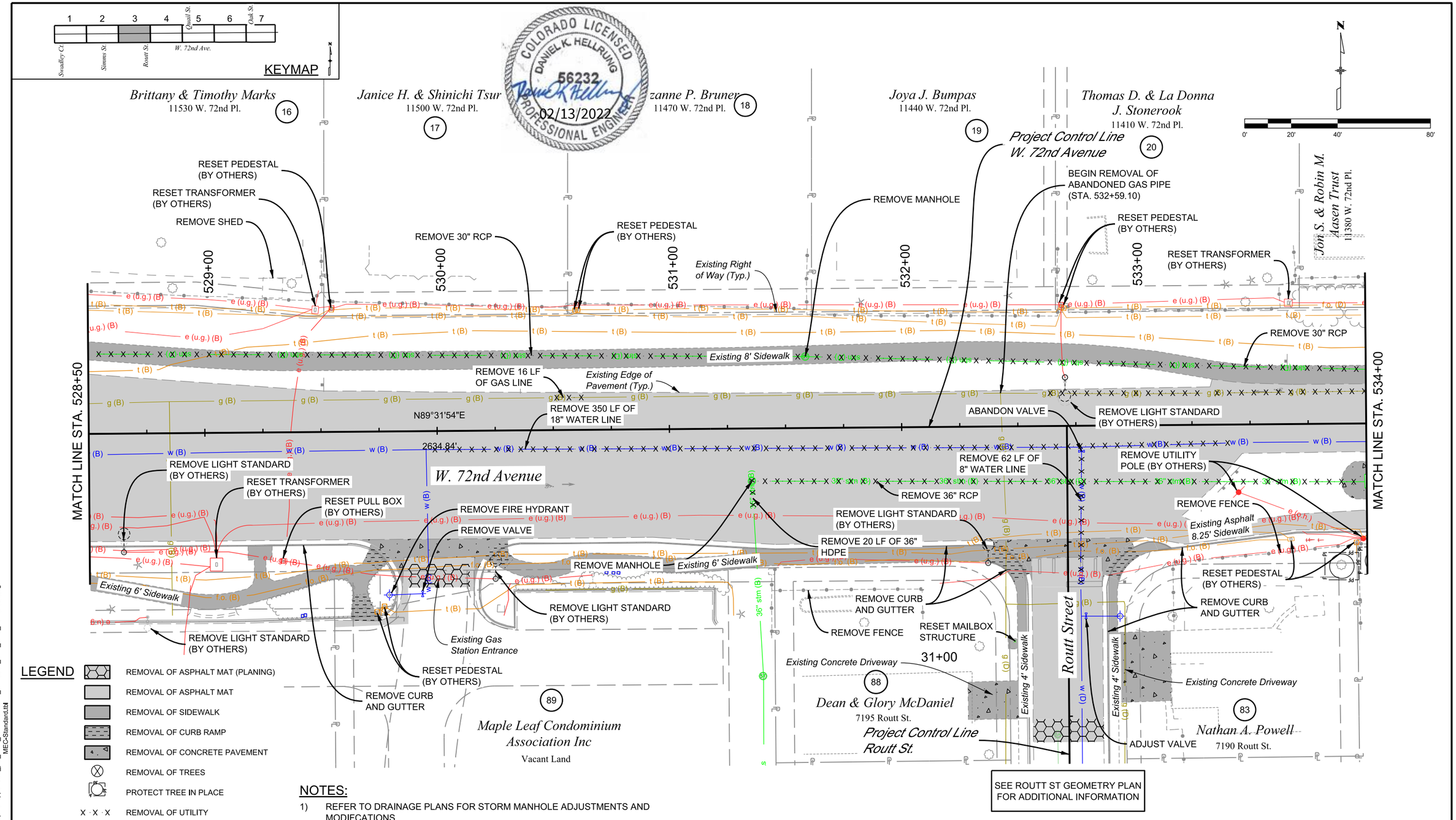

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- REMOVAL OF UTILITY
- ABANDONED UTILITY

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFCATIONS.

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_DES_Removal03.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

REMOVAL PLAN W. 72ND AVENUE
STA. 528+50.00 TO STA. 534+00.00

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	REMOVAL	Subset Sheets:	3 of 7

Project No./Code	
Sheet Number	85

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MEC-Standard.dt4
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KEYMAP

1 2 3 4 5 6 7 — Swadley Ct. — Simms St. — Routt St. — W. 72nd Ave. — Quail St. — Oak St.

COLORADO LICENSED — DANIEL K. HELLRUNG — 56232 — PROFESSIONAL ENGINEER — 02/13/2022

Jon S. & Robin M. Aasen Trust
11380 W. 72nd Pl.
21

Byron Blaine & Jill Suzanne Flateland Living Trust
11350 W. 72nd Pl.
22

7212 Queen LLC
Jan M. Christensen
7212 Queen St.
23

Thomas L. & Hazel V. Hartbarger
7201 Quail St.
24

0' 20' 40' 80'

Project Control Line W. 72nd Avenue

W. 72nd Avenue

MATCH LINE STA. 534+00

MATCH LINE STA. 539+50

535+00 536+00 537+00 538+00 539+00

RESET VINYL FENCE
REMOVE MANHOLE
REMOVE WALL STA. 534+76.02 TO STA. 535+81.35
RESET PEDESTAL (BY OTHERS)
REMOVE 30" RCP
Existing Edge of Pavement (Typ.)
REMOVE 30" RCP
REMOVE UTILITY POLE (BY OTHERS)
REMOVE MANHOLE
RESET PEDESTAL (BY OTHERS)
Existing 8' Sidewalk
REMOVE CURB AND GUTTER
REMOVE 30" RCP
Existing Right of Way (Typ.)
REMOVE UTILITY POLE (BY OTHERS)
REMOVE MANHOLE
REMOVE 30" RCP
N89°31'54"E
2634.87'
REMOVE CURB AND GUTTER
REMOVE GUARDRAIL (TYPE 3)
REMOVE WALL STA. 534+10.89 TO STA. 534+98.52
RESET PEDESTAL (BY OTHERS)
Existing Asphalt 8.25' Sidewalk
REMOVE WALL STA. 537+64.65 TO STA. 538+32.40
REMOVE INLET
REMOVE CURB AND GUTTER
REMOVE FENCE - PANELS TO STAY ON PROPERTY. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER
REMOVE RIPRAP (SEE NOTE)
REMOVE FENCE
RESET PEDESTAL (BY OTHERS)
REMOVE END ANCHORAGE
RESET PEDESTAL (BY OTHERS)
REMOVE UTILITY POLE (BY OTHERS)
REMOVE END SECTION
REMOVE RIPRAP (SEE NOTE)
RESET TRANSFORMER (BY OTHERS)
REMOVE FENCE
RESET PEDESTAL (BY OTHERS)
REMOVE UTILITY POLE (BY OTHERS)
REMOVE UTILITY POLE (BY OTHERS)
REMOVE 24" CSP
Existing Concrete Stairs

81 *Jane K. Truesdell & Jane K. Truesdell Personal Rep* 11361 W. 71st Pl.
80 *Lori R. & Richard Kubik* 11351 W. 71st Pl.
79 *Joseph M. & Irene R. Buersmeyer* 11341 W. 71st. Pl.
78 *Lawrence E. & Carol A. Sourbeer* 11331 W. 71st Pl.
77 *James R. & Linda J. Hayden* 11321 W. 71st Pl.

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- REMOVAL OF UTILITY
- ABANDONED UTILITY

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) RIPRAP CHECK DAMS SHALL BE LEFT IN PLACE AS NEEDED FOR TEMPORARY EROSION CONTROL.

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_DES_Removal04.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
REMOVAL PLAN W. 72ND AVENUE
STA. 534+00.00 TO STA. 539+50.00

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	REMOVAL	Subset Sheets:	4 of 7

Project No./Code

Sheet Number 86

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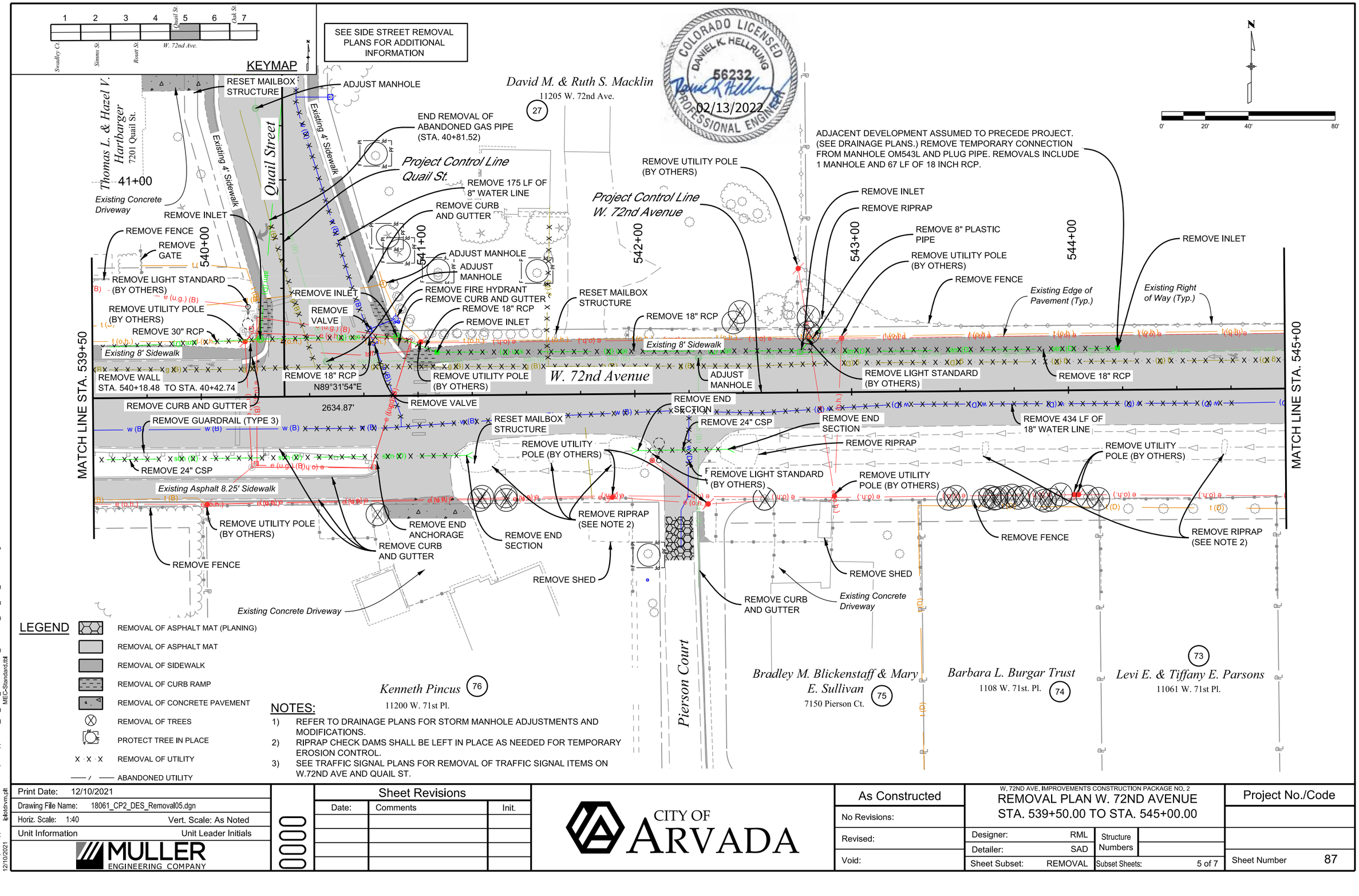

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- REMOVAL OF UTILITY
- ABANDONED UTILITY

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) RIPRAP CHECK DAMS SHALL BE LEFT IN PLACE AS NEEDED FOR TEMPORARY EROSION CONTROL.
3) SEE TRAFFIC SIGNAL PLANS FOR REMOVAL OF TRAFFIC SIGNAL ITEMS ON W.72ND AVE AND QUAIL ST.

Print Date: 12/10/2021
Drawing File Name: 18061_CP2_DES_Removal05.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
REMOVAL PLAN W. 72ND AVENUE
STA. 539+50.00 TO STA. 545+00.00

Designer: RML
Detailer: SAD
Sheet Subset: REMOVAL
Structure Numbers:
Subset Sheets: 5 of 7

Project No./Code

Sheet Number 87

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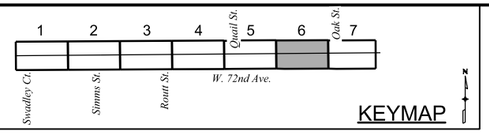

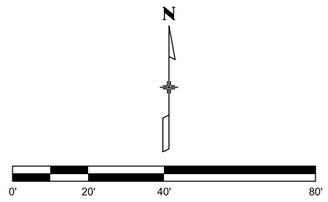

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- X X X REMOVAL OF UTILITY
- ABANDONED UTILITY

Sunrise Village LLC
28
11301 W. 72nd Ave.

30

Existing Gravel Driveway

Existing Concrete Driveway

Gary C. & Shirley J. Kenfield
11027 W. 72nd Ave.
29

Rachel A. Malis & James T. Hill
11021 W. 72nd Ave.
31

Existing Concrete Driveway

546+00
547+00
548+00
549+00
550+00

REMOVE CURB

RESET MAILBOX STRUCTURE

RESET MAILBOX STRUCTURE

RESET MAILBOX STRUCTURE

REMOVE FENCE

REMOVE FENCE

REMOVE UTILITY POLE (BY OTHERS)

REMOVE UTILITY POLE (BY OTHERS)

REMOVE CURB AND GUTTER

Existing Edge of Pavement (Typ.)

Existing Right of Way (Typ.)

Existing Concrete Stairs

Existing 8' Sidewalk

MATCH LINE STA. 545+00

W. 72nd Avenue

N89°31'54"E

2634.87'

MATCH LINE STA. 550+50

ADJUST MANHOLE

REMOVE VALVE

REMOVE VALVE

REMOVE FIRE HYDRANT

Project Control Line W. 72nd Avenue

REMOVE UTILITY POLE (BY OTHERS)

REMOVE FENCE

REMOVE RIPRAP (SEE NOTE)

REMOVE UTILITY POLE (BY OTHERS)

REMOVE UTILITY POLE (BY OTHERS)

REMOVE UTILITY POLE (BY OTHERS)

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) RIPRAP CHECK DAMS SHALL BE LEFT IN PLACE AS NEEDED FOR TEMPORARY EROSION CONTROL.

Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_DES_Removal06.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

REMOVAL PLAN W. 72ND AVENUE
STA. 545+00.00 TO STA. 550+50.00

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	REMOVAL	Subset Sheets:	6 of 7

Project No./Code	
Sheet Number	88

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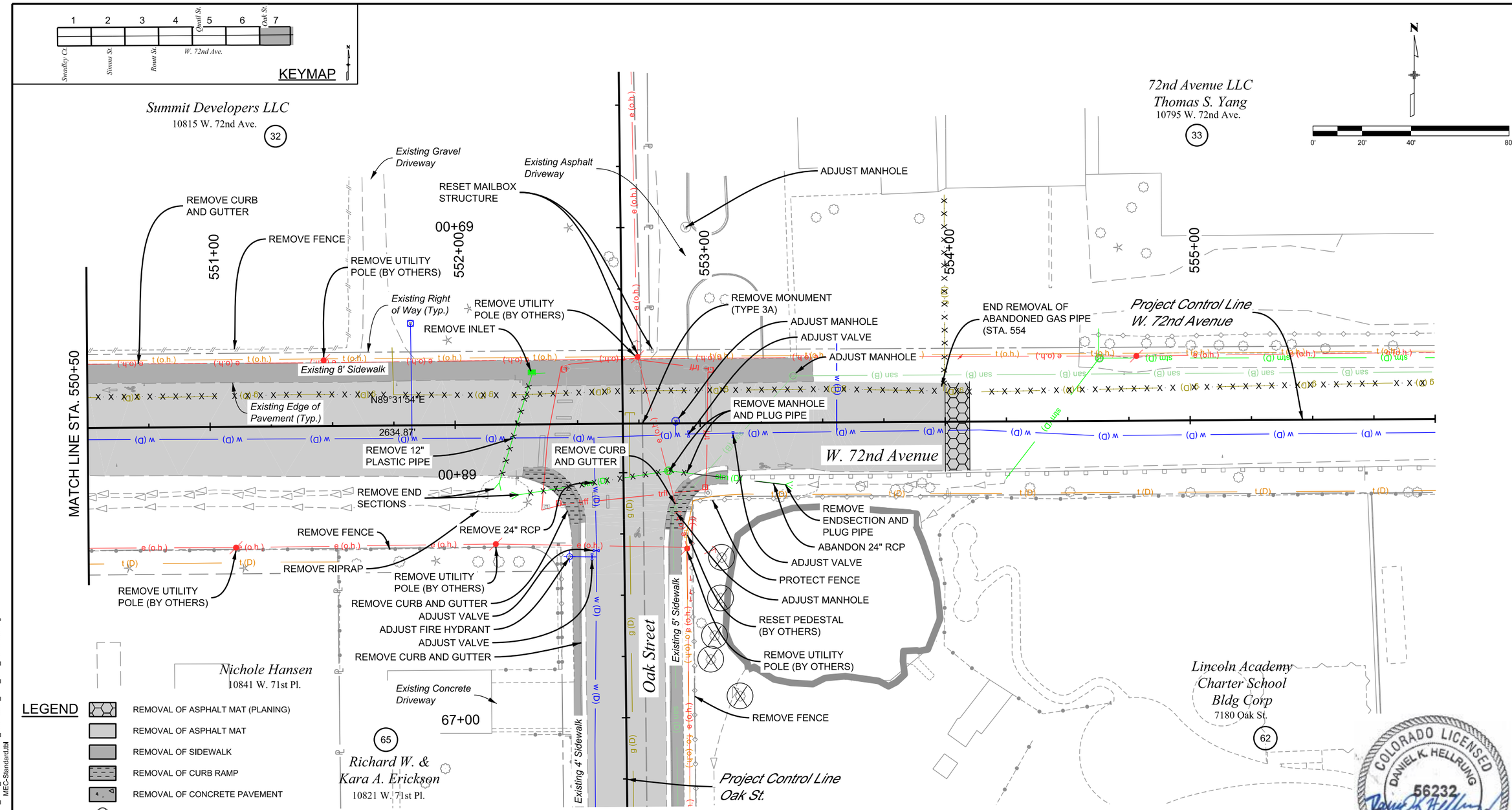

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) SEE TRAFFIC SIGNAL PLANS FOR REMOVAL OF TRAFFIC SIGNAL ITEMS ON W.72ND AVE AND OAK ST.

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 2/11/2022	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_Removal07.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	REMOVAL PLAN W. 72ND AVENUE STA. 550+50.00 TO STA. 556+00.00			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: REMOVAL	Subset Sheets: 7 of 7		Sheet Number 89

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KEYMAP

Simms St. | Quail St. | W. 72nd Ave. | Raut St. | Oak St.

0' 20' 40' 80'

21+00 | 22+00 | 23+00 | 24+00

REMOVE FENCE

REMOVE WHEEL STOP (TYP.)

RESET SIGN (SPECIAL)

Existing Parking Lot

REMOVE CURB AND GUTTER

REMOVE WHEEL STOP (TYP.)

Existing Concrete Driveway

Project Control Line Simms Street

REMOVE CURB AND GUTTER

Existing 6' Sidewalk

Existing Curb and Gutter

REMOVE WHEEL STOP (TYP.)

Simms Street

Existing Curb and Gutter

Existing Right of Way (Typ.)

Existing Edge of Pavement (Typ.)

Existing 6' Sidewalk

REMOVE LIGHT STRUCTURE (BY OTHERS)

Existing Gas Station Entrance

REMOVE CURB AND GUTTER

MATCH LINE STA. 25+00

92

Maple Leaf Condominium Association Inc

Vacant Land

Maple Leaf Condominium Association Inc

Vacant Land

Twin Star Energy LLC

7190 Simms St.

90

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- X X X REMOVAL OF UTILITY
- ABANDONED UTILITY

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFCATIONS.
2) SEE FIRST UNITED CHURCH OF ARVADA PARKING LOT PLANS FOR THE LOCATION OF THE ADDITIONAL TREE REMOVAL.

COLORADO LICENSED DANIEL K. HELLRUNG 56232 PROFESSIONAL ENGINEER 02/13/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_DES_SideSt_RemovalPlan01.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET REMOVAL PLAN SIMMS STREET STA. 20+00.00 TO STA. 25+00.00

Designer: RML
Detailer: SAD
Sheet Subset: SIDE STREET
Structure Numbers
Subset Sheets: 1 of 6

Project No./Code

Sheet Number 90

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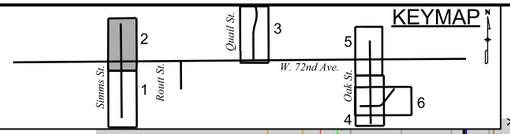
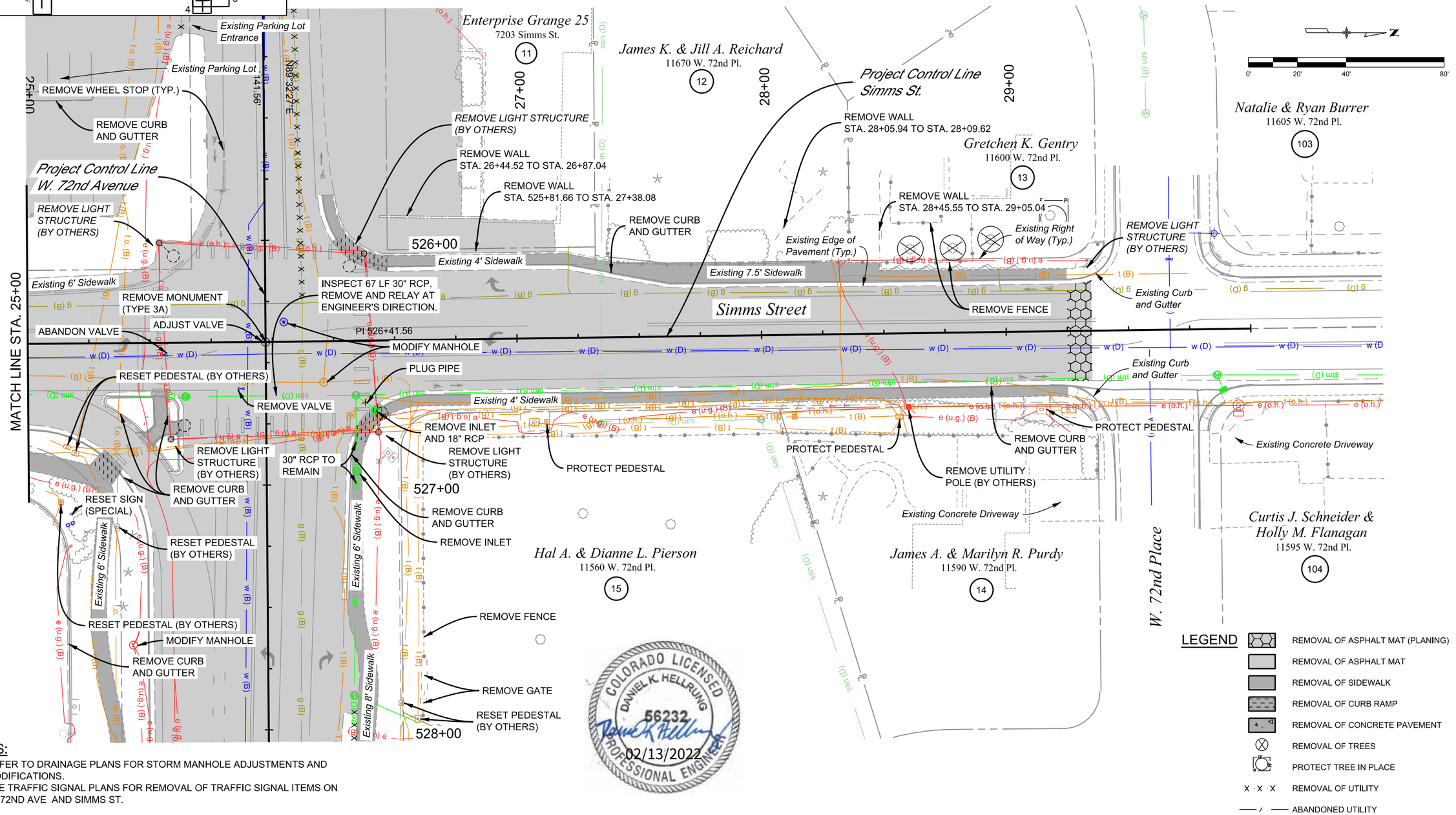
KEYMAP





NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) SEE TRAFFIC SIGNAL PLANS FOR REMOVAL OF TRAFFIC SIGNAL ITEMS ON W. 72ND AVE AND SIMMS ST.

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- REMOVAL OF UTILITY
- ABANDONED UTILITY

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_SideSt_RemovalPlan02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	REMOVAL PLAN SIDE STREETS			
Revised:	SIMMS ST. STA. 25+00.00 TO STA. 30+00.00			
Void:	Designer: RML	Structure Numbers		
	Detailer: SAD			
	Sheet Subset: SIDE STREET	Subset Sheets: 2 of 6		Sheet Number 91

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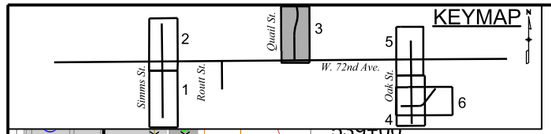
KEYMAP



539+00

Project Control Line
W. 72nd Avenue

REMOVE GATE

Existing 8' Sidewalk

REMOVE WALL

REMOVE INLET

540+00

REMOVE LIGHT FIXTURE
(BY OTHERS)

W. 72nd Avenue

2634.87'

N89°31'54"E

REMOVE VALVE

REMOVE FIRE HYDRANT

ADJUST MANHOLE

REMOVE INLET

541+00

REMOVE UTILITY
POLE (BY OTHERS)

REMOVE INLET

Existing 8' Sidewalk

REMOVE MAILBOX
STRUCTURE

David M. & Ruth S. Macklin
11205 W. 72nd Ave.
27

Existing Gravel Driveway

Thomas L. & Hazel V. Hartbarger
7201 Quail St.
24

41+00

RESET MAILBOX
STRUCTURE

Existing Concrete Driveway

Phyllis I. & Wilbur F. Woodson
7221 Quail St.
25

42+00

Existing Concrete Driveway

RESET MAILBOX
STRUCTURE

REMOVE CURB
AND GUTTER

Penny S. & Richard A. Visser
7241 Quail St.
25A

43+00

Existing Concrete Driveway

Project Control Line
Quail Street

44+00

Carmen M. & Richard G. Likins
7261 Quail St.

45+00

Existing Concrete Driveway

Existing Curb
and Gutter

Quail Street

ADJUST MANHOLE

RESET MAILBOX
STRUCTURE

REMOVE FENCE

Existing 4' Sidewalk

REMOVE 175 LF OF
8" WATER LINE

Existing Right
of Way (Typ.)

REMOVE CURB
AND GUTTER

REMOVE GATE

REMOVE CURB
AND GUTTER

REMOVE FENCE

Existing Edge of
Pavement (Typ.)

Existing Curb
and Gutter

Jefferson County School Dist R1
7300 Quail St.
26

0' 20' 40' 80'

N

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) SEE TRAFFIC SIGNAL PLANS FOR REMOVAL OF TRAFFIC SIGNAL ITEMS ON W. 72ND AVE AND QUAIL ST.

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- X X X REMOVAL OF UTILITY
- ABANDONED UTILITY

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_SideSt_RemovalPlan03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	REMOVAL PLAN SIDE STREETS QUAIL ST.			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: SIDE STREET	Subset Sheets: 3 of 6		Sheet Number 92

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KEYMAP

Simms St. | Quail St. | W. 72nd Ave. | Raait St. | Oak St.

0' 20' 40' 80'

Existing Curb and Gutter

Existing Concrete Driveway

Existing Concrete Driveway

Existing Concrete Driveway

Existing Concrete Driveway

Existing Curb and Gutter

Existing Right of Way (Typ.)

Existing Edge of Pavement (Typ.)

Project Control Line Oak St.

61+00 62+00 63+00 64+00 65+00 66+00

CONC DRIVE

Thomas E. & Madeline C. Reynolds
7099 Parfet St.
63

Charles E. & Vicky L. Hill
10820 W. 71st Ave.
64

Charles E. & Vicky L. Hill
10820 W. 71st Ave.
64

W. 71st Ave.

Oak Street

Existing 5' Sidewalk

Existing 5' Sidewalk

Existing Curb and Gutter

REMOVE INLET

ABANDON 15" CMP PLUG PIPE, BOTH ENDS

PROTECT UTILITY POLE

Project Control Line Lincoln Academy

ADJUST MANHOLE

REMOVE UTILITY POLE (BY OTHERS)

REMOVE FENCE

REMOVE UTILITY POLE (BY OTHERS

REMOVE CURB AND GUTTER

REMOVE 12" CMP

REMOVE CURB AND GUTTER

Existing 5' Sidewalk

1+00

2+00

Lincoln Academy Charter School Bldg Corp
7180 Oak St.
62

MATCH LINE STA. 65+50

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- X X X REMOVAL OF UTILITY
- ABANDONED UTILITY

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFCATIONS.

COLORADO LICENSED DANIEL K. HELLRUNG 56232 PROFESSIONAL ENGINEER
02/13/2022

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Print Date: 9/20/2021
Drawing File Name: 18061_CP2_DES_SideSt_RemovalPlan04.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

REMOVAL PLAN SIDE STREETS
OAK ST. STA. 61+50.60 TO 65+50.00

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIDE STREET	Subset Sheets:	4 of 6

Project No./Code

Sheet Number 93

KEYMAP

Simms St. | Quail St. | Raait St. | W. 72nd Ave. | Oak St.

Nichole Hansen
10841 W. 71st Pl.

Richard W. & Kara A. Erickson
10821 W. 71st Pl.
65

Summit Developers LLC
10815 W. 72nd Ave.
32

Lincoln Academy Charter School Bldg Corp
7180 Oak St.
62

72nd Avenue LLC
Thomas S. Yang
10795 W. 72nd Ave.
33

MATCH LINE STA. 65+50

67+00 | 68+00 | 69+00 | 70+00 | 552+00 | 553+00

N89°31'54"E 2634.87

REMOVE CURB AND GUTTER
REMOVE FENCE
REMOVE UTILITY POLE (BY OTHERS)
Existing Gravel Driveway
REMOVE UTILITY POLE (BY OTHERS)
REMOVE CURB AND GUTTER
Existing Concrete Driveway
REMOVE FENCE
REMOVE 12" PLASTIC PIPE
REMOVE END SECTIONS
Existing Edge of Pavement (Typ.)
REMOVE INLET
REMOVE 24" RCP
Existing 8' Sidewalk
REMOVE UTILITY POLE (BY OTHERS)
RESET MAILBOX STRUCTURE
Existing 4' Sidewalk
ADJUST FIRE HYDRANT
ADJUST VALVE
REMOVE MONUMENT (TYPE 3A)
PI 552+76.43
ADJUST VALVE
RESET PEDESTAL (BY OTHERS)
REMOVE MANHOLE AND PLUG PIPE
Existing 5' Sidewalk
REMOVE FENCE
REMOVE CURB AND GUTTER
REMOVE UTILITY POLE (BY OTHERS)
Existing Asphalt Driveway
ADJUST MANHOLE
ADJUST MANHOLE
ABANDON 24" RCP
ADJUST VALVE
Existing Right of Way (Typ.)
ADJUST MANHOLE
PROTECT FENCE
REMOVE ENDSECTION AND PLUG PIPE

0' 20' 40' 80'

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFICATIONS.
2) SEE TRAFFIC SIGNAL PLANS FOR REMOVAL OF TRAFFIC SIGNAL ITEMS ON W. 72ND AVE AND OAK ST.

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- X X X REMOVAL OF UTILITY
- ABANDONED UTILITY

Print Date: 9/20/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_SideSt_RemovalPlan05.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

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No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
REMOVAL PLAN SIDE STREETS
OAK ST. STA. 65+50.00 TO STA. 70+47.22

Designer: RML
Detailer: SAD
Sheet Subset: SIDE STREET
Structure Numbers
Subset Sheets: 5 of 6

Project No./Code

Sheet Number 94

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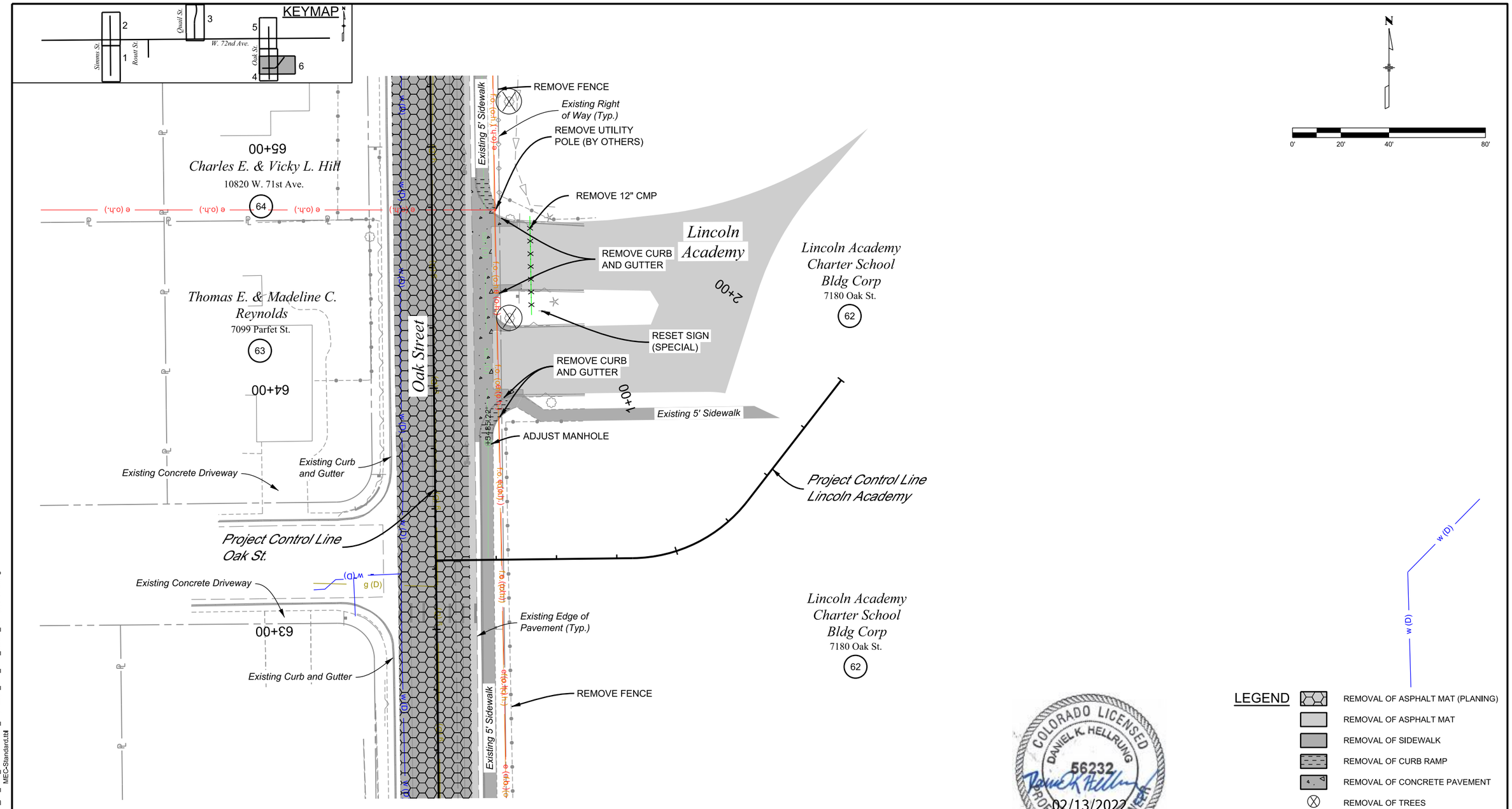

NOTES:

1) REFER TO DRAINAGE PLANS FOR STORM MANHOLE ADJUSTMENTS AND MODIFCATIONS.

COLORADO LICENSED DANIEL K. HELLRUNG 56232 PROFESSIONAL ENGINEER
02/13/2022

LEGEND

- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF ASPHALT MAT
- REMOVAL OF SIDEWALK
- REMOVAL OF CURB RAMP
- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF TREES
- PROTECT TREE IN PLACE
- X X X REMOVAL OF UTILITY
- ABANDONED UTILITY

Print Date: 9/20/2021	Sheet Revisions		
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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
REMOVAL PLAN SIDE STREETS
LINCOLN ACADEMY

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIDE STREET	Subset Sheets:	6 of 6

Project No./Code

Sheet Number 95

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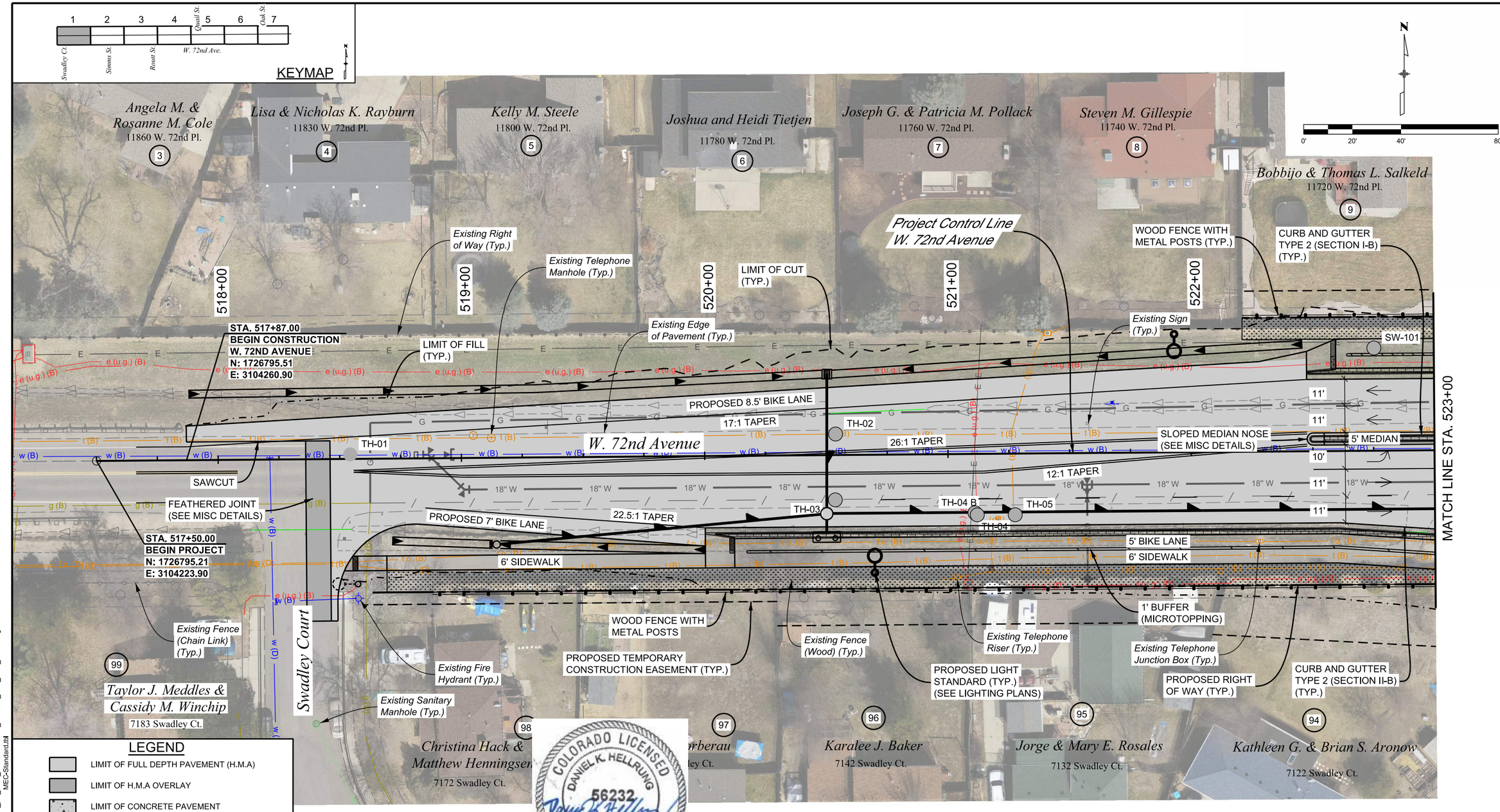

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_DES_Plan01.dgn
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Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PLANS

W. 72ND AVE STA. 517+50 TO STA. 523+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 7

Project No./Code

Sheet Number 96

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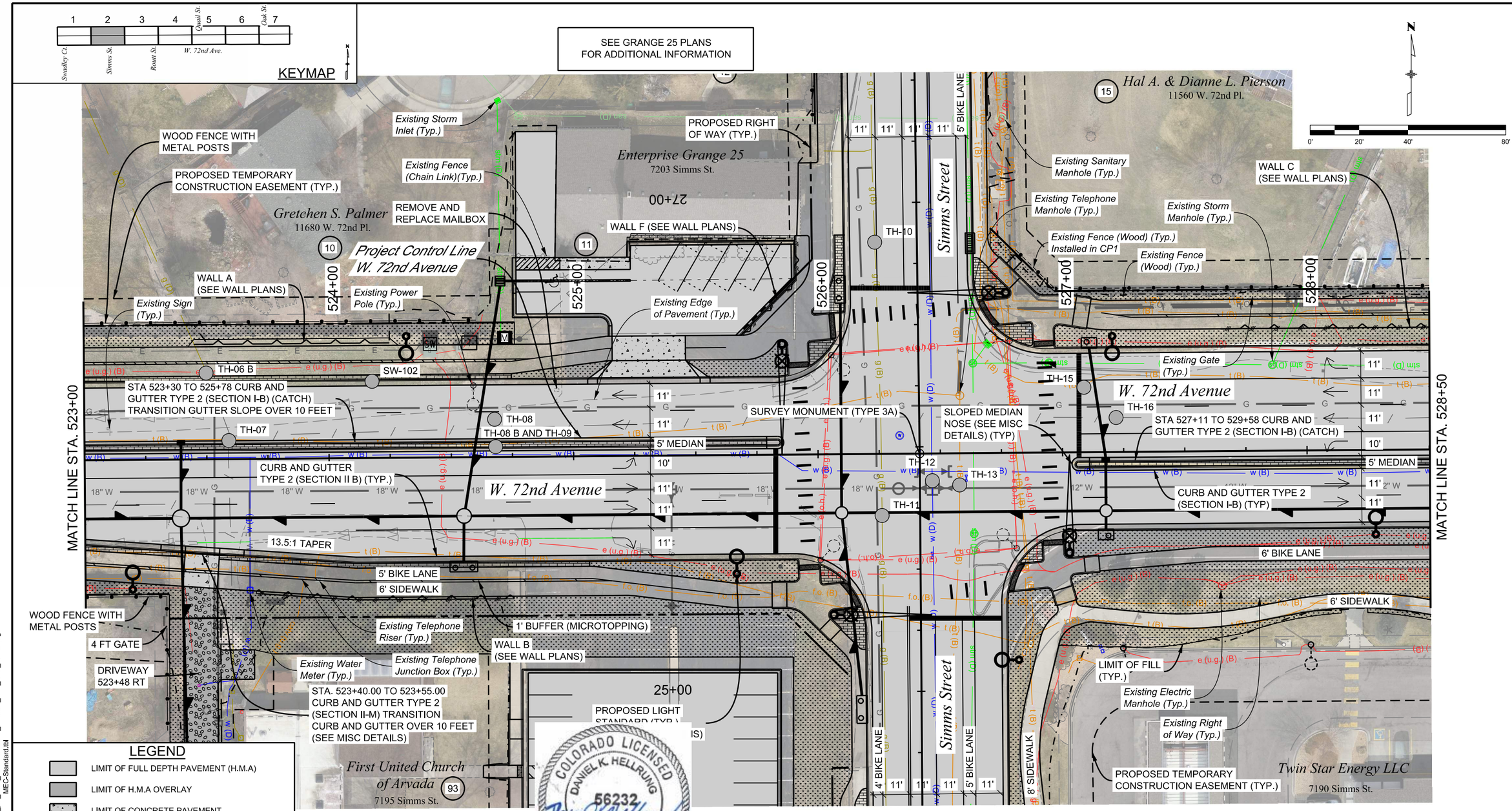

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Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PLANS

W. 72ND AVE STA. 523+00 TO STA. 528+50

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	2 of 7

Project No./Code	
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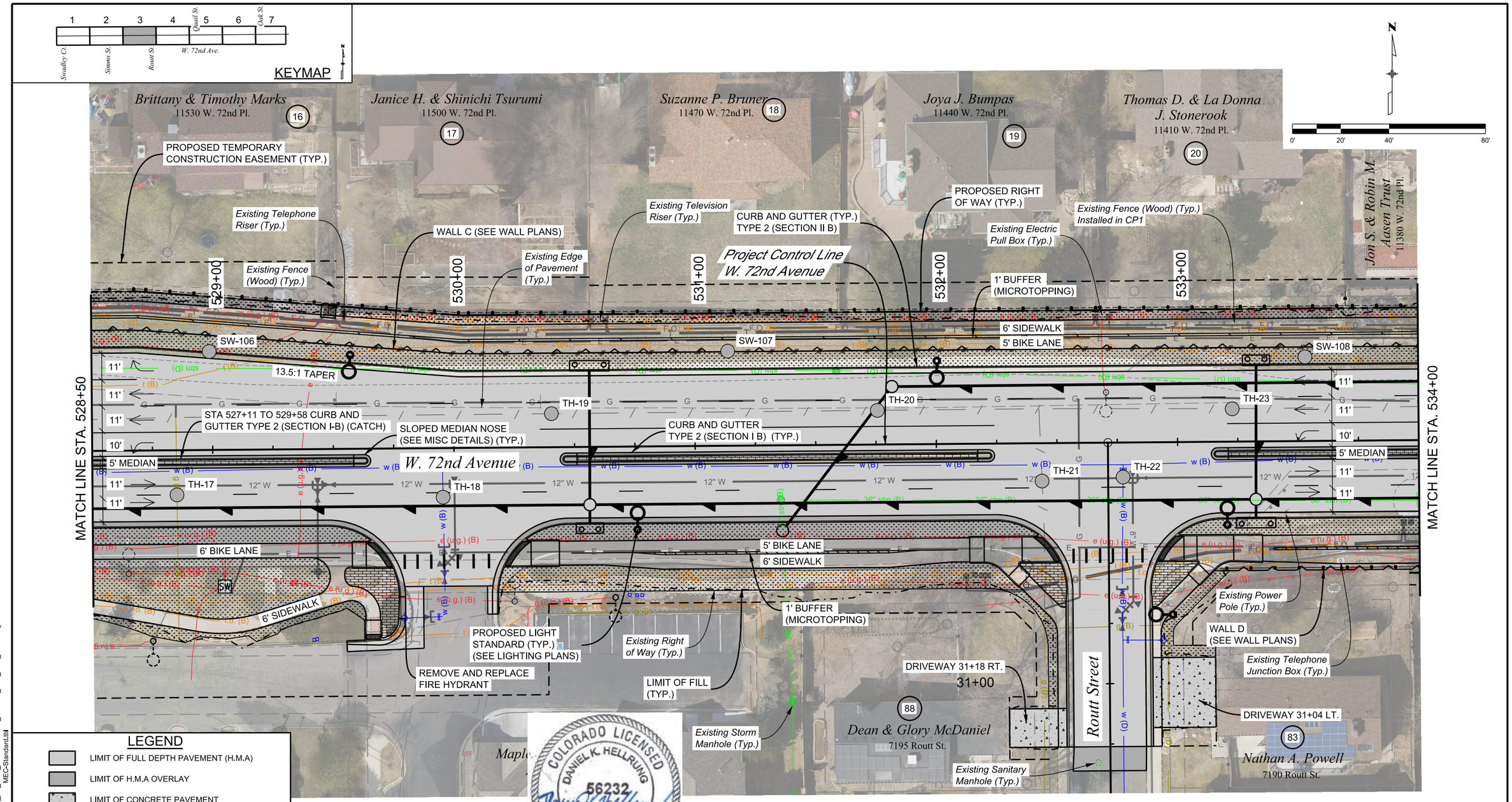

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_DES_Plan03.dgn
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Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

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Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PLANS

W. 72ND AVE STA. 528+50 TO STA. 534+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	3 of 7

Project No./Code

Sheet Number 98

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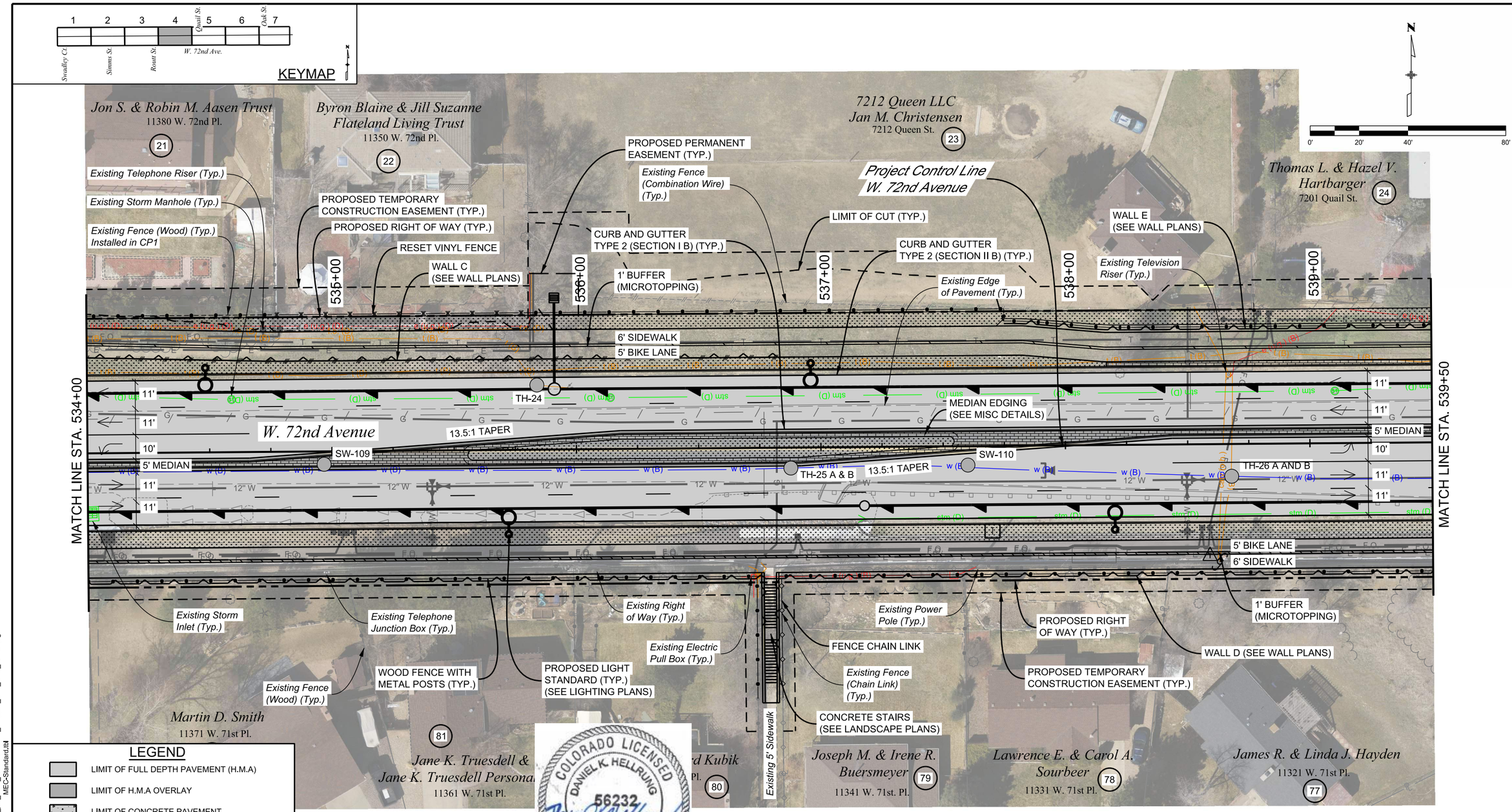

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_DES_Plan04.dgn
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Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

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CITY OF ARVADA

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PLANS

W. 72ND AVE STA. 534+00 TO STA. 539+50

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	4 of 7

Project No./Code

Sheet Number 99

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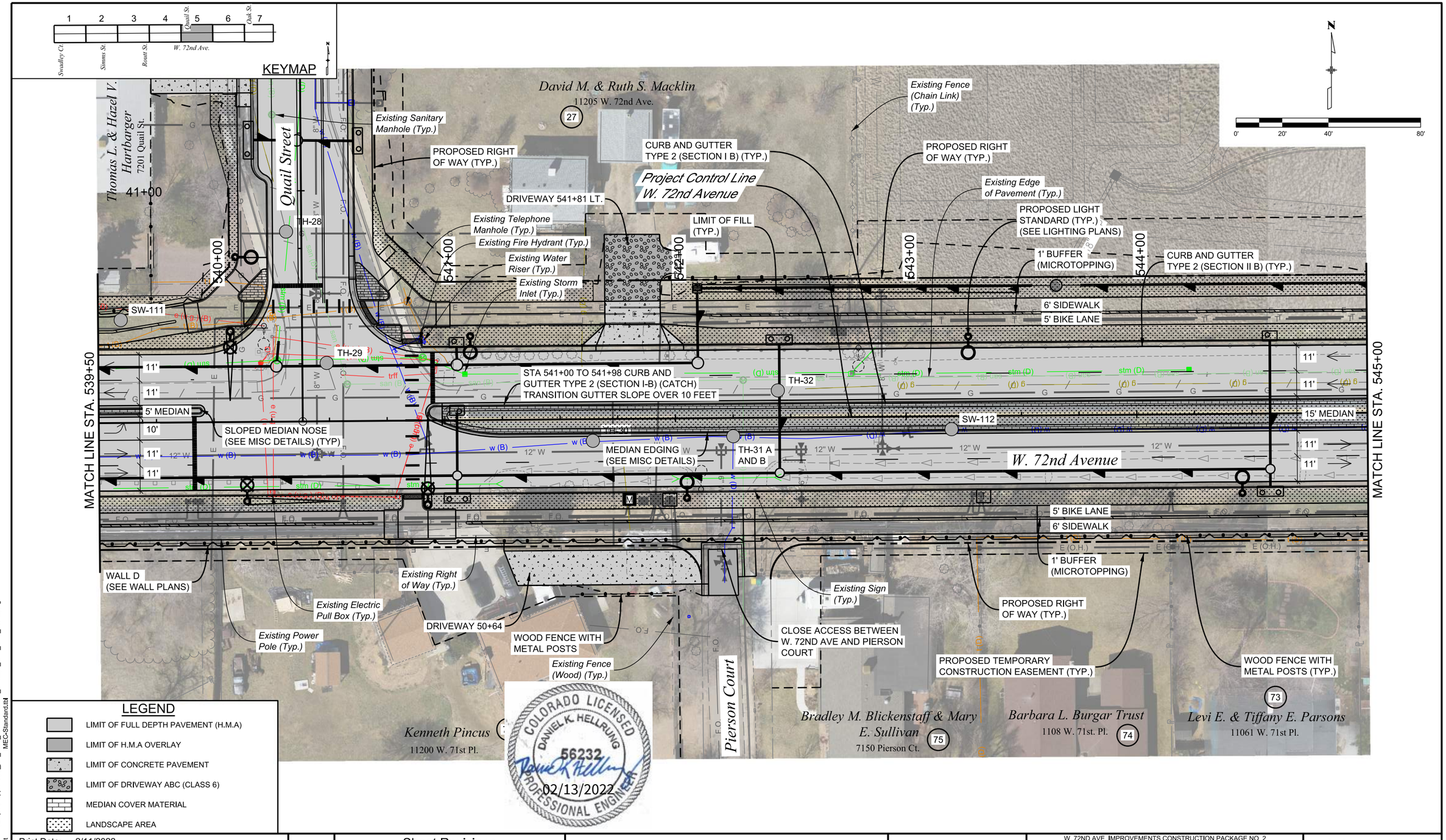

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 2/11/2022
Drawing File Name: 18061_CP2_DES_Plan05.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
ROADWAY PLANS
W. 72ND AVE STA. 539+50 TO STA. 545+00

Designer: DKH
Detailer: SAD
Sheet Subset: ROADWAY
Structure Numbers:
Subset Sheets: 5 of 7

Project No./Code:
Sheet Number 100

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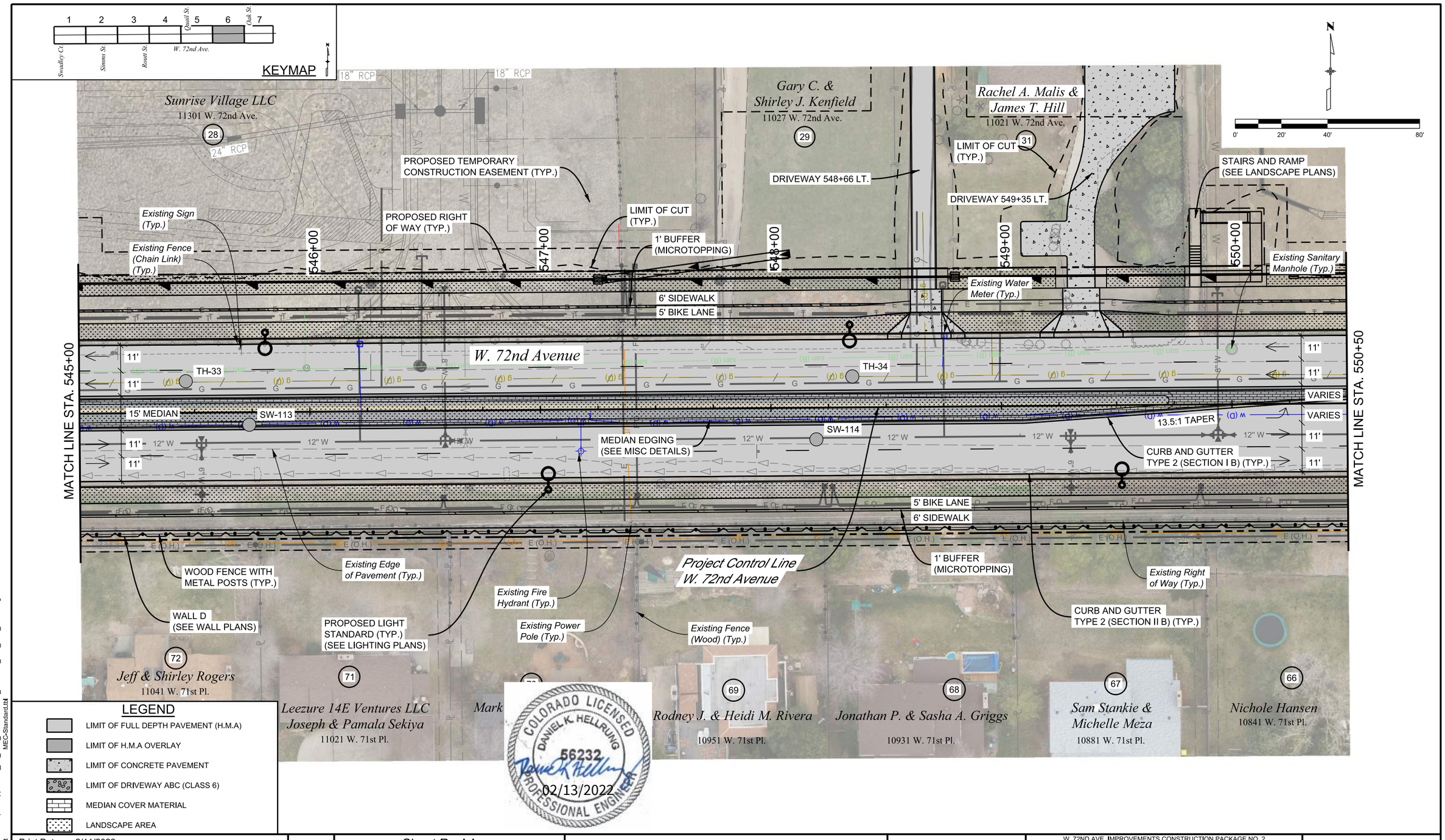

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
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56232
PROFESSIONAL ENGINEER
02/13/2022

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Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

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CITY OF ARVADA

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PLANS

W. 72ND AVE STA. 545+00 TO STA. 550+50

Designer:	DKH	Structure Numbers	
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Sheet Subset:	ROADWAY	Subset Sheets:	6 of 7

Project No./Code

Sheet Number 101

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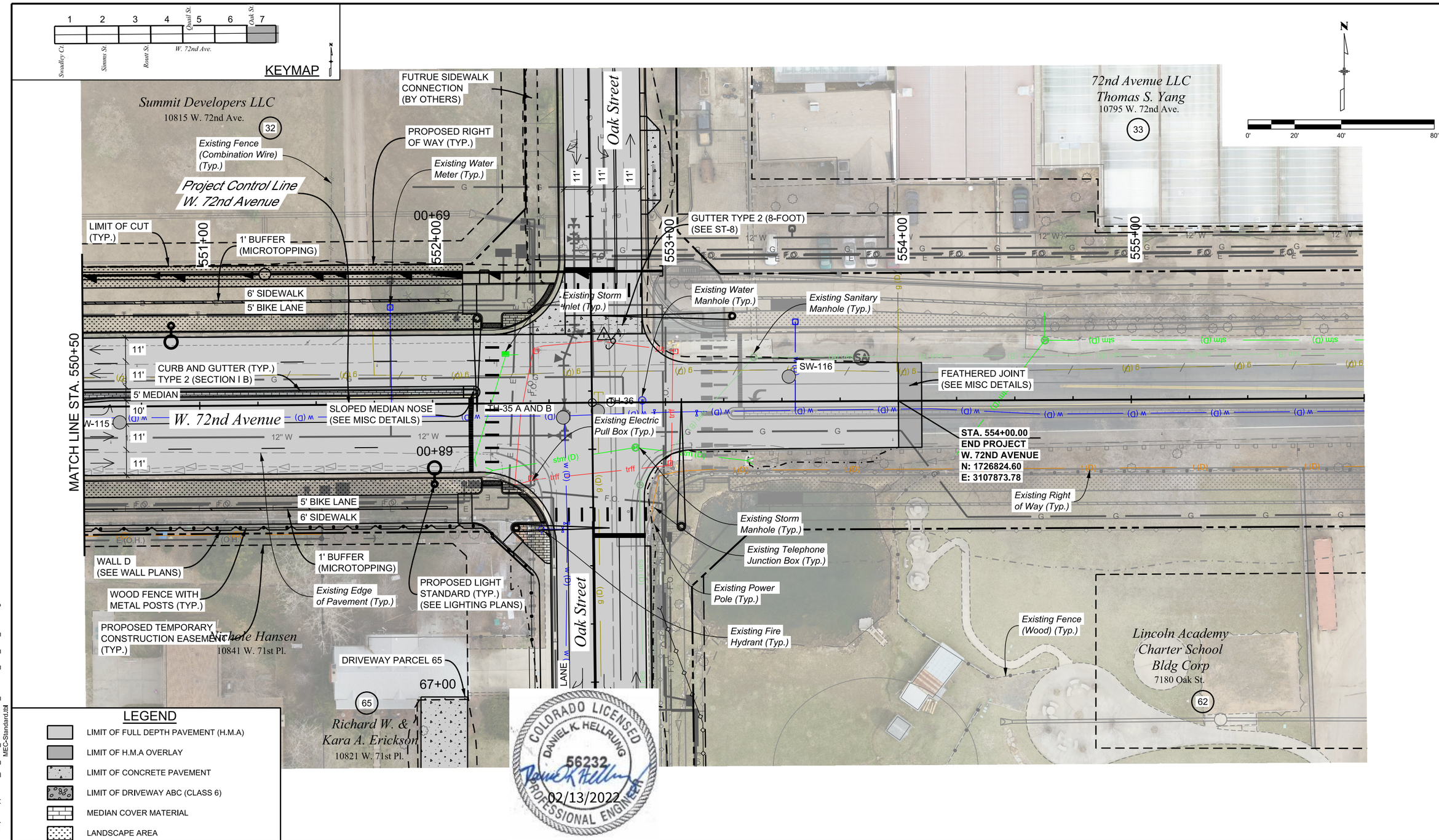

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Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PLANS

W. 72ND AVE STA. 550+50 TO STA. 555+50

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	7 of 7

Project No./Code	
Sheet Number	102

KEYMAP

Simms St. | Quail St. | Raait St. | W. 72nd Ave. | Oak St.

0' 20' 40' 80'

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

PROPOSED PERMANENT EASEMENT (TYP.)

Existing Right of Way (Typ.)

PROPOSED RIGHT OF WAY (TYP.)

DRIVEWAY 21+33

CURB TERMINATION (SEE MISC. DETAILS)

21+00 | 22+00 | 23+00 | 24+00

First United Church of Arvada
7195 Simms St.
93

REMOVE AND REPLACE SIGN

CURB TERMINATION (SEE MISC. DETAILS)

CURB AND GUTTER TYPE 2 (SECTION II B) (TYP.)

DRIVEWAY 23+92

Existing 6' Sidewalk

6' SIDEWALK

STA 20+00.00
BEGIN PROJECT
N: 1726205.13
E: 3105119.96

GUTTER TYPE 2 (8-FOOT) (SEE ST-8)

SAWCUT

4' BIKE LANE

11'

VARIES

10:1 TAPER

Project Control Line
Simms Street

Simms Street

11'

5' BIKE LANE

11'

Existing Edge of Pavement (Typ.)

FEATHERED JOINT (SEE MISC DETAILS)

Existing 8' Sidewalk

8' SIDEWALK

Existing Electric Transformer (Typ.)

Existing Telephone Junction Box (Typ.)

Existing Telephone Riser (Typ.)

Existing Water Valve (Typ.)

Existing Storm Manhole (Typ.)

PROPOSED LIGHT STANDARD (TYP) (SEE LIGHTING PLANS)

LIMIT OF FILL (TYP.)

92

Maple Leaf Condominium Assocaition Inc

91

Maple Leaf Condominium Association Inc

Twin Star Energy LLC
7190 Simms St.
90

MATCH LINE STA. 25+00

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_DES_SideSt_Plan01.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:

Revised:

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET ROADWAY PLANS
SIMMS STREET STA. 20+00 TO STA. 25+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 7

Project No./Code

Sheet Number 103

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KEYMAP

Simms St. | Raud St. | Quail St. | W. 72nd Ave. | Oak St.

MATCH LINE STA. 25+00

Enterprise Grange 25
7203 Simms St.
11

James K. & Jill A. Reichard
11670 W. 72nd Pl.
12

Gretchen K. Gentry
11600 W. 72nd Pl.
13

Natalie & Ryan Burrer
11605 W. 72nd Pl.
103

Hal A. & Dianne L. Pierson
11560 W. 72nd Pl.

James A. & Marilyn R. Purdy
11590 W. 72nd Pl.
14

93

25+00
27+00
28+00
29+00

526+00
527+00
528+00

PROPOSED LIGHT STANDARD (TYP) (SEE LIGHTING PLANS)

WALL F (SEE WALL PLANS)

CURB AND GUTTER TYPE 2 (SECTION II B) (TYP.)

Project Control Line Simms Street

Existing Edge of Pavement (Typ.)

PROPOSED RIGHT OF WAY (TYP.)

WALL G (SEE WALL PLANS)

PROTECT TREE

BIKE SLIP RAMP

10' SIDEWALK

Simms Street

PI 526+41.56

10:1 TAPER

4' BIKE LANE

5' BIKE LANE

6' SIDEWALK

5' MEDIAN

FEATHERED JOINT (SEE MISC DETAILS)

STA. 30+00.00
END PROJECT
N: 1727205.08
E: 3105109.93

Existing Right of Way (Typ.)

Existing Sanitary Manhole (Typ.)

W. 72ND AVENUE STA. 526+41.56 =
SIMMS STREET STA. 25+97.24
N: 1726802.36
E: 3105115.43

LIMIT OF CUT (TYP.)

STA. 27+35.00 TO 29+05.00
CURB TYPE 2 (SECTION B)

PROTECT UTILITY CABINETS

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Fence (Wood) (Typ.)

W. 72nd Avenue

Project Control Line W. 72nd Avenue

W. 72nd Place

WOOD FENCE WITH METAL POSTS (TYP.)

WALL C (SEE WALL PLANS)

0' 20' 40' 80'

N

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_DES_SideSt_Plan02.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET ROADWAY PLANS
SIMMS STREET STA. 25+00 TO STA. 30+00

Designer: DKH
Detailer: SAD
Sheet Subset: SIDE STREET
Structure Numbers
Subset Sheets: 2 of 7

Project No./Code

Sheet Number 104

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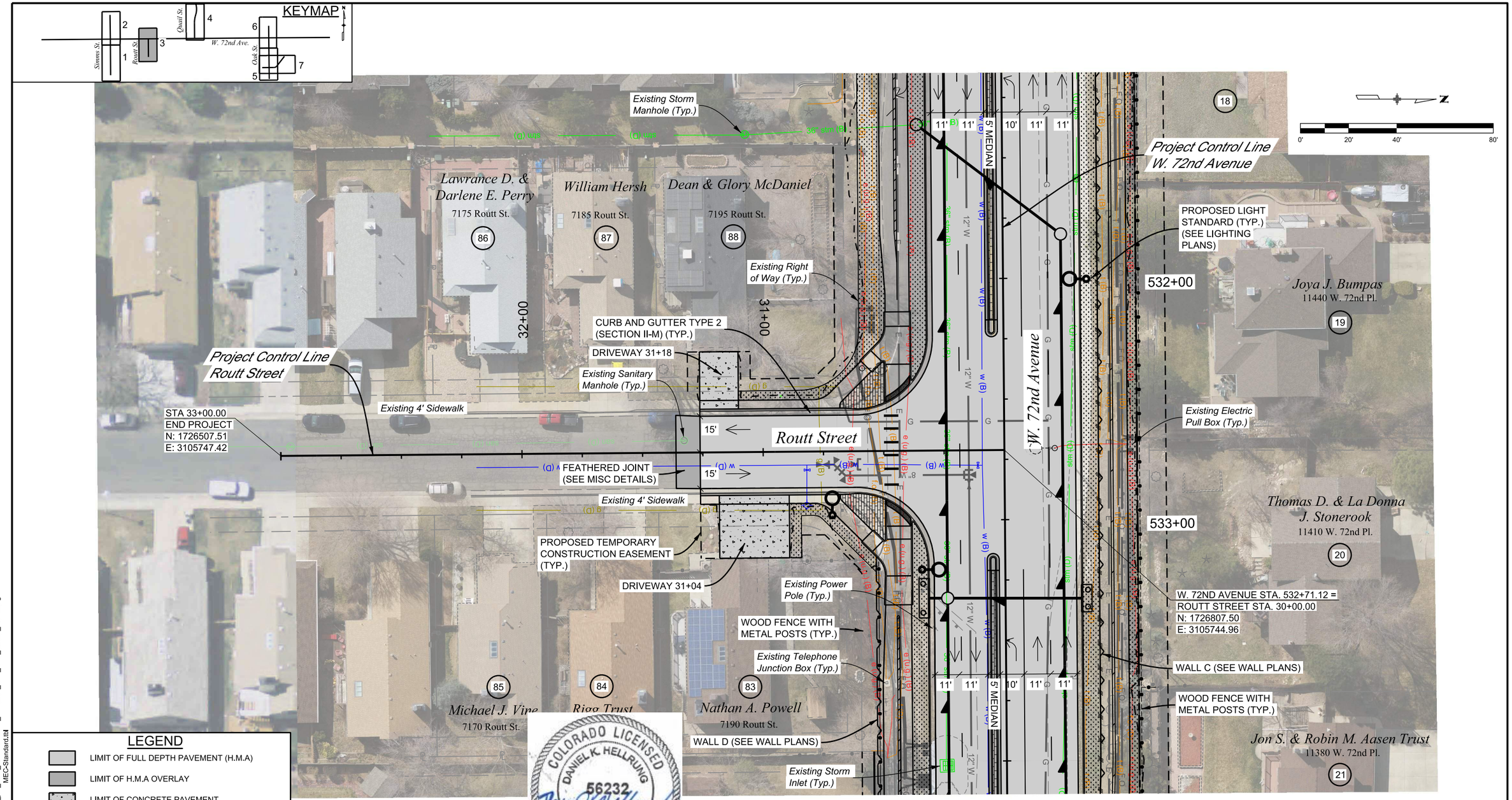

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_DES_SideSt_Plan03.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET ROADWAY PLANS
ROUTT STREET STA. 30+00 TO STA. 33+00

Designer: DKH
Detailer: SAD
Sheet Subset: ROADWAY
Structure Numbers
Subset Sheets: 3 of 7

Project No./Code

Sheet Number 105

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MEC-Standard.tbl
ipl-tol-drivm.plt

KEYMAP

Simms St. | Quail St. | W. 72nd Ave. | Raud St. | Oak St.

Thomas L. & Hazel V. Hartbarger
7201 Quail St.
24

Phyllis I. & Wilbur F. Woodson
7221 Quail St.
25

Penny S. & Richard A. Visser
7241 Quail St.
25A

David M. & Ruth S. Mack
11205 W. 72nd Ave.
27

Jefferson County School Dist R1
7300 Quail St.
26

0' 20' 40' 80'

539+00
540+00
541+00
41+00
42+00
43+00
44+00
45+00

11' 10' 11' 11' 5' MEDIAN 11' 11' 11' 11'

W. 72nd Avenue

Quail Street

Existing Storm Manhole (Typ.)
WALL E (SEE WALL PLANS)
Project Control Line W. 72nd Avenue
15 FT GATE
4 FT GATE
DRIVEWAY 42+11
CURB AND GUTTER TYPE 2 (SECTION II-M) (TYP.)
LIMIT OF FILL (TYP.)
DRIVEWAY 43+19
Project Control Line Quail Street
W. 72ND AVENUE STA. 540+38.43 = QUAIL STREET STA. 40+00.00
N: 1726813.78
E: 3106512.25
DRIVEWAY 41+50
DRIVEWAY 43+63
STA. 45+75.00
END PROJECT
N: 1727385.03
E: 3106533.13
6' SIDEWALK
Existing Sanitary Manhole (Typ.)
6'
11'
11'
11'
8' SIDEWALK
FEATHERED JOINT (SEE MISC DETAILS)
LIMIT OF CUT (TYP.)
CHAIN LINK FENCE
20 FT CHAIN LINK GATE
PROPOSED RIGHT OF WAY (TYP.)
Existing Fence (Chain Link) (Typ.)
Existing Edge of Pavement (Typ.)
CURB AND GUTTER TYPE 2 (SECTION II-B) (TYP.)
Existing Fire Hydrant (Typ.)
PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)
Existing Right of Way (Typ.)
Existing Storm Inlet (Typ.)

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

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ejdotorvm_plt
9/17/2021

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_DES_SideSt_Plan04.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

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Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

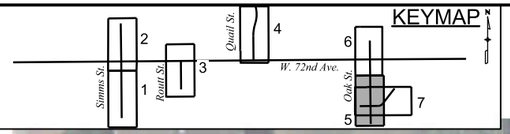
SIDE STREET ROADWAY PLANS
QUAIL STREET STA. 40+00 TO STA. 45+75

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	4 of 7

Project No./Code

Sheet Number 106

KEYMAP



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0' 20' 40' 80'

61+00 62+00 63+00 64+00 65+00 66+00

Parfet Street

Thomas E. & Madeline C. Reynolds

Charles E. & Vicky L. Hill

63 64 62

CURB AND GUTTER TYPE 2 (SECTION II-M) (TYP.)

W 71st Place

Existing Fence (Wood) (Typ.)

Existing Right of Way (Typ.)

STA. 61+00.00
BEGIN PROJECT
N: 1726103.88
E: 3107750.61

Project Control Line Oak Street

Oak Street

5' 11' 11' 11' 4' BIKE LANE 11' 5' 11' 11' 11'

FEATHERED JOINT (SEE MISC DETAILS)

SAWCUT

Existing Storm Inlet (Typ.)

FUTURE SIDEWALK CONNECTION

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Edge of Pavement (Typ.)

CURB AND GUTTER TYPE 2 (SECTION II-B) (TYP.)

Lincoln Academy Charter School Bldg Corp

6' SIDEWALK

Existing Sanitary Manhole (Typ.)

1+00

2+00

LIMIT OF FILL (TYP.)

PROPOSED PERMANENT EASEMENT (TYP.)

Existing Fence (Chain Link) (Typ.)

CHAIN LINK FENCE (TYP.)

CURB AND GUTTER TYPE 2 (SECTION II-B) (TYP.)

LIMIT OF CUT (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

FUTURE SIDEWALK CONNECTION

MATCH LINE STA. 65+50

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date:	9/20/2021
Drawing File Name:	18061_CP2_DES_SideSt_Plan05.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET ROADWAY PLANS
OAK STREET STA. 61+00 TO STA. 65+50

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	ROADWAY	Subset Sheets:	5 of 7

Project No./Code

Sheet Number 107

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KEYMAP

Simms St. | Quail St. | Raait St. | W. 72nd Ave. | Oak St.

MATCH LINE STA. 65+50

WALL D (SEE WALL PLANS)

Richard W. & Kara A. Erickson

65

WOOD FENCE WITH METAL POSTS (TYP.)

PROPOSED LIGHT STANDARD (TYP.) (SEE LIGHTING PLANS)

67+00

Existing Electric Pull Box (Typ.)

CURB AND GUTTER TYPE 2 (SECTION II-M) (TYP.)

Existing Fence (Wood)(Typ.)

20 FT GATE

6' SIDEWALK

Oak Street

11' 11' 10' 5' MEDIAN 11' 11'

68+00

GUTTER TYPE 2 (8 FOOT) (SEE ST-8)

PROPOSED RIGHT OF WAY (TYP.)

CHAIN LINK FENCE

FUTURE SIDEWALK CONNECTION

Existing Sanitary Manhole (Typ.)

Existing Right of Way (Typ.)

Existing Edge of Pavement (Typ.)

Lincoln Academy Charter School Bldg Corp

62

W. 72nd Avenue

Project Control Line W. 72nd Avenue

552+00

69+00

W. 72ND AVENUE STA. 552+68.43 = OAK STREET STA. 68+20.00
N: 1726823.83
E: 3107742.21

LIMIT OF CUT (TYP.)

70+00

FUTURE SIDEWALK CONNECTION (BY OTHERS)

LIMIT OF FILL (TYP.)

STA. 70+80.89
END PROJECT
N: 1727084.70
E: 3107739.17

Summit Developers LLC

32

Oak Street

553+00

CURB AND GUTTER TYPE 2 (SECTION II-M) (TYP.)

CURB AND GUTTER TYPE 2 (SECTION II-B) (TYP.)

Project Control Line Oak Street

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

72nd Avenue LLC
Thomas S. Yang

33

0' 20' 40' 80'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

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Print Date: 1/19/2022
Drawing File Name: 18061_CP2_DES_SideSt_Plan06.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET ROADWAY PLANS
OAK STREET STA. 65+50 TO STA. 70+80

Designer: DKH
Detailer: SAD
Sheet Subset: ROADWAY
Structure Numbers
Subset Sheets: 6 of 7

Project No./Code

Sheet Number 108

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1/19/2022
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ejplotrvm.plt

KEYMAP

Simms St. | Raud St. | Quail St. | W. 72nd Ave. | Oak St.

N

0' 20' 40' 80'

Existing Chain Link Fence (Typ.)

PROPOSED PERMANENT EASEMENT (TYP.)

Existing Right of Way (Typ.)

Project Control Line Oak Street

PROPOSED RIGHT OF WAY (TYP.)

72nd Ave.

Oak St.

STA. 2+00.00
END PROJECT
N: 1726407.20
E: 3107915.97

Lincoln Academy Charter School
Bldg Corp
10550 W. 72nd Ave.
61

CURB AND GUTTER TYPE 2 (SECTION II-B) (SPILL)

Project Control Line Lincoln Academy

OAK STREET STA. 63+28.59 =
LINCOLN ACADEMY STA. 0+00.00
N: 1726332.45
E: 3107747.94

Oak Street

Parfet Street

11' 11' 11' 11' 11'

6' SIDEWALK

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

LIMIT OF FILL (TYP.)

CURB AND GUTTER TYPE 2 (SECTION I-B) (TYP.)

Existing Edge of Pavement (Typ.)

6' 11' 11' 11' 4' BIKE LANE 11'

CURB AND GUTTER TYPE 2 (SECTION II-B) (TYP.)

ICE

T (TYP.)

65+00 64+00 63+00 2+00 1+00

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

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Print Date: 9/20/2021
Drawing File Name: 18061_CP2_DES_SideSt_Plan07.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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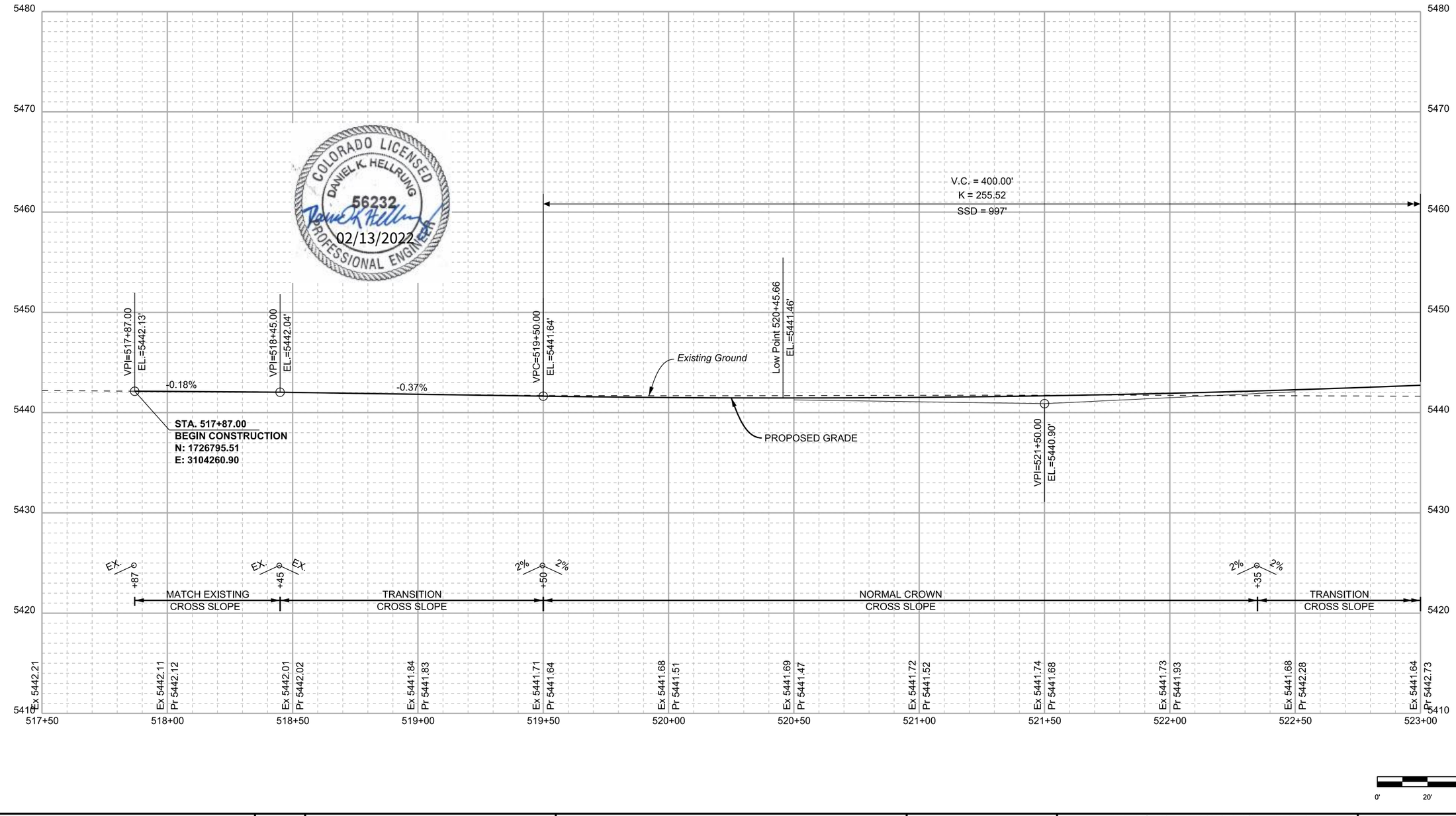
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET ROADWAY PLANS
LINCOLN ACADEMY STA. 0+00 TO STA. 2+00

Designer: DKH
Detailer: SAD
Sheet Subset: ROADWAY
Structure Numbers:
Subset Sheets: 7 of 7

Project No./Code

Sheet Number 109



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Print Date: 9/17/2021		Sheet Revisions	
Drawing File Name: 18061_CP2_DES_ProfilesMain01.dgn		Date:	Comments / Init.
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PROFILES
W. 72ND AVE STA. 517+50 TO STA. 523+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	1 of 7

Project No./Code

Sheet Number 110

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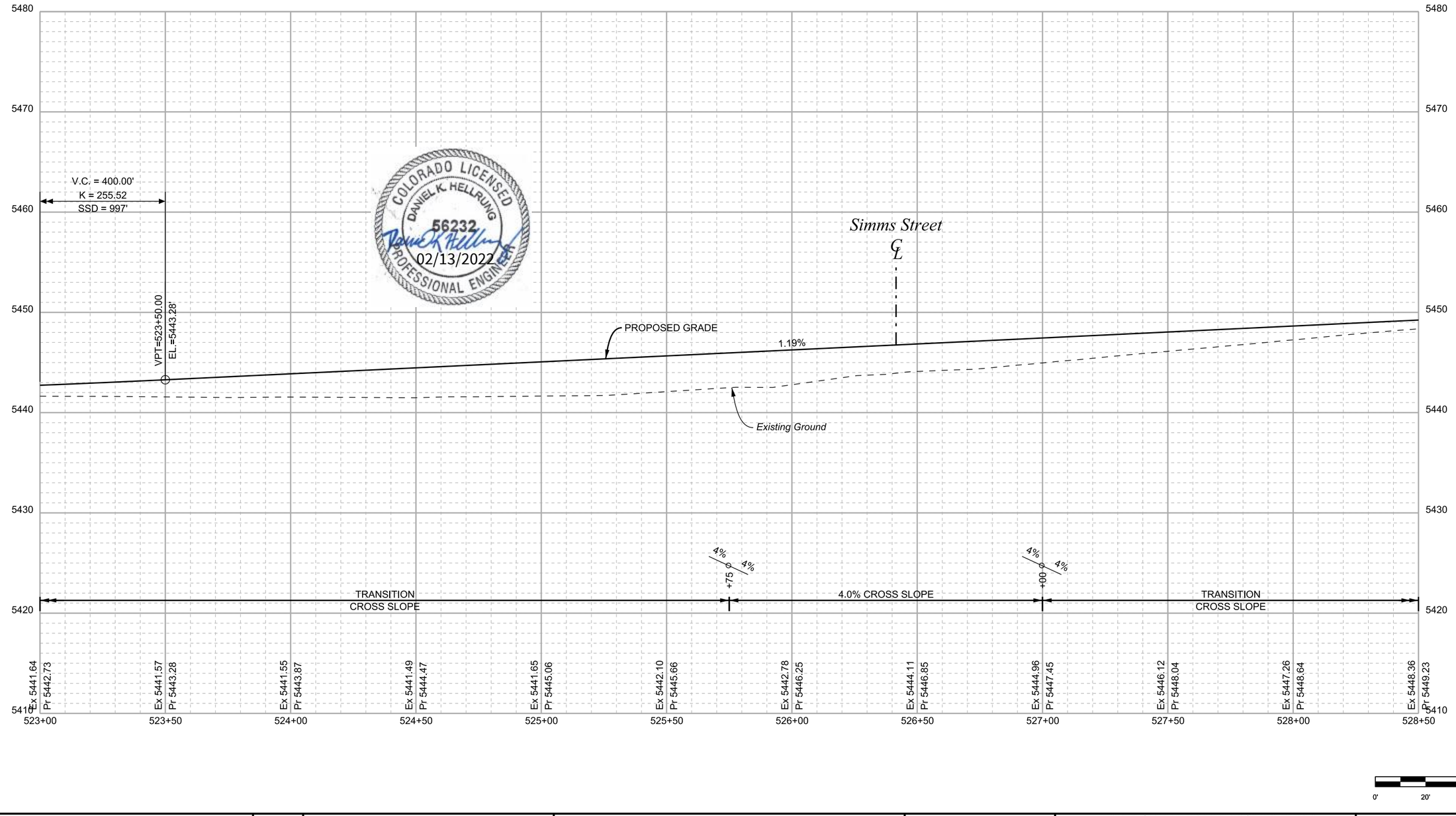

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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	ROADWAY PROFILES		
Revised:	W. 72ND AVE STA. 523+00 TO STA. 528+50		
Void:	Designer: DKH	Structure Numbers	
	Detailer: SAD		
	Sheet Subset: PROFILES	Subset Sheets: 2 of 7	Sheet Number 111

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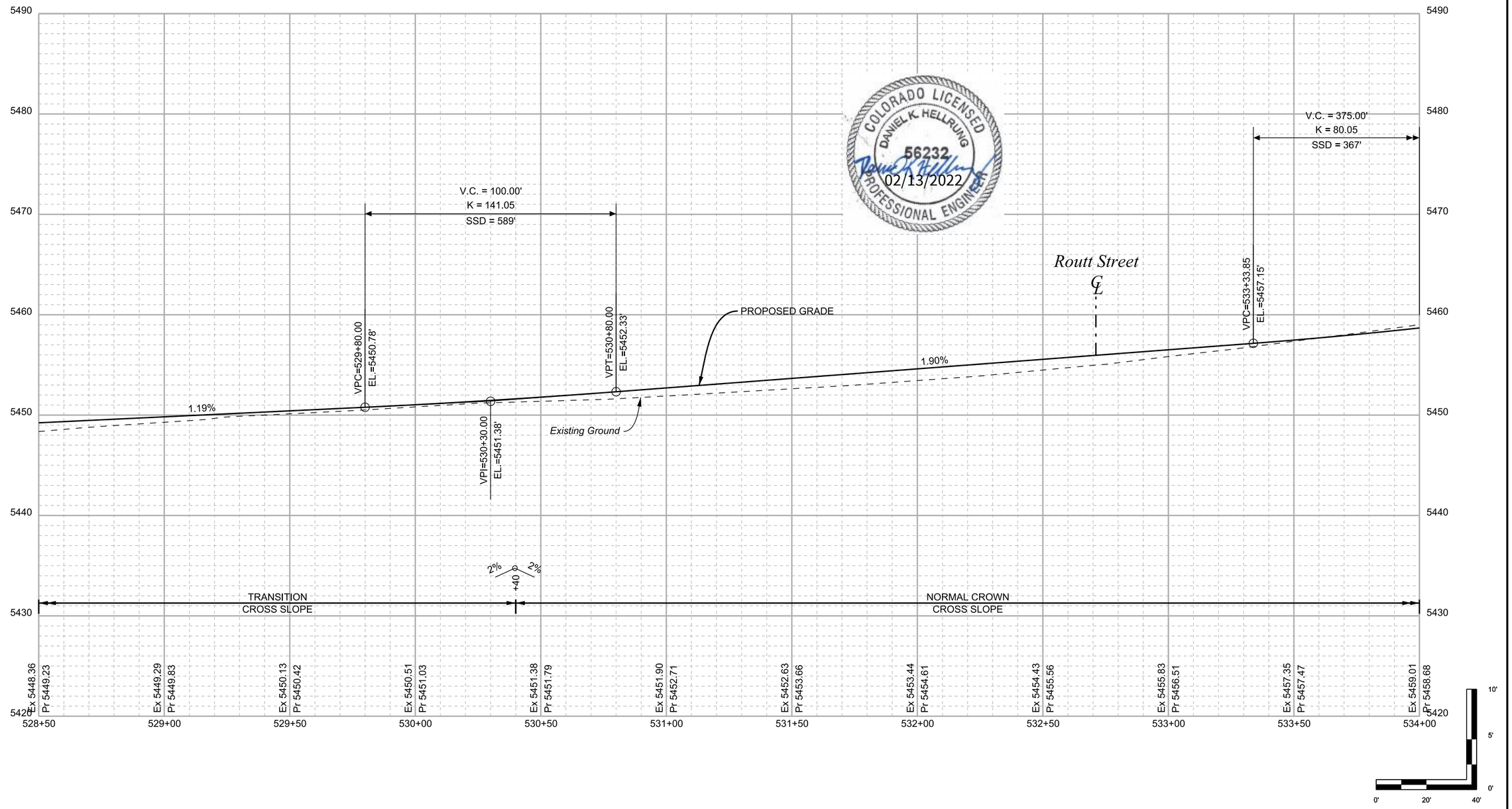

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9/17/2021

Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_DES_ProfilesMain03.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

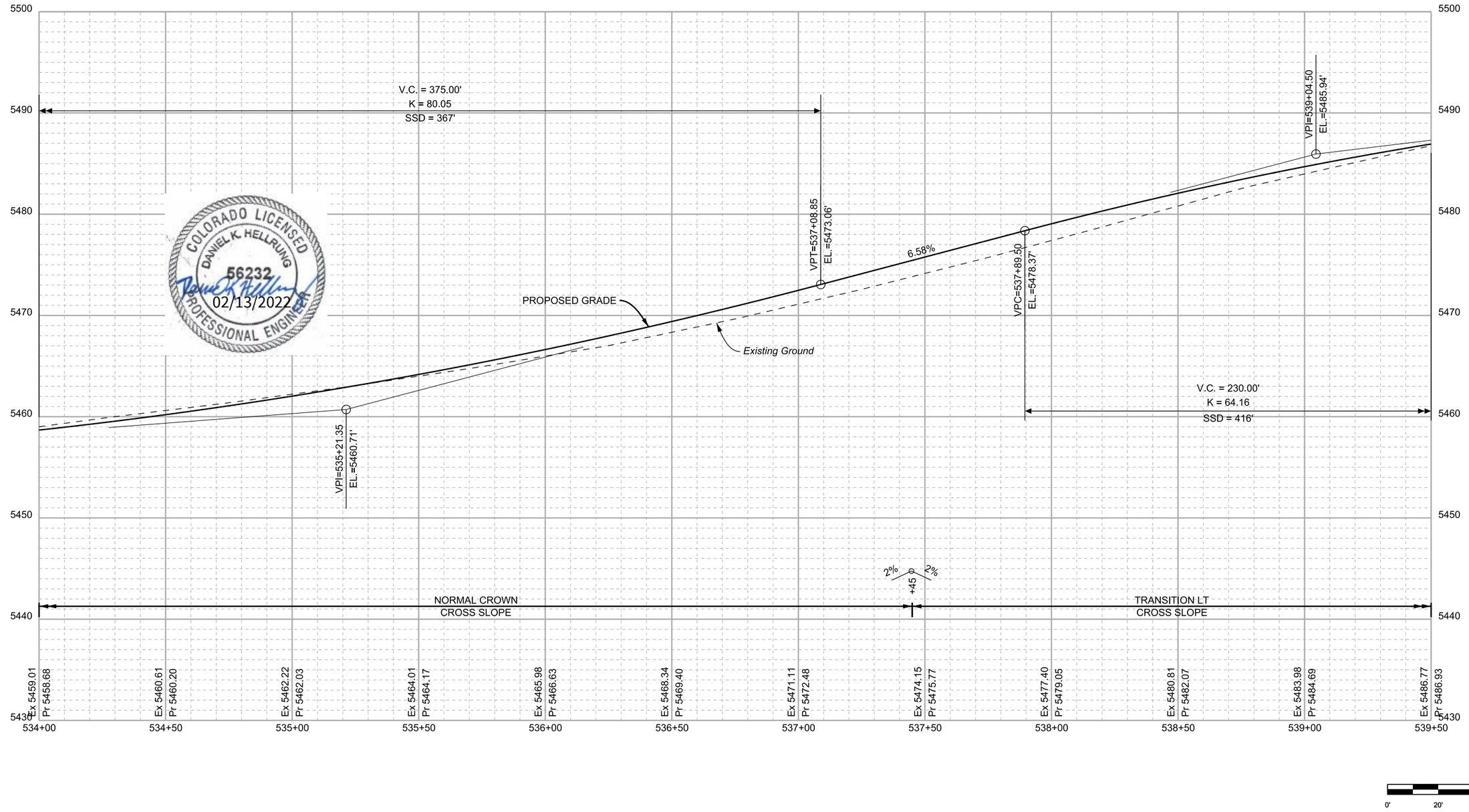
ROADWAY PROFILES

W. 72ND AVE STA. 528+50 TO STA. 534+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	3 of 7

Project No./Code

Sheet Number 112



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02/13/2022

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Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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Revised:	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

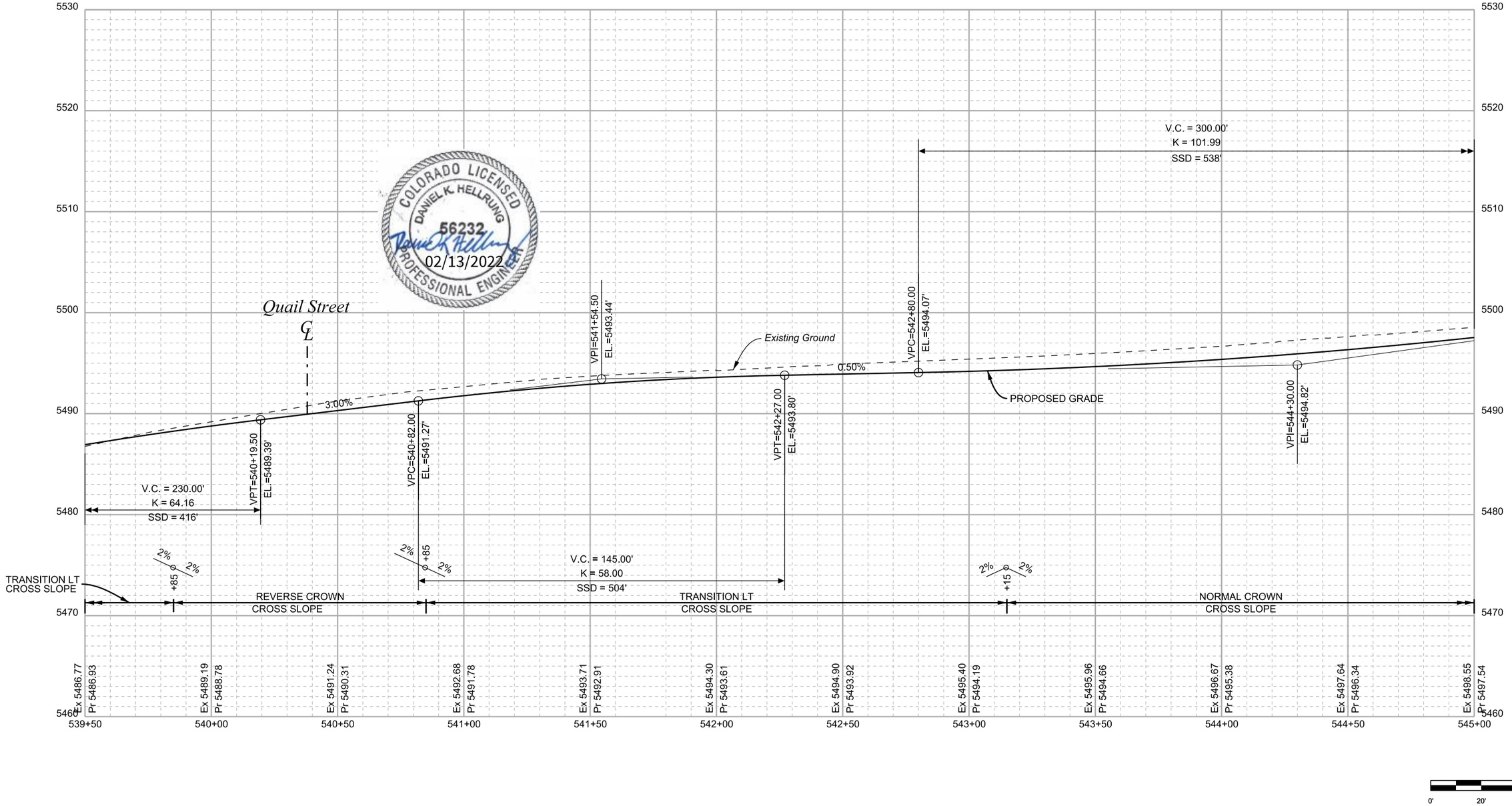
ROADWAY PROFILES

W. 72ND AVE STA. 534+00 TO STA. 539+50

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	4 of 7

Project No./Code

Sheet Number 113



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Drawing File Name:	18061_CP2_DES_ProfilesMain05.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed

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Void:

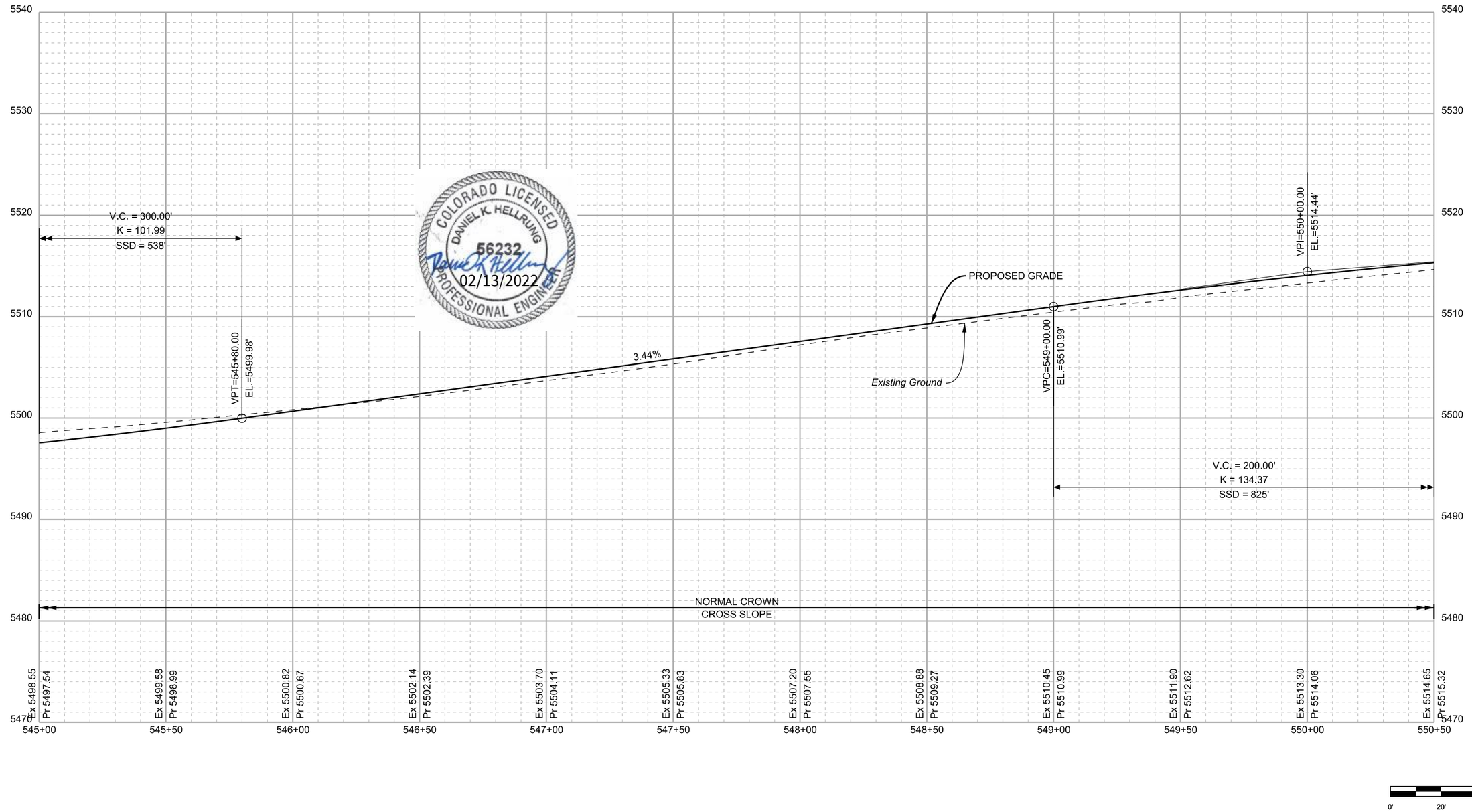
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

ROADWAY PROFILES
W. 72ND AVE STA. 539+50 TO STA. 545+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	5 of 7

Project No./Code

Sheet Number 114



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Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_ProfilesMain06.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	ROADWAY PROFILES			
Revised:	W. 72ND AVE STA. 545+00 TO STA. 550+50			
Void:	Designer: DKH	Structure Numbers		
	Detailer: SAD			
	Sheet Subset: PROFILES	Subset Sheets:	6 of 7	Sheet Number 115

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MEC-Standard.tbl
ejkoldvm.plt
9/17/2021

CONSTRUCTION PACKAGE 3
PROFILE SHOWN FOR INFORMATION ONLY.

5550 / 5540 / 5530 / 5520 / 5510 / 5500 / 5490 / 5480

Oak Street
℄

PROPOSED GRADE

1.95%

1.52%

VPT=551+00.00
EL.=5516.39'

Existing Ground

VPC=552+60.00
EL.=5519.51'

VPI=553+00.00
EL.=5520.19'

VPI=554+00.00
EL.=5521.70'

STA. 554+00
END PROJECT
N: 1726824.60
E: 3107873.78
EL. 5521.70'

High Point 554+17.47
EL.=5521.05'

VPI=555+00.00
EL.=5524.20'

CONSTRUCTION PACKAGE NO. 3

V.C. = 200.00'
K = 134.37
SSD = 825'

V.C. = 480.00'
K = 80.63
SSD = 417'

2% ℄ 2%

EX. ℄ EX.

NORMAL CROWN
CROSS SLOPE

TRANSITION
CROSS SLOPE

Ex 5514.65	Pr 5515.32	Ex 5516.10	Pr 5516.39	Ex 5517.32	Pr 5517.36	Ex 5518.33	Pr 5518.34	Ex 5519.26	Pr 5519.32	Ex 5520.29	Pr 5520.19	Ex 5521.10	Pr 5520.95	Ex 5521.70	Pr 5521.70	Ex 5522.15	Ex 5522.44	Ex 5522.62
550+50		551+00		551+50		552+00		552+50		553+00		553+50		554+00		554+50	555+00	555+50

10' / 5' / 0'
0' 20' 40'

02/13/2022

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9/17/2021

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_DES_ProfilesMain07.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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CITY OF ARVADA

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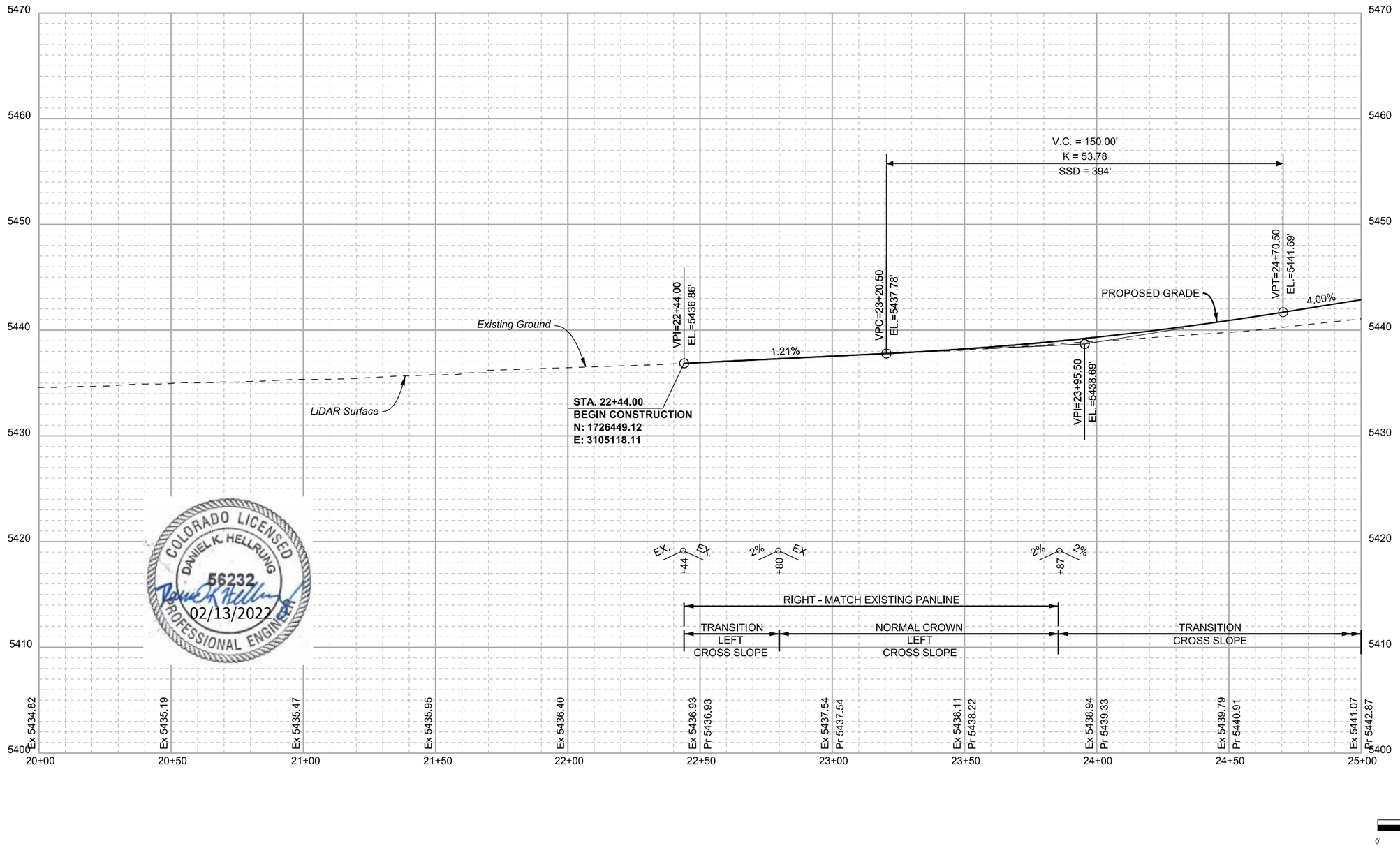
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
ROADWAY PROFILES
W. 72ND AVE STA. 550+50 TO STA. 555+50

Designer: DKH
Detailer: SAD
Sheet Subset: PROFILES
Structure Numbers
Subset Sheets: 7 of 7

Project No./Code

Sheet Number 116



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9/17/2021

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_DES_ProfilesSideSt01.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

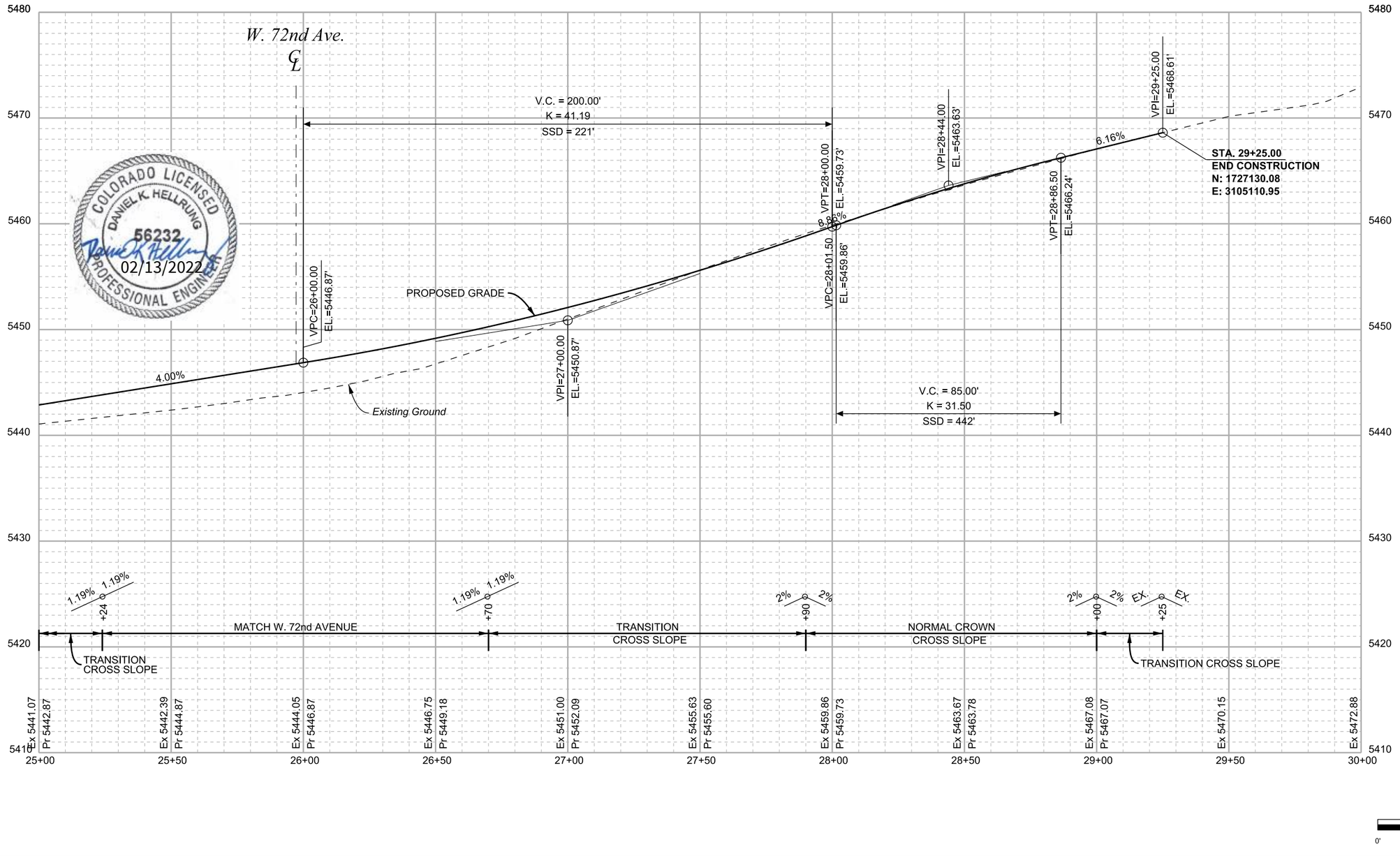
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET ROADWAY PROFILES
SIMMS STREET STA. 20+00 TO STA. 25+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	1 of 6

Project No./Code

Sheet Number 117



COLORADO LICENSED
DANIEL K. HELLRUNG
56232
02/13/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_DES_ProfilesSideSt02.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET ROADWAY PROFILES
SIMMS STREET STA. 25+00 TO STA. 30+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	2 of 6

Project No./Code

Sheet Number 118

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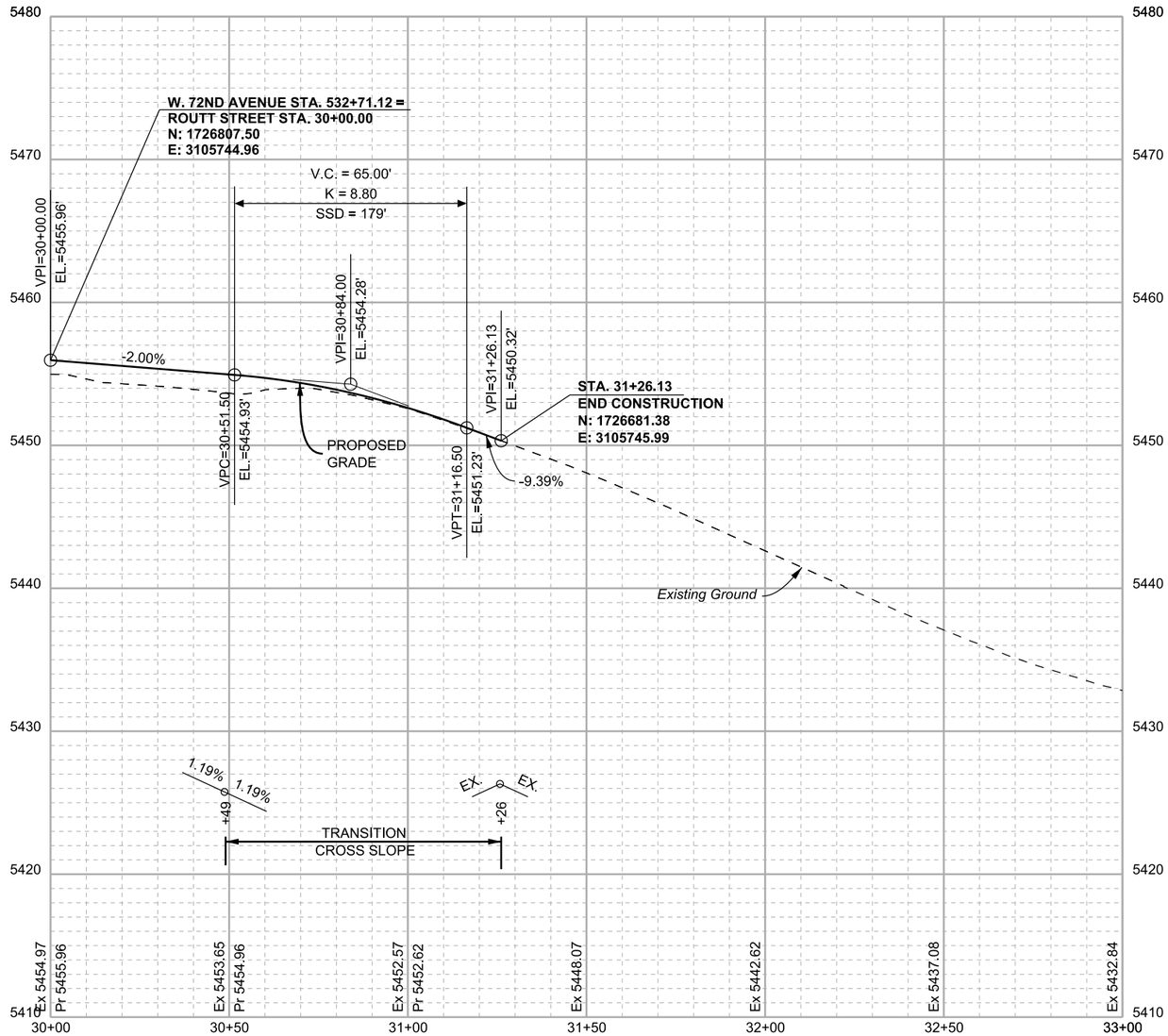
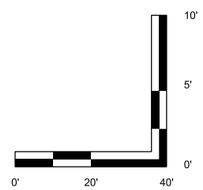
9/17/2021





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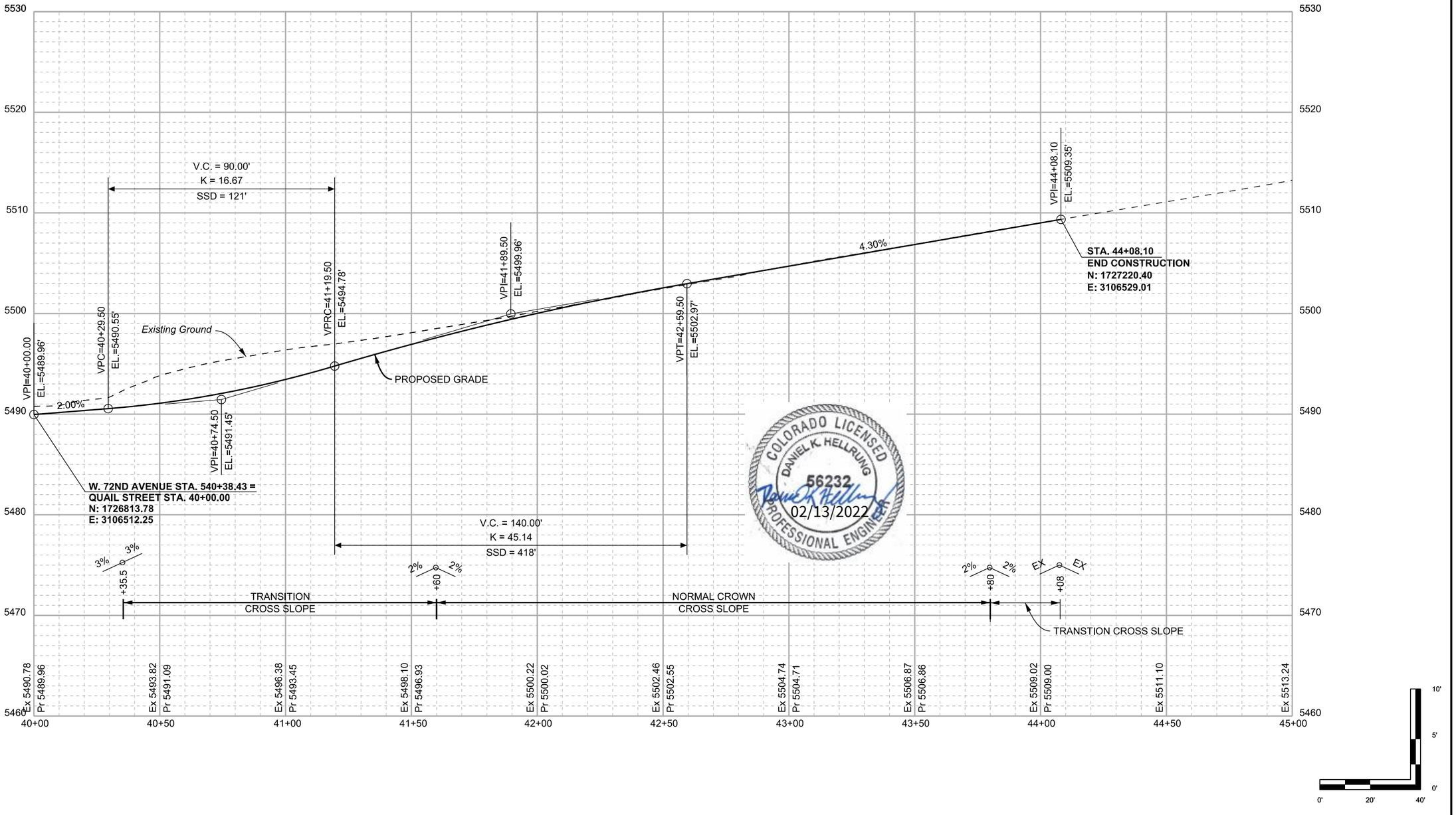
9/17/2021
kplotdrvm.plt

Print Date: 9/17/2021		Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_DES_ProfilesSideSt03.dgn		Date:	Comments	Init.		No Revisions:	SIDE STREET ROADWAY PROFILES
Horiz. Scale: 1:40	Vert. Scale: As Noted					Revised:	ROUTT STREET STA. 30+00 TO STA. 33+00
Unit Information	Unit Leader Initials					Void:	Designer: DKH / Detailer: SAD / Sheet Subset: PROFILES / Structure Numbers / Subset Sheets: 3 of 6
MULLER ENGINEERING COMPANY							Project No./Code / Sheet Number 119



COLORADO LICENSED
DANIEL K. HELLRUNG
56232
02/13/2022
PROFESSIONAL ENGINEER

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MEC-Standard.tbl
tplotdrvm.plt
9/17/2021

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_DES_ProfilesSideSt04.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

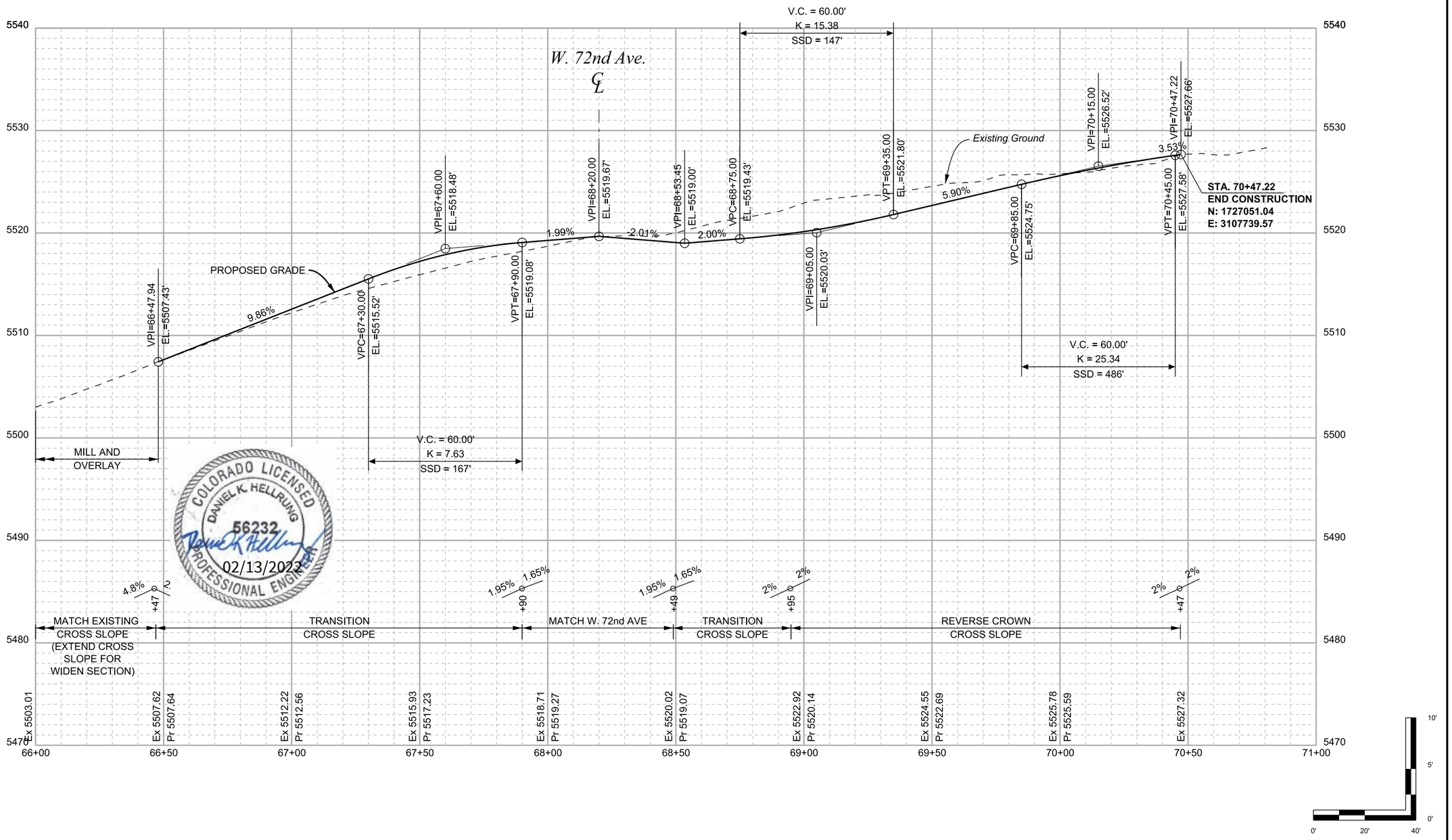
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET ROADWAY PROFILES
QUAIL STREET STA. 40+00 TO STA. 45+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	4 of 6

Project No./Code

Sheet Number 120



COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

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9/17/2021
tplotdrvm.plt
MEC-Standard.tbl

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_DES_ProfilesSideSt05.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

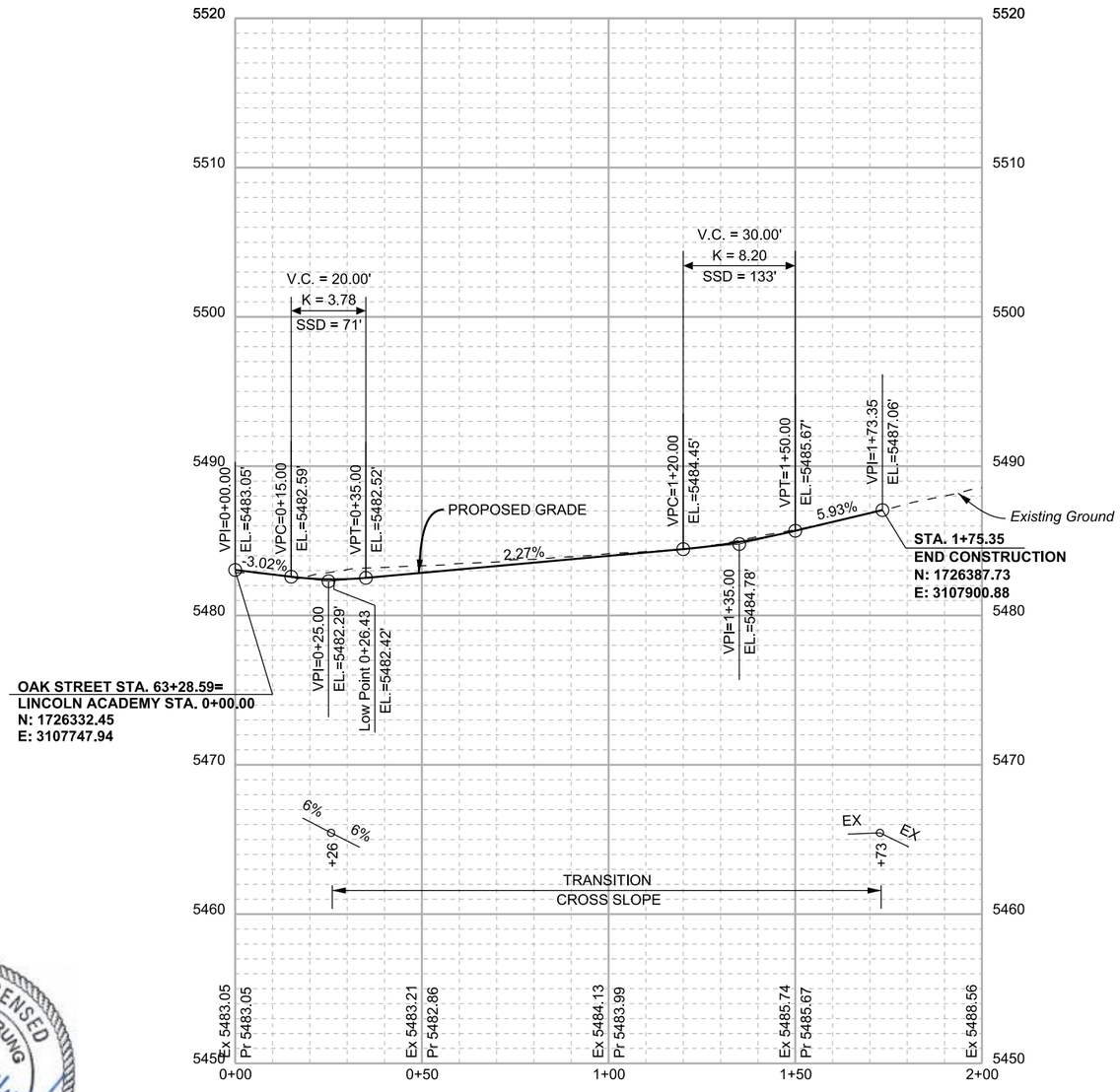
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

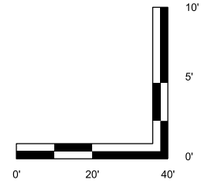
SIDE STREET ROADWAY PROFILES
OAK STREET STA. 66+00 TO STA. 71+00

Designer: DKH
Detailer: SAD
Sheet Subset: PROFILES
Structure Numbers
Subset Sheets: 5 of 6

Project No./Code

Sheet Number 121





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9/17/2021

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_DES_ProfilesSideSt06.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:40	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY			CITY OF ARVADA		

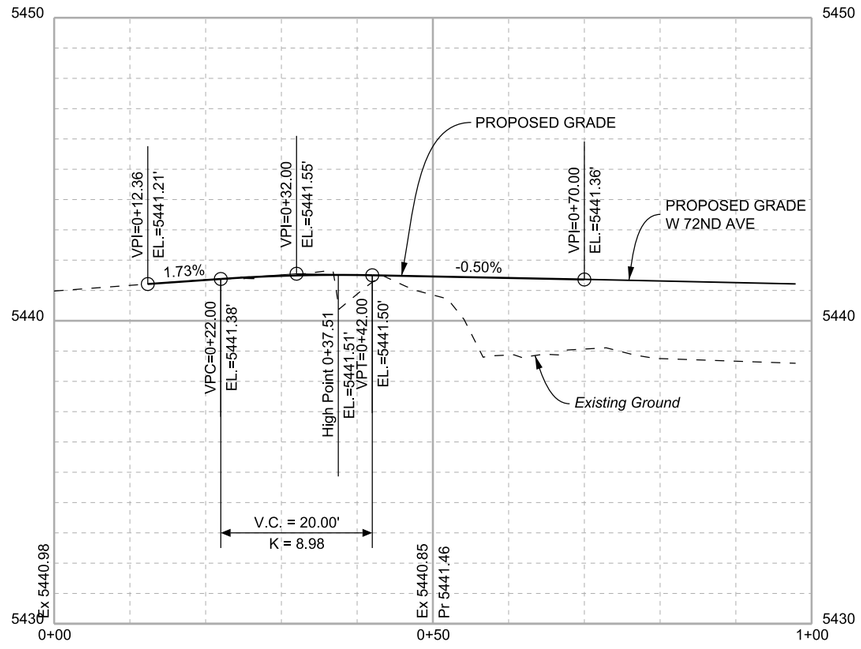
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET ROADWAY PROFILES
LINCOLN ACADEMY STA. 0+00 TO STA. 2+00

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PROFILES	Subset Sheets:	6 of 6

Project No./Code

Sheet Number 122



W 72ND AVE & SWADLEY CT SE PANLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

0' 10' 20'
0'
2'
4'

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_ProfilePanline01.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	PANLINE PROFILE			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: PANLINE	Subset Sheets: 1 of 10		Sheet Number 123

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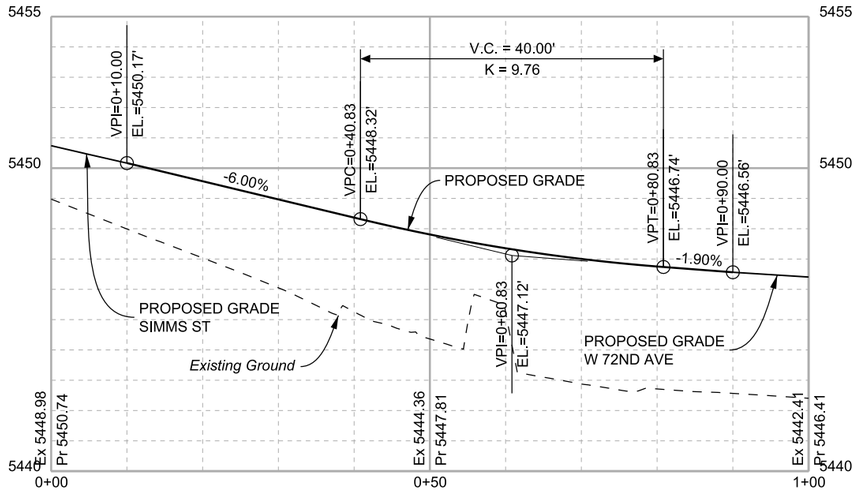
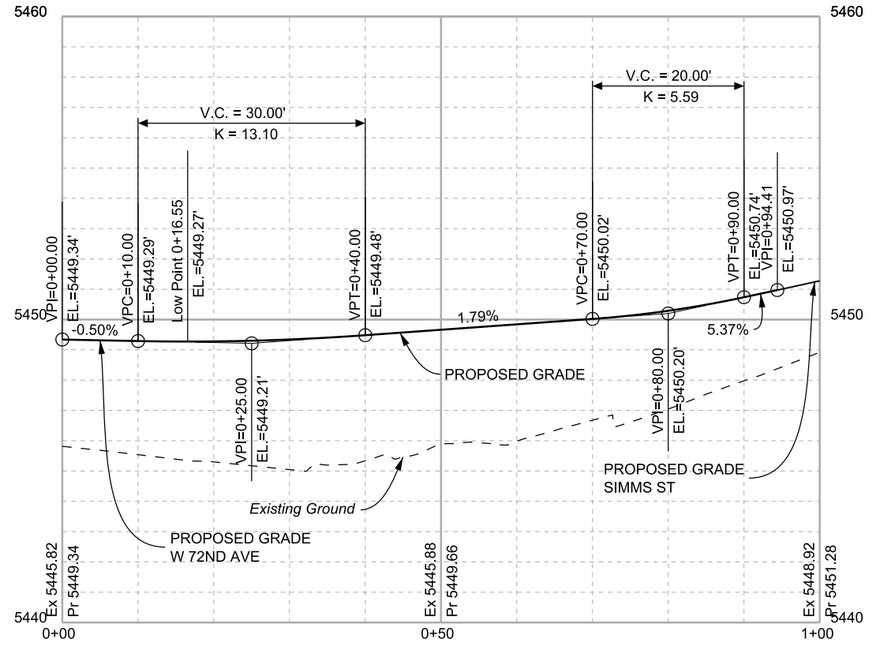
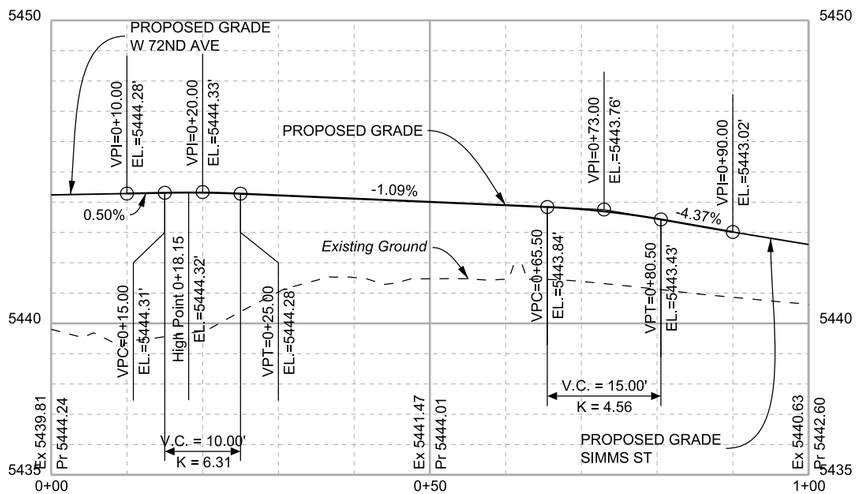
9/17/2021 tplotdrvm.plt
MEC-Standard.tbl



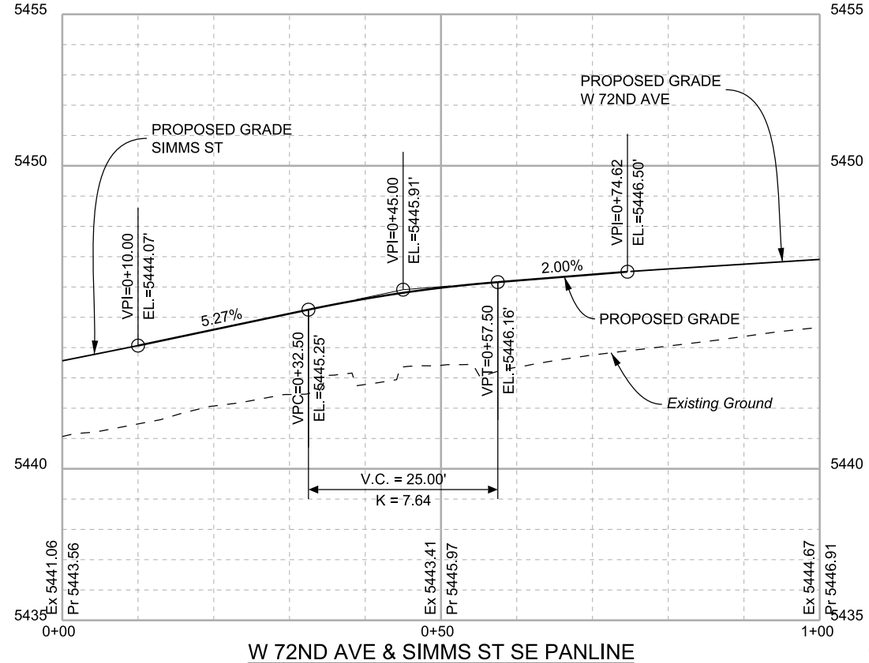
W 72ND AVE & SIMMS ST NW PANLINE



W 72ND AVE & SIMMS ST NE PANLINE



W 72ND AVE & SIMMS ST SW PANLINE



W 72ND AVE & SIMMS ST SE PANLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_ProfilePanline02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	PANLINE PROFILES		
Revised:	Designer: RML	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: PANLINE	Subset Sheets: 2 of 10	Sheet Number 124

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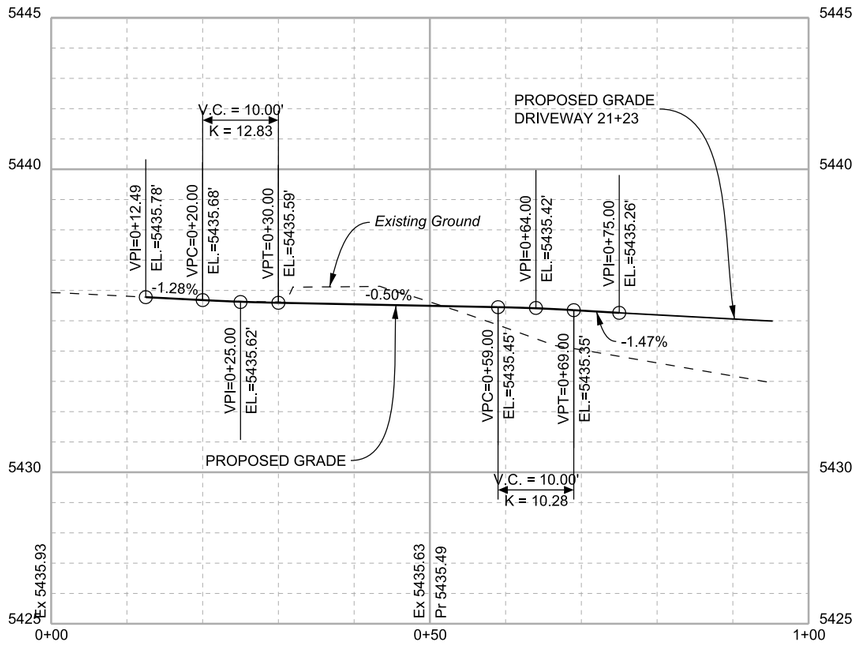
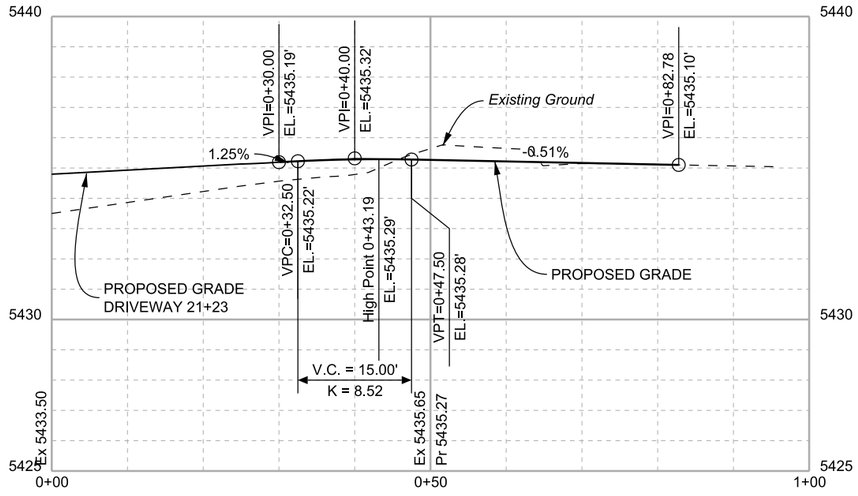


SIMMS ST & DRIVEWAY 21+23 NW PANLINE



SIMMS ST & DRIVEWAY 21+23 SW PANLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

0' 10' 20'
0' 2' 4'

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MEC-Standard.tbl
tplotdrvm.plt
9/17/2021

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_DES_ProfilePanline03.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

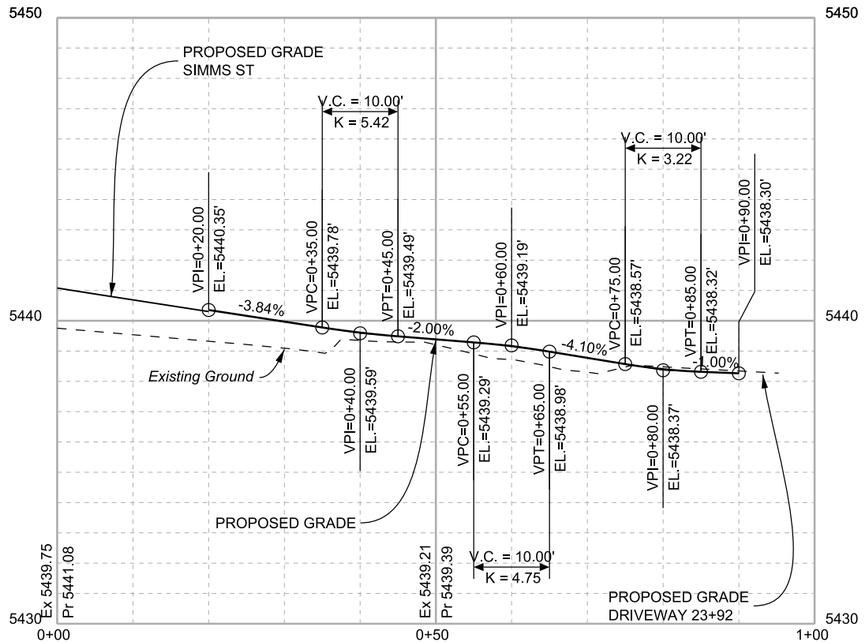
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE PROFILES

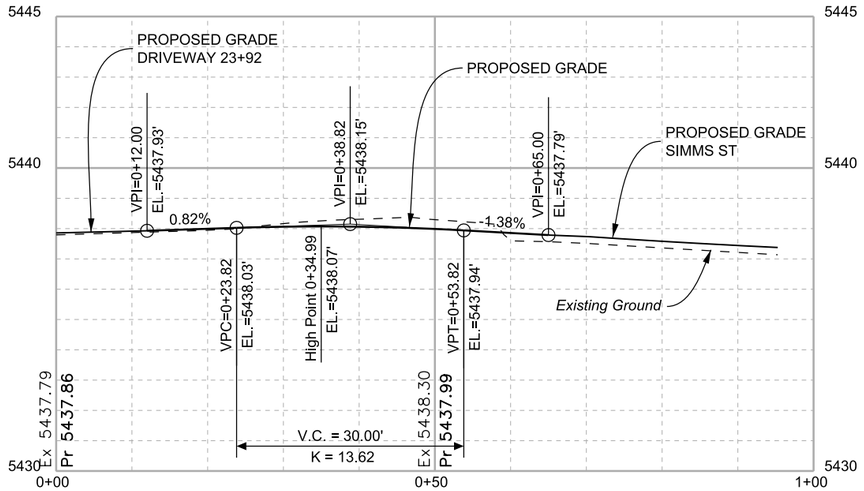
Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PANLINE	Subset Sheets:	3 of 10

Project No./Code

Sheet Number 125



SIMMS ST & DRIVEWAY 23+92 NW PANLINE



SIMMS ST & DRIVEWAY 23+92 SW PANLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

4'
2'
0'
0'
10'
20'

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_ProfilePanline04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	PANLINE PROFILES			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: PANLINE	Subset Sheets: 4 of 10		Sheet Number 126

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9/17/2021
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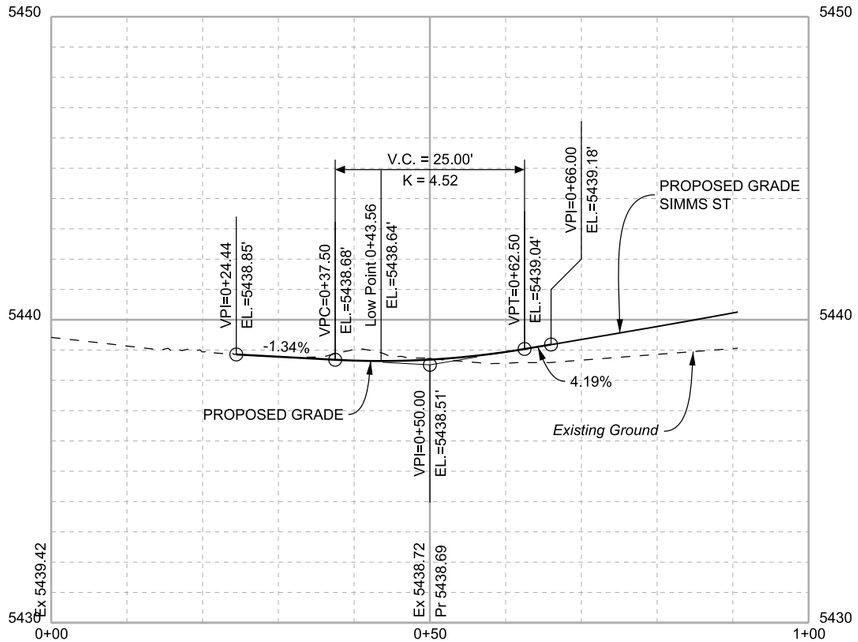

SIMMS ST & GAS STATION NE FLOWLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

4'
2'
0'
0'
10'
20'

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_ProfilePanline05.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	PANLINE PROFILES			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: PANLINE	Subset Sheets: 5 of 10		Sheet Number 127

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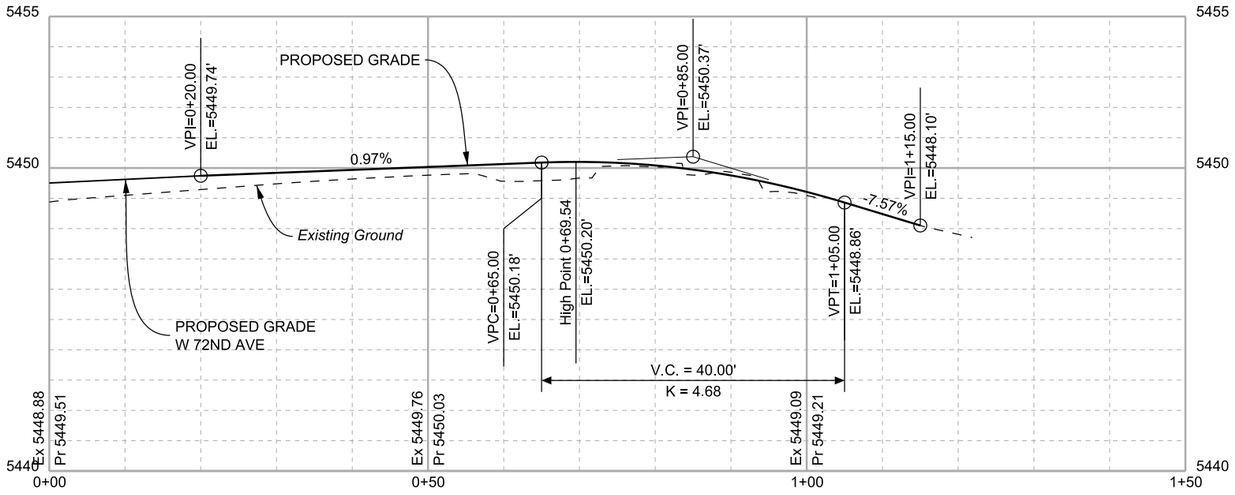
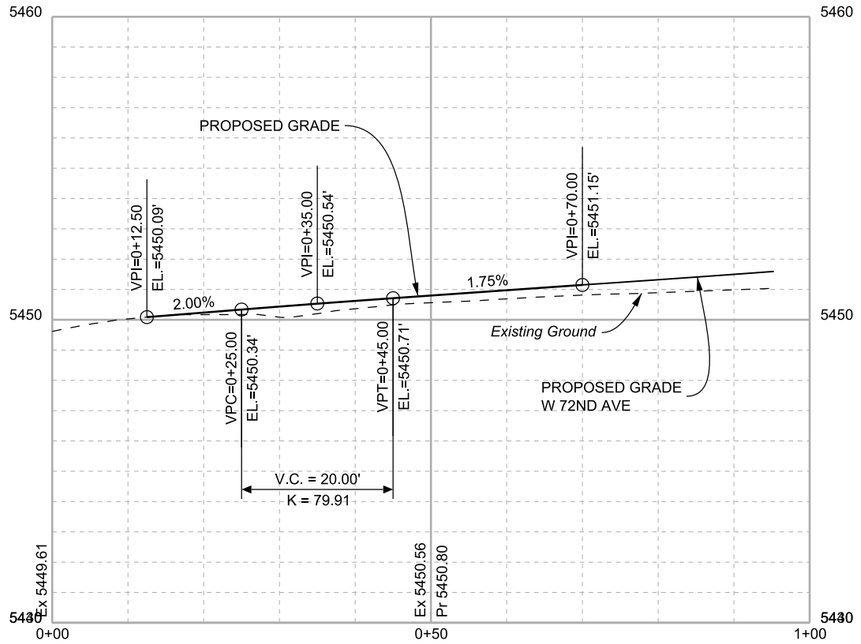
9/17/2021

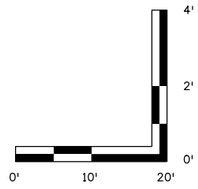


W 72ND AVE & GAS STATION SW PANLINE



W 72ND AVE & GAS STATION SE PANLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022



Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_DES_ProfilePanline06.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE PROFILES

Designer:	RML	Structure Numbers		Project No./Code
Detailer:	SAD			
Sheet Subset:	PANLINE	Subset Sheets:	6 of 10	Sheet Number 128

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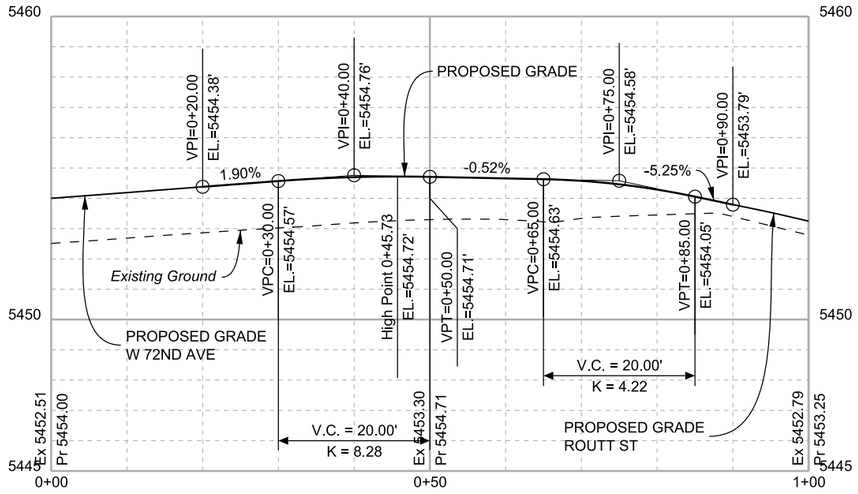
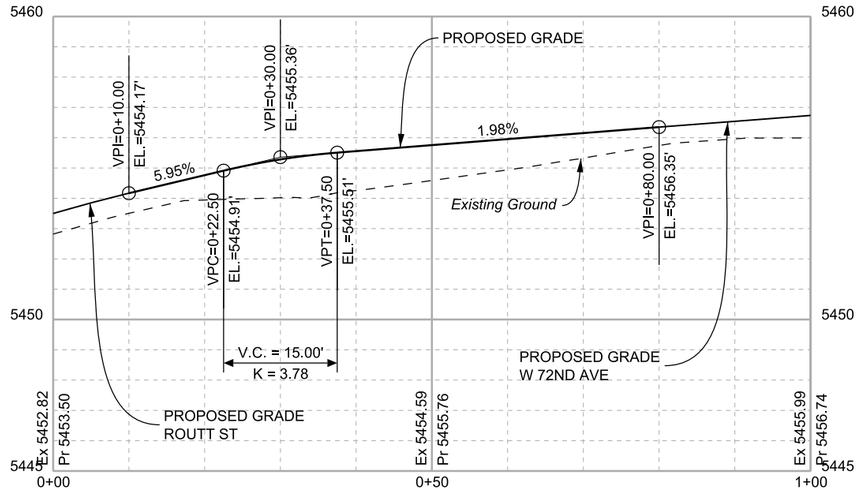
9/17/2021



W 72ND AVE & ROUTT ST SW PANLINE



W 72ND AVE & ROUTT ST SE PANLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

4'
2'
0'
0'
10'
20'

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_DES_ProfilePanline07.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE PROFILES

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PANLINE	Subset Sheets:	7 of 10

Project No./Code

Sheet Number 129

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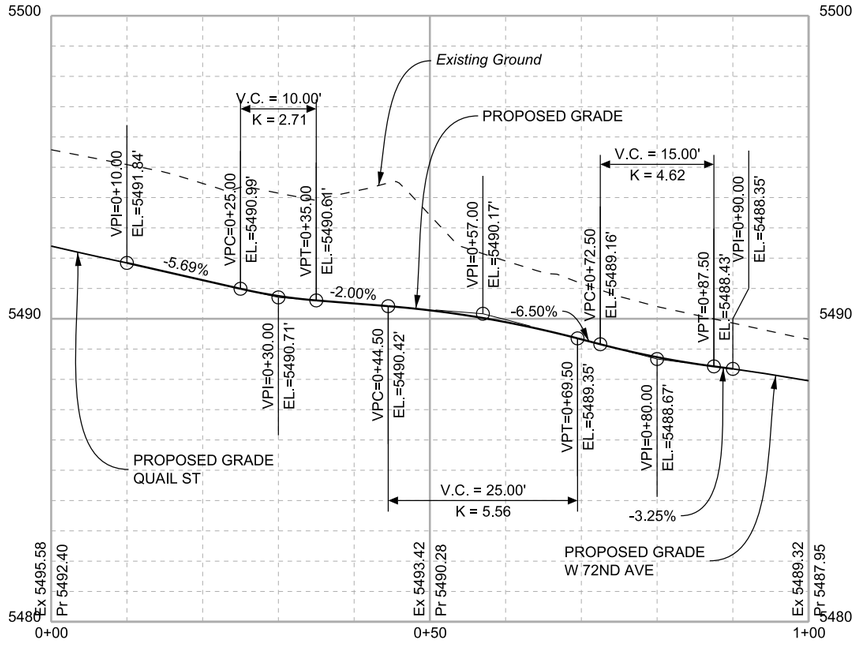
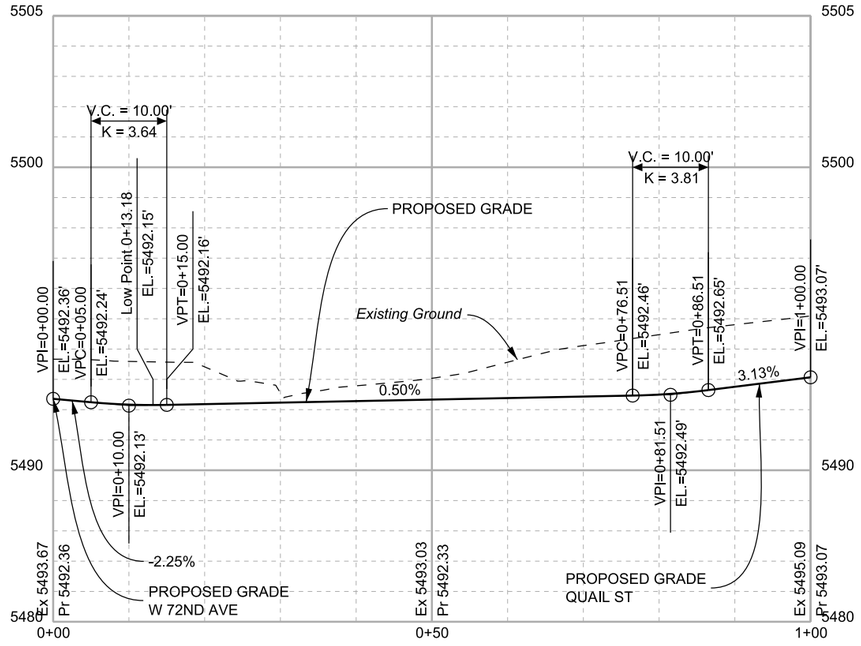
9/17/2021
tplotdrvm.plt
MEC-Standard.tbl

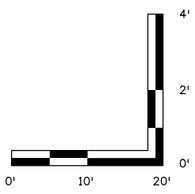


W 72ND AVE & QUAIL ST NW PANLINE



W 72ND AVE & QUAIL ST NE PANLINE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022



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Drawing File Name: 18061_CP2_DES_ProfilePanline08.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE PROFILES

Designer: RML
Detailer: SAD
Sheet Subset: PANLINE
Structure Numbers
Subset Sheets: 8 of 10

Project No./Code

Sheet Number 130

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9/17/2021
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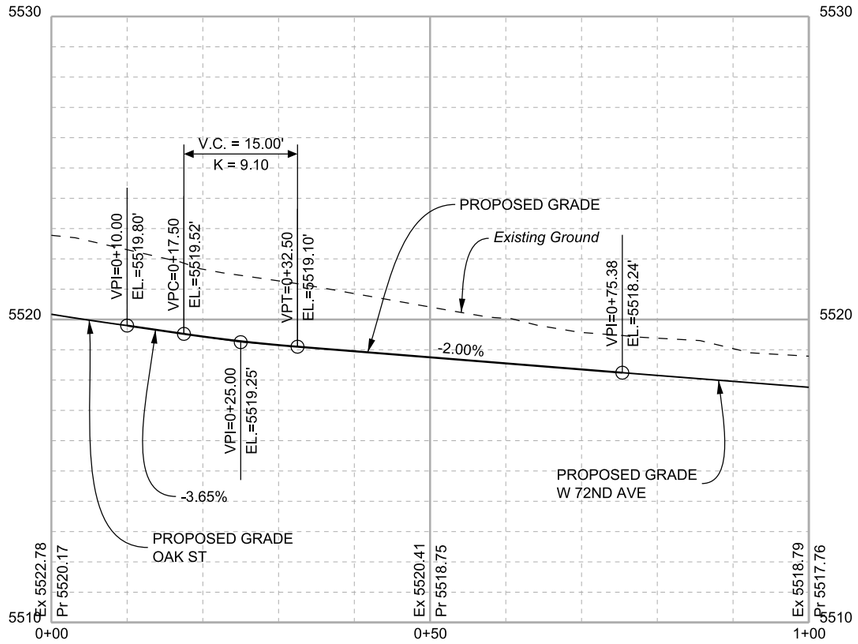
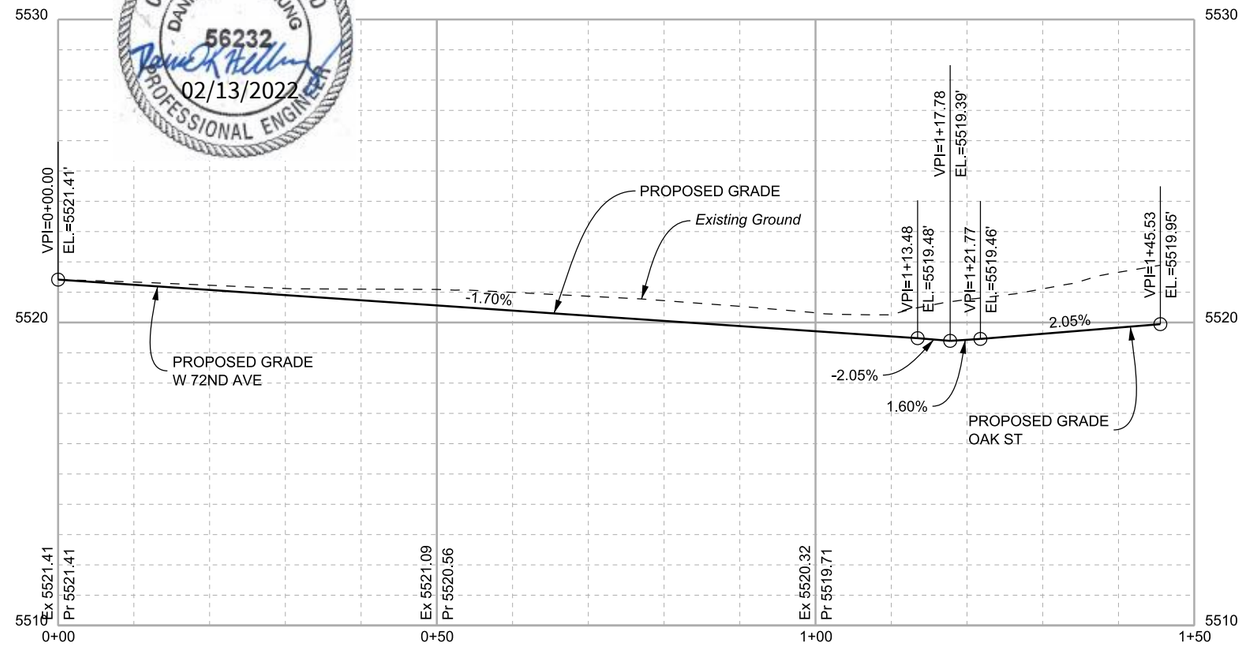


W 72ND AVE & OAK ST NW PANLINE



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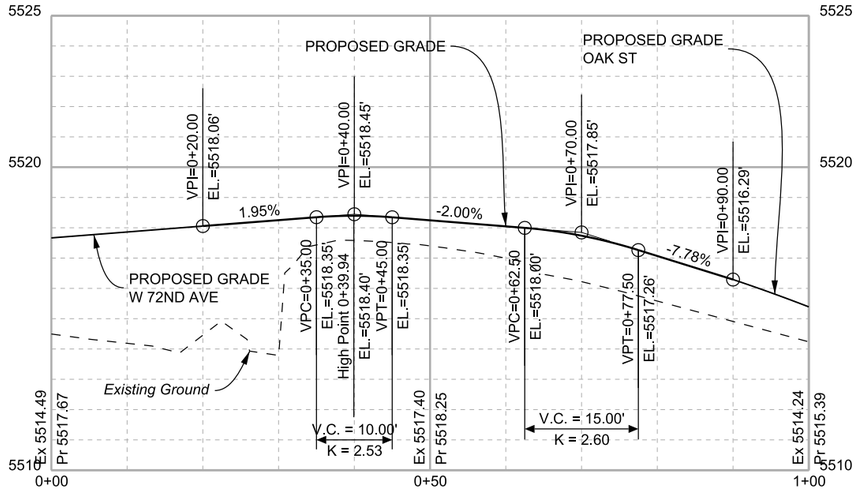

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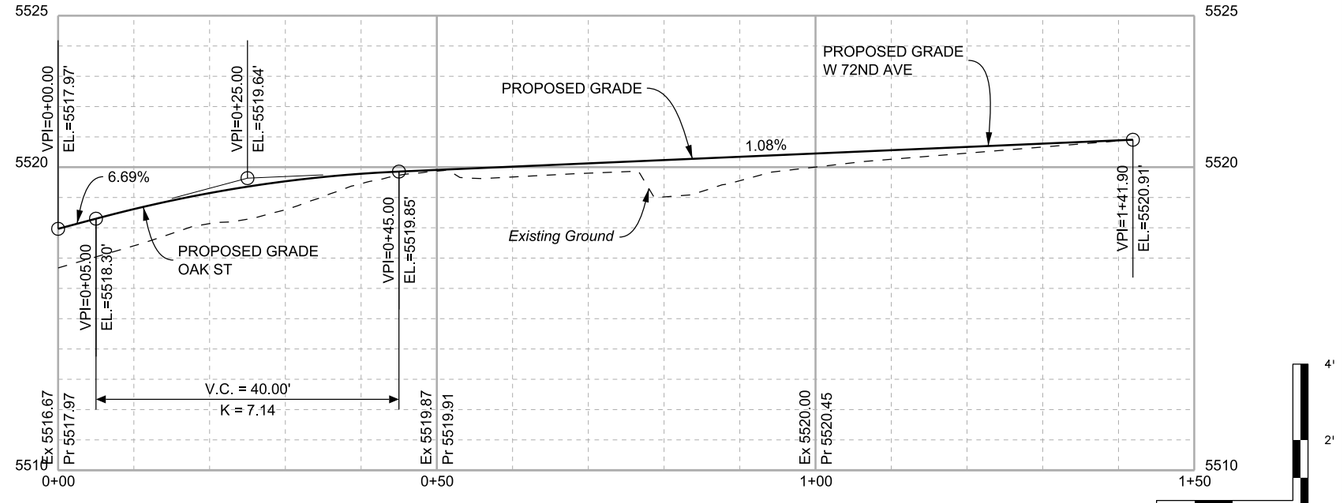

W 72ND AVE & OAK ST SE PANLINE

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56232
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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_DES_ProfilePanline09.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE PROFILES

				Project No./Code
Designer:	RML	Structure Numbers		
Detailer:	SAD			
Sheet Subset:	PANLINE	Subset Sheets:	9 of 10	Sheet Number 131

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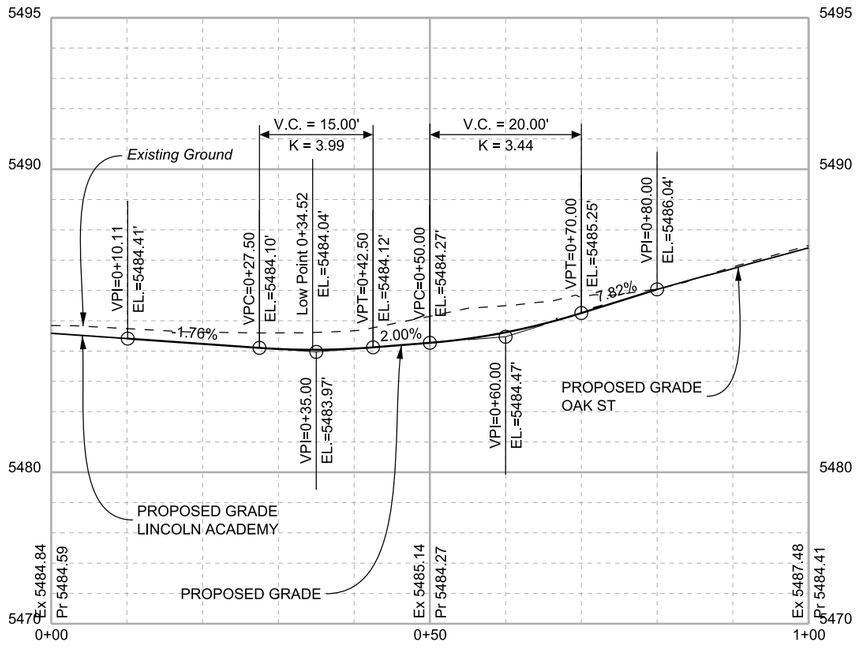
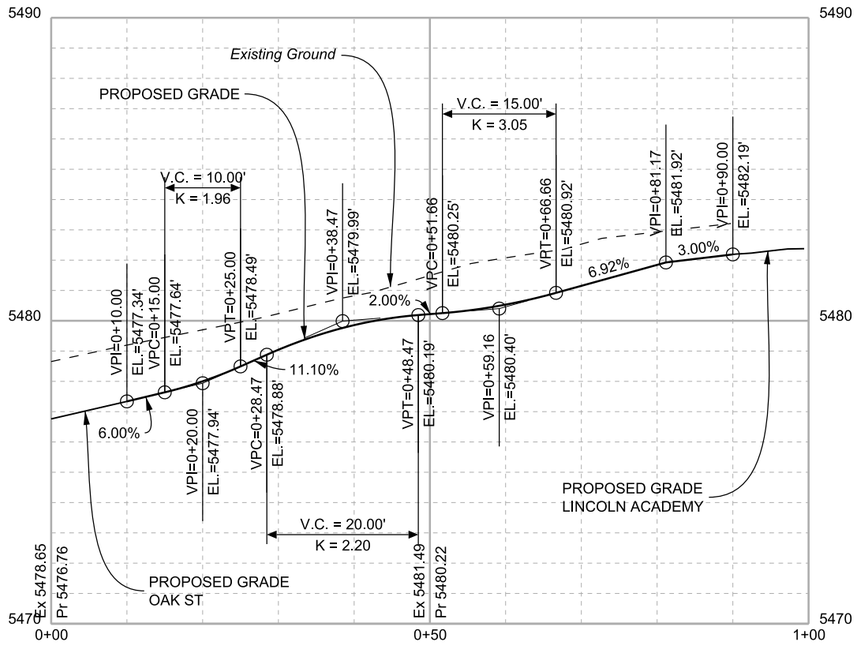
9/17/2021



OAK ST & LINCOLN ACADEMY NE PANLINE



OAK ST & LINCOLN ACADEMY SE PANLINE

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56232
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4'
2'
0'
0'
10'
20'

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_DES_ProfilePanline10.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

PANLINE PROFILES

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PANLINE	Subset Sheets:	10 of 10

Project No./Code

Sheet Number 132

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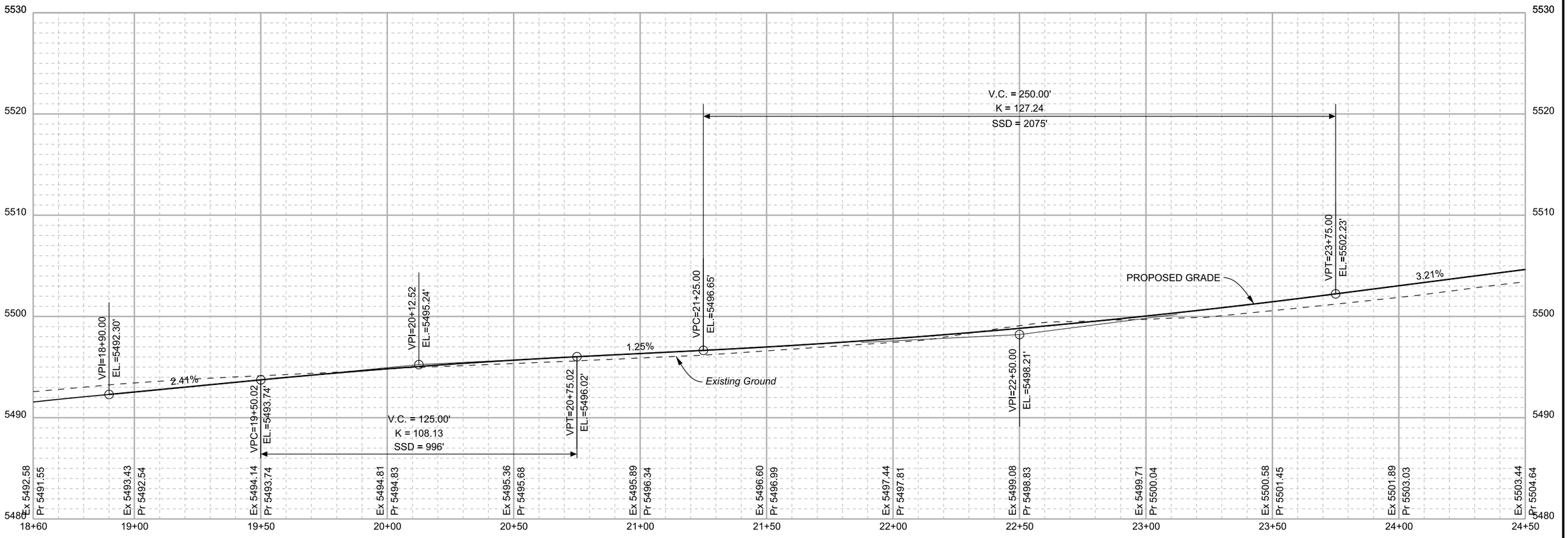
9/17/2021



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10'
5'
0'
0'
20'
40'

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Horiz. Scale: 1:40 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
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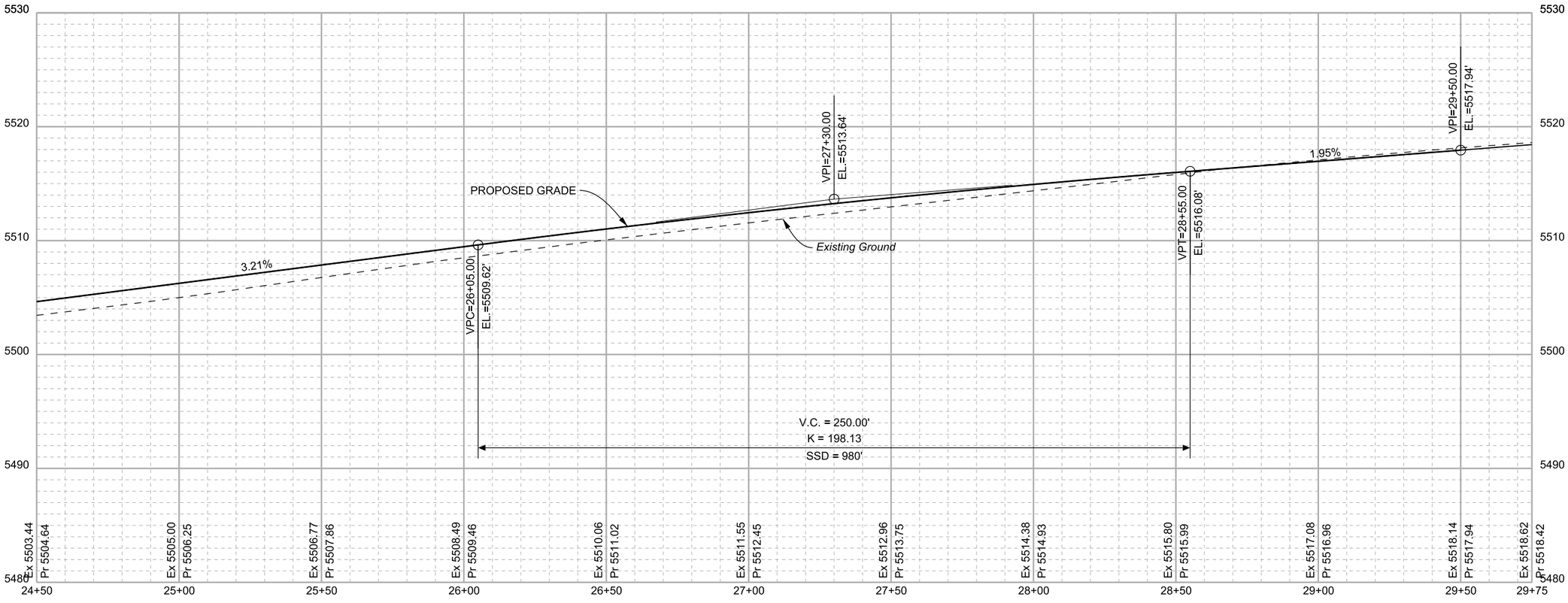
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

MEDIAN PANLINE PROFILE
STA. 18+60 TO STA 24+50

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset: MISC PROFILE		Subset Sheets:	1 of 2

Project No./Code

Sheet Number 133



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Unit Information Unit Leader Initials					Void:
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CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

MEDIAN PANLINE PROFILE
STA. 24+50 TO STA 29+75

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	MISC PROFILE	Subset Sheets:	2 of 2

Project No./Code

Sheet Number 134

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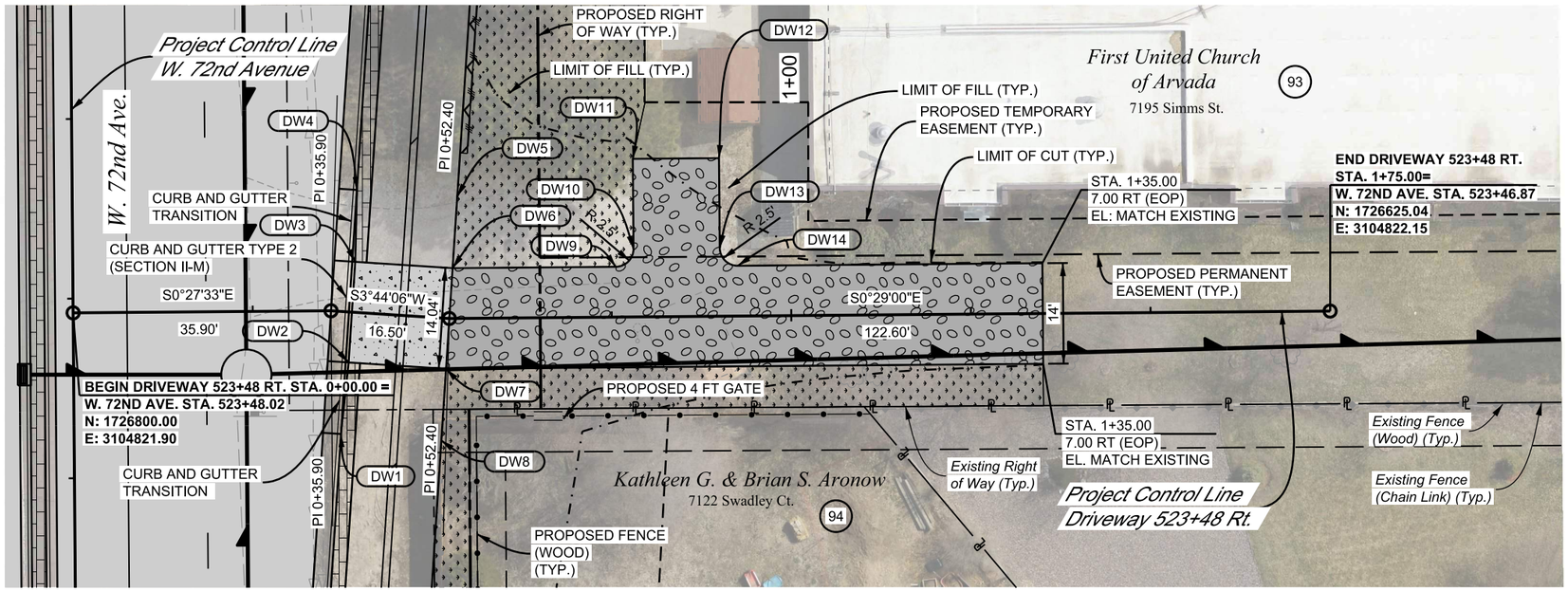
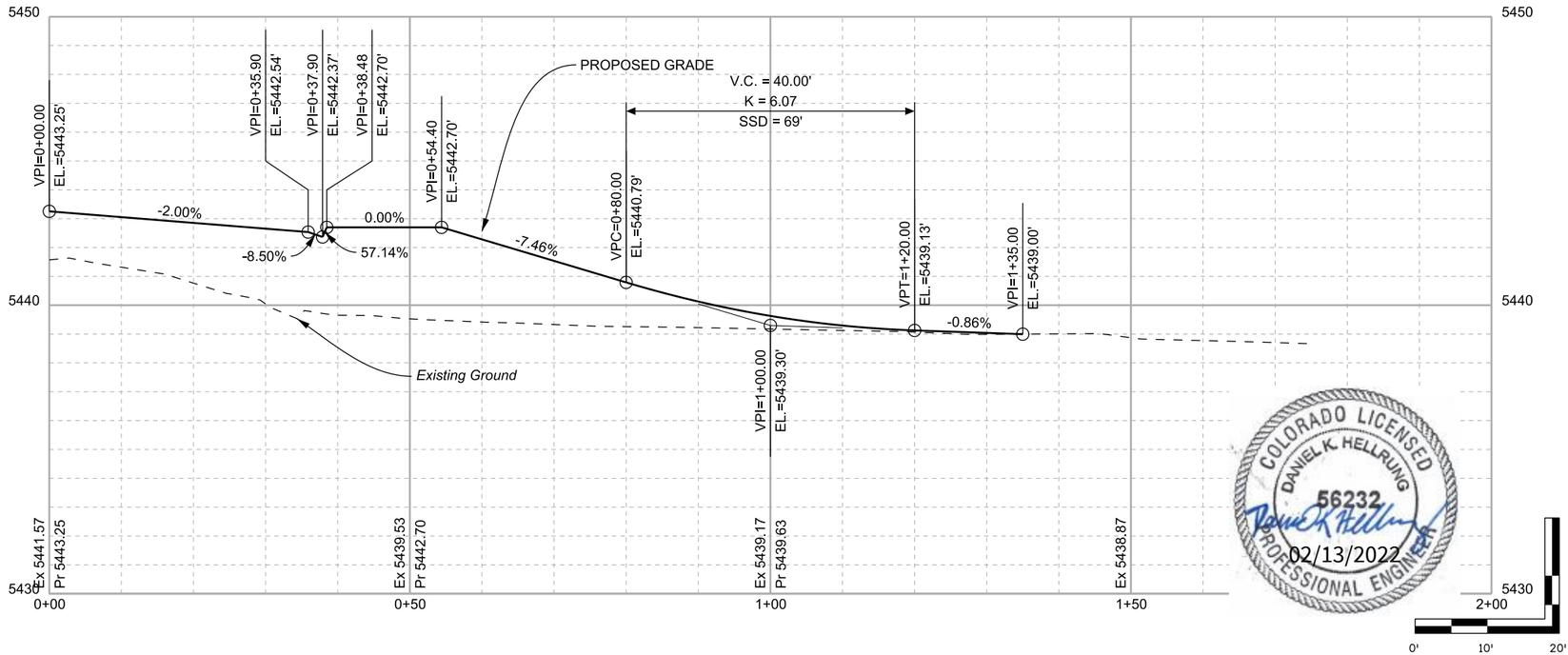
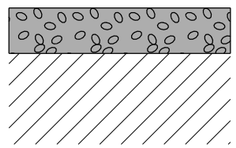




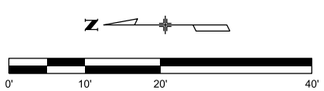
DRIVEWAY 523+48 RT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+38.40	17.02' RT	5442.70'	BOC
DW2	0+38.81	7.02' RT	5442.62'	BOC
DW3	0+38.81	7.02' LT	5442.77'	BOC
DW4	0+38.40	17.02' LT	5443.04'	BOC
DW5	0+53.65	16.97' LT	5443.32'	BOW
DW6	0+52.91	7.00' LT	5442.77'	BOW
DW7	0+52.40	7.02' RT	5442.62'	BOW
DW8	0+52.40	17.02' RT	5442.98'	BOW
DW9	0+75.62	7.00' LT	5441.40'	DW
DW10	0+78.12	9.50' LT	5441.30'	DW
DW11	0+78.12	22.00' LT	ME	EOP
DW12	0+90.12	22.00' LT	ME	EOP
DW13	0+90.12	9.50' LT	5440.04'	DW
DW14	0+92.62	7.00' LT	5440.14'	DW

ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT



ABC DRIVEWAY SECTION
N.T.S.



LEGEND

- LIMIT OF FULL DEPTH PAVEMENT
- LIMIT OF OVERLAY
- MEDIAN COVER MATERIAL
- CONCRETE PAVEMENT (6 INCH)
- AGGREGATE BASE COURSE (CLASS 6) (6 INCH)

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9/17/2021
tplotdrvm.plt

Print Date: 9/17/2021		Sheet Revisions	
Drawing File Name: 18061_CP2_DES_Driveway01_523+48 RT.dgn		Date: Comments Init.	
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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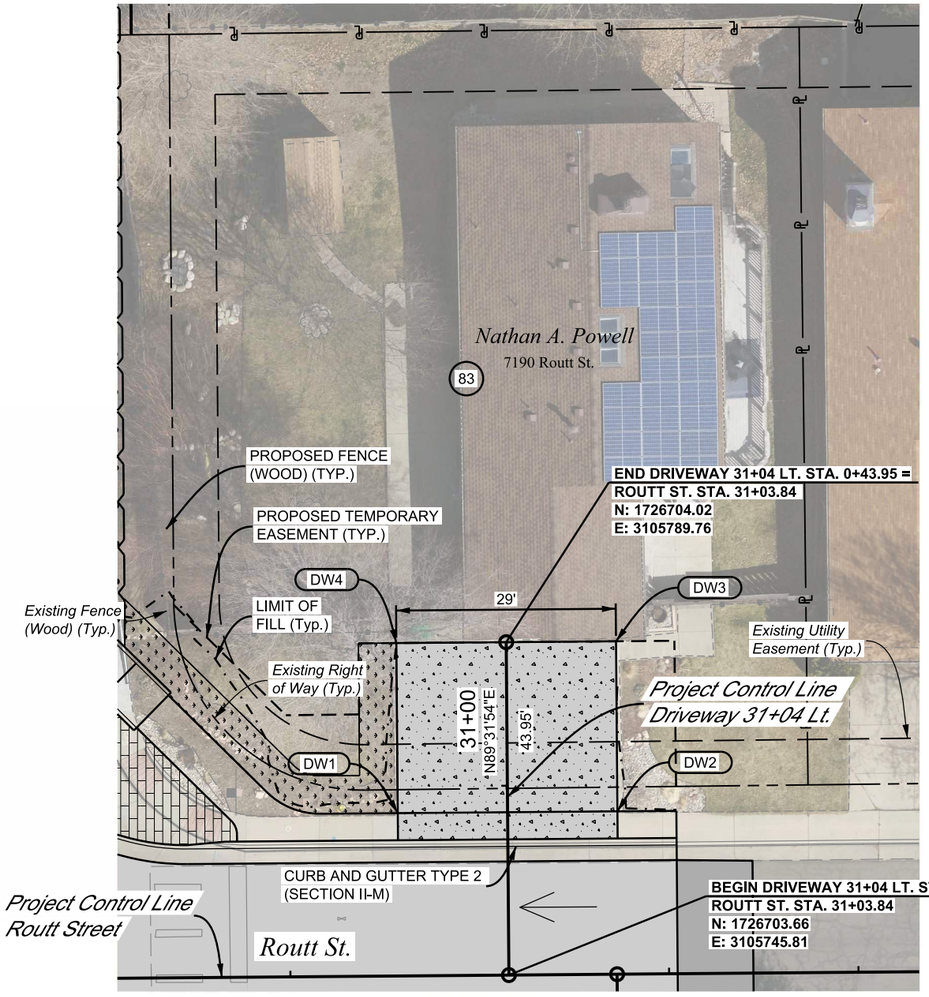
As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	DRIVEWAY PLAN AND PROFILE DRIVEWAY 523+48 RT.		
Revised:	Designer: RML	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: DRIVEWAY	Subset Sheets: 1 of 8	Sheet Number 135



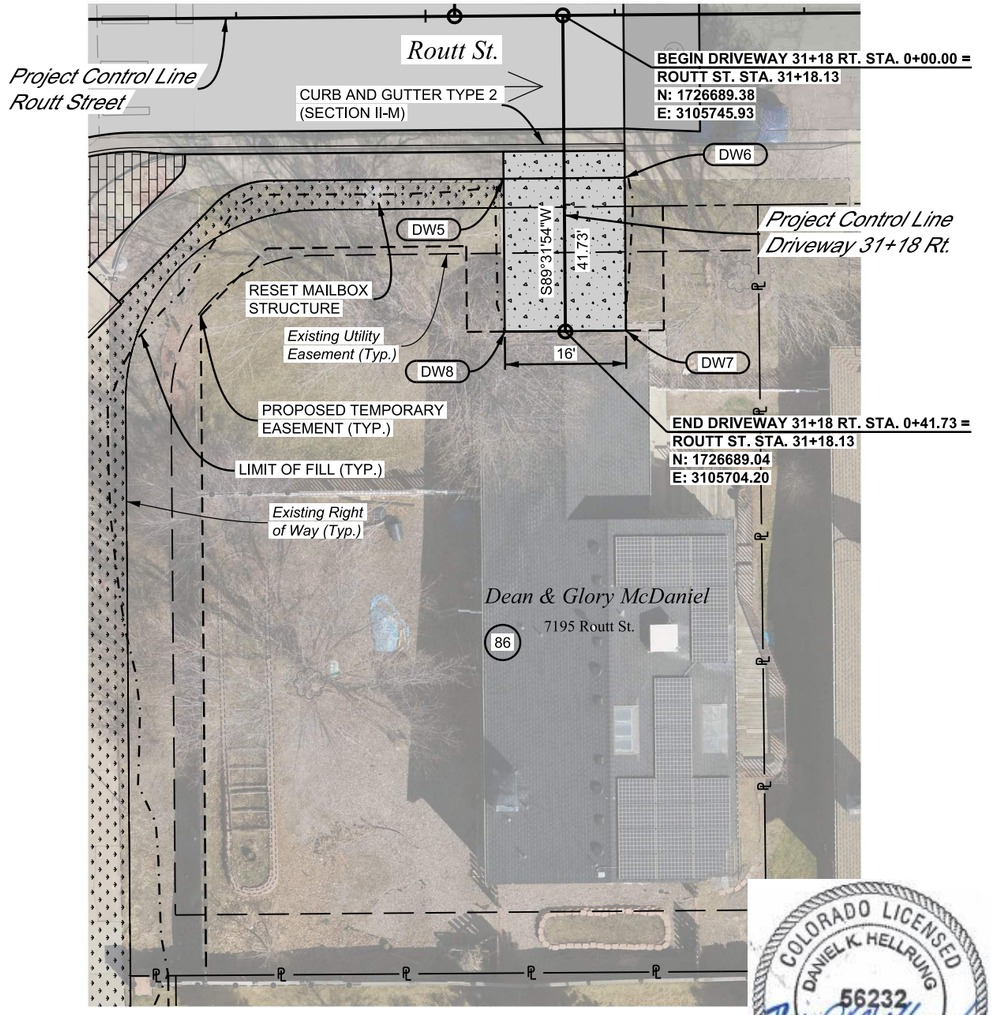
DRIVEWAY 31+04 LT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+21.50	14.50' LT	5453.52'	BOW
DW2	0+21.50	14.50' RT	5450.84'	BOW
DW3	0+43.95	14.50' RT	ME	EOP
DW4	0+43.95	14.50' LT	ME	EOP

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT
- LIMIT OF OVERLAY
- MEDIAN COVER MATERIAL
- CONCRETE PAVEMENT (6 INCH)
- AGGREGATE BASE COURSE (CLASS 6) (6 INCH)

DRIVEWAY 31+18 RT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW5	0+21.50	8.00' RT	5451.73'	BOW
DW6	0+21.50	8.00' LT	5450.24'	BOW
DW7	0+41.68	8.00' LT	ME	EOP
DW8	0+41.68	8.00' RT	ME	EOP



ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT

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Unit Information Unit Leader Initials

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Date:	Comments	Init.

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Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRIVEWAY PLAN
DRIVEWAY 31+04 LT & DRIVEWAY 31+18 RT

Designer: RML
Detailer: SAD
Sheet Subset: DRIVEWAY
Structure Numbers:
Subset Sheets: 2 of 8

Project No./Code:
Sheet Number 136

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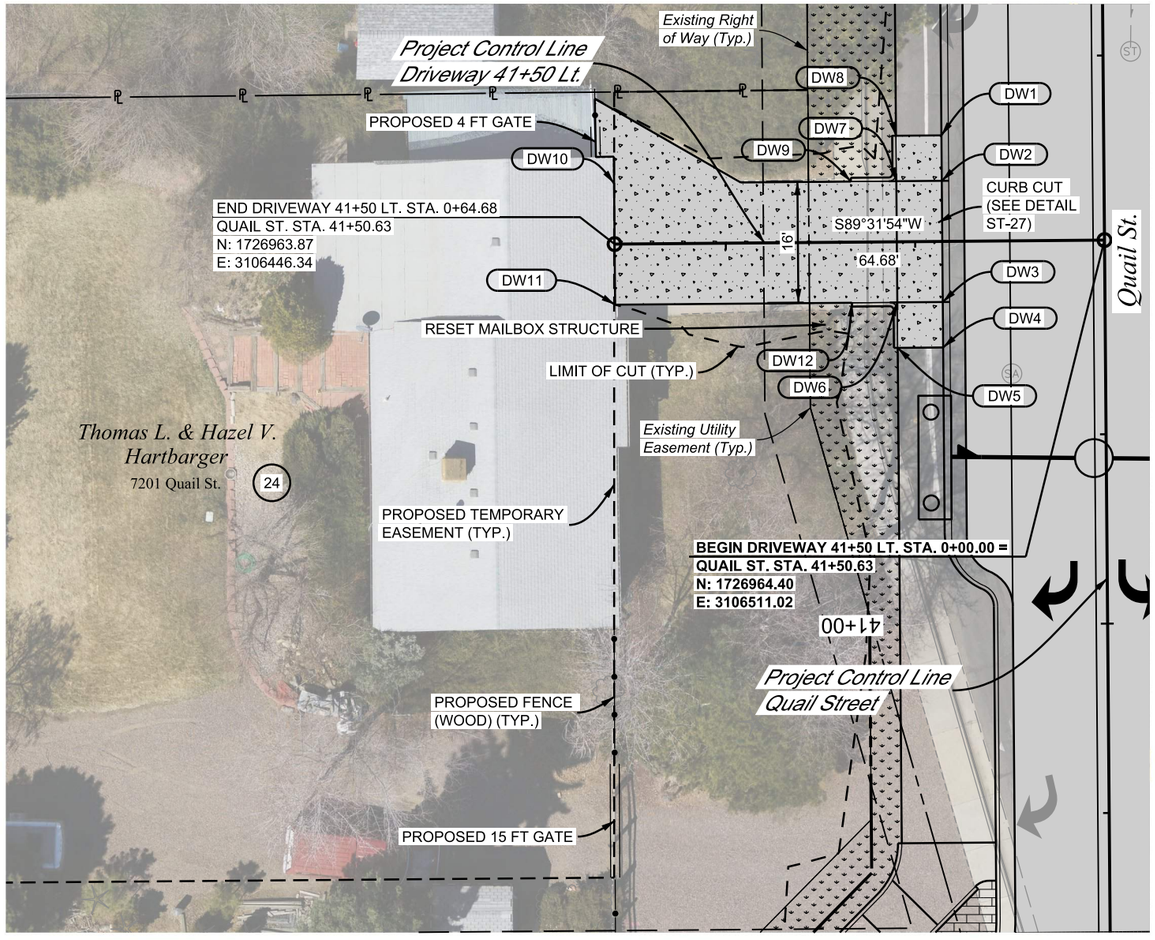

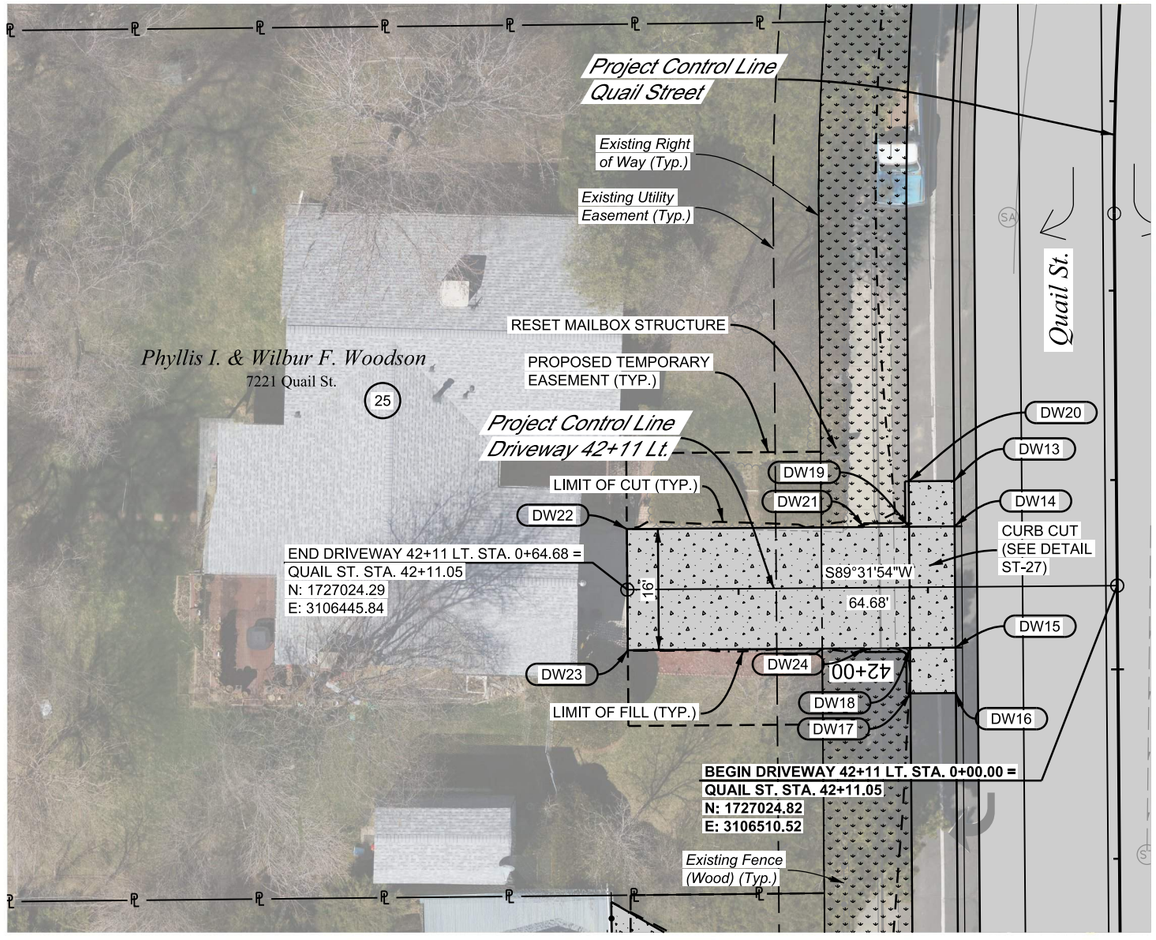

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT
- LIMIT OF OVERLAY
- MEDIAN COVER MATERIAL
- CONCRETE PAVEMENT (6 INCH)
- AGGREGATE BASE COURSE (CLASS 6) (6 INCH)

DRIVEWAY 41+50 LT.

POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+21.42	14.00' RT	5497.49'	BOC
DW2	0+21.42	8.00' RT	5496.99'	BOC
DW3	0+21.42	8.00' LT	5495.91'	BOC
DW4	0+21.42	14.00' LT	5495.81'	BOC
DW5	0+27.42	14.00' LT	5495.93'	BOW
DW6	0+27.42	8.00' LT	5496.03'	BOW
DW7	0+27.42	8.00' RT	5497.11'	BOW
DW8	0+27.42	14.00' RT	5497.61'	BOW
DW9	0+33.42	8.00' RT	5497.52'	DW
DW10	0+64.68	8.00' RT	ME	EOP
DW11	0+64.68	8.00' LT	ME	EOP
DW12	0+33.42	8.00' LT	5496.57'	DW

ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT

DRIVEWAY 42+11 LT.

POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW13	0+21.42	14.00' RT	5501.03'	BOC
DW14	0+21.42	8.00' RT	5500.53'	BOC
DW15	0+21.42	8.00' LT	5499.67'	BOC
DW16	0+21.42	14.00' LT	5499.65'	BOC
DW17	0+27.42	14.00' LT	5499.77'	BOW
DW18	0+27.42	8.00' LT	5499.79'	BOW
DW19	0+27.42	8.00' RT	5500.65'	BOW
DW20	0+27.42	14.00' RT	5501.15'	BOW
DW21	0+33.42	8.00' RT	5500.72'	DW
DW22	0+64.68	8.00' RT	ME	EOP
DW23	0+64.68	8.00' LT	ME	EOP
DW24	0+33.42	8.00' LT	5499.98'	DW

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Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRIVEWAY PLAN
DRIVEWAY 41+50 LT & DRIVEWAY 42+11 LT

Designer:	RML	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	DRIVEWAY	Subset Sheets:	3 of 8

Project No./Code

Sheet Number 137

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DRIVEWAY 43+63 LT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW13	0+21.39	12.00' RT	5507.19'	BOC
DW14	0+21.40	6.00' RT	5506.69'	BOC
DW15	0+21.38	5.93' LT	5506.24'	BOC
DW16	0+21.25	11.84' LT	5506.31'	BOC
DW17	0+28.04	11.99' LT	5506.43'	BOW
DW18	0+27.77	6.00' LT	5506.37'	BOW
DW19	0+27.37	6.02' RT	5506.81'	BOW
DW20	0+27.25	12.02' RT	5507.31'	BOW
DW21	0+33.00	6.00' RT	5507.00'	DW
DW22	0+51.45	6.00' RT	ME	EOP
DW23	0+51.45	6.00' LT	ME	EOP
DW24	0+33.78	6.00' LT	5506.58'	DW

DRIVEWAY 43+19 LT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+21.20	13.39' RT	5505.59'	BOC
DW2	0+21.35	7.48' RT	5505.12'	BOC
DW3	0+21.35	7.46' LT	5504.63'	BOC
DW4	0+21.20	13.37' LT	5504.71'	BOC
DW5	0+29.11	13.46' LT	5504.83'	BOW
DW6	0+28.42	7.50' LT	5504.79'	BOW
DW7	0+27.35	7.58' RT	5505.26'	BOW
DW8	0+27.20	13.58' RT	5505.71'	BOW
DW9	0+32.36	7.50' RT	5505.45'	DW
DW10	0+53.23	7.50' RT	ME	EOP
DW11	0+53.23	7.50' LT	ME	EOP
DW12	0+34.46	7.50' LT	5505.01'	DW

ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

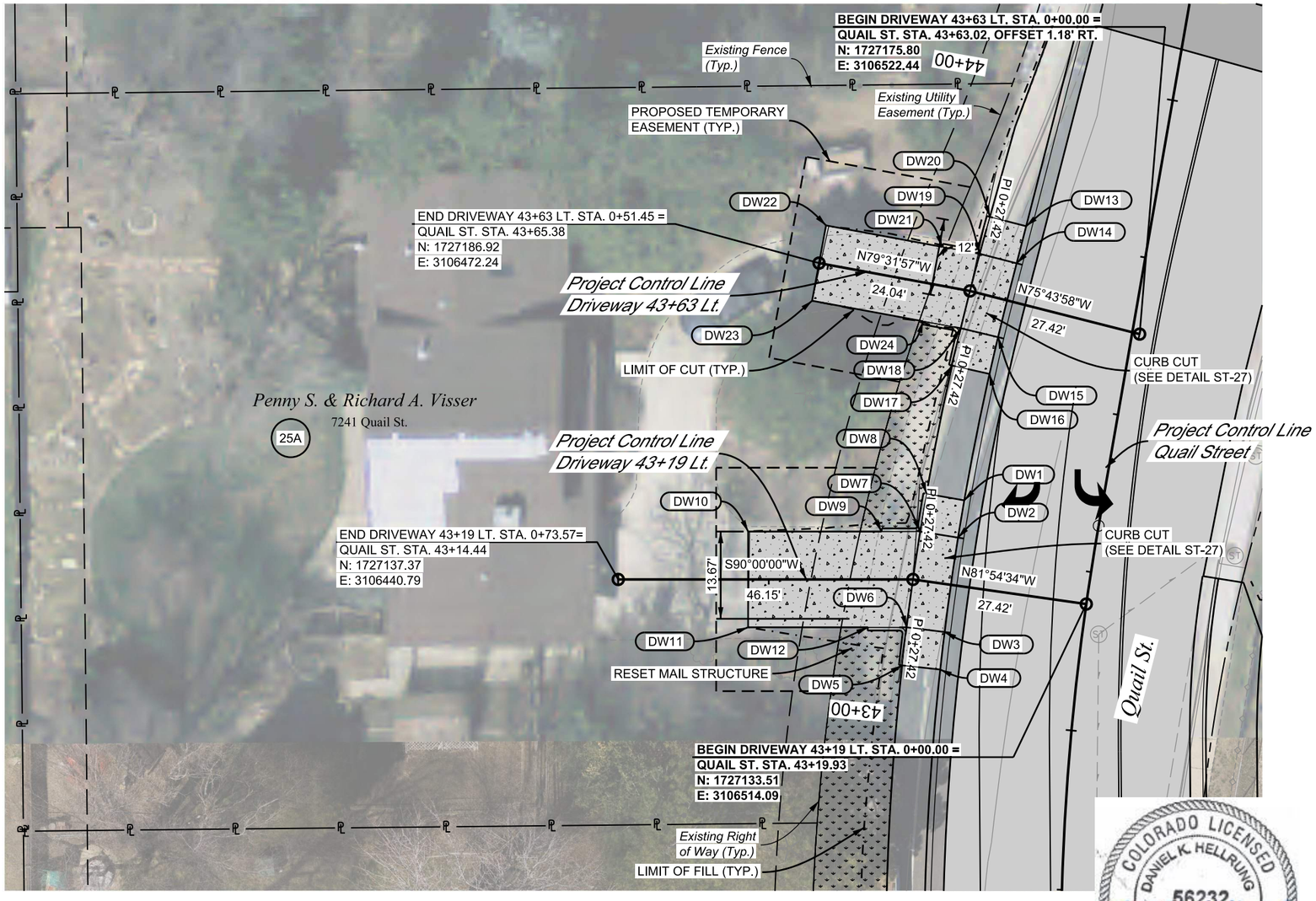
BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT
- LIMIT OF OVERLAY
- MEDIAN COVER MATERIAL
- CONCRETE PAVEMENT (6 INCH)
- AGGREGATE BASE COURSE (CLASS 6) (6 INCH)

N

0' 10' 20' 40'



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56232
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02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
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Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

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As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
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Revised:	DRIVEWAY 43+19 LT & DRIVEWAY 43+63 LT			
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	Detailer: SAD			
	Sheet Subset: DRIVEWAY	Subset Sheets: 4 of 8		Sheet Number 138

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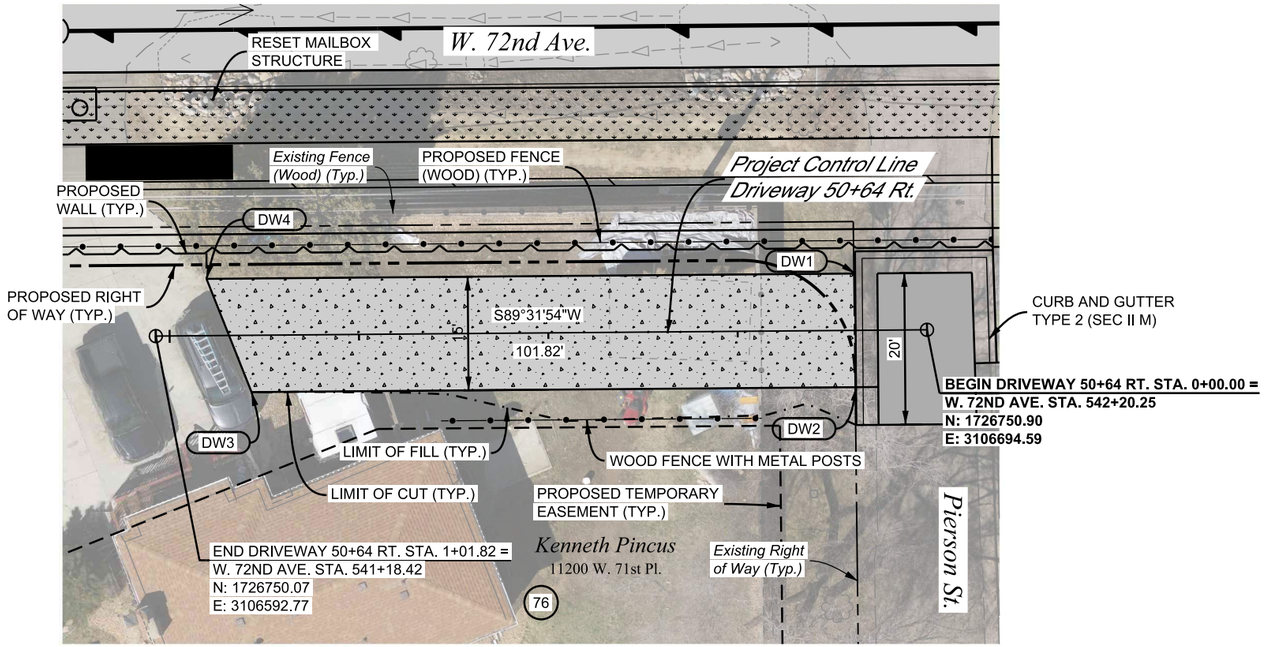
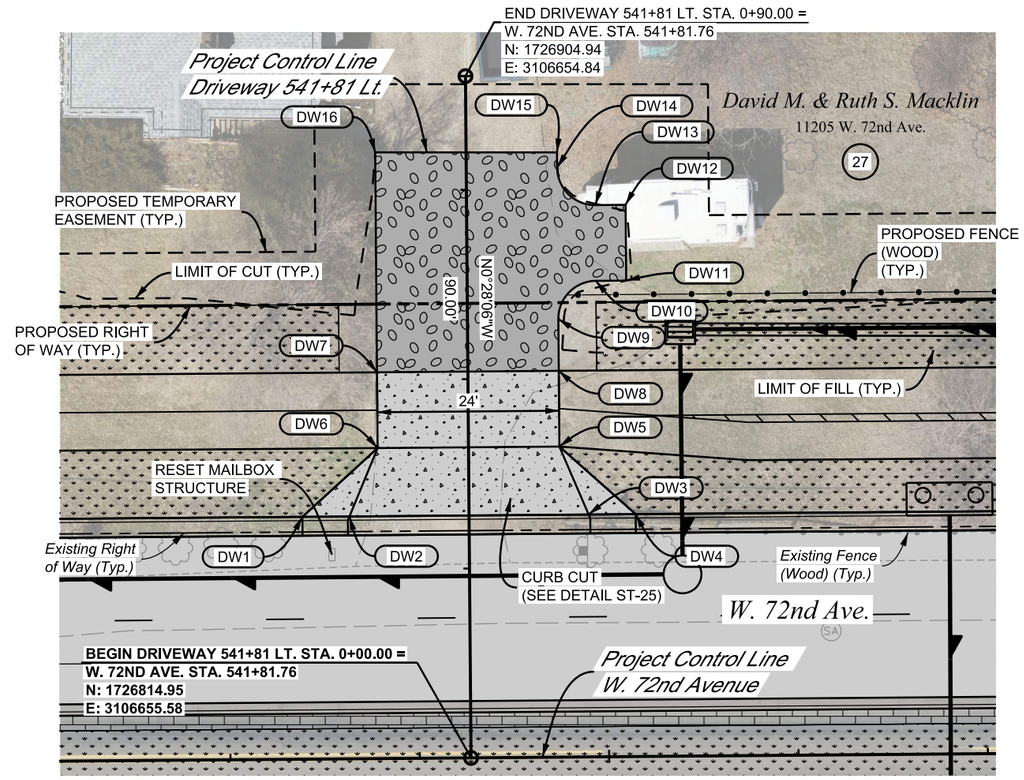
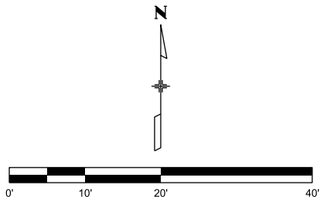




DRIVEWAY 50+64 RT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+09.43	7.50' RT	5491.85'	BOC
DW2	0+09.43	7.50' LT	5491.22'	BOC
DW3	0+89.24	7.50' LT	ME	DW
DW4	0+95.07	7.50' RT	ME	DW



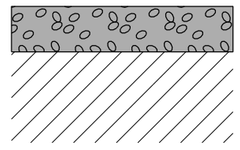
LEGEND

- LIMIT OF FULL DEPTH PAVEMENT
- LIMIT OF OVERLAY
- MEDIAN COVER MATERIAL
- CONCRETE PAVEMENT (6 INCH)
- AGGREGATE BASE COURSE (CLASS 6) (6 INCH)

ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT

DRIVEWAY 541+81 LT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+32.00	22.00' LT	5493.57'	BOC
DW2	0+32.00	15.79' LT	5493.19'	BOC
DW3	0+32.00	15.79' RT	5493.83'	BOC
DW4	0+32.00	22.00' RT	5494.44'	BOC
DW5	0+41.00	12.00' RT	5494.43'	FOW
DW6	0+41.00	12.00' LT	5493.95'	FOW
DW7	0+51.00	12.00' LT	5494.15'	BOW
DW8	0+51.00	12.00' RT	5494.63'	BOW
DW9	0+57.84	12.00' RT	5494.94'	DW
DW10	0+62.84	17.00' RT	5495.18'	DW
DW11	0+62.84	21.00' RT	ME	EOP
DW12	0+72.84	21.00' RT	ME	EOP
DW13	0+72.84	17.00' RT	ME	DW
DW14	0+77.84	12.00' RT	ME	DW
DW15	0+79.94	12.00' RT	ME	EOP
DW16	0+80.04	12.00' LT	ME	EOP



ABC DRIVEWAY SECTION
N.T.S.

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9/17/2021

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_DES_Driveway05_50+64&541+81 LT.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRIVEWAY PLAN
DRIVEWAY 50+64 RT. AND
DRIVEWAY 541+81 LT.

Designer: RML
Detailer: SAD
Sheet Subset: DRIVEWAY
Structure Numbers:
Subset Sheets: 5 of 8

Project No./Code

Sheet Number 139

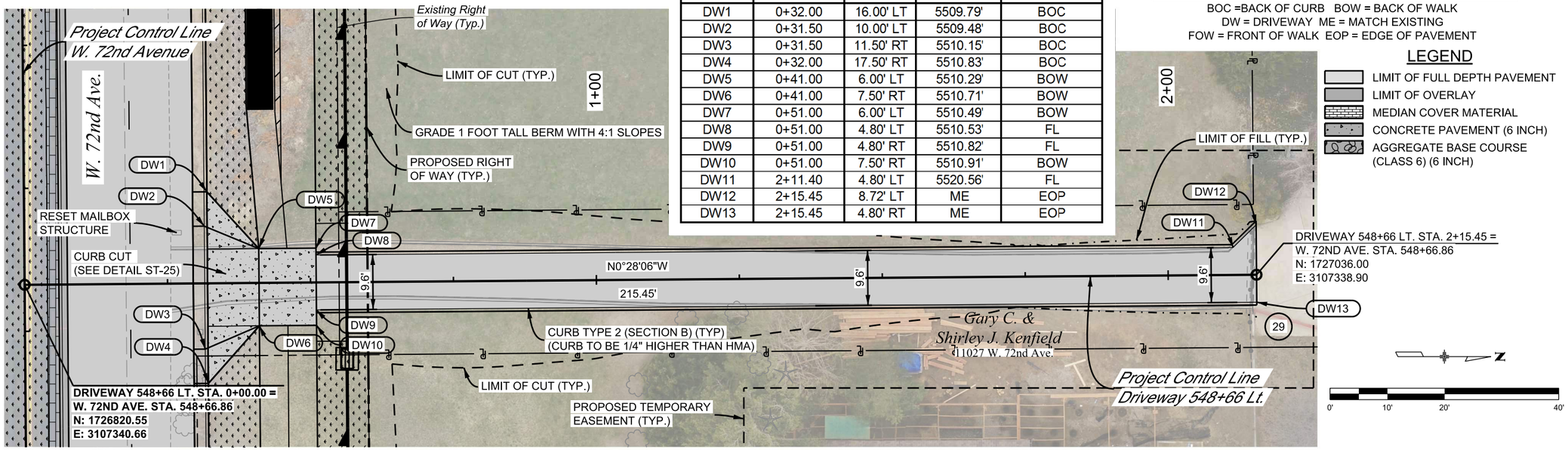
DRIVEWAY 548+66 LT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+32.00	16.00' LT	5509.79'	BOC
DW2	0+31.50	10.00' LT	5509.48'	BOC
DW3	0+31.50	11.50' RT	5510.15'	BOC
DW4	0+32.00	17.50' RT	5510.83'	BOC
DW5	0+41.00	6.00' LT	5510.29'	BOW
DW6	0+41.00	7.50' RT	5510.71'	BOW
DW7	0+51.00	6.00' LT	5510.49'	BOW
DW8	0+51.00	4.80' LT	5510.53'	FL
DW9	0+51.00	4.80' RT	5510.82'	FL
DW10	0+51.00	7.50' RT	5510.91'	BOW
DW11	2+11.40	4.80' LT	5520.56'	FL
DW12	2+15.45	8.72' LT	ME	EOP
DW13	2+15.45	4.80' RT	ME	EOP

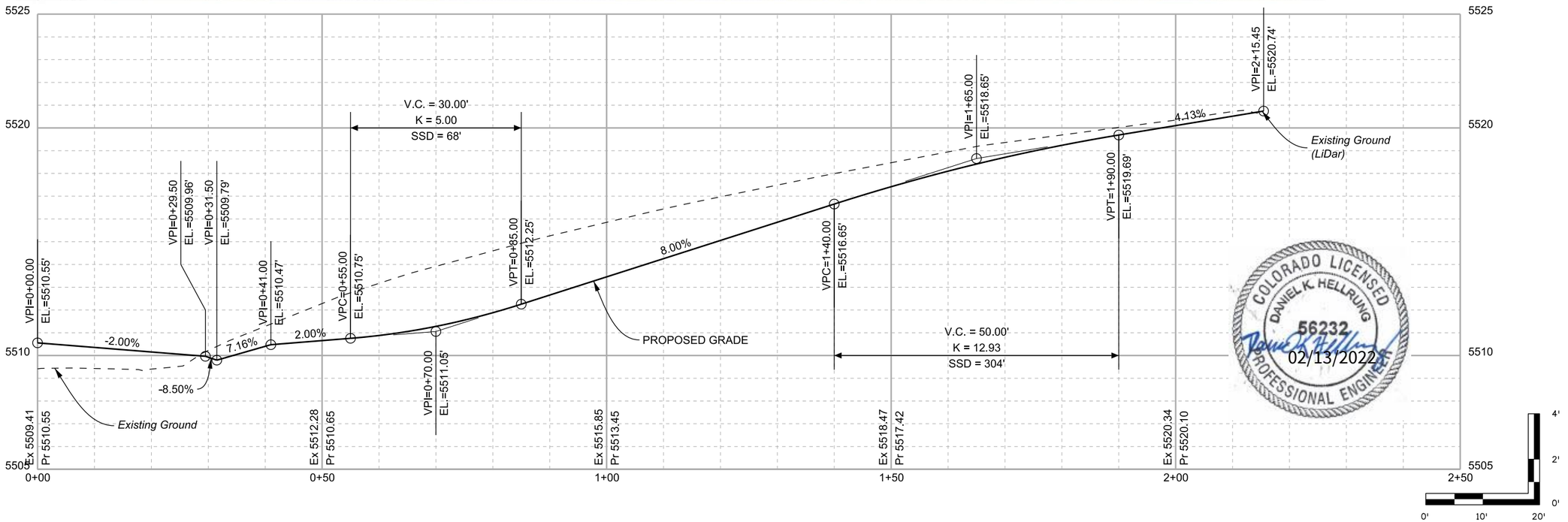
ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT
- LIMIT OF OVERLAY
- MEDIAN COVER MATERIAL
- CONCRETE PAVEMENT (6 INCH)
- AGGREGATE BASE COURSE (CLASS 6) (6 INCH)





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56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_DES_Driveway06_548+66 LT.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRIVEWAY PLAN AND PROFILE DRIVEWAY 548+66 LT.			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: DRIVEWAY	Subset Sheets: 6 of 8		Sheet Number 140

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9/17/2021
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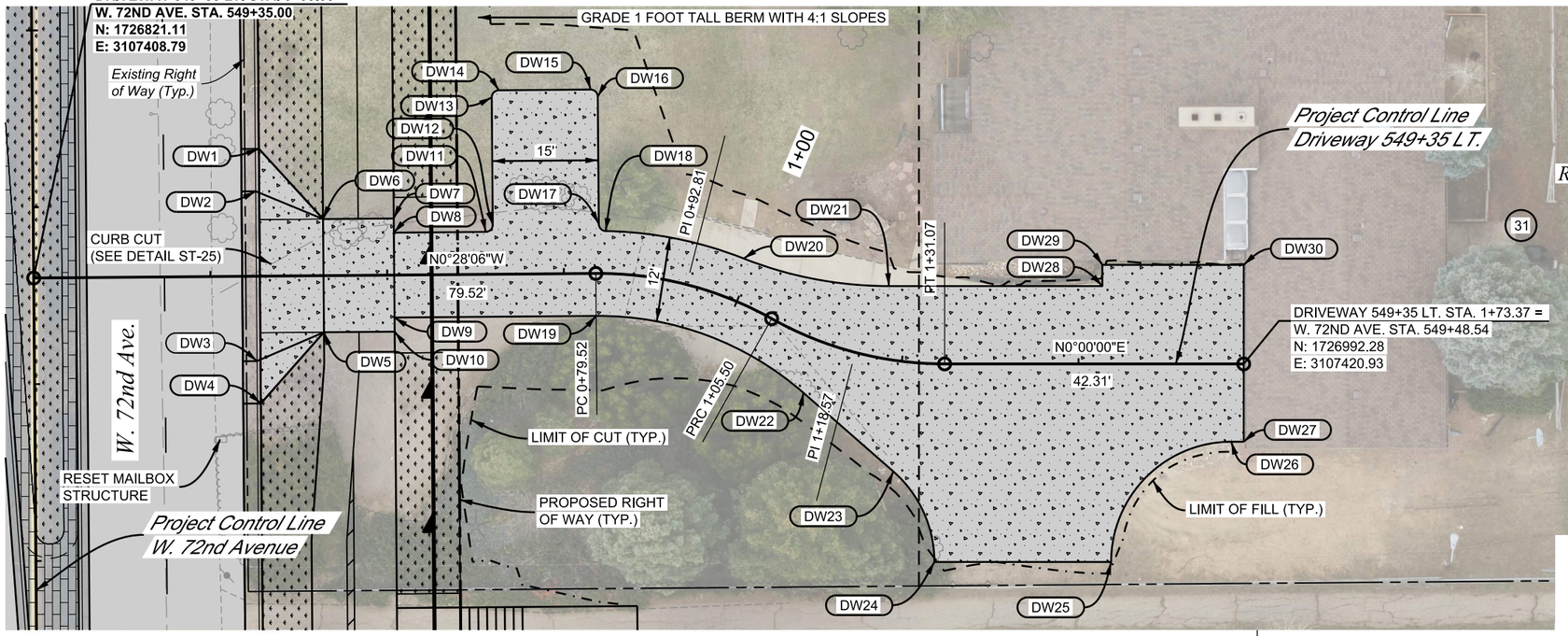
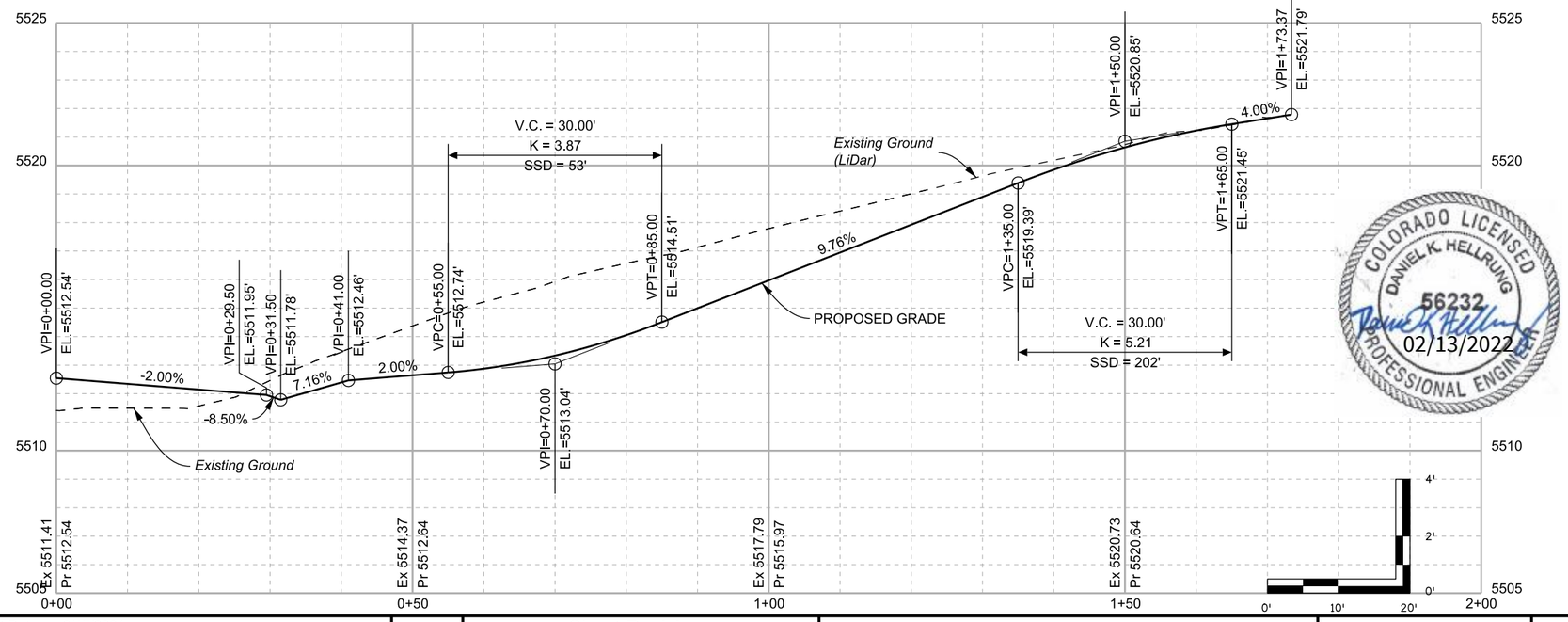


ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT

DRIVEWAY 549+35 LT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+32.00	18.00' LT	5511.78'	BOC
DW2	0+31.50	12.00' LT	5511.45'	BOC
DW3	0+31.50	12.00' RT	5512.11'	BOC
DW4	0+32.00	18.00' RT	5512.77'	BOC
DW5	0+41.00	8.00' RT	5512.68'	BOW
DW6	0+41.00	8.00' LT	5512.24'	BOW
DW7	0+51.00	8.00' LT	5512.44'	BOW
DW8	0+51.00	6.00' LT	5512.50'	BOW
DW9	0+51.00	6.00' RT	5512.83'	BOW
DW10	0+51.00	8.00' RT	5512.88'	BOW
DW11	0+64.00	6.00' LT	5512.86'	DW
DW12	0+65.00	7.00' LT	5512.90'	DW
DW13	0+65.00	25.00' LT	ME	DW
DW14	0+66.00	26.00' LT	ME	DW
DW15	0+79.00	26.00' LT	ME	DW
DW16	0+79.84	25.00' LT	ME	DW
DW17	0+79.94	6.98' LT	5513.87'	DW
DW18	0+80.82	6.00' LT	5513.97'	DW
DW19	0+79.52	6.00' RT	5514.17'	DW
DW20	0+98.69	6.00' LT	5515.70'	DW
DW21	1+21.08	10.21' LT	5517.82'	DW
DW22	1+13.38	7.65' RT	5517.44'	DW
DW23	1+25.52	15.60' RT	5518.78'	DW
DW24	1+30.14	28.01' RT	ME	DW
DW25	1+54.62	28.00' RT	ME	DW
DW26	1+71.62	11.00' RT	5521.88'	DW
DW27	1+73.37	11.00' RT	ME	DW
DW28	1+53.37	11.00' LT	5520.67'	DW
DW29	1+53.37	14.00' LT	ME	DW
DW30	1+73.37	14.00' LT	ME	DW



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56232
02/13/2022
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Print Date: 9/17/2021		Sheet Revisions		
Drawing File Name: 18061_CP2_DES_Driveway07_549+35 LT.dgn		Date:	Comments	Init.
Horiz. Scale: 1:20	Vert. Scale: As Noted			
Unit Information	Unit Leader Initials			
MULLER ENGINEERING COMPANY				

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRIVEWAY PLAN AND PROFILE DRIVEWAY 549+35 LT.			
Revised:	Designer: RML	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 141
	Sheet Subset: DRIVEWAY	Subset Sheets: 7 of 8		

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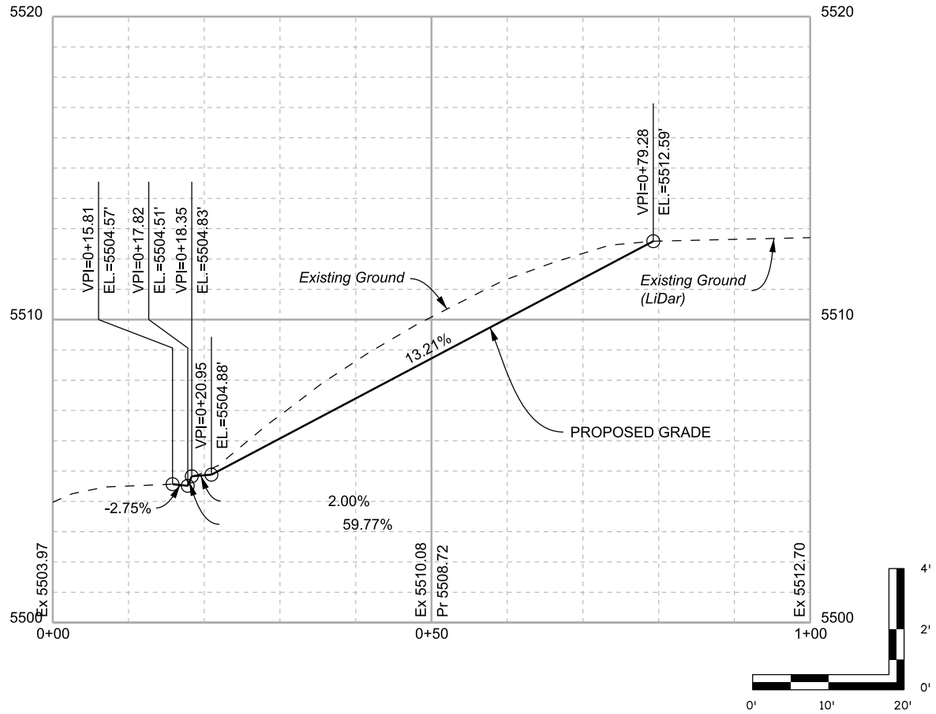
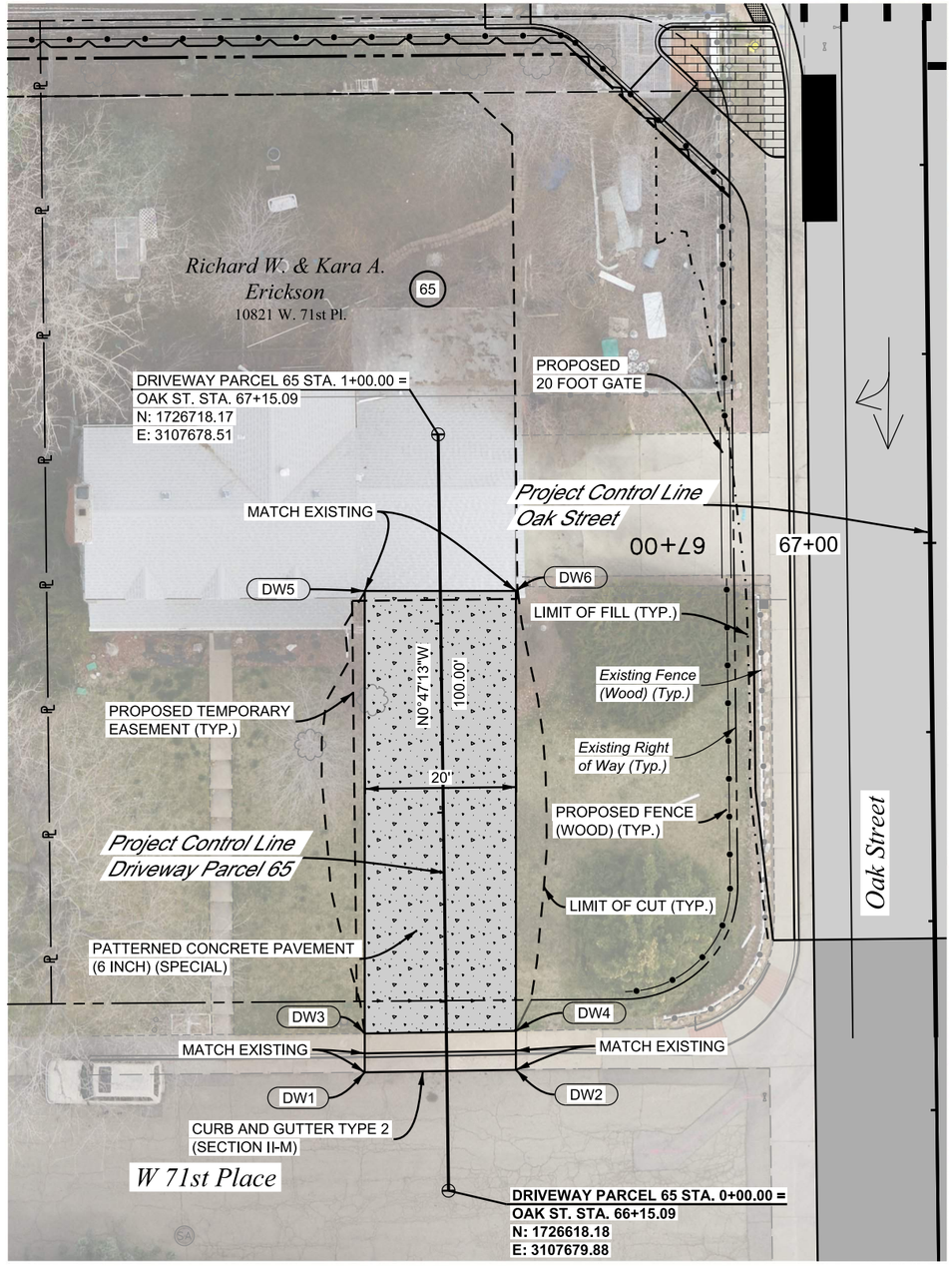




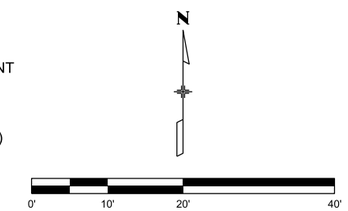
DRIVEWAY 67+06 LT.				
POINT #	STATION	OFFSET	ELEV.	DESCRIPTION
DW1	0+15.80	10.87' LT	ME	EOP
DW2	0+15.85	9.13' RT	ME	EOP
DW3	0+20.93	10.80' LT	ME	BOW
DW4	0+21.01	9.20' RT	ME	BOW
DW5	0+79.44	10.00' LT	ME	ME
DW6	0+79.17	10.00' RT	ME	ME

ABBREVIATIONS IN TABLES ARE AS FOLLOWS:

BOC =BACK OF CURB BOW = BACK OF WALK
DW = DRIVEWAY ME = MATCH EXISTING
FOW = FRONT OF WALK EOP = EDGE OF PAVEMENT

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT
- LIMIT OF OVERLAY
- MEDIAN COVER MATERIAL
- CONCRETE PAVEMENT (6 INCH)
- AGGREGATE BASE COURSE (CLASS 6) (6 INCH)



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56232
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9/17/2021

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_DES_Driveway08_67+06.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRIVEWAY PLAN AND PROFILE
DRIVEWAY PARCEL 65

Designer: RML
Detailer: SAD
Sheet Subset: DRIVEWAY
Structure Numbers:
Subset Sheets: 8 of 8

Project No./Code

Sheet Number 142

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA
- REMOVAL OF TREE
- PROTECT EXISTING TREE
- PF — FENCE (PLASTIC)

0' 20' 40' 80'

REMOVE RAISED PLANTER BED (BY OTHERS)
3/4-INCH PLASTIC IRRIGATION PIPE PAY ITEM 613 - 290 LF
WOOD FENCE WITH METAL POSTS
DRIVEWAY 523+48
RESET LIGHT
REMOVE FENCE
REMOVE RAISED PLANTER BED (BY OTHERS)
WOOD FENCE WITH METAL POSTS
RESET IRRIGATION EQUIPMENT (SPECIAL)
REMOVE SHED
RECONNECT INTO EXISTING IRRIGATION
REMOVE SHED
TEMPORARY CONSTRUCTION EASEMENT (TYP)

PARKING SCHEDULE	
72	TOTAL PARKING SPACES
2	STANDARD ACCESSIBLE PARKING SPACES
2	VAN ACCESSIBLE PARKING SPACES

First United Church of Arvada (93)
7195 Simms St.

WATER QUALITY POND SEE WATER QUALITY PLANS
WATER QUALITY POND MAINTENANCE ROAD (ABC CLASS 6) (SEE MISC DETAILS)
PERMANENT EASEMENT (TYP)
CURB RAMP (SEE CURB RAMP DETAILS)
WALL B (SEE WALL PLANS)
CHASE DRAIN
WATER QUALITY POND MAINTENANCE ROAD (CONCRETE) (SEE MISC DETAILS)
3/4-INCH PLASTIC IRRIGATION PIPE PAY ITEM 613 - 180 LF
CURB AND GUTTER TYPE 2 (SECTION II B) (TYP)
LIMIT OF FILL (TYP.)
PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)
PROTECT TREE
5' SIDEWALK
5' SIDEWALK
Leyden Creek
PROPOSED PERMANENT EASEMENT (TYP.)
CURB AND GUTTER TYPE 2 (SECTION I-B)
16 SPACES
18'
16 SPACES
9'
9'
9'
11'
11'
3' TRANSITION TO RIBBON CURB
2' RIBBON CURB (SEE MISC DETAILS)
24'
CURB TERMINATION (SEE MISC DETAILS)
RAMP ACCESS ROAD TO MATCH CURB
2 INCH ELECTRICAL CONDUIT (PLASTIC) PAY ITEM 614 - 125 LF
STRIPED MEDIAN (TYP)
5' SIDEWALK
24'
10 SPACES
33'
7 SPACES
26'
2' RIBBON CURB (UPSLOPE) (SEE MISC DETAILS)
3' TRANSITION
REMOVE AND REPLACE SIGN
LIMIT OF CUT (TYP)
2' RIBBON CURB (SEE MISC DETAILS)
24'
CURB AND GUTTER TYPE 2 (SECTION I B) (TYP)
CURB TERMINATION (SEE MISC DETAILS)
CURB AND GUTTER TYPE 2 (SECTION II B)
13 SPACES
30'
10 SPACES
CURB TERMINATION (SEE DETAILS)
5' SIDEWALK
Existing Right of Way (Typ.)
PROPOSED RIGHT OF WAY (TYP.)
PROPOSED RIGHT-OF-WAY (TYP)
Existing Right of Way
SAWCUT
GUTTER TYPE 2 (8 FOOT) (SEE ST-8)
SIMMS STREET
W. 72ND AVENUE
TH-07
TH-08
TH-08 B AND TH-09

NOTE:
CONTRACTOR TO COORDINATE WITH FIRST UNITED CHURCH OF ARVADA REGARDING EXCESS TOPSOIL PRIOR TO HAULING OFF SITE.

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56232
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02/13/2022

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Print Date: 12/10/2021
Drawing File Name: 18061_CP2_DES_Church00.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
FIRST UNITED CHURCH OF ARVADA
SITE PLAN

Designer: DKH
Detailer: DKH
Sheet Subset: CHURCH
Structure Numbers
Subset Sheets: 1 of 4

Project No./Code

Sheet Number 143

N

0' 20' 40' 80'

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POINT NO.	NORTHING	EASTING	ELEVATION
PT 1	1726531.80	3104955.33	5436.45
PT 2	1726537.35	3104957.58	5436.54
PT 3	1726554.02	3104957.58	5436.76
PT 4	1726559.57	3104955.33	5436.81
PT 5	1726712.67	3104955.33	5438.80
PT 6	1726712.67	3105057.33	5439.62
PT 7	1726642.36	3105065.83	5439.40
PT 8	1726642.36	3105082.03	5440.68
PT 9	1726637.36	3105082.09	5440.50
PT 10	1726637.36	3105065.83	5439.34
PT 11	1726622.67	3105057.33	5438.47
PT 12	1726622.67	3105042.83	5438.35
PT 13	1726619.17	3105039.33	5438.28
PT 14	1726615.04	3105039.33	5438.22
PT 15	1726611.54	3105042.86	5438.21
PT 16	1726611.71	3105064.77	5438.50
PT 17	1726581.71	3105065.00	5437.95

POINT NO.	NORTHING	EASTING	ELEVATION
PT 18	1726581.54	3105042.81	5437.81
PT 19	1726578.04	3105039.33	5437.74
PT 20	1726574.17	3105039.33	5437.69
PT 21	1726570.67	3105042.83	5437.67
PT 22	1726570.67	3105057.33	5437.79
PT 23	1726453.67	3105057.33	5436.25
PT 24	1726453.67	3105039.33	5436.11
PT 25	1726453.67	3105017.33	5435.93
PT 26	1726433.67	3104997.33	5435.51
PT 27	1726385.76	3104997.33	5434.90
PT 28	1726347.76	3105034.88	5434.91
PT 29	1726348.00	3105068.77	5435.32
PT 30	1726324.00	3105068.95	5435.13
PT 31	1726323.76	3105035.80	5434.72
PT 32	1726385.29	3104973.34	5434.71
PT 33	1726391.67	3104973.33	5434.78
PT 34	1726391.67	3104955.33	5434.64

POINT NO.	NORTHING	EASTING	ELEVATION
PT 35	1726390.17	3104953.34	5434.44
PT 36	1726380.17	3104953.34	5434.24
PT 37	1726380.17	3104947.84	5434.84
PT 38	1726390.17	3104947.90	5435.04
PT 39	1726389.65	3104859.28	5433.73
PT 40	1726386.43	3104836.79	5433.50

Project Control Line
Driveway 523+48

First United Church
of Arvada (93)
7195 Simms St.

WALL B
SEE WALL PLANS

PROPOSED TEMPORARY
CONSTRUCTION EASEMENT (TYP.)
R 10'
R 15'
R 5'

LIMIT OF FILL (TYP.)

WATER QUALITY POND

Leyden Creek

PROPOSED PERMANENT
EASEMENT (TYP.)

PT 40
PT 39
PT 38
PT 37
PT 36
(FLOWLINE)
PT 35
(FLOWLINE)
PT 34
PT 32
PT 33
PT 31
PT 30
PT 29
PT 28
PT 26
PT 27
PT 25
PT 24
PT 23
Existing Right
of Way (Typ.)
PT 22
PT 17
PT 16
PT 20
PT 21
PT 19
PT 15
PT 18
PT 14
PT 13
PT 12
PT 11
PT 10
PT 9
PT 7
PT 8
PT 6
PT 5
PT 4
PT 3
PT 2
PT 1

2+00
1+00

PI 1+34.60
R 50'
R 62'
R 38'
R 20'
R 12'
R 8'
R 8'
R 3.5' (TYP)
PT 1+63.14
PC 0+84.24

POE 2+00.00
N: 1726422.60
E: 3104984.33

S89°33'57"W
75.00'

321'
102'
90'
24'
116'

POE 0+75.00
N: 1726596.69
E: 3105116.99

S89°33'57"W
75.00'

S89°33'57"W
75.00'

PROPOSED RIGHT
OF WAY (TYP.)

R 32'
R 32'

DRIVEWAY 21+33 STA 0+00.00 =
SIMMS STREET STA 21+31.27
N: 1726336.40
E: 3105118.96

Project Control Line
Driveway 21+33

SIMMS STREET

Project Control Line
Simms Street

DRIVEWAY 23+92 STA 0+00.00 =
SIMMS STREET STA 23+92.14
N: 1726597.26
E: 3105116.99

Project Control Line
Driveway 23+92

W. 72ND AVENUE

Project Control Line
W. 72nd Avenue

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_DES_Church01.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

FIRST UNITED CHURCH OF ARVADA
SITE GEOMETRY

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	CHURCH	Subset Sheets:	2 of 4

Project No./Code

Sheet Number 144

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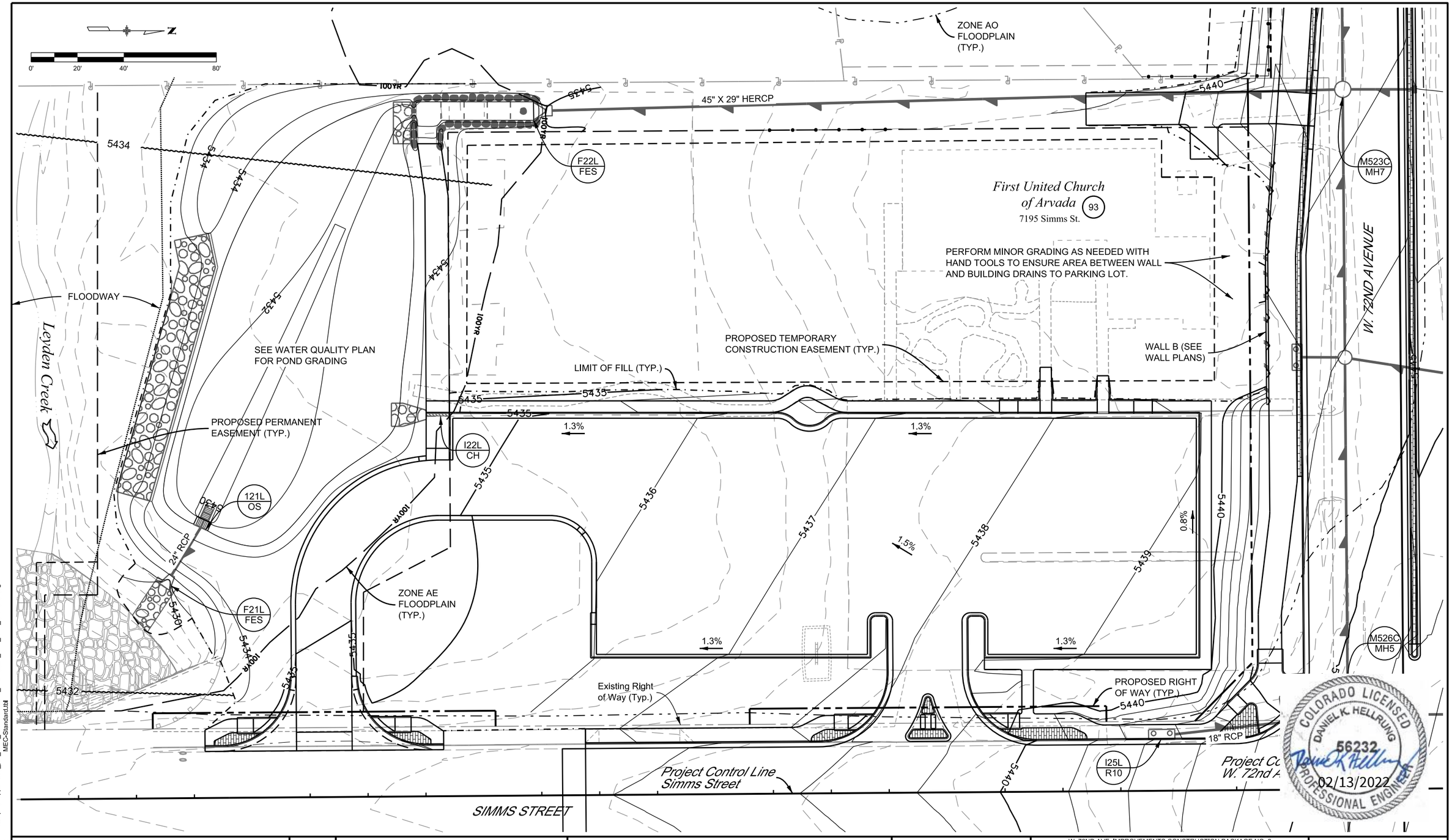

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Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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Revised:	
Void:	

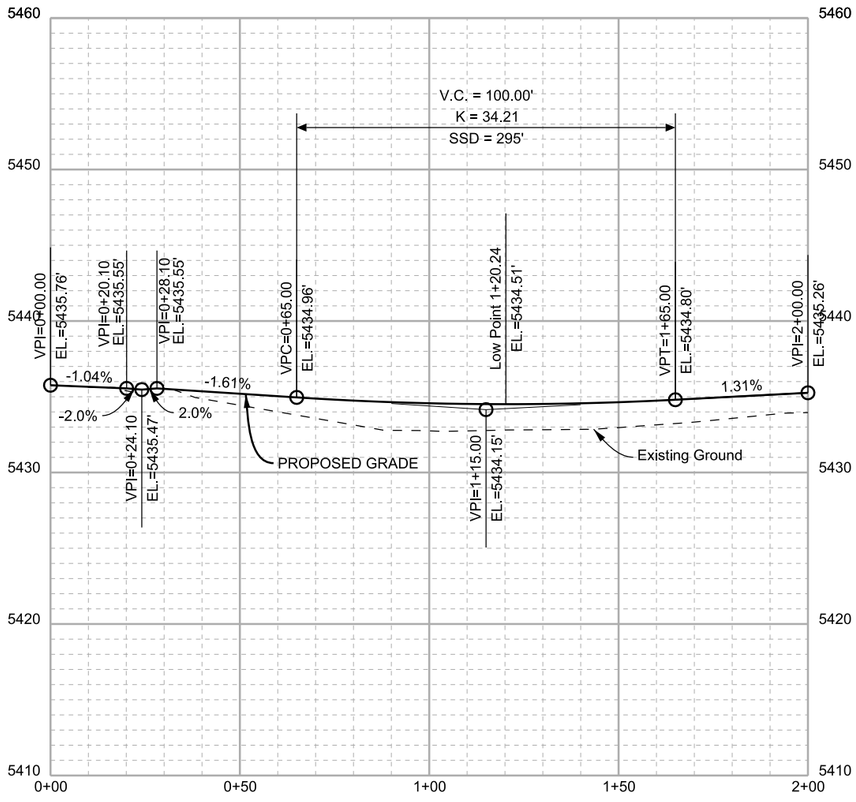
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

FIRST UNITED CHURCH OF ARVADA
SITE GRADING AND DRAINAGE PLAN

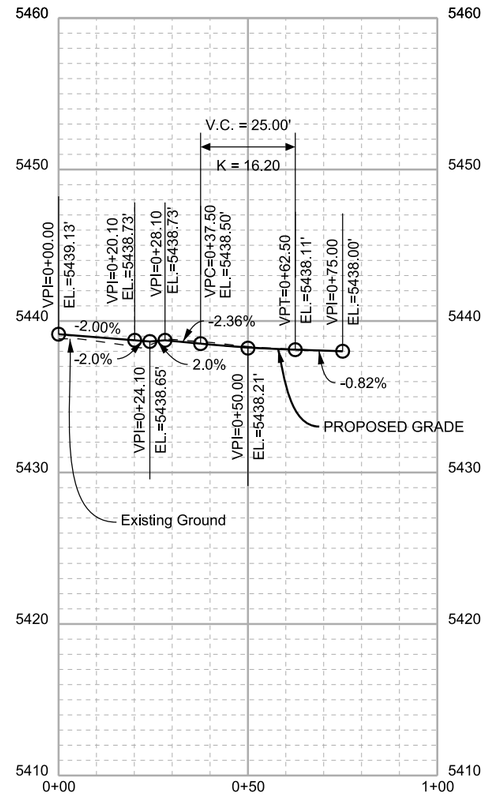
Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	CHURCH	Subset Sheets:	3 of 4

Project No./Code

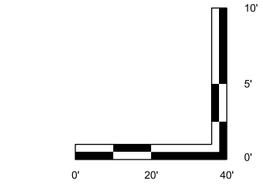
Sheet Number 145



DRIVEWAY ACCESS SIMMS STREET 21+33



DRIVEWAY ACCESS SIMMS STREET 23+92



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Print Date: 9/17/2021		Sheet Revisions		
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Unit Information Unit Leader Initials				
MULLER ENGINEERING COMPANY				

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
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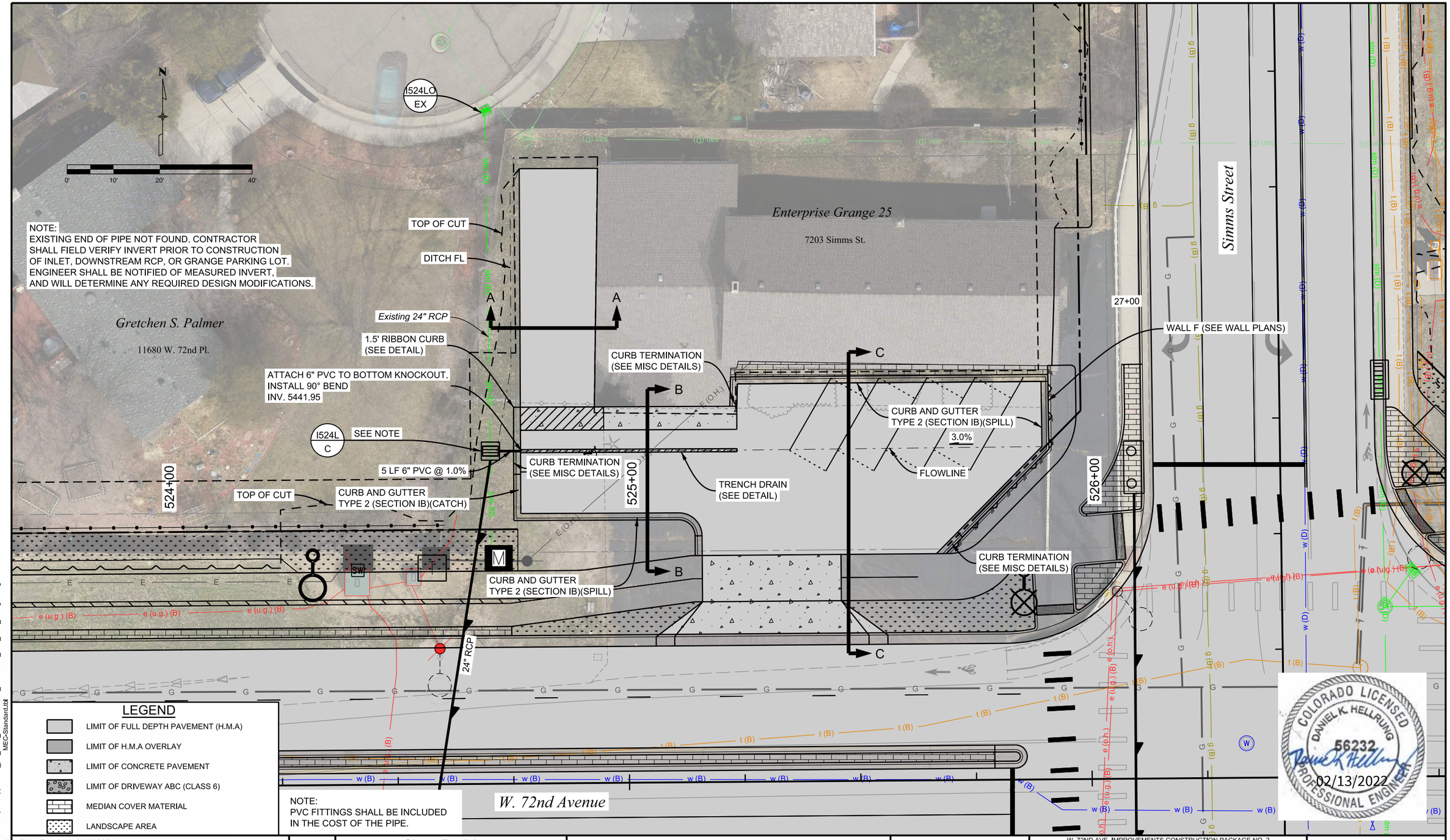
Void:	Detailer: DKH		
	Sheet Subset: CHURCH	Subset Sheets: 4 of 4	Sheet Number 146



LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

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Horiz. Scale:	1:20	Vert. Scale: As Noted
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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:	
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Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

GRANGE 25 PARKING LOT SITE PLAN

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GRANGE	Subset Sheets:	1 of 3

Project No./Code

Sheet Number 147

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GRANGE GEOMETRY POINTS			
POINT	NORTHING	EASTING	ELEVATION
1	1726934.01	3104950.02	5446.68'
2	1726934.08	3104966.93	5446.99'
3	1726882.50	3104966.25	5444.41'
4	1726887.48	3104997.15	5444.55'
5	1726882.63	3104997.04	5444.39'
6	1726877.63	3104997.06	5444.33'
7	1726888.00	3105062.81	5446.44'
8	1726873.92	3105063.00	5447.91'
9	1726850.77	3105040.21	5447.23'
10	1726850.59	3105019.57	5446.90'
11	1726850.35	3104989.57	5446.43'
12	1726854.62	3104989.53	5446.03'
13	1726859.58	3104984.51	5445.48'
14	1726859.43	3104950.35	5445.01'
15	1726873.47	3104997.08	5444.33'
16	1726873.26	3104950.29	5443.98'
17	1726877.42	3104950.27	5444.15'
18	1726882.42	3104950.25	5444.42'

N

0' 10' 20' 40'

Enterprise Grange 25

7203 Simms St.

Simms Street

W. 72nd Avenue

GRADE TO DRAIN

R 5'

524+00 525+00 526+00 27+00

5445 5450 5455

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

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02/13/2022

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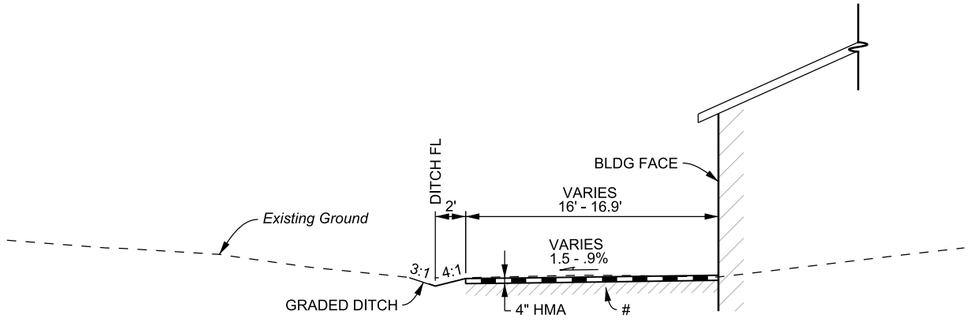
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

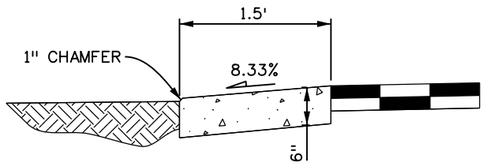
GRANGE 25 PARKING LOT
GEOMETRY & GRADING

Designer:	DKH	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	GRANGE	Subset Sheets:	2 of 3

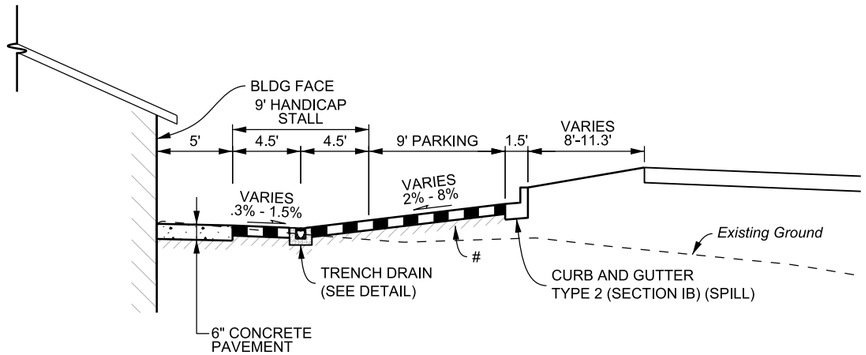
Project No./Code	
Sheet Number	148



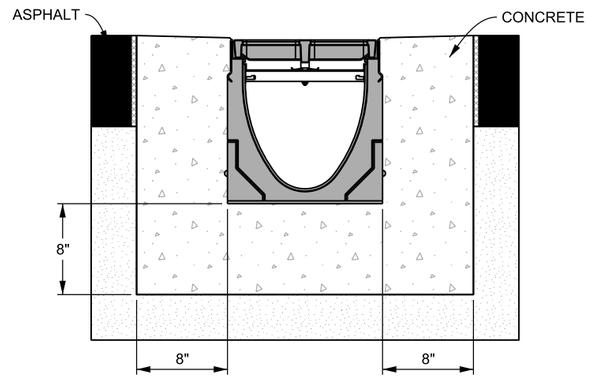
SECTION A-A



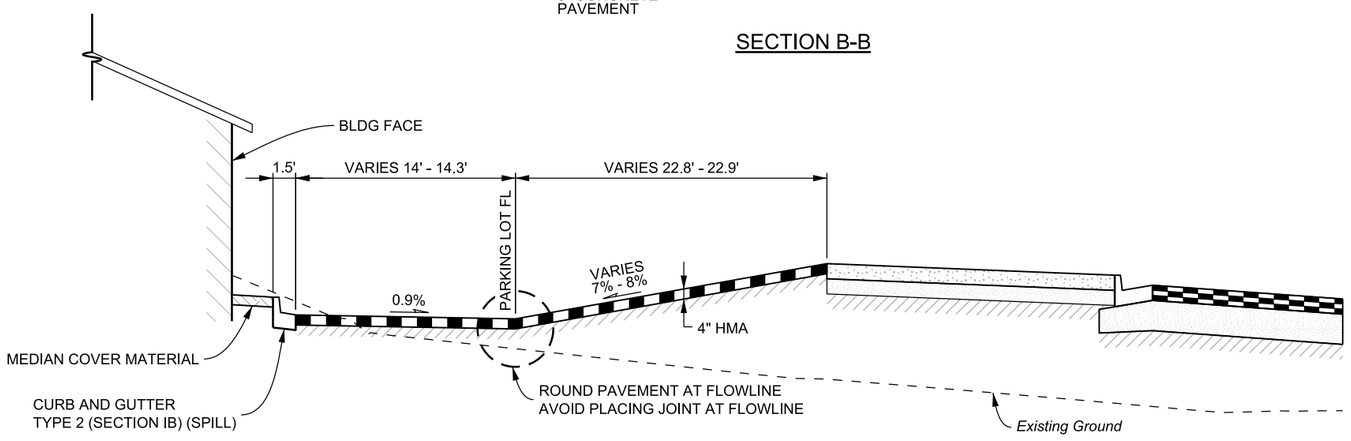
RIBBON CURB
N.T.S.



SECTION B-B



TRENCH DRAIN
N.T.S.



SECTION C-C

NOTES:

1. TRENCH DRAIN SHALL BE K200 KLASSIKDRAIN POLYMER CONCRETE TRENCH DRAIN BY ACO, OR APPROVED EQUAL. 8" INTERNAL WIDTH, SLOPED CHANNEL GRATING TYPE 680Q (IRON WAVE, LOAD CLASS C)

2. TRENCH DRAIN AND PIPE CONNECTION TO BE PAID FOR AS INLET SPECIAL (TRENCH DRAIN) (8 INCH WIDTH). PAYMENT SHALL INCLUDE EXCAVATION, BACKFILL, CONCRETE, AND ALL WORK REQUIRED TO COMPLETE THE INSTALLATION PER MANUFACTURER INSTRUCTIONS.

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Drawing File Name: 18061_CP2_DES_Grange03.dgn		Date:	Comments / Init.
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Unit Information	Unit Leader Initials		

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CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	GRANGE 25 PARKING LOT SECTIONS			
Revised:	Designer: DKH	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: GRANGE	Subset Sheets:	3 of 3	Sheet Number 149

UTILITY TEST HOLE LOG

TH #	UTILITY OWNER	UTILITY TYPE	LOCATION	GROUND ELEV (FT)	SIZE (IN)	MATERIAL	GA DEPTH TO TOP (IN)	GA DEPTH TO BOP (IN)	TOP ELEV (FT)	BOP ELEV (FT)	DATE POTHOLED
TH-01	CITY OF ARVADA	WATER	CENTER OF 72ND, 72ND/SWADLEY	5441.88	20	STEEL	61	81	5436.80	5435.13	4/27/2020
TH-02	CENTURYLINK	COMM	NORTH SIDE OF 72ND, NEAR 72ND/SWADLEY	5441.46	7-4"	PC	38	43	5438.29	5437.88	4/27/2020
TH-02A	XCEL	ELEC	NORTH SIDE OF 72ND, NEAR 72ND/SWADLEY	5441.46	2-1"	CABLE	41	43	5438.04	5437.88	4/27/2020
TH-03	XCEL	GAS	SOUTH SIDE OF 72ND, NEAR 72ND/SWADLEY	5441.25	3	STEEL	38	41	5438.08	5437.83	4/27/2020
TH-04	XCEL	ELEC	SOUTH SIDE OF 72ND	5440.95	2	PLASTIC	48	50	5436.95	5436.78	4/27/2020
TH-04B	COMCAST	CATV	SOUTH SIDE OF 72ND	5441.01	1-2"	CABLE	36	37	5438.01	5437.93	4/27/2020
TH-05	COMCAST	CATV	SOUTH SIDE OF 72ND	5440.54	2	PLASTIC	28	30	5438.21	5438.04	4/27/2020
TH-06A	XCEL	GAS	NORTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5442.06	2	STEEL	32	60	5439.39	5437.06	5/11/2020
TH-06B	XCEL	ELEC	NORTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5442.06	2-1"	WIRE	36	37	5439.06	5438.98	5/6/2020
TH-06C	XCEL	ELEC	NORTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5442.06	3-2"	WIRE	43	45	5438.48	5438.31	5/6/2020
TH-06D	XCEL	ELEC	NORTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5442.06	3-1"	WIRE	35	37	5439.14	5438.98	5/6/2020
TH-07	CENTURYLINK	COMM	SOUTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5441.4	7-4"	PVC	27	36	5439.15	5438.40	4/27/2020
TH-08A	CENTURYLINK	DNF	SOUTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5441.20	DNF	DNF	DNF	DNF	DNF	DNF	4/29/2020
TH-08B	CENTURYLINK	DNF	SOUTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5441.43	7-4"	PVC	32	38	5438.76	5438.26	4/29/2020
TH-09	XCEL	GAS	SOUTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5441.38	3	STEEL	43	46	5437.80	5437.55	4/2/2020
TH-09A	XCEL	GAS	SOUTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5441.38	1	CABLE	33	34	5438.63	5438.55	4/2/2020
TH-09B	CENTURYLINK	FIBER	SOUTH SIDE OF 72ND, WEST OF 72ND/SIMMS	5441.38	7-4"	CABLE	32	38	5438.71	5438.21	4/2/2020
TH-10	XCEL	GAS	NORTH OF 72ND/SIMMS	5449.20	2	STL	41	43	5445.78	5445.62	4/29/2020
TH-11	XCEL	GAS	SW CORNER OF 72ND/SIMMS	5442.78	4	STEEL	58	62	5437.95	5437.61	4/29/2020
TH-12	CITY OF ARVADA	WATER	CENTER OF 72ND/SIMMS	5443.53	20	PVC	30	50	5441.03	5439.36	4/29/2020
TH-13	CENTURYLINK	COMM	CENTER OF 72ND/SIMMS	5443.46	7-4"	PVC	47	52	5439.54	5439.13	4/29/2020
TH-14	XCEL	GAS	SOUT OF 72ND/SIMMS, WEST SIDE OF SIMMS	5441.32	4	STEEL	34	38	5438.49	5438.15	4/29/2020
TH-15	CENTURYLINK	COMM	EAST OF 72ND/SIMMS, NORTH SIDE OF 72ND	5444.71	2	PLASTIC	41	43	5441.29	5441.13	5/6/2020
TH-16	XCEL	GAS	EAST SIDE OF 72ND/SIMMS, CENTER OF 72ND	5445.38	4	STEEL	41	45	5441.96	5441.63	5/1/2020
TH-17	XCEL	GAS SERVICE	SOUTH SIDE OF 72ND, WEST OF 72ND/PRIVATE DR	5448.32	1.25	PLASTIC	30	32	5445.82	5445.65	5/1/2020
TH-18	CITY OF ARVADA	WATER	SOUTH SIDE OF 72ND, NEAR 72ND/PRIVATE DR	5450.04	10	PLASTIC	54	64	5445.54	5444.71	5/1/2020
TH-19	XCEL	GAS	NORTH SIDE OF 72ND, EAST OF 72ND/PRIVATE DR	5451.03	4	STEEL	44	48	5447.36	5447.03	5/1/2020
TH-20	XCEL	GAS	NORTH OF 72ND, EAST OF 72ND/PRIVATE DR	5453.02	4	STEEL	50	54	5448.85	5448.52	5/1/2020
TH-21	XCEL	GAS	SW CORNER OF 72ND/ROUTT ST	5453.65	1 1/4	PLASTIC	42	44	5450.15	5449.98	5/1/2020
TH-22	CITY OF ARVADA	WATER	CENTER OF 72ND/ROUTT ST	5454.65	10	STEEL	51	61	5450.40	5449.57	5/1/2020
TH-23	XCEL	GAS	CENTER OF 72ND, EAST OF 72ND/ROUTT ST	5456.27	4	STEEL	48	52	5452.27	5451.94	5/1/2020
TH-24	CENTURYLINK	COMM	NORTH SIDE OF 72ND	5459.28	1	PLASTIC	36	37	DNF	DNF	5/6/2020
TH-25A	CITY OF ARVADA	WATER	CENTER OF 72ND	5469.87	20	PLASTIC	51	71	5465.62	5463.95	5/1/2020
TH-25B	XCEL	GAS	CENTER OF 72ND	5469.87	2	STEEL	72	74	5463.87	5463.70	5/1/2020
TH-26	CITY OF ARVADA	WATER	CENTER OF 72ND, WEST OF QUAIL/72ND	5481.3	20	PLASTIC	56	76	5476.63	5474.97	5/1/2020
TH-26B	CENTURYLINK	COMM	CENTER OF 72ND, WEST OF QUAIL/72ND	5481.3	2	PLASTIC	31	33	5478.72	5478.55	5/1/2020
TH-28	XCEL	GAS	NORTH OF QUAIL/72ND	5495.34	4	STEEL	43	47	5491.76	5491.42	5/1/2020
TH-29	XCEL	GAS	INTERSECTION OF QUAIL/72ND	5491.84	4	STEEL	47	51	5487.92	5487.59	5/1/2020
TH-30	CITY OF ARVADA	WATER	SOUTH SIDE OF 72ND, EAST OF QUAIL/72ND	5493.46	20	PLASTIC	55	75	5488.88	5487.21	5/1/2020

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Unit Information Unit Leader Initials

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Sheet Revisions		
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CITY OF ARVADA

As Constructed
No Revisions:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
UTILITY TEST HOLE LOG

Designer: DKH
Detailer: DKH
Sheet Subset: UTILITY LOG
Structure Numbers
Subset Sheets: 1 of 2

Project No./Code

Sheet Number 150

UTILITY TEST HOLE LOG

TH #	UTILITY OWNER	UTILITY TYPE	LOCATION	GROUND ELEV (FT)	SIZE (IN)	MATERIAL	GA DEPTH TO TOP (IN)	GA DEPTH TO BOP (IN)	TOP ELEV (FT)	BOP ELEV (FT)	DATE POTHOLED
TH-31A	CITY OF ARVADA	WATER	SOUTH SIDE OF 72ND, PIERSON/72ND	5491.19	10	PLASTIC	61	71	5486.11	5485.27	5/1/2020
TH-31B	CITY OF ARVADA	WATER	SOUTH SIDE OF 72ND, PIERSON/72ND	5494.19	20	PLASTIC	57	77	5489.44	5487.77	5/1/2020
TH-32	XCEL	GAS	EAST OF PIERSON/72ND	5494.81	2	STEEL	69	71	5489.06	5488.89	5/1/2020
TH-33	XCEL	GAS SERVICE	CENTER OF 72ND	5499.42	2	STEEL	72	74	5493.42	5493.25	4/2/2020
TH-34	XCEL	GAS SERVICE	NORTH SIDE OF 72ND	5508.17	2	STEEL	69	71	5502.42	5502.25	5/4/2020
TH-35A	CITY OF ARVADA	WATER	SW CORNER OF OAK/72ND	5519.21	20	PLASTIC	55	75	5514.63	5512.96	5/6/2020
TH-35B	CITY OF ARVADA	WATER	SW CORNER OF OAK/72ND	5519.21	10	PLASTIC	60	70	5514.21	5513.38	5/6/2020
TH-36	XCEL	GAS	INTERSECTION OF OAK/72ND	5519.55	4	STEEL	48	52	5515.55	5515.22	5/6/2020
TH-37A	CITY OF ARVADA	WATER	NW CORNER OF OAK ST/PIERSON	5505.23	10	PLASTIC	57	67	5500.48	5499.65	5/6/2020
TH-37B	CITY OF ARVADA	WATER	NW CORNER OF OAK ST/PIERSON	5505.23	8	PLASTIC	59	67	5500.31	5499.65	5/6/2020
TH-38A	XCEL	GAS	CENTER OF PIERSON/OAK	5503.26	4	STEEL	55	59	5498.68	5498.34	5/6/2020
TH-38B	XCEL	GAS	CENTER OF PIERSON/OAK	5503.26	2	STEEL	52	54	5498.93	5498.76	5/6/2020
TH-39	CENTURYLINK	TELEPHONE	EAST SIDE OF RAILS	5356.39	1	CABLE	57	58	5351.64	5351.56	5/4/2020
TH-40	CITY OF ARVADA	WATER	CENTER OF 70TH/72ND	5534.36	10	STEEL	70	80	5528.53	5527.69	5/4/2020
TH-41	CENTURYLINK	DNF	SW CORNER OF 70TH/72D	5533.97	DNF	DNF	DNF	DNF	DNF	DNF	4/14/2020
TH-42	CITY OF ARVADA	WATER	SOUTH SIDE OF 72ND, EAST OF 72ND/70TH	5534.40	20	PLASTIC	58	78	5529.57	5527.90	5/4/2020
TH-43	XCEL	GAS	NORTH SIDE OF 72ND, EAST OF 72ND/70TH	5534.78	4	STEEL	46	50	5530.95	5530.61	5/4/2020
TH-44	XCEL	GAS	WEST OF 72ND/LEE	5536.91	4	STEEL	47	51	5532.99	5532.66	5/4/2020
TH-45	CITY OF ARVADA	SAN	CENTER OF 72ND/LEE	5538.26	4	CLAY	34	38	5535.43	5535.09	5/5/2020
TH-46	CITY OF ARVADA	WATER	CENTER OF 72ND/LEE	5538.12	10	PLASTIC	66	76	5532.62	5531.79	5/5/2020
TH-47	XCEL	GAS	EAST SIDE OF 72ND/LEE	5534.08	1 1/4	PLASTIC	47	49	5530.16	5530.00	5/5/2020

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Print Date: 9/17/2021
Drawing File Name: 18061_CP2_UTIL_Test Hole Log 2.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

UTILITY TEST HOLE LOG

Designer: DKH
Detailer: DKH
Sheet Subset: UTILITY LOG
Structure Numbers
Subset Sheets: 2 of 2

Project No./Code

Sheet Number 151

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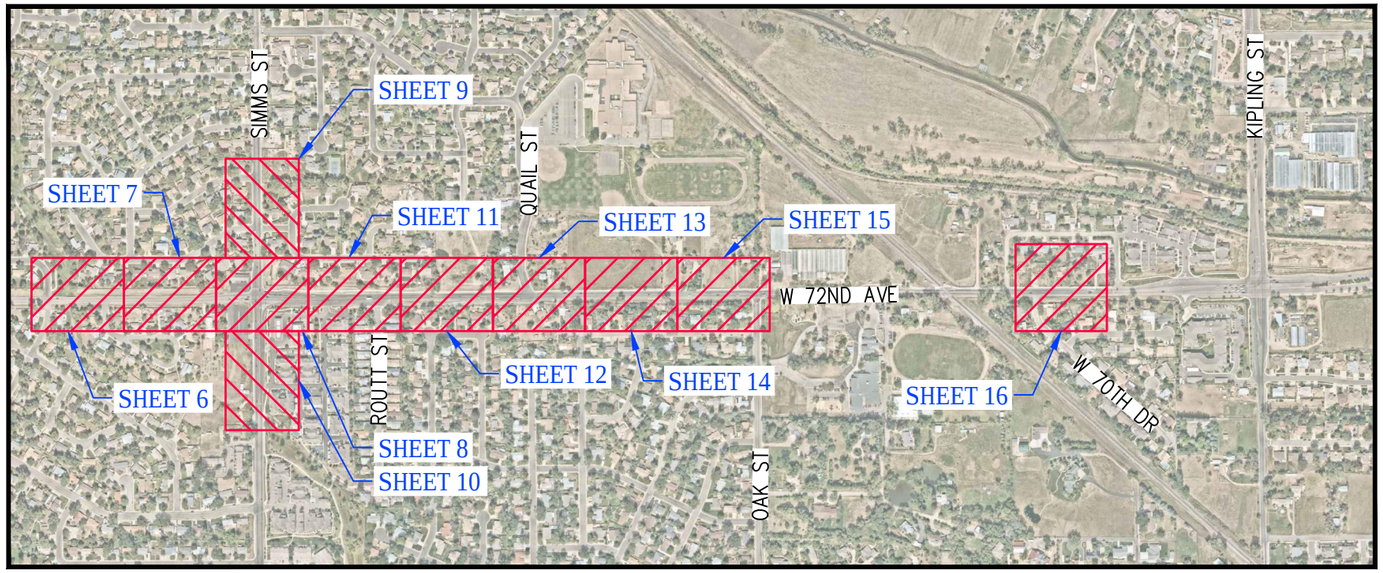
W 72ND AVE - SIMMS TO KIPLING

SUBSURFACE UTILITY ENGINEERING INVESTIGATION



VICINITY MAP
SCALE: NTS

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UTILITY OWNERS

UTILITY OWNERS	UTILITY TYPE	PHONE NUMBER
XCEL ENERGY	GAS AND ELECTRIC	(608) 223-2014
CITY OF ARVADA	WATER, SANITARY SEWER, AND STORM SEWER	(720) 898-7760
CITY ARVADA – FIBER	TRAFFIC AND FIBER OPTICS	(303) 422-7985
ZAYO BANDWIDTH	TELECOMMUNICATIONS	(866) 236-2824
CENTURY LINK	TELECOMMUNICATIONS	(800) 778-9140
COMCAST	TELECOMMUNICATIONS	(720) 865-6976
MCI	TELECOMMUNICATIONS	(800) 289-3427

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CITY OF ARVADA

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SUBSURFACE UTILITY ENGINEERING INVESTIGATION
COVER PAGE

ISSUE DATE: 11-03-2020	DRAWN BY: JMN	PROJECT #: 190209
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I:\190209\CADE-UTIL.DWG TUE 11/03/20 4:07:30P BY: JEFFREY NYE

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QUALITY LEVEL DEFINITIONS:

SUBSURFACE UTILITY ENGINEERING (SUE) QUALITY LEVELS D, C, B AND A ARE DEFINED AS FOLLOWS:

QUALITY LEVEL D (QL-D):
INCLUDES RECORDS RESEARCH, REVIEW AND VISUAL INSPECTION FOR EXISTING SUBSURFACE UTILITIES WITHIN THE PRO□ECT LIMITS.

QUALITY LEVEL C (QL-C):
INCLUDES QL-D EFFORTS, AS WELL AS SURVEYING ALL VISIBLE SURFACE UTILITY APPURTENANCES (REFERENCED TO THE PRO□ECT SURVEY DATUM) AND CORRELATING SURVEYED EVIDENCE WITH QL-D RECORDS WITHIN THE PRO□ECT LIMITS.

QUALITY LEVEL B (QL-B):
INCLUDES QL-D AND QL-C EFFORTS, AS WELL AS SURVEYING INFORMATION OBTAINED THROUGH SURFACE GEOPHYSICAL METHODS (UTILITY DESIGNATION) TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES WITHIN THE PRO□ECT LIMITS.

QUALITY LEVEL A (QL-A):
INCLUDES QL-D, QL-C, AND QL-B EFFORTS, AS WELL AS THE PRECISE HORIZONTAL AND VERTICAL LOCATION OF SUBSURFACE UTILITIES (REFERENCED TO THE PRO□ECT SURVEY DATUM), OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF UTILITIES AT SPECIFIC LOCATIONS (TEST HOLES).

GENERAL NOTES:

1) THE LOCATIONS OF EXISTING SUBSURFACE UTILITIES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE, INCLUDING TYPE, SIZE, LOCATION AND NUMBER OF UTILITIES. ABANDONED, NON-DETECTABLE, UNDOCUMENTED OR NEWLY INSTALLED FACILITIES MAY NOT BE SHOWN.
2) THIS SUE MAPPING SPECIFICALLY EXCLUDES NON-CONDUCTIVE SUBSURFACE UTILITIES, INCLUDING, BUT NOT LIMITED TO, IRRIGATION SYSTEMS, SEPTIC SYSTEMS, UNDERGROUND STORAGE TANKS, AND TRAFFIC SIGNAL LOOP DETECTION SYSTEMS.
3) EXISTING UTILITIES SHOWN HEREON ARE ONLY REPRESENTATIVE OF EXISTING CONDITIONS AT THE TIME OF UTILITY DESIGNATION.
4) UTILITY DESIGNATION WAS PERFORMED FEBRUARY 9, 2019 - MARCH 28, 2019 AND UTILITY SURVEY WAS PERFORMED MARCH 3, 2019 - APRIL 28, 2019.
5) UTILITY LOCATIONS SHOWN OUTSIDE THE PROPOSED EXCAVATION AREA/SUE LIMITS SHALL NOT BE RELIED UPON AND ARE SHOWN FOR INFORMATION ONLY, AND AS NECESSARY TO DEVELOP UTILITY ALIGNMENTS WITHIN THE PROPOSED EXCAVATION AREA/SUE LIMITS.
6) ALL UNDERGROUND UTILITY LINES SHOWN HEREON ARE QL-B, UNLESS OTHERWISE INDICATED.
7) UTILITIES AND APPURTENANCES SHOWN HEREON ARE FOR GRAPHICAL REPRESENTATION ONLY, AND MAY NOT BE DEPICTED TO SCALE.
8) UTILITY SIZES AND MATERIALS SHOWN HEREON ARE BASED UPON FIELD CREW OBSERVATIONS AND DATA COLLECTION. MEASUREMENTS ARE OFTEN TAKEN FROM THE GROUND SURFACE AND EXISTING CONDITIONS SUCH AS SEWER FLOW, UTILITY DEPTH, DEBRIS AND/OR SEDIMENT IN PIPE, LIGHTING CONDITIONS, AND TEST HOLE EXCAVATION DIAMETER COULD IMPACT THE ACCURACY OF SUCH DATA.
9) IF DIRECTIONAL BORING, THE CONTRACTOR SHALL EXPOSE ALL EXISTING UNDERGROUND FACILITIES AND VISUALLY OBSERVE THE SAFE CROSSING OF SUCH FACILITIES, IN ACCORDANCE WITH DIRECTIONAL BORING BEST PRACTICES.
10) THE PROFESSIONAL ENGINEER'S SEAL SHOWN ON THESE DRAWINGS IS SPECIFICALLY LIMITED TO THE SUBSURFACE UTILITY ENGINEERING INVESTIGATION ASSOCIATED WITH THE DATA COLLECTION AND MAPPING OF EXISTING SUBSURFACE UTILITIES WITHIN THE PROPOSED EXCAVATION AREA/SUE LIMITS.
11) A PRAGMATIC EFFORT HAS BEEN MADE TO DESIGNATE AND MAP EXISTING UNDERGROUND UTILITIES WITHIN THE SUE LIMITS TO THE EXTENT PRACTICAL FOR THE AUTHORIZED PRO□ECT BUDGET. EXISTING UTILITY LOCATIONS DEPICTED ARE APPROXIMATE, AND DO NOT SUPERSEDE COLORADO 811 DEMARCATIONS OF UNDERGROUND UTILITIES OR RELIEVE THE CONTRACTOR OF THE LEGAL REQUIREMENT TO CONTACT COLORADO 811 PRIOR TO EXCAVATION.
12) HKS UTILITY SERVICES AND THE PRO□ECT DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN UTILITY MAPPING AND UTILITY OWNER DESIGNATION MARKINGS OR ACTUAL UTILITY LOCATIONS, PRIOR TO CONSTRUCTION.
13) AERIAL IMAGERY BACKGROUND IS FOR REFERENCE PURPOSES ONLY AND MAY NOT BE TO SCALE.

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SUBSURFACE UTILITY ENGINEERING INVESTIGATION
QUALITY LEVEL DEFINITIONS AND GENERAL NOTES

ISSUE DATE: 11-03-2020	DRAWN BY: JMN	PROJECT #: 190209
DATE	REVISION COMMENTS	SHEET NUMBER
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UTILITY DISCREPANCIES, ISSUES, AND RECOMMENDATIONS:

1. HKS RECOMMENDS TEST HOLES AT ALL POTENTIAL UTILITY CONFLICTS. HKS DID NOT PERFORM TEST HOLES WITHIN SUE LIMITS FOR THIS PROJECT AND CANNOT CONFIRM ANY TEST HOLE INFORMATION SHOWN.
2. COMCAST AND MCI DID NOT RESPOND TO THE 811 SUBSURFACE UTILITY ENGINEERING NOTIFICATION. ALL KNOWN COMCAST AND MCI FACILITIES WERE DESIGNATED BY HKS FIELD CREWS. HOWEVER, LOCATION, SIZE, MATERIAL, AND OWNERSHIP COULD NOT BE VERIFIED, AS NO MAPS WERE PROVIDED. CONSEQUENTLY, ALL LINES ARE DEFINED AS QL-C. IT IS POSSIBLE THAT ADDITIONAL LINES EXIST THAT ARE NOT SHOWN. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
3. THE TELECOM LINES SHOWN WITHIN SUE LIMITS NOTED AS "OWNER UNKNOWN" WERE DESIGNATED BY HKS FIELD CREWS. HOWEVER, LOCATION, SIZE, MATERIAL, AND OWNERSHIP COULD NOT BE VERIFIED, AS THE LINES COULD NOT BE CONFIRMED BY THE MAPS PROVIDED. CONSEQUENTLY, ALL LINES ARE DEFINED AS QL-C. IT IS POSSIBLE THAT ADDITIONAL LINES EXIST THAT ARE NOT SHOWN. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
4. ARVADA STORM MAPS SHOW A 4" TO 10" PVC UNDERDRAIN RUNNING NORTH TO SOUTH WITHIN URBAN DR. AND UNION ST. THAT THAT COULD NOT BE DESIGNATED BY HKS FIELD CREWS. THE UNDERDRAIN APPEARS TO RUN UNDERNEATH THE EXISTING ARVADA SANITARY SEWER, BASED ON MAPS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
5. THE EXISTING SANITARY SEWER LINES RUNNING NORTH AND SOUTH FROM SANITARY MANHOLE #1 WITHIN URBAN DR. AND UNION ST. ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
6. THE EXISTING STORM LINE CROSSING UNION ST. ON THE SOUTH SIDE OF W. 72ND AVE. BETWEEN STORM INLET #5 AND STORM OUTLET 6 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
7. THE EXISTING STORM LINE CROSSING SWADLEY CT. ON THE SOUTH SIDE OF W. 72ND AVE. BETWEEN STORM INLET #7 AND STORM OUTLET #8 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
8. THE WATER LINE EAST OF URBAN DR./UNION ST. RUNNING NORTH AND WEST INTO LEYDEN CREEK IS QL-D (AND SHOWN PER MAPS) BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. THE LINE IS SHOWN AS A DRAIN PER ARVADA MAPS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
9. THE EXISTING STORM LINE RUNNING EAST-WEST ON THE NORTH SIDE OF W. 72ND AVE. BETWEEN STORM OUTLET #9 AND STORM INLET #10 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
10. THE EXISTING WATER LINE CONNECTED TO AN ANODE TESTING STATION ON THE NORTH SIDE OF W. 72ND AVE. WEST OF SIMMS ST. IS QL-D AND SHOWN PER ARVADA MAPS BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
11. THE EXISTING STORM SEWER LINE RUNNING NORTH FROM STORM FES #15 NORTHWEST OF THE W. 72ND AVE./ SIMMS ST. INTERSECTION IS QL-D (AND SHOWN PER MAPS) BECAUSE FIELD CREWS COULD NOT DESIGNATE THE LINE ELECTROMAGNETICALLY OR LOCATE THE FLARED END SECTION (BURIED). HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
12. THE EXISTING WATER VAULT (AND ASSOCIATED LINES) IN THE INTERSECTION OF W. 72ND AVE./SIMMS ST. IS NOT SHOWN ON ARVADA MAPS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
13. THE EXISTING STORM SEWER LINE RUNNING NORTH-SOUTH WITHIN SIMMS ST. (CROSSING W. 72ND AVE.) FROM STORM MANHOLE #1 TO STORM MANHOLE #2 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
14. THE EXISTING STORM SEWER LINE RUNNING NORTH-SOUTH WITHIN SIMMS ST. BETWEEN STORM MANHOLE #1 AND STORM MANHOLE #4 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
15. THE EXISTING STORM SEWER LINE RUNNING NORTH-SOUTH WITHIN SIMMS ST. SOUTH OF STORM MANHOLE #2 IS QL-D BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY OR OPEN STORM MANHOLE #5. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
16. THE EXISTING STORM SEWER LINE BETWEEN STORM INLET #18 AND STORM MANHOLE #1 AT THE NORTHEAST CORNER OF THE W. 72ND AVE./ SIMMS ST. INTERSECTION IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
17. THE EXISTING STORM SEWER LINES RUNNING EAST-WEST ALONG THE NORTH SIDE OF W. 72ND AVE. FROM STORM MANHOLE #1 TO STORM MANHOLE #10 ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
18. THE EXISTING STORM SEWER LINE EAST OF THE W. 72ND AVE./ SIMMS ST. INTERSECTION RUNNING SOUTHWEST TO STORM MANHOLE #3 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
19. THE EXISTING SANITARY SEWER LINE RUNNING EAST-WEST ACROSS SIMMS ST. FROM SANITARY MANHOLE #4 NORTH OF THE W. 72ND AVE./SIMMS ST. INTERSECTION IS QL-D BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY AND THE MANHOLE TO THE WEST OF SIMMS ST. COULD NOT BE LOCATED. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
20. THE EXISTING SANITARY SEWER LINE RUNNING SOUTH FROM SANITARY MANHOLE #6 WITHIN ROUTT ST. IS QL-D BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY AND THE MANHOLE TO THE SOUTH IS OUTSIDE THE INVESTIGATION LIMITS. ADDITIONALLY, A PIPE INVERT IN FROM THE NORTH WAS OBSERVED IN SANITARY MANHOLE #6, BUT ARVADA MAPS DO NOT SHOW A SEWER CONNECTION FROM THE NORTH. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
21. THE EXISTING WATER LINE RUNNING NORTH-SOUTH IN ROUTT ST. SOUTH OF THE EXISTING FIRE HYDRANT (AND ALL ASSOCIATED WATER SERVICES) ARE QL-D AND SHOWN PER ARVADA MAPS BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
22. THE EXISTING STORM SEWER LINES NORTH AND WEST OF ROUTT ST. RUNNING WEST FROM STORM INLET #4 AND NORTH-SOUTH BETWEEN STORM MANHOLE #6 AND STORM MANHOLE #7 ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
23. THE EXISTING STORM SEWER LINES RUNNING EAST-WEST ON THE NORTH SIDE OF W. 72ND AVE. BETWEEN STORM MANHOLE #10, STORM MANHOLE #11, AND STORM INLET #26 ARE QL-D AND SHOWN PER ARVADA MAPS BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY, AND UNABLE TO VERIFY PIPE INVERTS IN STORM MANHOLE #11 DUE TO DEBRIS IN THE MANHOLE. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
24. THE EXISTING STORM SEWER LINE RUNNING EAST-WEST ON THE SOUTH SIDE OF W. 72ND AVE. BETWEEN STORM OUTLET #22 AND STORM INLET #23 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
25. THE EXISTING STORM SEWER LINE RUNNING NORTH-SOUTH WITHIN QUAIL ST BETWEEN STORM MANHOLE #12 AND STORM INLET #26 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
26. THE EXISTING STORM SEWER LINES RUNNING EAST-WEST ON THE NORTH SIDE OF W. 72ND AVE. BETWEEN STORM INLET #26 AND STORM INLET #31 ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
27. THE EXISTING SANITARY SEWER LINES RUNNING NORTH-SOUTH WITHIN QUAIL ST. BETWEEN SANITARY MANHOLE #7 AND SANITARY MANHOLE #8 AND EAST-WEST WITHIN W. 72ND AVE. BETWEEN SANITARY MANHOLE #8 AND SANITARY MANHOLE #9 ARE QL-D BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY OR OPEN SANITARY MANHOLE #8. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
28. THE EXISTING SANITARY SEWER LINES RUNNING EAST-WEST ALONG THE NORTH SIDE OF W. 72ND AVE. BETWEEN SANITARY MANHOLE #9 AND SANITARY MANHOLE #11 ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
29. THE EXISTING SANITARY SEWER LINE CROSSING W. 72ND AVE. EAST OF QUAIL ST. RUNNING SOUTH FROM SANITARY MANHOLE #9 IS QL-D BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY AND THE MANHOLE TO THE SOUTH IS OUTSIDE THE INVESTIGATION LIMITS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
30. THE EXISTING WATER VAULT (AND ASSOCIATED LINE) IN THE INTERSECTION OF W. 72ND AVE./OAK ST. IS NOT SHOWN ON ARVADA MAPS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
31. THE EXISTING STORM SEWER LINES RUNNING EAST-WEST CROSSING OAK ST. BETWEEN STORM OUTLET #34 AND STORM INLET #35 ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
32. THE EXISTING STORM SEWER LINE RUNNING NORTH-SOUTH CROSSING W. 72ND AVE. BETWEEN STORM INLET #32 AND STORM OUTLET #33 IS QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.
33. THE EXISTING STORM SEWER LINE RUNNING NORTHEAST FROM STORM INLET #32 IS QL-D (AND SHOWN PER ARVADA MAPS) BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

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UTILITY DISCREPANCIES, ISSUES, AND RECOMMENDATIONS

ISSUE DATE: 11-03-2020	DRAWN BY: JMN	PROJECT #: 190209
DATE	REVISION COMMENTS	SHEET NUMBER
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UTILITY DISCREPANCIES, ISSUES, AND RECOMMENDATIONS:

34. THE EXISTING SANITARY SEWER LINES WITHIN THE SUE LIMITS AT THE INTERSECTION OF W. 72ND AVE./OAK ST. ARE QL-D AND SHOWN PER ARVADA MAPS BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY, UNABLE TO OPEN SANITARY MANHOLE #13, AND UNABLE TO OPEN THE MANHOLE SOUTH OF SANITARY MANHOLE #12. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

35. THE EXISTING SANITARY SEWER LINES RUNNING EAST-WEST ALONG THE NORTH SIDE OF W. 72ND AVE. NEAR W. 70TH DR. ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

36. THE EXISTING SANITARY SEWER LINE RUNNING NORTH-SOUTH WITHIN W. 70TH DR. SOUTH OF SANITARY MANHOLE #16 IS QL-D BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY OR OPEN SANITARY MANHOLE #16. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

37. THE EXISTING FARMERS HIGHLINE CANAL LATERAL WITHIN THE SUE LIMITS NEAR THE INTERSECTION OF W. 72ND AVE./W. 70TH DR. IS QL-C AND QL-D BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY AND STRUCTURES TO THE EAST AND SOUTH WERE OUTSIDE THE INVESTIGATION LIMITS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

38. THE EXISTING STORM SEWER LINE RUNNING SOUTH FROM STORM INLET #39 IS QL-D (AND SHOWN PER ARVADA MAPS) BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINE ELECTROMAGNETICALLY OR VERIFY THE TERMINUS TO THE SOUTH. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

39. ALL OTHER EXISTING STORM SEWER LINES WITHIN THE SUE LIMITS NEAR THE INTERSECTION OF W. 72ND AVE./W. 70TH DR. ARE QL-C BECAUSE FIELD CREWS WERE UNABLE TO DESIGNATE THE LINES ELECTROMAGNETICALLY. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

40. THE NUMBER AND LOCATION OF ARVADA FIBER CONDUITS CANNOT BE CONFIRMED BY ARVADA FIBER MAPS BECAUSE THE MAPS DO NOT CLEARLY DELINEATE THE LINES. ADDITIONALLY, THE CONDUITS ARE ACTIVE PER ARVADA FIBER MAPS, HOWEVER FIELD CREWS OBSERVED THE CONDUITS TO BE EMPTY WHERE NOTED ON THE PLANS.

41. CENTURY LINK MAPS SHOW LINES RUNNING EAST-WEST FROM THE DUCT RUNNING NORTH-SOUTH ALONG SIMMS ST. SERVING THE PROPERTY AT THE SOUTHWEST CORNER OF THE W. 72ND AVE./SIMMS ST. INTERSECTION THAT COULD NOT BE DESIGNATED BY HKS FIELD CREWS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

42. CENTURY LINK MAPS SHOW A LINE RUNNING EAST-WEST ALONG THE SOUTH SIDE OF W. 72ND AVE. EAST OF THE W. 72ND AVE./W. 70TH DR. INTERSECTION THAT COULD NOT BE DESIGNATED BY HKS FIELD CREWS. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

43. ZAYO MAPS SHOW A LINE RUNNING NORTH-SOUTH ALONG THE EAST SIDE OF OAK ST. THAT COULD NOT BE DESIGNATED BY HKS FIELD CREWS. IT IS UNCLEAR FROM MAPS IF THE LINE IS BURIED OR OVERHEAD. LOCATION AND EXISTENCE UNKNOWN. HKS RECOMMENDS ADDITIONAL INVESTIGATION AND/OR TEST HOLES IF WARRANTED BY THE PROPOSED IMPROVEMENTS.

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CITY OF ARVADA

W 72ND AVE - SIMMS TO KIPLING
SUBSURFACE UTILITY ENGINEERING INVESTIGATION
UTILITY DISCREPANCIES, ISSUES, AND RECOMMENDATIONS

ISSUE DATE: 11-03-2020	DRAWN BY: JMN	PROJECT #: 190209
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		4

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LEGEND:

- SUE LIMITS
- ROW — RIGHT-OF-WAY
- G — NATURAL GAS MAIN (QL-B)
- G: C — NATURAL GAS MAIN (QL-C)
- G: D — NATURAL GAS MAIN (QL-D)
- G: D — ABANDONED NATURAL GAS MAIN (QL-D)
- P — PETROLEUM PIPELINE (QL-B)
- P: C — PETROLEUM PIPELINE (QL-C)
- UE — UNDERGROUND ELECTRIC (QL-B)
- UE: D — UNDERGROUND ELECTRIC (QL-D)
- OE — OVERHEAD ELECTRIC
- UT — UNDERGROUND TELECOM (QL-B)
- UT: D — UNDERGROUND TELECOM (QL-D)
- FO — FIBER OPTIC (QL-B)
- TR — TRAFFIC (QL-B)
- TR: D — TRAFFIC (QL-D)
- W — WATER MAIN (QL-B)
- W: C — WATER MAIN (QL-C)
- W: D — WATER MAIN (QL-D)
- RW — RECLAIMED WATER MAIN (QL-B)
- IR — IRRIGATION MAIN (QL-B)
- IR: D — IRRIGATION MAIN (QL-D)
- SS — SANITARY SEWER (QL-B)
- SS: C — SANITARY SEWER (QL-C)
- SS: D — SANITARY SEWER (QL-D)
- ST — STORM SEWER (QL-B)
- ST: C — STORM SEWER (QL-C)
- ST: D — STORM SEWER (QL-D)
- MC — MISCELLANEOUS CONDUIT

- NATURAL GAS VALVE
- E — ELECTRIC HANDHOLE/PULLBOX
- E — ELECTRIC VAULT
- E — ELECTRIC PEDESTAL
- SC — ELECTRIC SWITCH CABINET
- T — ELECTRIC TRANSFORMER
- UTILITY POLE
- R — RISER POLE
- STREET LIGHT
- T — TELECOM HANDHOLE/PULLBOX
- T — TELECOM VAULT
- T — TELECOM PEDESTAL
- X — TELECOM CROSS-BOX

- TR — TRAFFIC HANDHOLE/PULLBOX
- TR — TRAFFIC VAULT
- TR — TRAFFIC SIGNAL POLE
- TR — TRAFFIC SIGNAL CONTROL CABINET
- FIRE HYDRANT
- W — WATER VAULT
- WM — WATER METER
- AT — ANODE TESTING STATION
- WATER VALVE
- WATER VENT
- S — SANITARY SEWER MANHOLE
- SC — SANITARY SEWER CLEANOUT
- STORM SEWER INLET
- ST — STORM SEWER MANHOLE
- STORM SEWER INLET/OUTLET

ABBREVIATIONS:

AC	ASBESTOS CONCRETE
BMP	BEST MANAGEMENT PRACTICE
CI	CAST IRON
CIPP	CURED IN PLACE PIPE
DIP	DUCTILE IRON PIPE
EOP	EDGE OF PAVEMENT
EX	EXISTING
FO	FIBER OPTICS
FL	FLOW LINE
INV	INVERT
MH	MANHOLE
NTS	NOT TO SCALE
PE	POLYETHYLENE
PR	PROPOSED
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
SL	STREET LIGHT
SS	SANITARY SEWER
STL	STEEL
STM	STORM SEWER
SW	SIDEWALK
TBC	TOP BACK OF CURB
TYP	TYPICAL
VCP	VITRIFIED CLAY PIPE

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LEGEND AND ABBREVIATIONS

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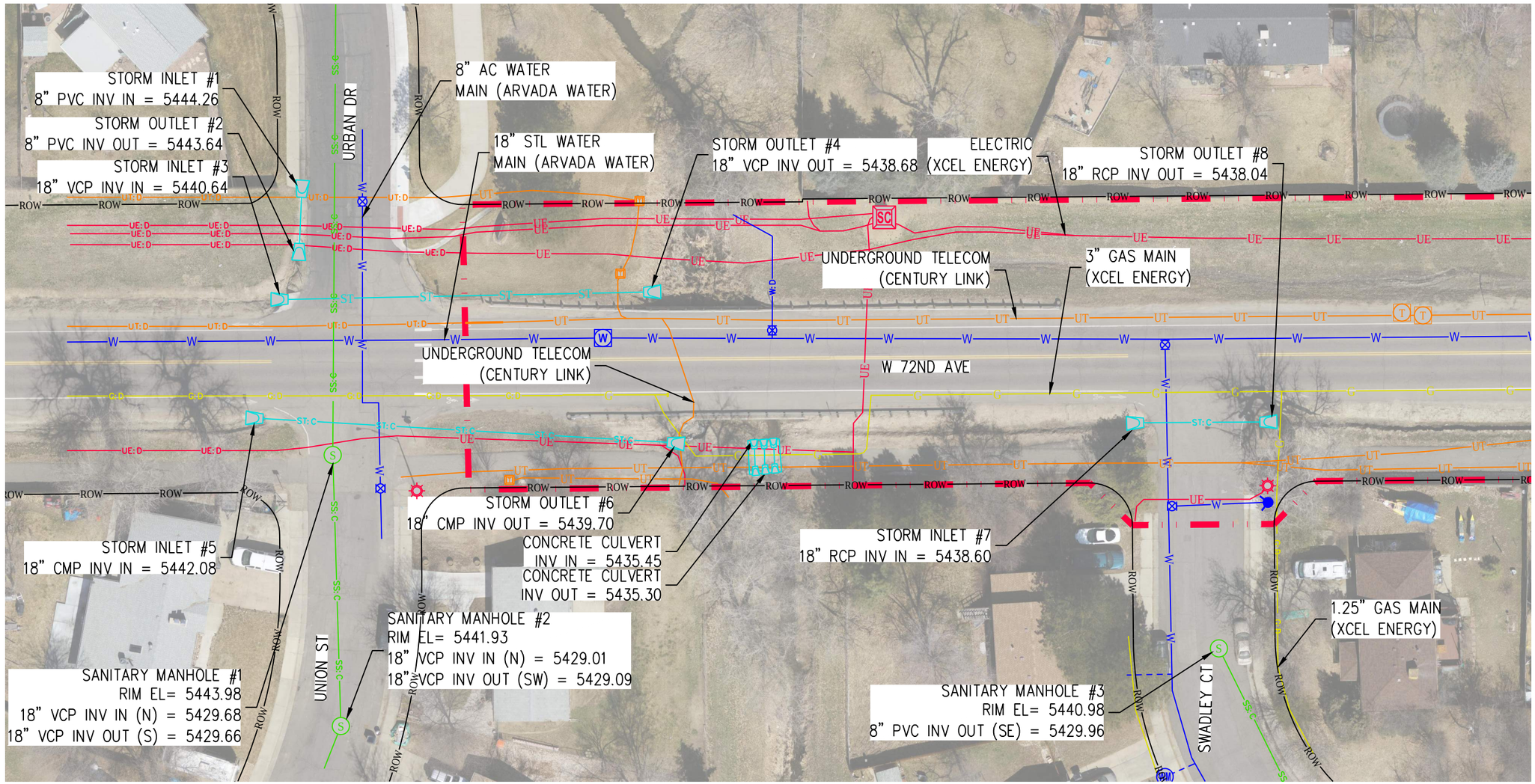

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UTILITY PLAN
SCALE: 1" = 40'

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EXISTING UTILITY PLAN

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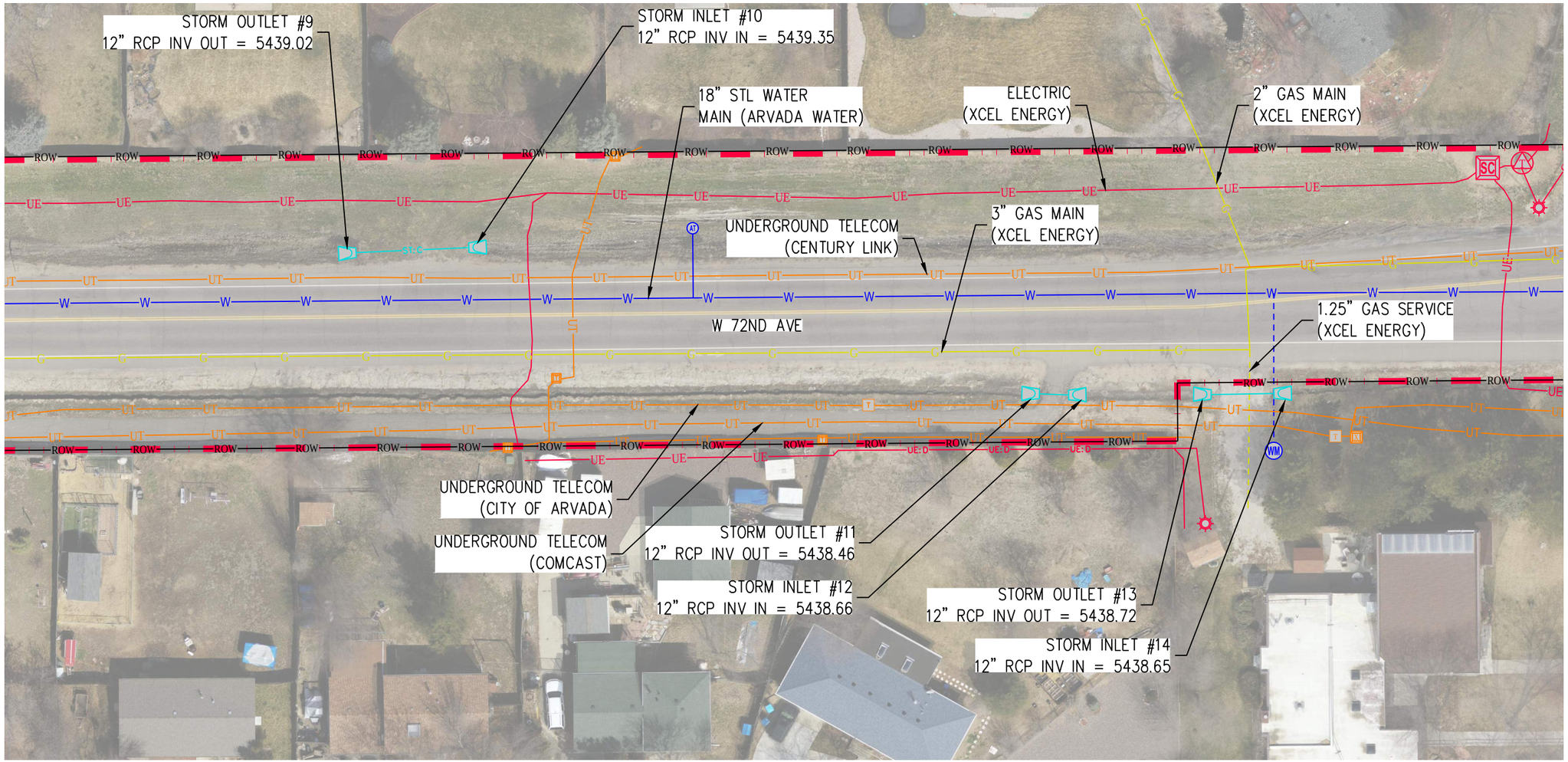

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UTILITY PLAN
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EXISTING UTILITY PLAN

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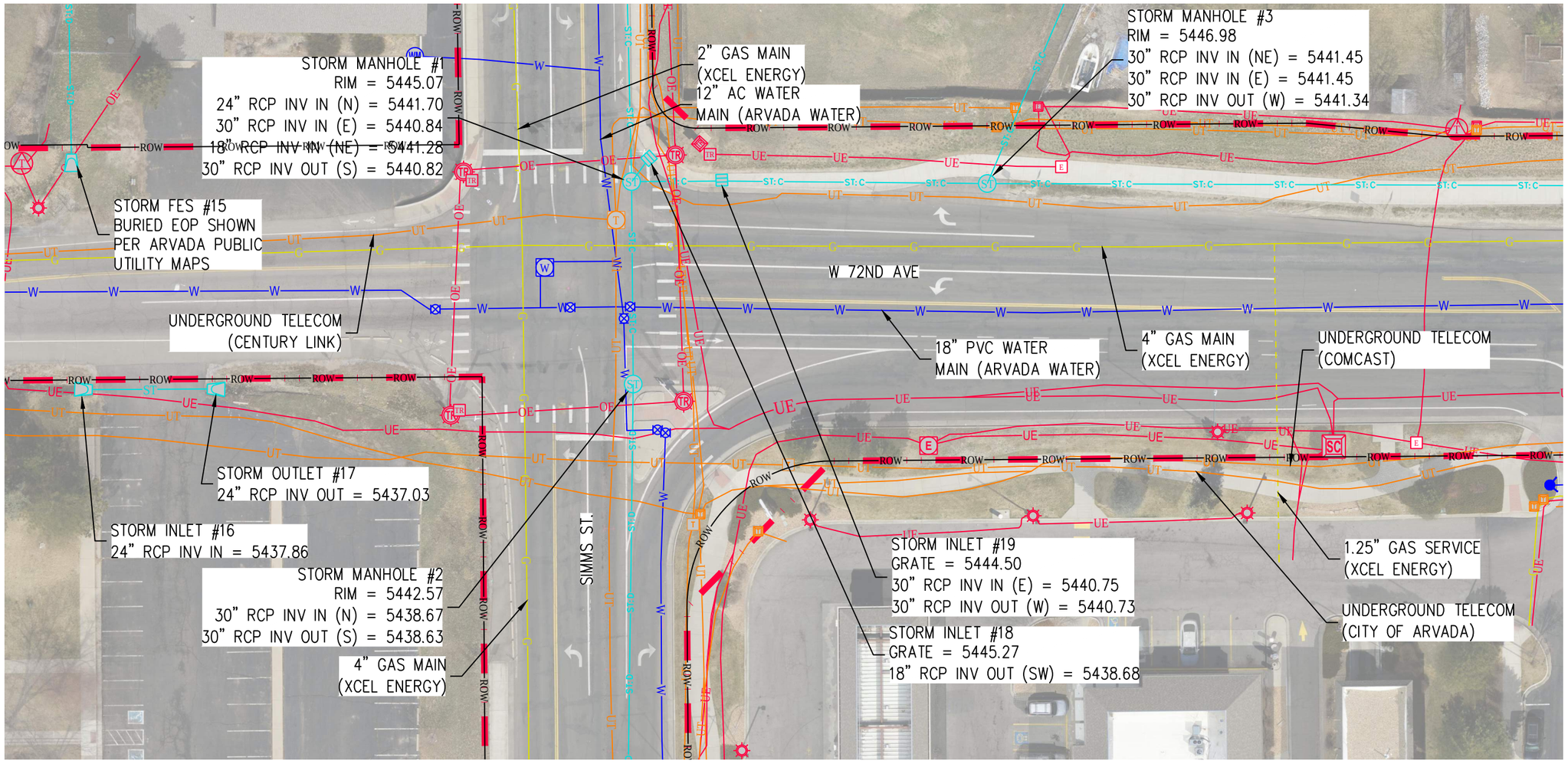

SEE SHEET 11

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UTILITY PLAN

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EXISTING UTILITY PLAN

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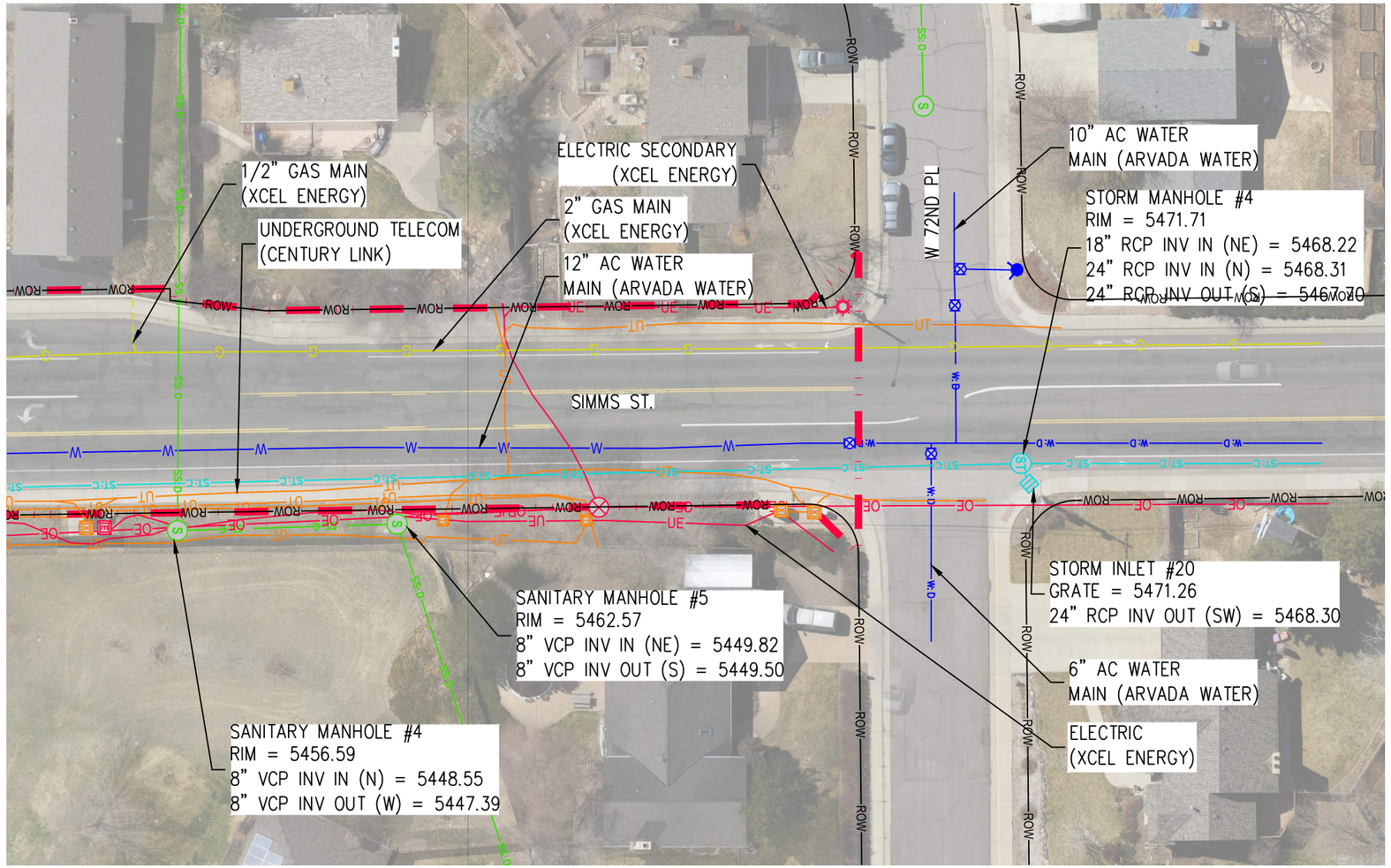

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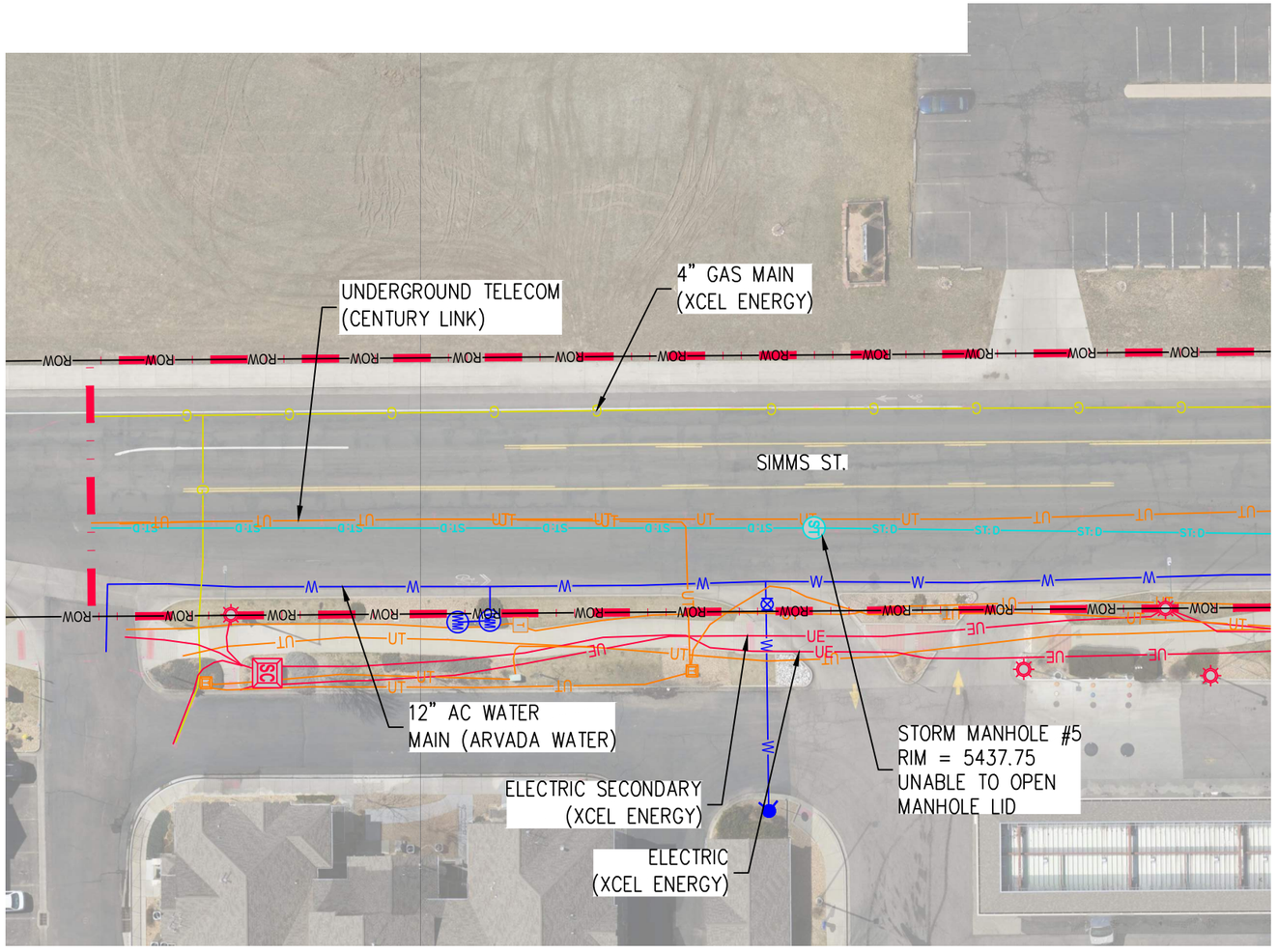

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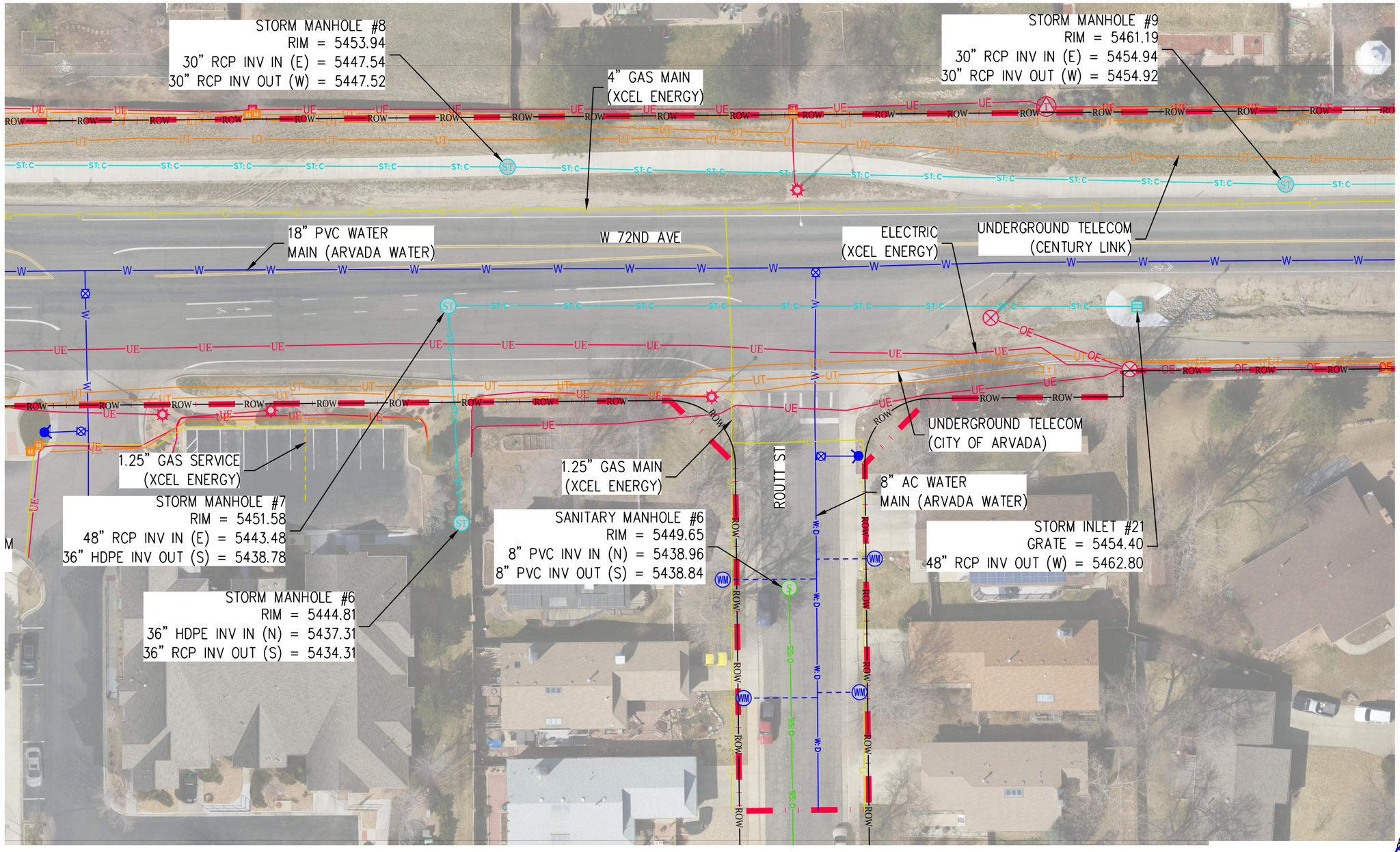

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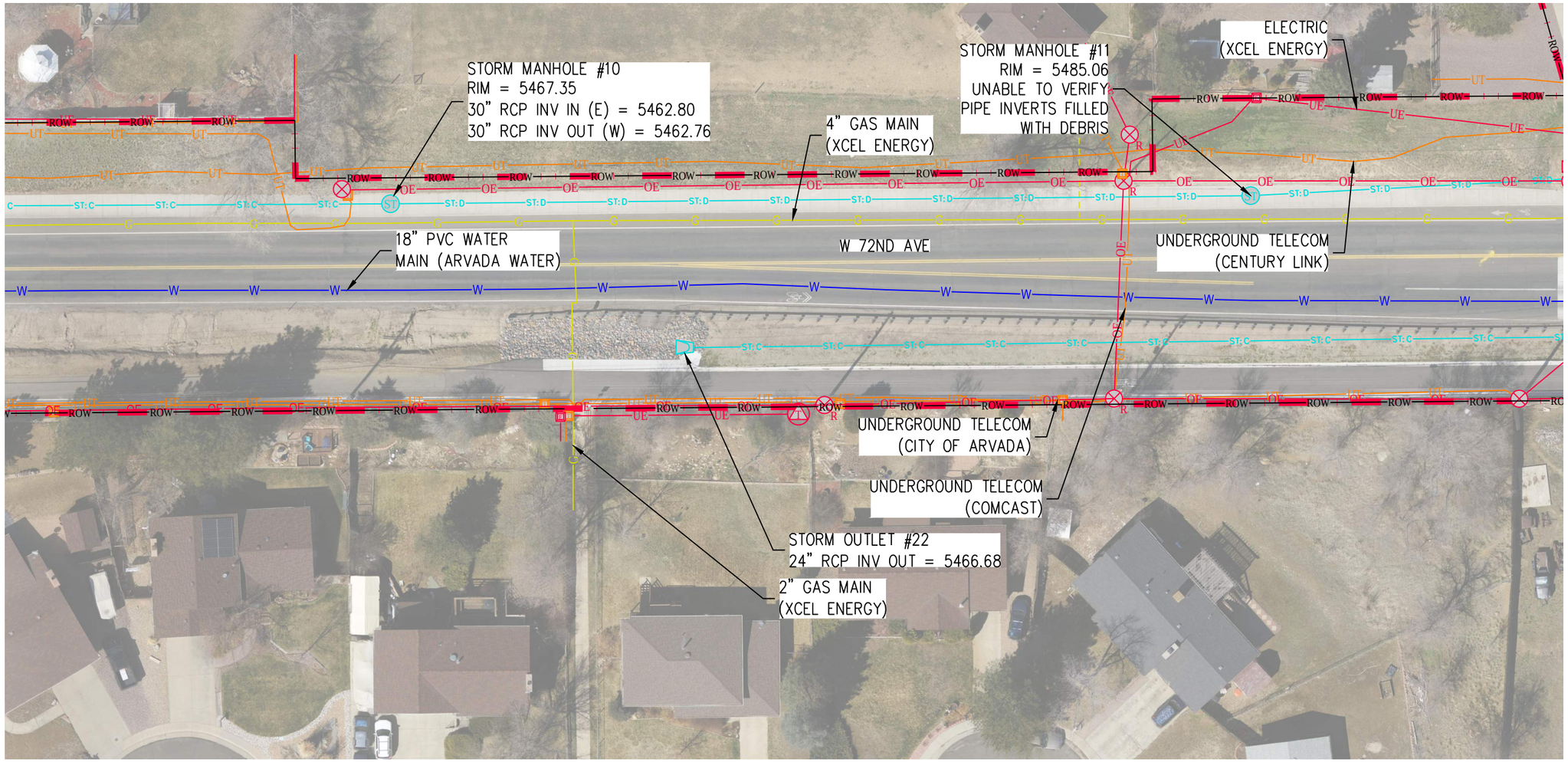

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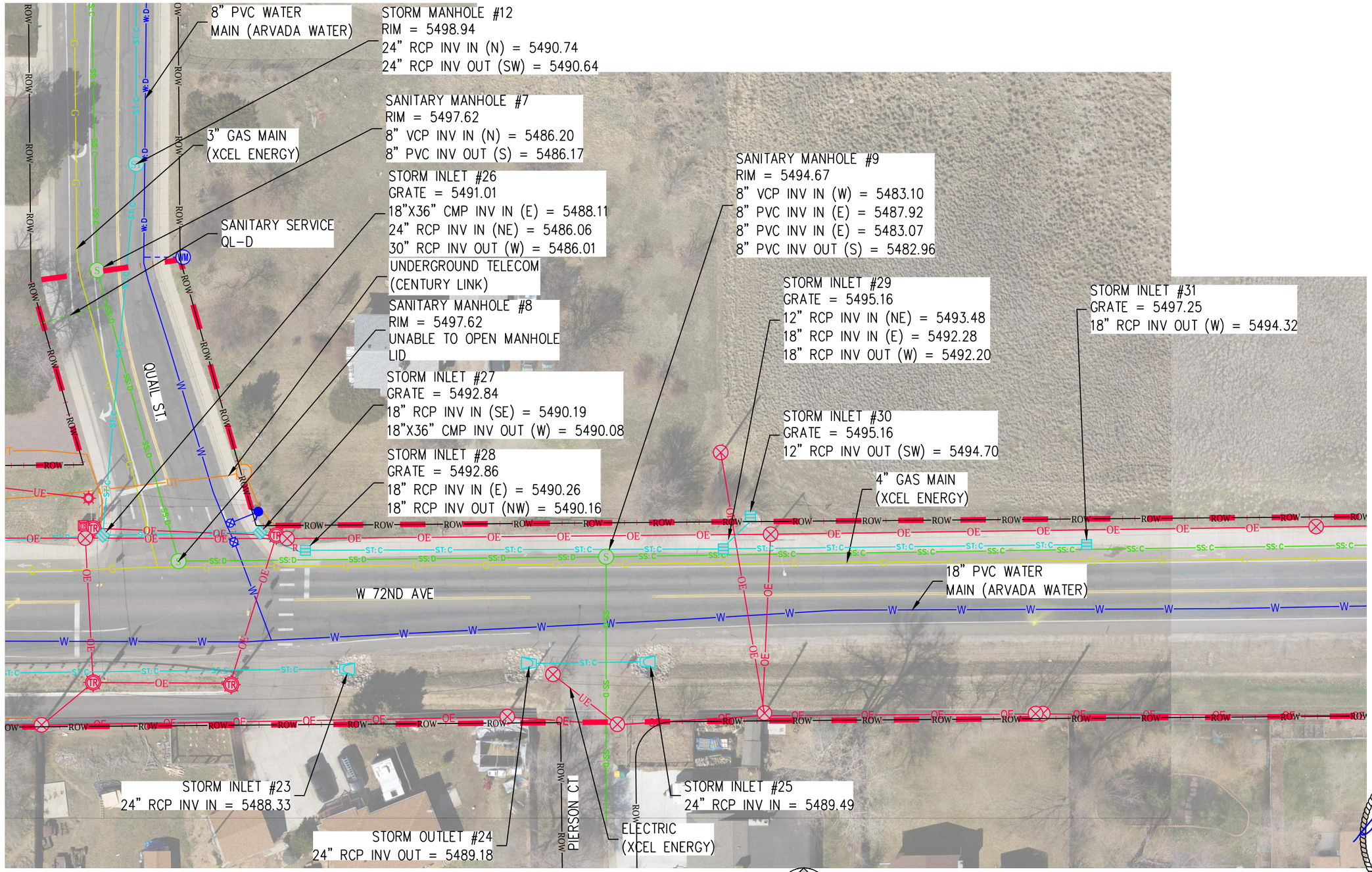

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UTILITY PLAN
SCALE: 1" = 40'

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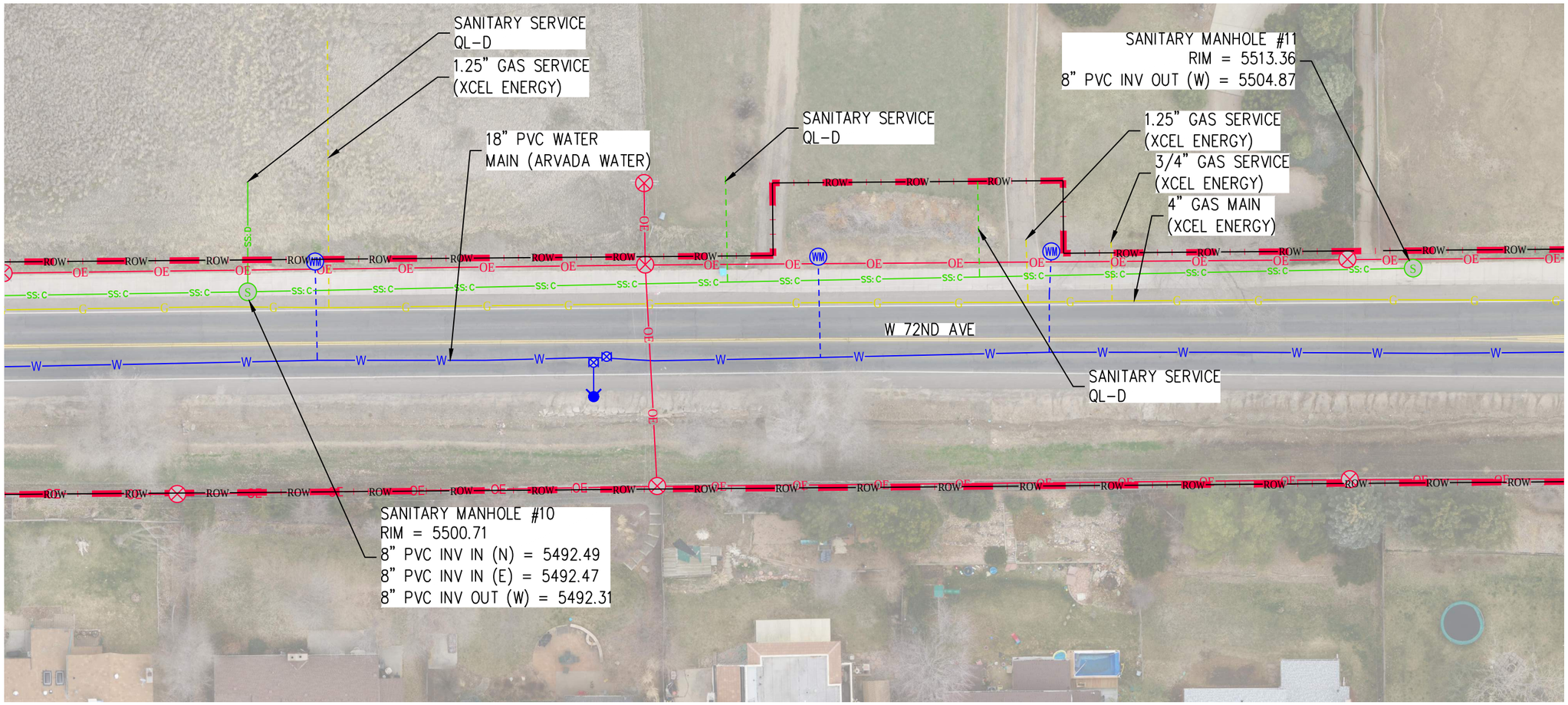

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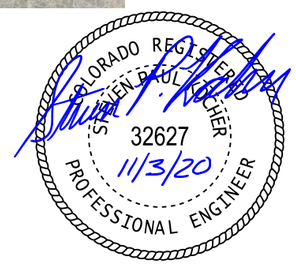
UTILITY PLAN
SCALE: 1" = 40'



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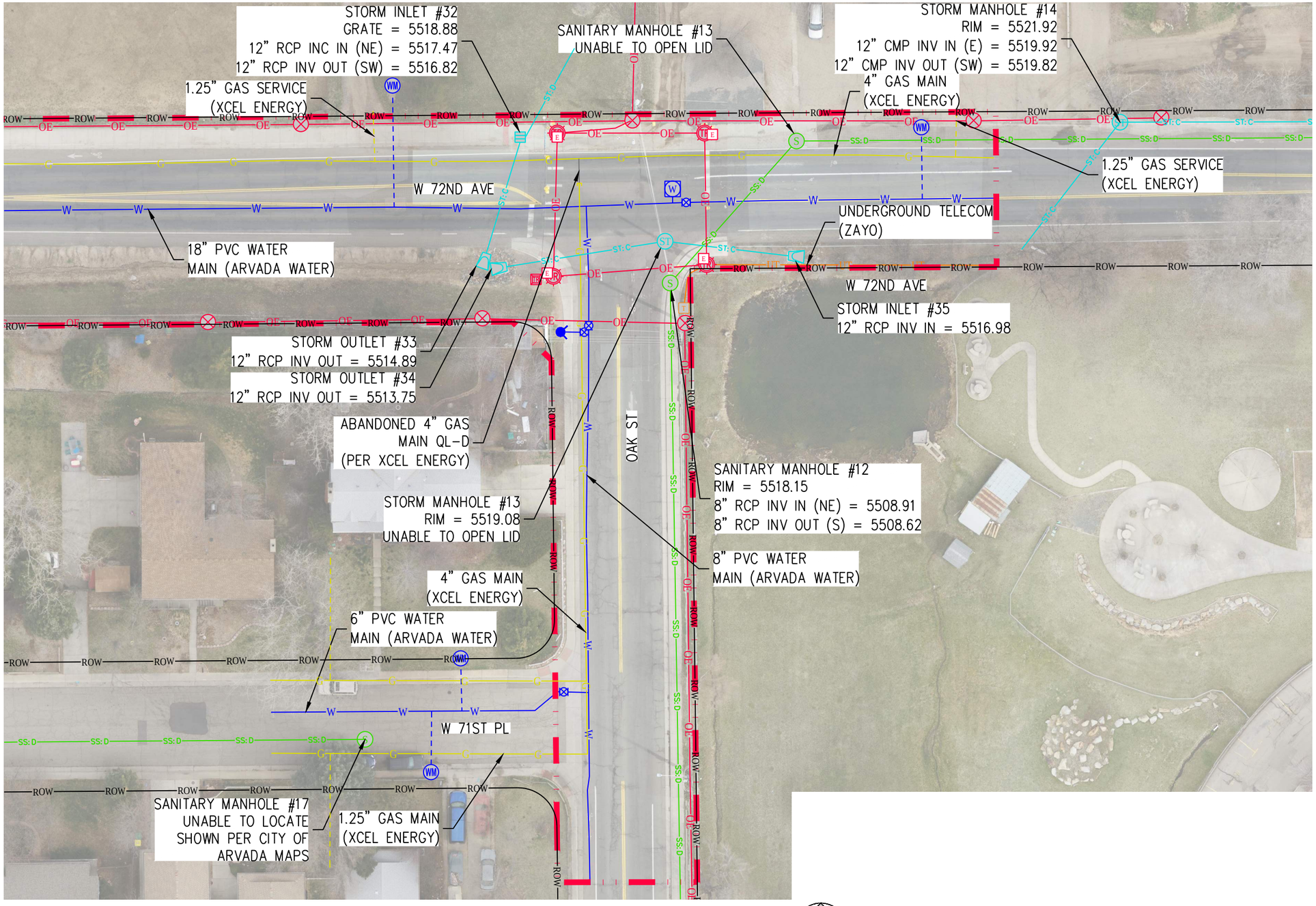

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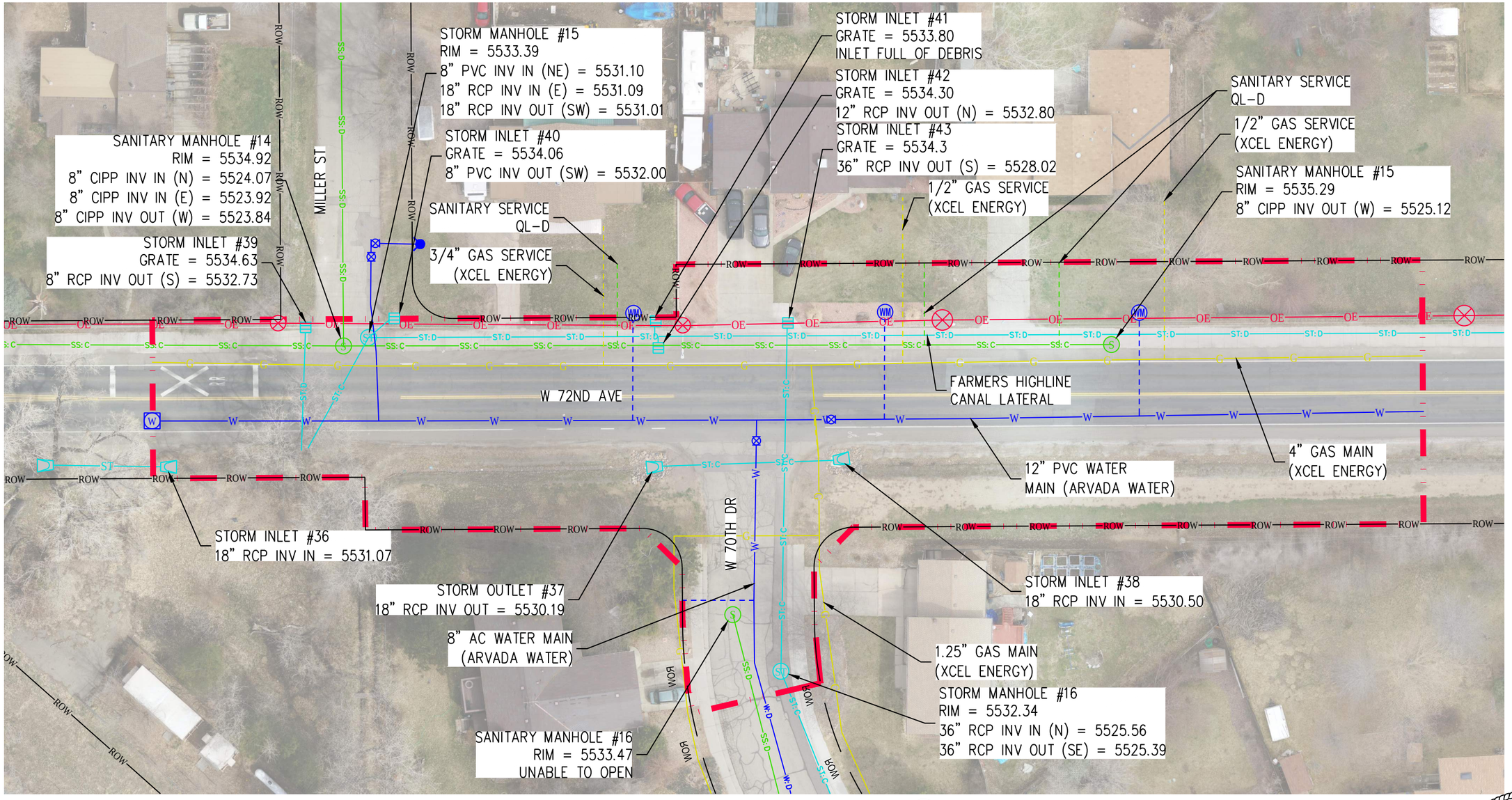

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EXISTING UTILITY PLAN

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L:\190209\CAD\E-UTIL.DWG TUE,11/03/20,4:10:06P BY: JEFFREY NYE

GENERAL WATER AND SANITARY SEWER NOTES:

1. ALL MATERIALS AND CONSTRUCTION RELATED TO WATER AND SANITARY SEWER FACILITIES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS FOR WATER AND WASTEWATER UTILITIES. THE CITY'S STANDARD DETAILS INCLUDED IN THEIR STANDARD SPECIFICATIONS SHALL BE USED FOR PROVIDING SPECIFIC, SUPPLEMENTAL INFORMATION PERTAINING TO THE CONSTRUCTION OF FACILITIES TO BE OWNED BY THE CITY, AND SHALL IN ALL ASPECTS BE COMPLIED WITH BY THE CONTRACTOR.

2. SEE CITY OF ARVADA GENERAL NOTES (UTILITIES SECTION) FOR INFORMATION PERTAINING TO KNOWN UTILITIES PRESENT ON THIS PROJECT, THE CONTRACTOR'S RESPONSIBILITY TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION, AND THE CONTRACTOR'S RESPONSIBILITY TO LOCATE, IDENTIFY, AND DETERMINE ANY POTENTIAL UTILITY CONFLICTS PRIOR TO CONSTRUCTION. THIS SECTION ALSO INCLUDES INFORMATION REGARDING HOW PAYMENT OF LOCATING AND IDENTIFYING ALL EXISTING UTILITIES SHALL BE PAID FOR.

3. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE CITY OF ARVADA ENGINEERING DIVISION AND SHALL NOTIFY THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 OR 811 TWO DAYS PRIOR TO CONSTRUCTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE CITY REGARDING ALL REQUIRED TESTS AND INSPECTIONS, AND SHALL BE RESPONSIBLE FOR THE COORDINATION AND SCHEDULING THEREOF.

5. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. THE APPROPRIATE FIRE DEPARTMENT SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ANY STREET CLOSURES AND AT TIMES WHEN FIRE HYDRANTS ARE TO BE TEMPORARILY OUT FROM SERVICE. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING AT LEAST 48 HOURS ADVANCED NOTICE OF ANY NEED TO SHUT DOWN ANY PORTION OF THE EXISTING WATER SYSTEM AND FOR OBSERVATIONS AND/OR INSPECTIONS REQUIRED BY THE CITY.

6. THE CONTRACTOR SHALL NOTIFY THE CITY OF ANY PROBLEM IMPACTING WATER AND/OR SANITARY SEWER FACILITIES THAT WOULD POTENTIALLY REQUIRE A VARIANCE FROM THE APPROVED PLANS AND SPECIFICATIONS. ANY VARIANCE FROM THE APPROVED DOCUMENTS SHALL BE AT THE SOLE DISCRETION OF THE CITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING ALL FIELD CHANGES TO THE APPROVED DOCUMENTS AND THE CONVEYING OF THIS INFORMATION TO THE DESIGN ENGINEER FOR THE PURPOSES OF PREPARING RECORD DOCUMENTS AS REQUIRED.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE LOCATION OF (POTHOLING), AND PROTECTING ALL EXISTING UTILITIES, INCLUDING THOSE NOT SHOWN, OR INCORRECTLY SHOWN ON THE PLANS. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED TO THE SATISFACTION OF THE CITY AND THE OWNER OF THE IMPACTED UTILITY. VERTICAL CLEARANCES AND UTILITY PROTECTION BETWEEN CROSSING FACILITIES SHALL BE MAINTAINED IN STRICT CONFORMANCE WITH THE CITY'S DESIGN STANDARDS AND THE CITY'S STANDARD DETAILS.

8. THE CITY AND ITS ENGINEER(S) ARE NOT GUARANTORS OF THE CONTRACTOR'S OBLIGATIONS AND PERFORMANCE OF THE CONTRACT. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE CITY AND ITS ENGINEER(S) FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE WORK PERFORMED ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CITY OR ITS ENGINEER(S).

9. LIMITS OF CONSTRUCTION EASEMENTS AND RIGHTS-OF-WAY SHALL BE DELINEATED WITH TEMPORARY STAKING BY THE CONTRACTOR. SAFETY FENCING SHALL BE UTILIZED WHERE WORK IS IN CLOSE PROXIMITY TO RESIDENCES, TRAILS, OR OTHER PUBLIC AREAS.

10. THE CONTRACTOR WILL BE HELD CONTINUALLY RESPONSIBLE FOR THE CLEANLINESS OF ALL ROADWAYS AT ALL TIMES. NO TOLERANCE WILL BE GRANTED FOR DIRTY, MUDDY & UNSAFE DRIVING CONDITIONS RESULTING FROM WORK UNDER THIS CONTRACT.

POTABLE WATER DISTRIBUTION SYSTEM:

1. SEE "GENERAL WATER AND SANITARY SEWER NOTES" FOR INFORMATION PERTAINING TO WATER LINE WORK INCLUDING PROVIDING NOTICE PRIOR TO CONSTRUCTION, COORDINATION WITH THE CITY OF ARVADA. SEE "WATER LINE DETAILS" SHEET FOR MORE INFORMATION ON SPECIFICS RELATING TO TRACER WIRE, FIRE HYDRANTS, CLEARANCE FITTINGS, BLOW-OFFS, AND METER PITS.

2. THE EXISTING WATER AND SERVICE LINES SHALL REMAIN IN SERVICE WHILE THE NEW MAIN IS BEING CONSTRUCTED. ONLY ONE CONNECTION MAY BE MADE TO THE EXISTING WATER MAIN FOR TESTING PURPOSES. TEMPORARY PLUG AND THRUST RESTRAINT SHALL BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION.

3. THERE SHALL BE A MINIMUM COVER OF 4 FEET OVER ALL POTABLE WATER MAINS AND SERVICE LINES.

4. THE NEW WATER MAIN SHALL BE DISINFECTED, FLUSHED AND PRESSURE/LEAKAGE TESTED AND ACCEPTED BY THE CITY FOR SERVICE BEFORE IT IS FULLY TIED INTO THE SYSTEM. AFTER THE NEW MAIN IS TESTED AND ACCEPTED, END CONNECTIONS SHALL BE MADE TO THE EXISTING SYSTEM AND THE EXISTING SERVICE LINES SHALL BE REPLACED AND TRANSFERRED TO THE NEW MAIN AS SHOWN WITH MINIMAL DISRUPTION OF SERVICE TO THE TAP OWNERS. ONLY ONE CONNECTION TO THE EXISTING POTABLE WATER DISTRIBUTION SHALL BE MADE UNTIL ALL TESTING HAS BEEN COMPLETED AND ACCEPTED BY THE CITY OF ARVADA.

5. ADEQUATE PROVISIONS FOR NOTIFICATION OF AN INTERRUPTION OF SERVICE MUST BE GIVEN TO THE CUSTOMER BY THE CONTRACTOR AT LEAST 48 HOURS PRIOR TO THE ACTUAL ISOLATION OF THE SYSTEM.

6. A MINIMUM CENTERLINE-TO-CENTERLINE HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN POTABLE WATER MAINS AND SANITARY SEWERS, UNLESS OTHERWISE SPECIFICED IN THE PLANS DUE TO EXISTING CONSTRAINTS.

7. AFTER NEW WATER MAIN IS IN SERVICE, THE EXISTING WATER LINE SHALL BE ABANDONED IN PLACE WITH PLUGS AND EXISTING VALVE BOXES AND FIRE HYDRANTS SHALL BE REMOVED. VERIFY THAT ALL NEW VALVES ARE OPENED AT CONCLUSION OF WATER LINE WORK.

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SHELBY N. BERKE
54605
02/14/2022
PROFESSIONAL ENGINEER

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Print Date: 9/17/2021		Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_UTIL_NotesWaterlineSanitary.dgn		Date:	Comments	Init.		No Revisions:	WATER LINE AND SANITARY SEWER GENERAL NOTES
Horiz. Scale: 1:1 Vert. Scale: As Noted						Revised:	Designer: SNB / Detailer: SAD / Sheet Subset: WATERLINE
Unit Information Unit Leader Initials						Void:	Structure Numbers / Subset Sheets: 1 of 1
MULLER ENGINEERING COMPANY							Project No./Code / Sheet Number 168

TABULATION OF WATER LINE QUANTITIES - CP 2

STATION (ALIGNMENT: 72ND AVENUE WATER LINE)	OFFSET	SIDE	SAMPLING STATION	WATER METER[2]	CONNECT TO EXISTING WATER LINE	6 INCH GATE VALVE	8 INCH GATE VALVE	12 INCH GATE VALVE	18 INCH BUTTERFLY VALVE	6 INCH FIRE HYDRANT[3]	6 INCH PLASTIC PIPE (C909)[1]	8 INCH PLASTIC PIPE (C909)[1]	12 INCH PLASTIC PIPE (C909)[1]	18 INCH PLASTIC PIPE (C900)[1]	24 INCH PLASTIC PIPE (C900)[1]	2 INCH AIR AND VACUUM VALVE[5]	ABANDON PIPE IN PLACE	REMOVAL OF WATER METER	REMOVAL OF FIRE HYDRANT[4]	REMOVAL OF VALVE	REMOVAL OF SAMPLING STATION	REMOVAL OF ASBESTOS CEMENT PIPE[6]	COMMENTS
			EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	LF	
CP2 Construction Phase																							
72ND AVENUE																							
1000+00 to 1007+66														766									SEE NOTE #1.
1000+00					1				1								1						
1002+77										1													SEE NOTE #3.
1004+87				1														1					SEE NOTE #2.
1006+60									1	1													SEE NOTE #3.
1007+51																1							SEE NOTE #5.
1007+66					1				2						10		2						SEE NOTE #1.
1007+66 to 1033+85													2619										SEE NOTE #1.
1007+80	4	LT																		1			
1010+63								1		1													SEE NOTE #3.
1011+12	55	RT																	1	1			SEE NOTE #4.
1011+15	39	RT			1		1										1						
1011+20												36											SEE NOTE #1.
1013+99								1															
1016+59								1		1													SEE NOTE #3.
1019+09	3	LT															1						
1019+69								1		1													SEE NOTE #3.
1021+64								2															
1022+12	3	LT															1						
1023+36	51	RT			1	1											1						
1023+39											51												SEE NOTE #1.
1023+74										1													SEE NOTE #3.
1024+09							1	1				66											SEE NOTE #1.
1024+19	7	LT															1						
1026+72										1													SEE NOTE #3.
1027+41				1														1					SEE NOTE #2.
1027+78							1	1				64											SEE NOTE #1.
1028+35	8	LT																	1	2			SEE NOTE #4.
1029+95				1														1					SEE NOTE #2.
1030+49										1													SEE NOTE #3.
1031+13							1	2				61											SEE NOTE #1.
1033+00				1														1					SEE NOTE #2.
1033+76					1			2															
1033+76	195	RT			1		1					55											SEE NOTE #1.
1033+83																	2						
ROUTT STREET																							
1013+96 to 1013+99												58										15	SEE NOTE #6.
1013+94	56	RT			1		1										1						
QUAIL STREET																							
1021+64 to 1021+65												175											SEE NOTE #1.
1021+65	70	LT								1													SEE NOTE #3.
1021+65	77	LT	1																				
1021+65	152	LT		1													1	1					SEE NOTE #2.
1021+65	175	LT			1		1																
1022+10	50	LT																	1	2	1		SEE NOTE #4.
PROJECT TOTALS			1	5	8	1	7	12	4	9	51	515	2,619	766	10	1	12	5	3	6	1	15	

NOTES:

1. THE COST OF JOINT RESTRAINT ON NEW WATER LINE, KICKBLOCKS, TRACER WIRE, ELBOWS, AND TEES SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WATER LINE PAYMENT ITEMS. PLASTIC PIPE SHALL BE MEASURED BY THE LINEAR FOOT OF PIPE AND FITTINGS.
2. WATER METERS SHALL BE INSTALLED PER CITY OF ARVADA STANDARD DETAILS W-29, W-30, AND W-31. ALL ITEMS SHOWN AS CONTRACTOR SUPPLIED MATERIALS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WATER METER (THE COST OF WATER TAP AND SERVICE LINE SHALL BE INCLUDED IN THIS PAY ITEM).
3. 6 INCH FIRE HYDRANT SHALL BE INSTALLED PER CITY OF ARVADA STANDARD DETAIL W-4. ALL ITEMS SHOWN IN THE DETAILS (INCLUDING 6 INCH PIPE, 6 INCH M.J. GATE VALVE, TRACER WIRE, AND TRACER WIRE TEST STATIONS) OR NECESSARY FITTINGS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE THE 6 INCH FIRE HYDRANT.
4. REMOVAL OF FIRE HYDRANT SHALL INCLUDE REMOVAL OF ANY LATERAL PIPE CONNECTED TO THE FIRE HYDRANT AND OR FITTINGS (PLUGS) NEEDED TO ABANDON THE LATERAL IN PLACE. LATERAL SHALL BE REMOVED COMPLETELY TO THE EXISTING TEE OR AS DIRECTED BY THE ENGINEER.
5. 2 INCH AIR AND VACUUM VALVE SHALL BE INSTALLED PER CITY OF ARVADA STANDARD DETAIL W-47. ALL ITEMS SHOWN ON THIS DETAIL SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE 2 INCH AIR AND VACUUM VALVE.
6. REMOVAL OF EXISTING ASBESTOS CEMENT PIPE SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVAL AND DISPOSAL OF EXISTING ASBESTOS CEMENT PIPE AS REQUIRED BY THE COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT (CDPHE).

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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	TABULATION OF WATER LINE QUANTITIES W. 72ND AVENUE		
Revised:	Designer: SNB	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: WATERLINE	Subset Sheets: 1 of 1	Sheet Number 169

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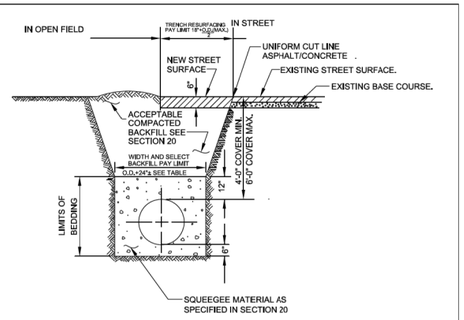
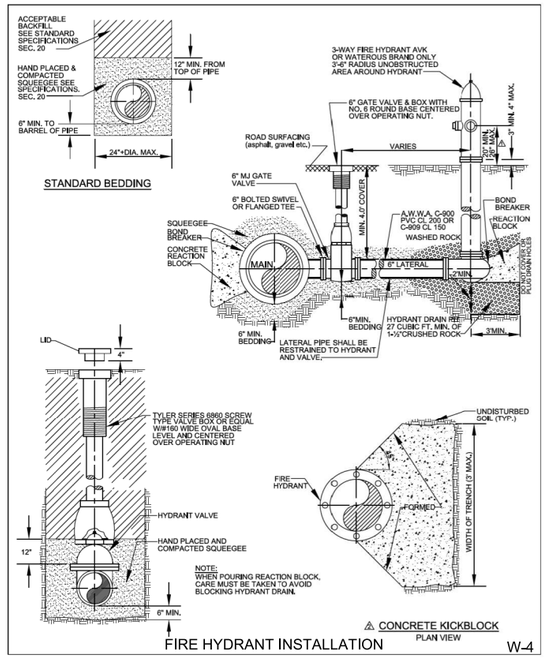


TYPICAL TRENCH SECTION

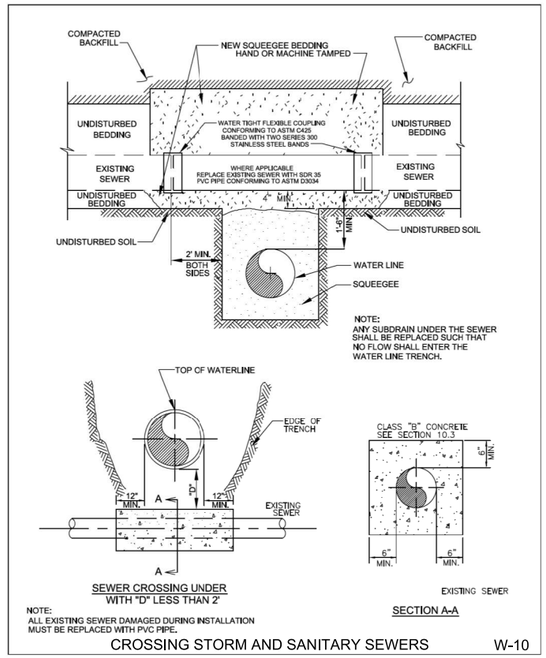
NOTES: 1. PAVING SHALL COMPLY WITH SECTIONS 11 & 20
2. TRENCH WALLS TO BE SUPPORTED AS REQUIRED BY O.S.H.A.

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
16"	2'-4"	3'-4"
20"	2'-8"	3'-8"
24"	4'-0"	5'-0"

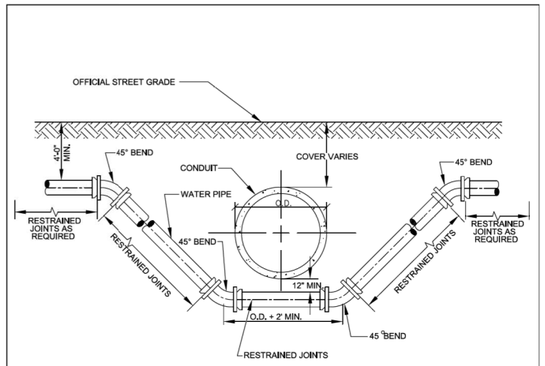
TYPICAL TRENCH SECTION FIRE PROTECTION WATER MAINS W-1



FIRE HYDRANT INSTALLATION W-4



CROSSING STORM AND SANITARY SEWERS W-10



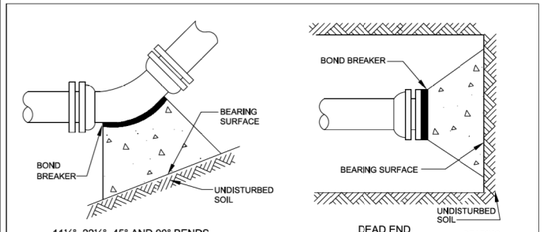
NOTES:

1.) LENGTH OF EXTENSION OF PIPE AND RESTRAINED JOINTS SHALL BE IN ACCORDANCE WITH THESE ENGINEERING STANDARDS.

2.) CATHODIC PROTECTION SHALL BE AS REQUIRED IN ACCORDANCE WITH THESE ENGINEERING STANDARDS.

3.) A BORED CROSSING MAY BE REQUIRED BY THE CITY ENGINEER.

OPEN CUT CROSSING BENEATH CONDUIT W-11

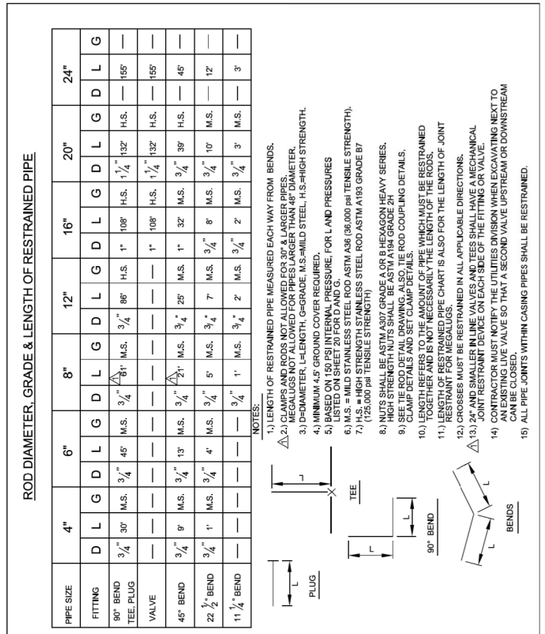


MINIMUM BEARING SURFACE AREA (IN SQUARE FEET)

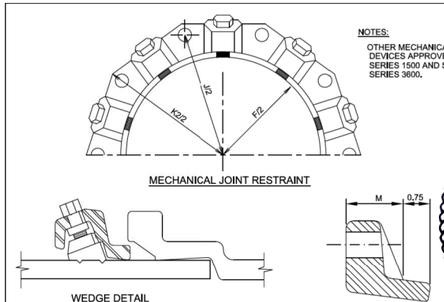
SIZE OF PIPE	BENDS 11 ¼°	22 ½°	45°	90°	TEE OR DEAD END
3"	1.00	1.00	1.00	1.00	1.00
4"	1.00	1.00	1.00	1.50	1.50
6"	1.00	1.25	2.25	3.00	3.00
8"	1.00	2.00	4.00	5.25	5.25
12"	2.25	4.50	8.75	11.25	11.25
16"	3.75	7.50	14.50	27.00	19.00
20"	5.00	10.00	19.50	35.50	25.00
24"	7.00	14.00	27.75	51.00	36.00

NOTES:
1.) BEARING SURFACES SHOWN IN CHART ARE MINIMUM.
2.) BASED ON 150 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER. 3",4",6",8" AND 12" WATER HAMMER = 110 P.S.I. 16",20"AND 24" WATER HAMMER = 70 P.S.I.
3.) BASED ON 3,000 psf SOIL BEARING CAPACITY.
4.) ALL BENDS, TEE BRANCHES AND DEAD ENDS SHALL BE RESTRAINED AND KICK BLOCKED.

CONCRETE KICKBLOCKS BEARING SURFACES AND INSTALLATION W-16



LENGTH OF RESTRAINED PIPE W-19



NOTES:
OTHER MECHANICAL JOINT RESTRAINT DEVICES APPROVED ARE UNI-FLANGE SERIES 1500 AND STAR PIPE ALLGRIP SERIES 3600.

DIMENSIONS

	NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES	
PVC	4"	4	4	9.13	7.50	4.90	0.50	PVC
	6"	8	6	11.13	9.50	7.00	0.50	
	8"	8	6	13.38	11.75	9.15	0.62	
	12"	8	8	17.88	16.25	13.30	0.75	
	14"	10	10	20.38	18.75	15.49	0.88	
	16"	12	12	22.63	21.00	17.58	0.88	
	18"	12	12	24.88	23.25	19.68	1.13	
	20"	14	14	27.13	25.50	21.79	1.25	
	24"	16	16	31.63	30.00	25.99	1.42	
	30"	20	20	39.12	36.88	32.22	1.50	
	36"	24	24	46.00	43.75	38.52	1.50	
DIP	30"	20	20	39.12	36.88	32.17	2.25	DIP
	36"	24	24	46.00	43.75	38.47	2.25	
	42"	28	28	53.48	50.62	44.67	3.88	
	48"	32	32	60.36	57.50	50.97	3.88	

MECHANICAL JOINT RESTRAINT JOINTS W-22

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GENERAL METER NOTES

1. Location of meter to be approved by Project Engineer
2. All settings must be inspected by the Engineering Division before backfilling.
3. If the street or ground is not to final grade at the time of installation of the meter, the owner must raise or lower the meter vault when the final grade is established. Also the meter yoke must be adjusted to 10" to 14" below frost lid.
4. Joints and galvanized piping shall not be allowed inside the meter setting.
5. A bypass is required on all meters 1-1/2" and larger unless otherwise specified by Project Engineer. 1-½" and larger irrigation only meters do not require a bypass.
6. The service line through and on both sides of the meter pit must be of type K copper (3/4"-2").
7. No connections shall be made in the meter pit. Any connections including upsizing must be made more than 5 ft. from the meter pit on the downstream side.
8. Valves shall be in conformance with these standards
   A. Valves less than 3" shall be full port ball valves only.
   B. All gate valves 3" and larger shall conform with Arvada's Standard Specifications (See section 30.2.2 "Valves").
9. Stop and Waste Valves shall be Mueller H-15214 or equivalent.
10. All valves 3 inch diameter and larger inside vaults shall be supported by adjustable steel pipe valve supports. 1-1/2 inch diameter and larger meters shall be supported by concrete blocks with steel shims, if required by Utilities Division.
11. Manhole rings and covers shall be in conformance with Drawing W-59 of these Engineering Standards.
12. Meter pits and covers shall be in conformance with Section 30.2 of these Engineering Standards.
13. Other meter settings: Settings of meters other than shown and detailed herein shall be considered as non-standard and shall require prior approval of proposed piping layout, meter setting and structural design of vault for each separate installation.
14. On 1½" & larger vault settings, Install Ramneck between set ring and all riser rings (or on lid section when risers are not required) to prevent infiltration.

GENERAL METER NOTES W-29

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Drawing File Name: 18061_CP2_UTIL_DetailWaterline01.dgn
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Sheet Revisions

Date:	Comments	Init.

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WATER LINE DETAILS
W. 72ND AVENUE

Designer: SNB
Detailer: SAD
Sheet Subset: WATERLINE
Structure Numbers
Subset Sheets: 1 of 2

Project No./Code
Sheet Number 170

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NOTES:

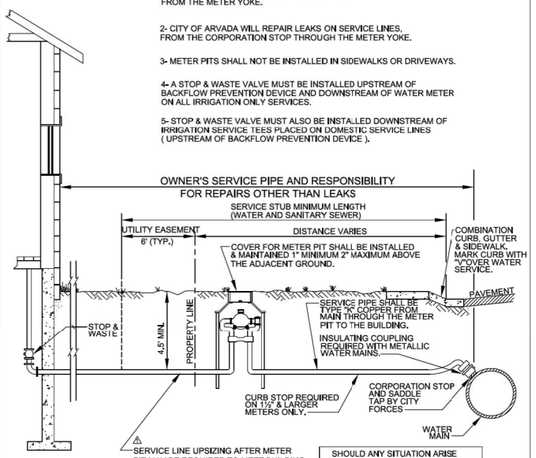
1- OWNER'S RESPONSIBILITY FOR LEAK REPAIR SHALL BE UP TO AND INCLUDING THE TUBE NUT WHICH THREADS ONTO THE METER YOKE OUTLET. OWNER'S RESPONSIBILITY FOR REPAIRS EXTENDS TO THE BUILDING FROM THE METER YOKE.

2- CITY OF ARVADA WILL REPAIR LEAKS ON SERVICE LINES, FROM THE CORPORATION STOP THROUGH THE METER YOKE.

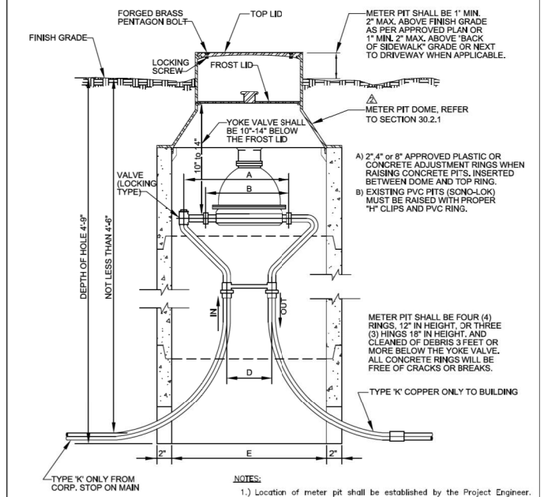
3- METER PITS SHALL NOT BE INSTALLED IN SIDEWALKS OR DRIVEWAYS.

4- A STOP & WASTE VALVE MUST BE INSTALLED UPSTREAM OF BACKFLOW PREVENTION DEVICE AND DOWNSTREAM OF WATER METER ON ALL IRRIGATION ONLY SERVICES.

5- STOP & WASTE VALVE MUST ALSO BE INSTALLED DOWNSTREAM OF IRRIGATION SERVICE TEES PLACED ON DOMESTIC SERVICE LINES (UPSTREAM OF BACKFLOW PREVENTION DEVICE).



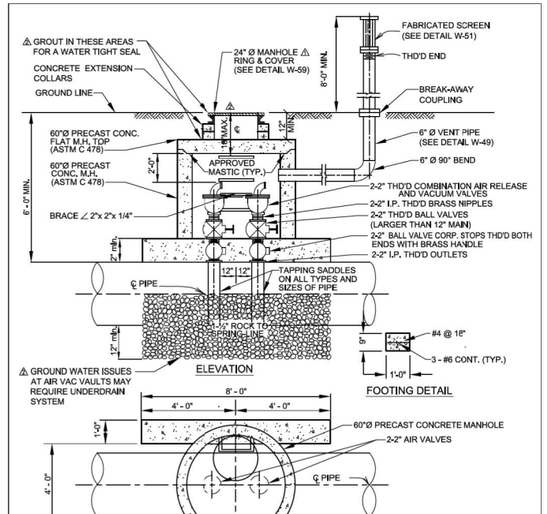
WATER SERVICE, PROFILE 5/8"x3/4", AND 1" W-30



METER SIZE	A	B	C	D	E
5/8" x 3/4"	12-5/8"	7-7/8"	7-13/16"	4"	24"
3/4"	14-1/4"	9-3/8"	8-15/16"	5"	24"
1"	17-1/4"	11-1/8"	11-1/4"	6"	24"

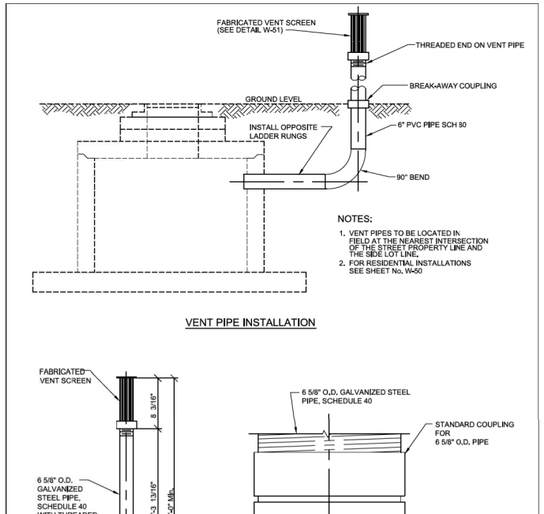
NOTES:
1.) Location of meter pit shall be established by the Project Engineer.
2.) All meter pits must be inspected by the municipal inspector before backfilling.
3.) Meter pits shall not be installed in driveways, sidewalks or parking lots unless approved by City Engineer and Utilities Director and an extra heavy dome and cover with recessed lid is used.
4.) A multi-family dwelling, serviced by a 3/4" water line will use a 3/4" meter.
5.) When approved for installation in asphalt, top of meter pit shall be flush with finish grade and recessed lid.
6.) No concrete floor allowed in meter pit.
7.) Lawn sprinkler connections shall be a minimum of five feet from the meter pit wall, on the out let side.
8.) Meter resetters are not allowed.

OUTSIDE METER SETTING 1" & SMALLER W-31

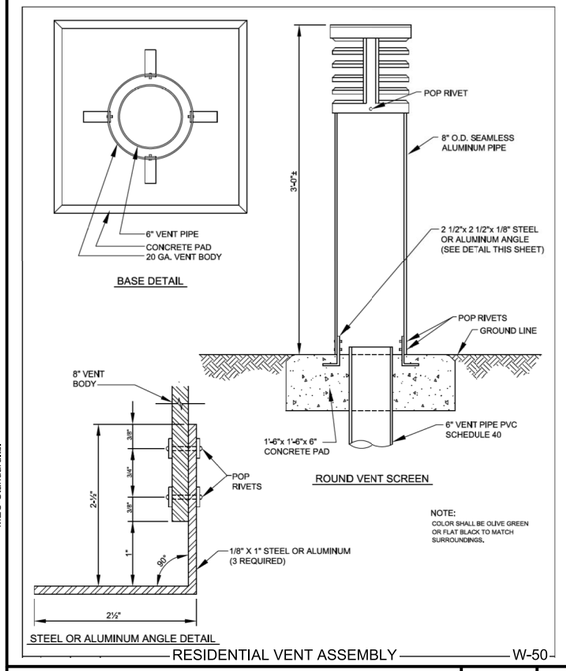


NOTES:
1.) USE 2" AIR VALVE ASSEMBLY ON 14" OR LARGER PIPE, VAL MATIC 202C, GA SERIES 945 OR ARI D-040 OR EQUAL.
2.) THE DISTANCE BETWEEN RUNGS, CLEAR'S, AND STEPS SHALL NOT EXCEED 12 INCHES AND SHALL BE UNIFORM THROUGHOUT THE LENGTH OF THE LADDER.
3.) LADDER RUNGS ARE REQUIRED IN PRECAST CONCRETE MANHOLES.
4.) ALL BOLTS, NUTS AND WASHERS ARE REQUIRED TO BE STAINLESS STEEL.

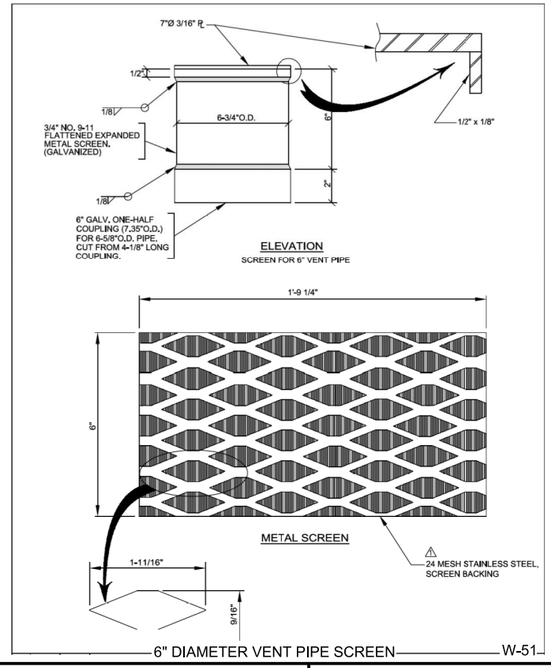
DUAL 2" AIR RELEASE AND VACUUM VALVE INSTALLATION FOR MAINS LARGER THAN 12" DIAMETER W-46



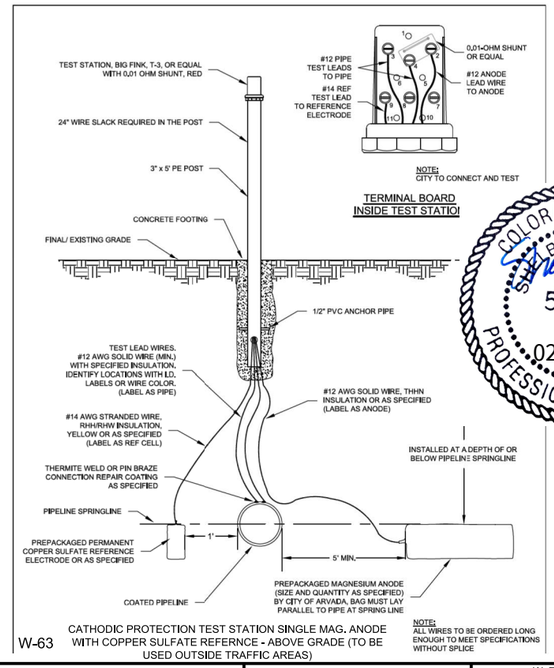
VENT PIPE DETAIL W-49



RESIDENTIAL VENT ASSEMBLY W-50



6" DIAMETER VENT PIPE SCREEN W-51



NOTE: ALL WIRES TO BE ORDERED LONG ENOUGH TO MEET SPECIFICATIONS WITHOUT SPLICE

CATHODIC PROTECTION TEST STATION SINGLE MAG. ANODE WITH COPPER SULFATE REFERNCE - ABOVE GRADE (TO BE USED OUTSIDE TRAFFIC AREAS) W-63

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SHELBY N. BURKE
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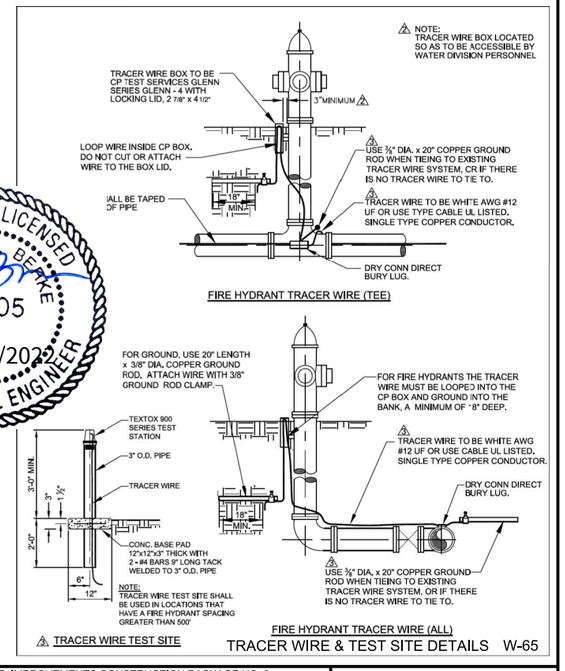

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_UTIL_DetailWaterline02.dgn		
Horiz. Scale:	1:1	Vert. Scale: As Noted	
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Sheet Revisions		
Date:	Comments	Init.

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Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WATER LINE DETAILS
W. 72ND AVENUE

Designer:	SNB	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WATERLINE	Subset Sheets:	2 of 2

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Sheet Number	171

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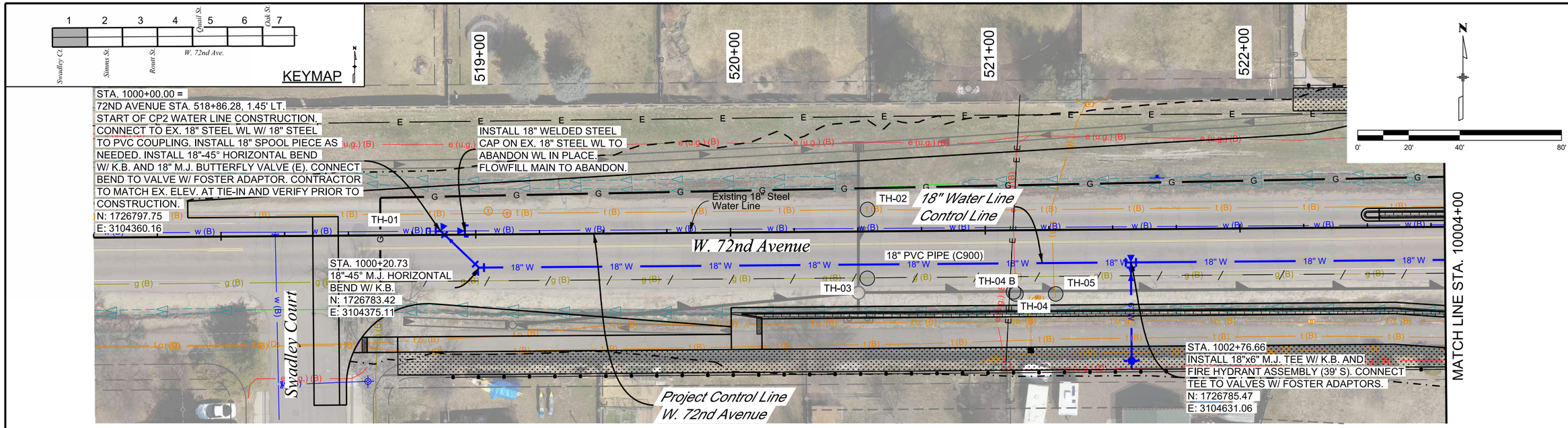
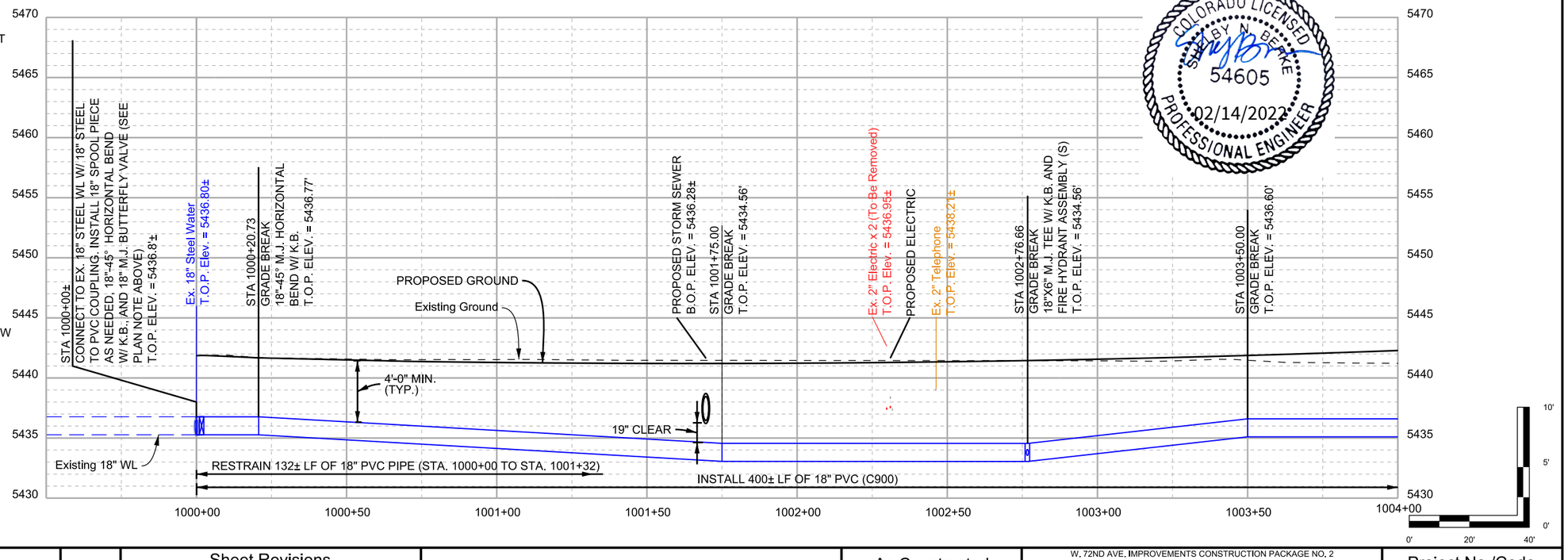


NOTES:

1. TEMPORARY BLOW-OFF AND THRUST RESTRAINT (AT START AND END OF CP2 WATER LINE CONSTRUCTION) SHALL BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION FOR TESTING PURPOSES (LOCATION DEPENDENT ON EXISTING WATER LINES DEPENDING ON ORDER OF WORK). ONLY ONE CONNECTION TO THE EXISTING POTABLE WATER SYSTEM SHALL BE MADE UNTIL ALL DISINFECTION, FLUSHING, AND PRESSURE/LEAKAGE TESTING HAS BEEN COMPLETED IN ACCORDANCE WITH THE CITY OF ARVADA STANDARD SPECIFICATIONS FOR WATER AND WASTEWATER FACILITIES.
2. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING WATER LINES AND ALL EXISTING UTILITES WHERE CONFLICTS WITH THE PROPOSED WATER LINE MAY EXIST PRIOR TO INSTALLING THE WATER LINE.
3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE THRUST RESTRAINT AT CLOSED VALVES, END CAPS, & BENDS DURING CONSTRCUTION UNTIL FINAL PIPELINE IS COMPLETE.
4. THERE SHALL BE A MINIMUM VERTICAL CLEARANCE OF 18 INCHES BETWEEN THE NEW 12 INCH WATER LINE AND ALL EXISTING AND PROPOSED UTILTIES, UNLESS OTHERWISE SPECIFIED IN THE PROFILE.



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STEVEN N. BEHKE
54605
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021		Sheet Revisions	
Drawing File Name: 18061_CP2_UTIL_WaterlinePlan01.dgn		Date:	Comments / Init.
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	WATER LINE PLAN W. 72ND AVENUE STA. 1000+00.00 TO STA. 1004+00.00			
Revised:	Designer: SNB	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: WATERLINE	Subset Sheets: 1 of 7		Sheet Number 172

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9/17/2021
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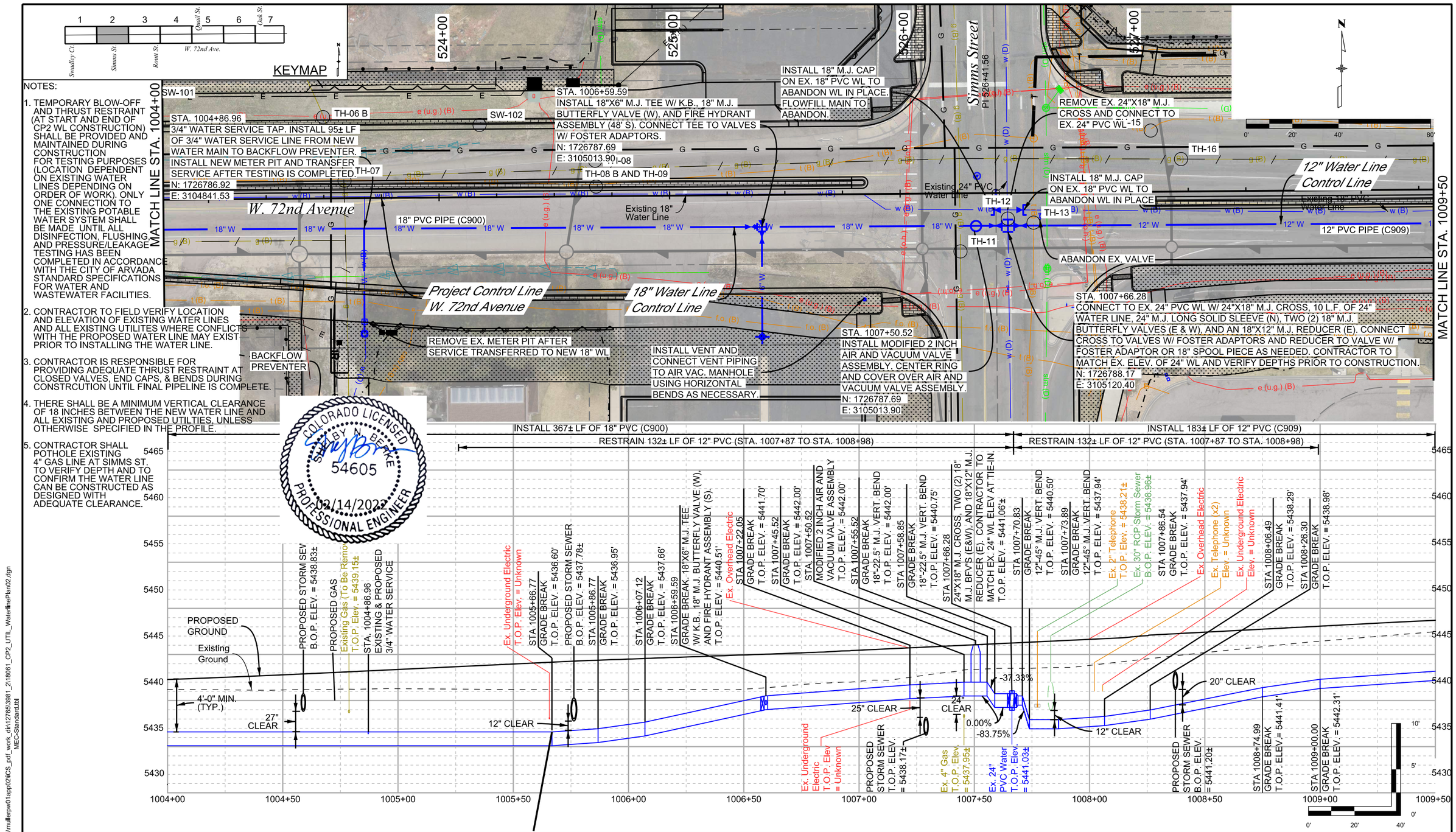

NOTES:

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3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE THRUST RESTRAINT AT CLOSED VALVES, END CAPS, & BENDS DURING CONSTRCUTION UNTIL FINAL PIPELINE IS COMPLETE.
4. THERE SHALL BE A MINIMUM VERTICAL CLEARANCE OF 18 INCHES BETWEEN THE NEW WATER LINE AND ALL EXISTING AND PROPOSED UTILTIES, UNLESS OTHERWISE SPECIFIED IN THE PROFILE.
5. CONTRACTOR SHALL POTHOLE EXISTING 4" GAS LINE AT SIMMS ST. TO VERIFY DEPTH AND TO CONFIRM THE WATER LINE CAN BE CONSTRUCTED AS DESIGNED WITH ADEQUATE CLEARANCE.

COLORADO LICENSED
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54605
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_UTIL_WaterlinePlan02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WATERLINE PLAN W. 72ND AVENUE
STA. 1004+00.00 TO STA. 1090+50.00

Designer:	SNB	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WATERLINE	Subset Sheets:	2 of 7

Project No./Code

Sheet Number 173

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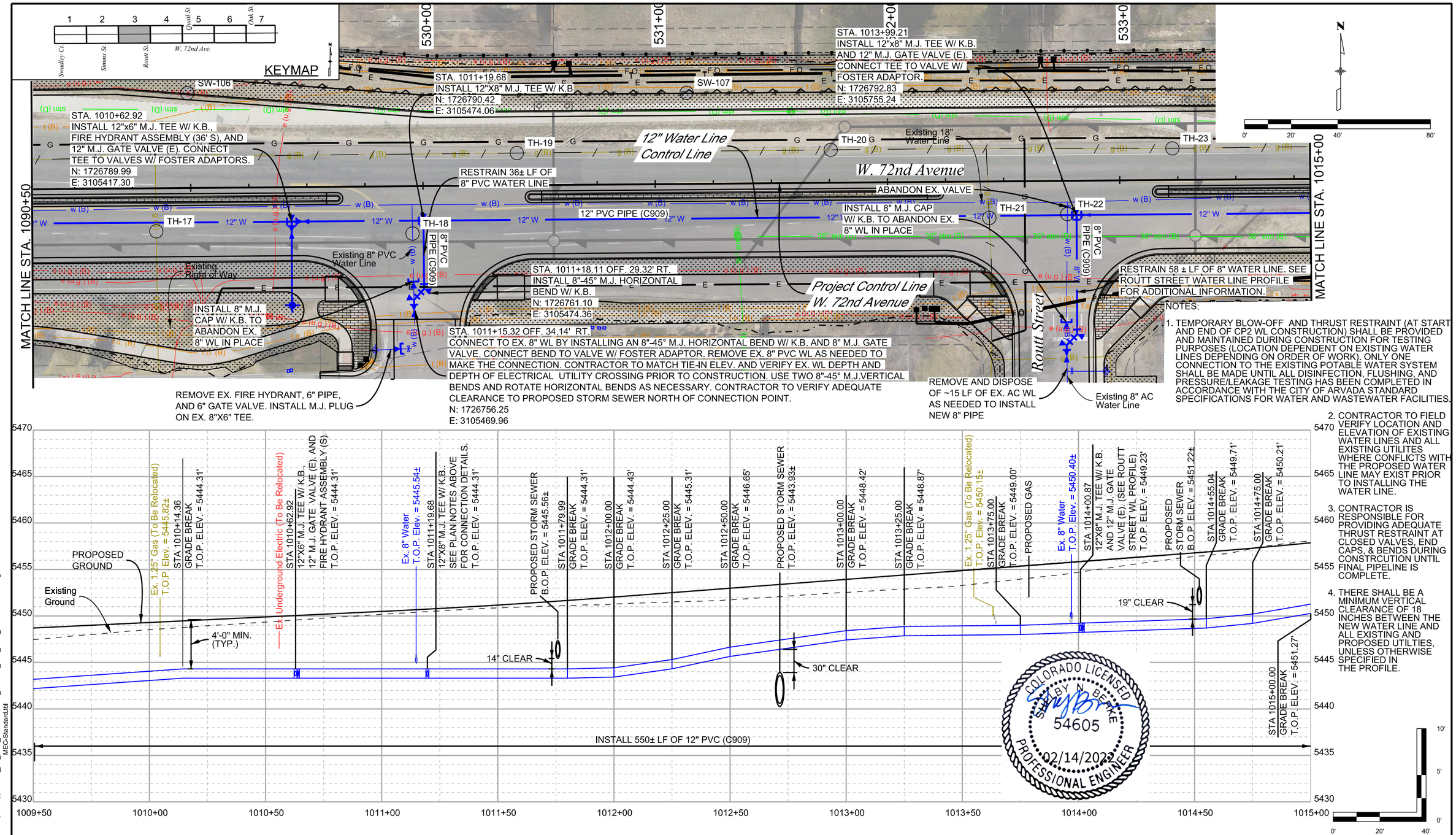

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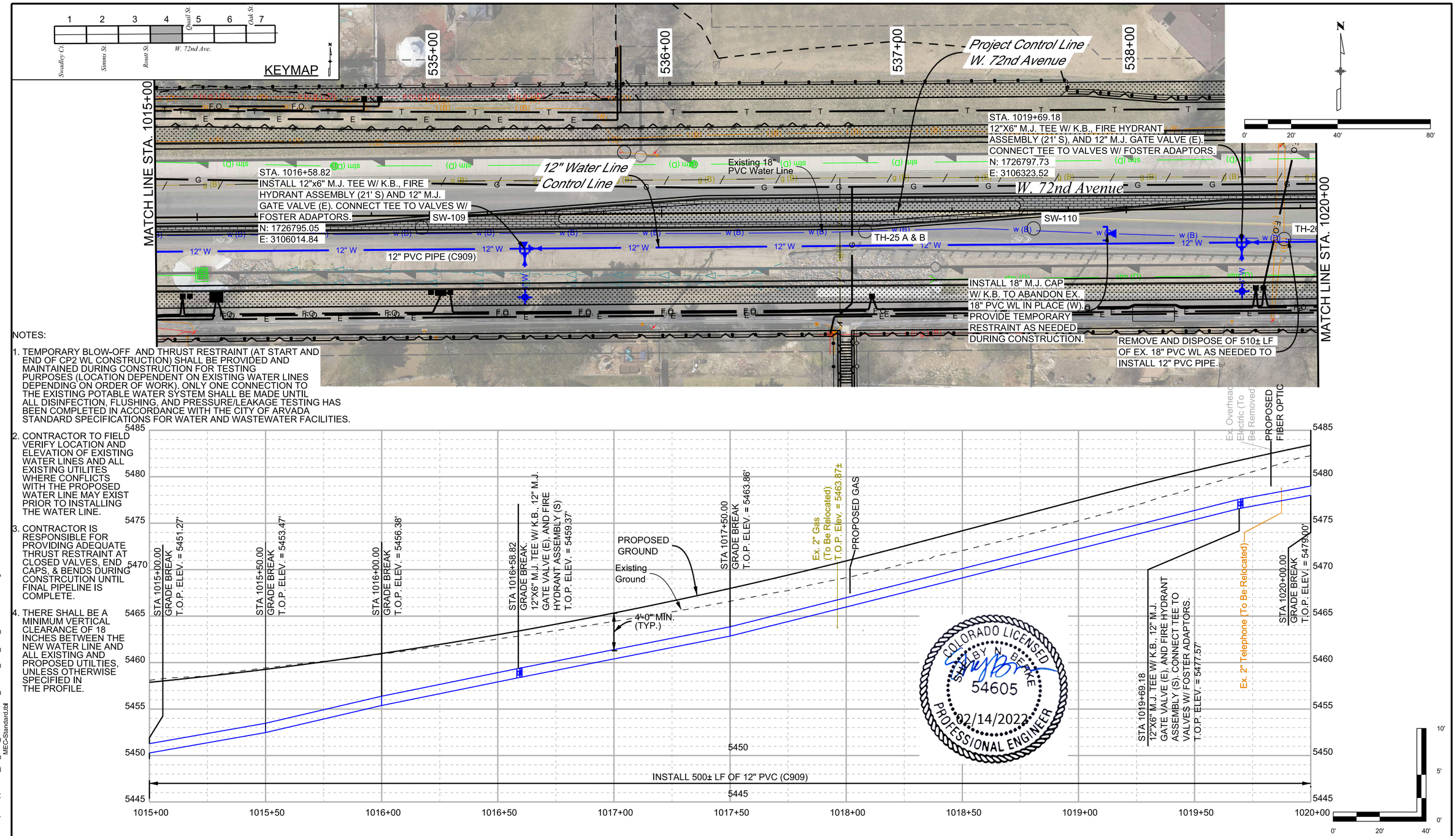
Print Date: 9/17/2021		Sheet Revisions			
Drawing File Name: 18061_CP2_UTIL_WaterlinePlan03.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:40	Vert. Scale: As Noted				
Unit Information	Unit Leader Initials				
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	WATER LINE PLAN W. 72ND AVENUE STA. 1009+50.00 TO STA. 1015+00.00			
Revised:	Designer: SNB	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: WATERLINE	Subset Sheets:	3 of 7	Sheet Number 174



NOTES:

1. TEMPORARY BLOW-OFF AND THRUST RESTRAINT (AT START AND END OF CP2 WL CONSTRUCTION) SHALL BE PROVIDED AND MAINTAINED DURING CONSTRUCTION FOR TESTING PURPOSES (LOCATION DEPENDENT ON EXISTING WATER LINES DEPENDING ON ORDER OF WORK). ONLY ONE CONNECTION TO THE EXISTING POTABLE WATER SYSTEM SHALL BE MADE UNTIL ALL DISINFECTION, FLUSHING, AND PRESSURE/LEAKAGE TESTING HAS BEEN COMPLETED IN ACCORDANCE WITH THE CITY OF ARVADA STANDARD SPECIFICATIONS FOR WATER AND WASTEWATER FACILITIES.
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4. THERE SHALL BE A MINIMUM VERTICAL CLEARANCE OF 18 INCHES BETWEEN THE NEW WATER LINE AND ALL EXISTING AND PROPOSED UTILTIES, UNLESS OTHERWISE SPECIFIED IN THE PROFILE.

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STEVEN BERKE
54605
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_UTIL_WaterlinePlan04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	WATER LINE PLAN W. 72ND AVENUE STA. 1015+00 TO STA. 1020+00		
Revised:	Designer: DKH	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: WATERLINE	Subset Sheets: 4 of 7	Sheet Number 175

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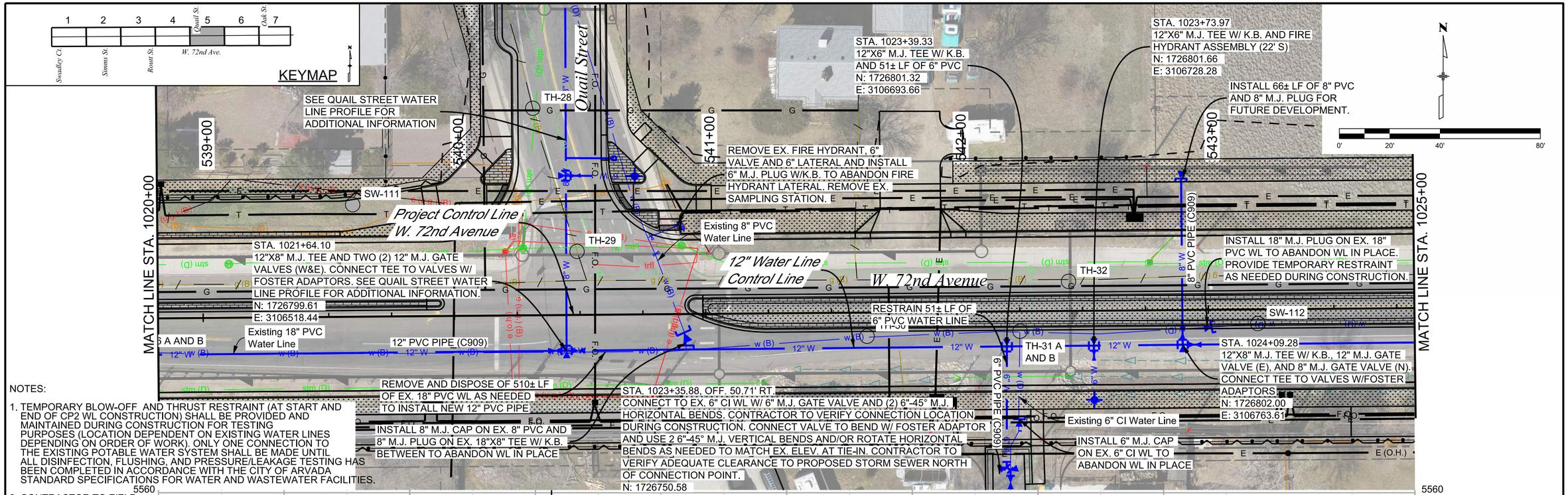

NOTES:

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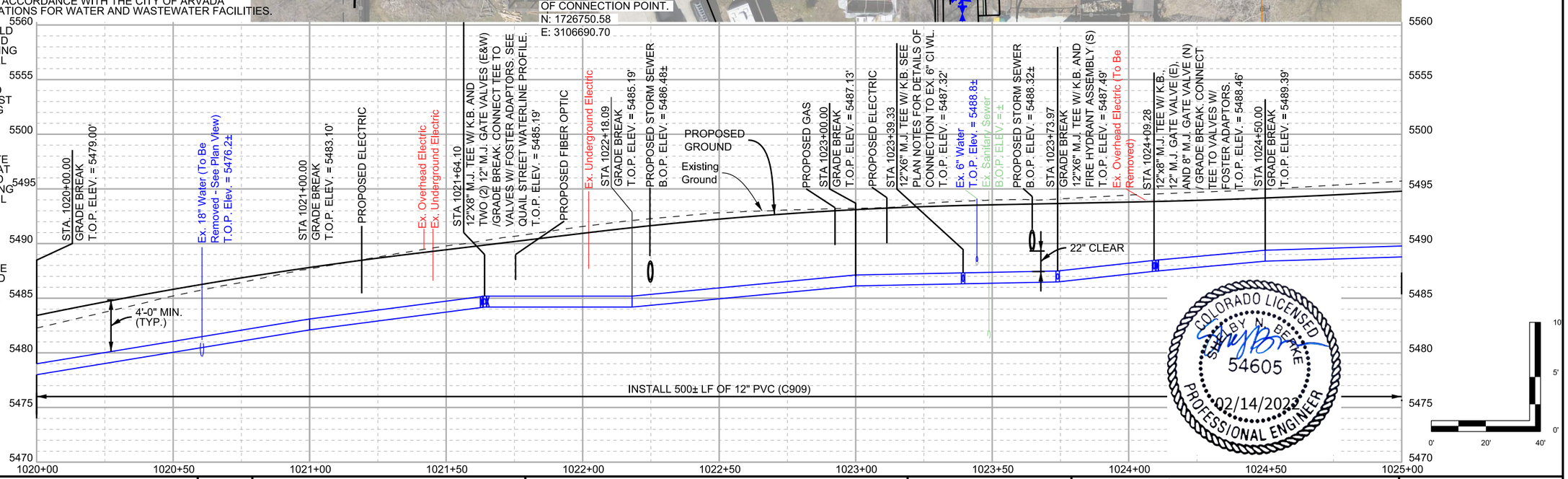

COLORADO LICENSED
STEVEN BRAKE
54605
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_UTIL_WaterlinePlan05.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:40	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY	0000				

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WATER LINE PLAN W. 72ND AVENUE
STA. 1020+00.00 TO STA. 1025+00.00

Designer:	SNB	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WATERLINE	Subset Sheets:	5 of 7

Project No./Code

Sheet Number 176

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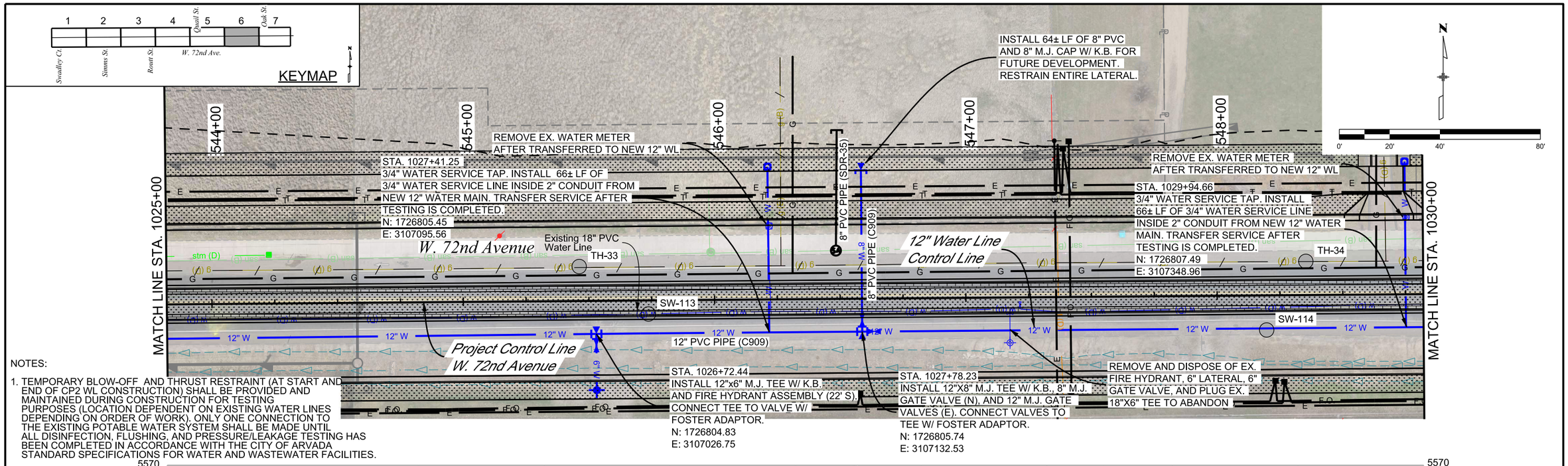

NOTES:

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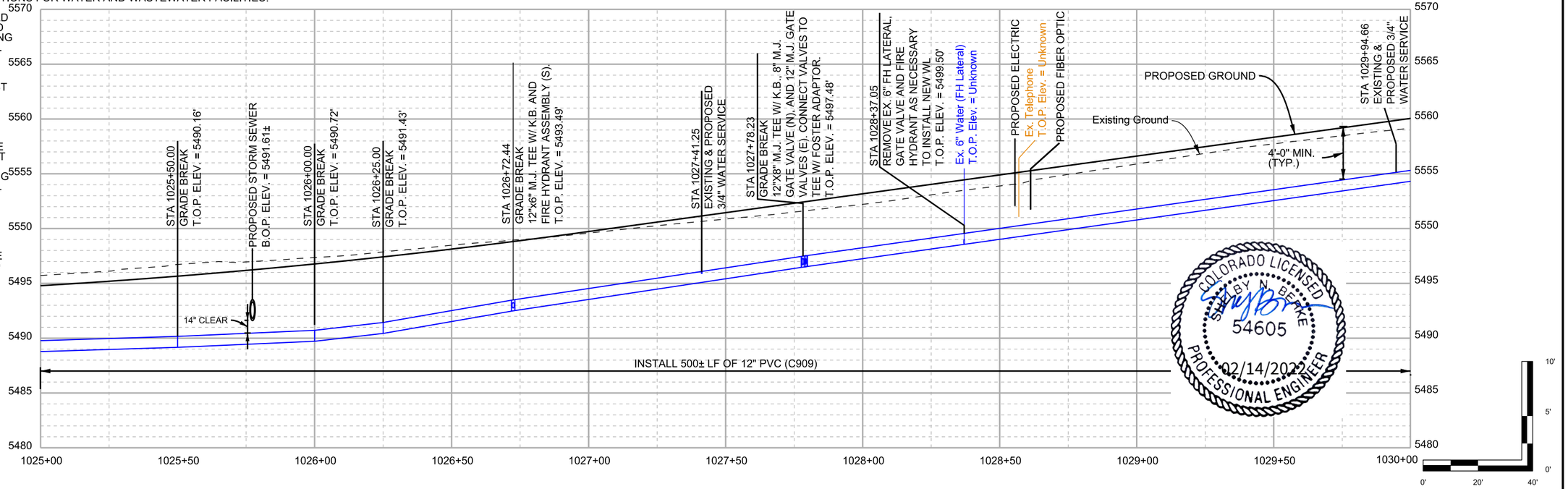
4. THERE SHALL BE A MINIMUM VERTICAL CLEARANCE OF 18 INCHES BETWEEN THE NEW WATER LINE AND ALL EXISTING AND PROPOSED UTILTIES, UNLESS OTHERWISE SPECIFIED IN THE PROFILE.



Print Date: 12/10/2021	Sheet Revisions		
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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	WATER LINE PLAN W. 72ND AVENUE STA. 1025+00.00 TO STA. 1030+00.00			
Revised:	Designer: SNB	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: WATERLINE	Subset Sheets: 6 of 7		Sheet Number 177

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KEYMAP

1 2 3 4 Quail St. 5 6 Oak St. 7

Swadley Ct. Simms St. Routt St. W. 72nd Ave.

N

MATCH LINE STA. 1030+00

Project Control Line
W. 72nd Avenue

12" Water Line
Control Line

W. 72nd Avenue

Oak Street

INSTALL 61± LF OF 8" PVC PIPE AND 8" M.J. CAP W/ K.B. FOR FUTURE DEVELOPMENTS. RESTRAIN ENTIRE LATERAL.

549+00 550+00 551+00 552+00 553+00

STA. 1033+84.72
END OF CP2 WATER LINE INSTALLATION. REMOVE TEMPORARY CONNECTION INSTALLED IN CP1 CONSTRUCTION. REMOVE 18"X12" M.J. CROSS, 12" M.J. GATE VALVE (SOUTH OF CROSS), 18" LONG SOLID SLEEVES (2), 12"X8" REDUCER AND 8" LONG SOLID SLEEVE. CONNECT TO EX. 12" WL AT THE EX. 12" GATE VALVE (N). INSTALL TWO (2) M.J. 18" CAPS W/K.B.s (E&W) ON EX. 18" WL TO ABANDON WL IN PLACE.
N: 1726818.16
E: 3107730.47

REMOVE EX. WATER METER AFTER TRANSFERRED TO NEW 12" WL

12" WATER LINE INSTALLED AS A PART OF CP1 CONSTRUCTION

STA. 1031+13.50
INSTALL 12"x8" M.J. TEE W/ K.B., TWO (2) 12" M.J. GATE VALVES (W&E), AND AN 8" M.J. GATE VALVE (N). TEE CONNECTED TO VALVES W/ FOSTER ADAPTORS.
N: 1726808.34
E: 3107467.80

8" PVC PIPE (C909)

Existing 18" PVC Water Line

SW-115

STA. 1030+49.51
INSTALL 12"x6" M.J. TEE W/ K.B. AND FIRE HYDRANT ASSEMBLY (24' S)
N: 1726807.94
E: 3107403.81

12" PVC PIPE (C909)

STA. 1033+00.00
3/4" WATER SERVICE TAP. INSTALL 67± LF OF 3/4" WATER SERVICE LINE INSIDE 2" CONDUIT FROM NEW 12" WATER MAIN.TRANSFER SERVICE AFTER TESTING IS COMPLETED.
N: 1726809.35
E: 3107655.89

Existing 8" PVC Water Line

TH-35 A AND B

TH

STA. 1033+76.31
INSTALL 12"x12" M.J. TEE W/ K.B., 12" M.J. GATE VALVE (W) AND CONNECT TO EX. 8" WL (S) W/ 12"X8" M.J. REDUCER AND 8" M.J. LONG SOLID SLEEVE (REDUCER AND LONG SOLID SLEEVE FROM TEMPORARY CP1 CONNECTION CAN BE USED HERE). INSTALL 8" AND 12" PVC AS NEEDED AT THIS CONNECTION. CONTRACTOR TO VERIFY EX. ELEV. OF 8" WL PRIOR TO CONSTRUCTION AND MATCH EX. ELEV.
N: 1726809.75
E: 3107730.61

0' 20' 40' 80'

5535 5530 5525 5520 5515 5510 5505 5500 5495

STA 1030+49.51 GRADE BREAK 12"X6" M.J. TEE W/ FIRE HYDRANT ASSEMBLY (S) T.O.P. ELEV. = 5507.07'

STA 1031+13.50 GRADE BREAK 12"X8" M.J. TEE W/ K.B., 8" M.J. GATE VALVE (N), AND TWO (2) 12" M.J. GATE VALVES (E&W). CONNECT VALVES TO TEE W/ FOSTER ADAPTOR. T.O.P. ELEV. = 5509.39'

STA 1031+75.00 GRADE BREAK T.O.P. ELEV. = 5511.00'

PROPOSED GROUND

Existing Ground

4'-0" MIN. (TYP.)

STA 1033+00.00 EXISTING & PROPOSED 3/4" WATER SERVICE

STA 1033+25.00 GRADE BREAK T.O.P. ELEV. = 5513.74'

Ex. 12" Sanitary Sewer B.O.P. ELEV. = 5516.38±

PROPOSED ELECTRIC

STA 1033+76.31 GRADE BREAK / INSTALL 12"X12" M.J. TEE W/K.B. AND 12" M.J. GATE VALVE (W). (SEE PLAN VIEW FOR CONNECTION DETAILS TO EX. 8" WL) T.O.P. ELEV. = 5513.90'

STA. 1033+84.72 END OF CP2 CONSTRUCTION REMOVE TEMPORARY CONNECTION AND ABANDON EX. 18" WL. CONNECT TO EX. 12" WL (N) AND EX. 8" WL (S) (SEE PLAN VIEW NOTES FOR CONNECTION AND ABANDONMENT SPECIFICS) T.O.P. ELEV. = 5513.90'

Ex. Traffic Line

PROPOSED F.O. LINE (X2)

PROPOSED ELECTRIC

Ex. 18" Water T.O.P. Elev. = 5514.63±

INSTALL 385± LF OF 12" PVC (C909)

RESTRAIN 86± LF OF 12" PVC (STA. 1032+98 TO STA. 1033+84.72)

1030+00 1030+50 1031+00 1031+50 1032+00 1032+50 1033+00 1033+50 1034+00

NOTES:

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0' 20' 40' 10' 5' 0'

COLORADO LICENSED
SHELBY N. BERME
54605
02/14/2022
PROFESSIONAL ENGINEER

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Print Date: 1/19/2022		Sheet Revisions	
Drawing File Name: 18061_CP2_UTIL_WaterlinePlan07.dgn		Date:	Comments / Init.
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY	0000		

CITY OF ARVADA

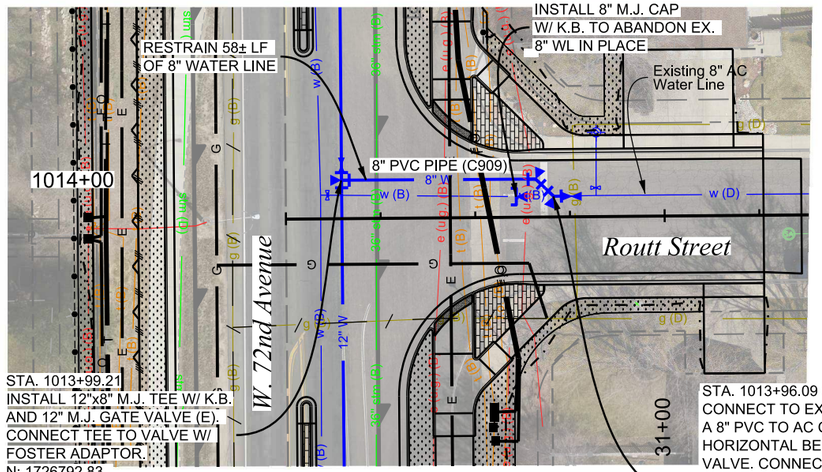
As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WATER LINE PLAN W. 72ND AVENUE
STA. 1030+00.00 TO STA. 1036+00.00

Designer:	SNB	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WATERLINE	Subset Sheets:	7 of 7

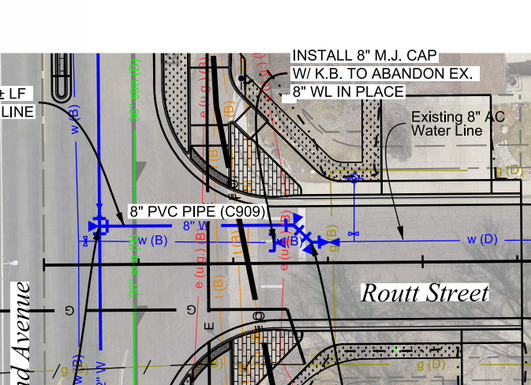
Project No./Code

Sheet Number 178



STA. 1013+99.21
INSTALL 12"x8" M.J. TEE W/ K.B. AND 12" M.J. GATE VALVE (E). CONNECT TEE TO VALVE W/ FOSTER ADAPTOR.
N: 1726792.83
E: 3105755.24

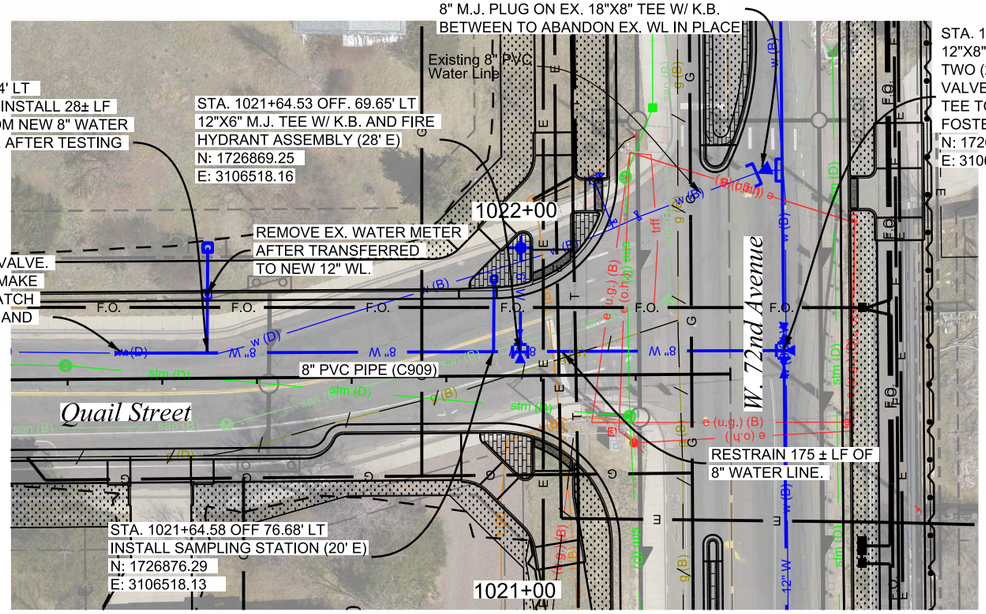
STA. 1013+96.09 OFF. 56.03' RT.
CONNECT TO EX. 8" AC WL BY INSTALLING A 8" PVC TO AC COUPLER, (2) 8"-45° M.J. HORIZONTAL BENDS W/ K.B.S, AND 8" M.J. GATE VALVE. CONNECT BEND TO VALVE W/ FOSTER ADAPTOR. REMOVE EX. 8" AC WL AS NEEDED TO MAKE THE CONNECTION. CONTRACTOR TO MATCH TIE-IN ELEV. AND VERIFY EX. WL DEPTH AND DEPTH OF UTILITY CROSSINGS PRIOR TO CONSTRUCTION. USE TWO 8"-45° M.J.VERTICAL BENDS AND ROTATE HORIZONTAL BENDS AS NECESSARY.
N: 1726736.76
E: 3105750.99



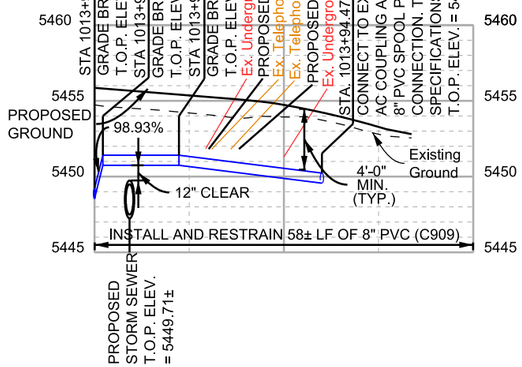
ROUTT STREET

STA. 1021+65.04 OFF 152.34' LT
3/4" WATER SERVICE TAP. INSTALL 28± LF WATER SERVICE LINE FROM NEW 8" WATER MAIN. TRANSFER SERVICE AFTER TESTING IS COMPLETED.
N: 1726951.95
E: 3106517.82

STA. 1021+65.18 OFF. 175.04' LT.
CONNECT TO EX. 8" WL W/ 8" M.J. GATE VALVE. REMOVE EX. 8" PVC WL AS NEEDED TO MAKE THE CONNECTION. CONTRACTOR TO MATCH TIE-IN ELEV. AND VERIFY EX. WL DEPTH AND DEPTH OF UTILITY CROSSINGS PRIOR TO CONSTRUCTION.
N: 1726974.65
E: 3106517.73



STA. 1021+64.10
12"X8" M.J. TEE AND TWO (2) 12" M.J. GATE VALVES (W&E). CONNECT TEE TO VALVES W/ FOSTER ADAPTORS.
N: 1726799.61
E: 3106518.44



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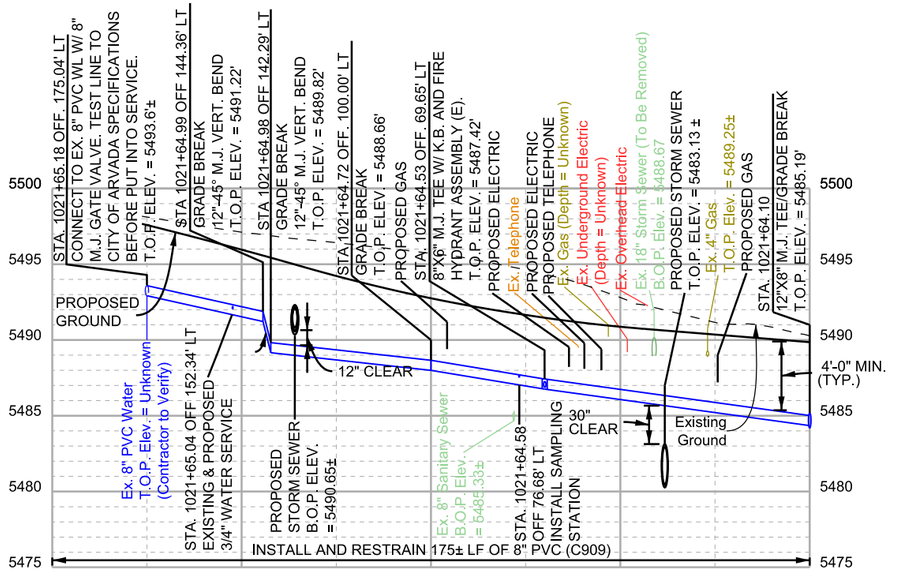

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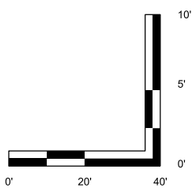

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SHELBY N. BERKE
54605
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_UTIL_SideStreetWaterlinePlan01.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WATER LINE PLAN
ROUTT STREET AND OAK STREET

Designer:	SNB	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WATERLINE	Subset Sheets:	1 of 2

Project No./Code

Sheet Number 179

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9/17/2021
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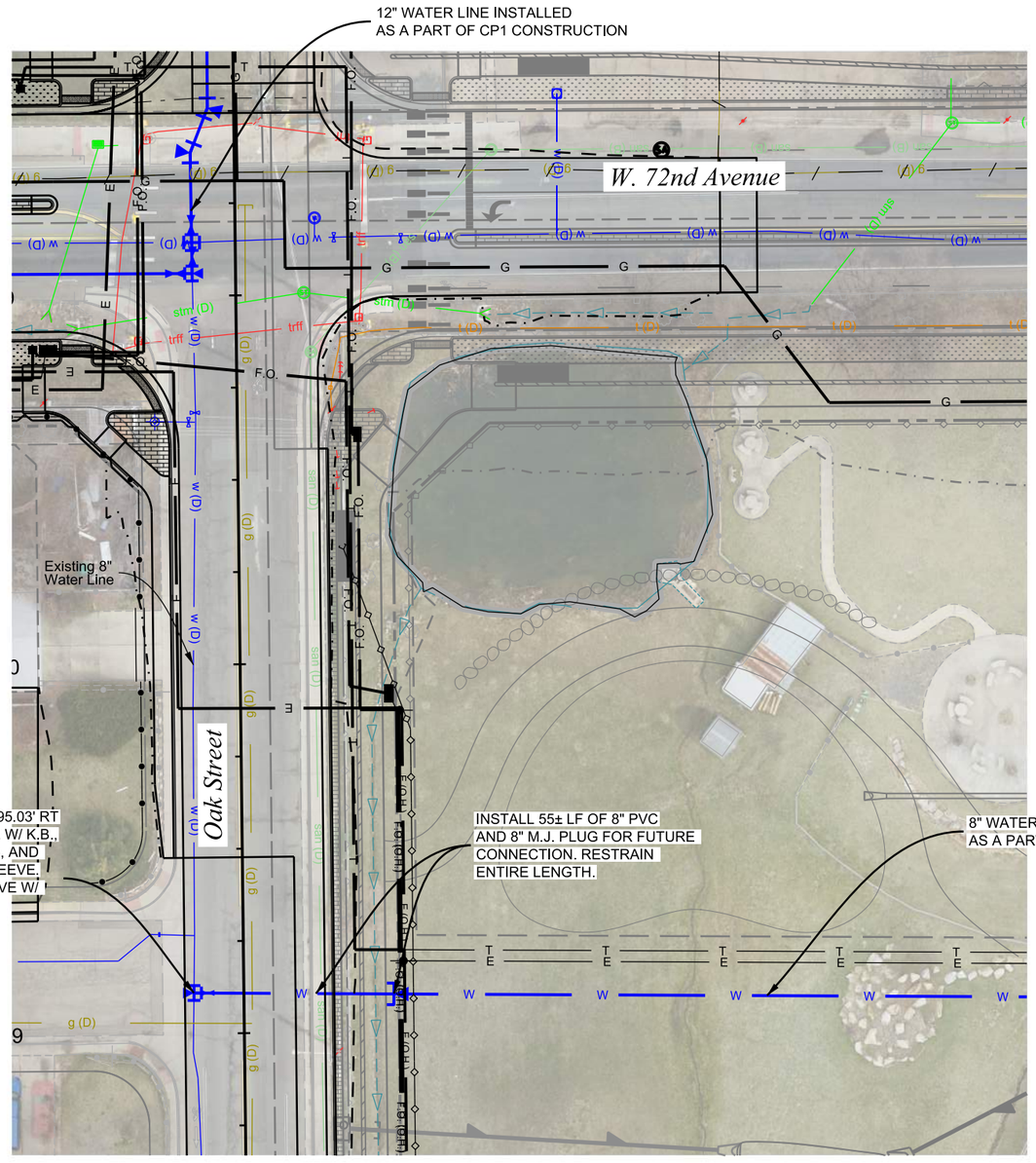

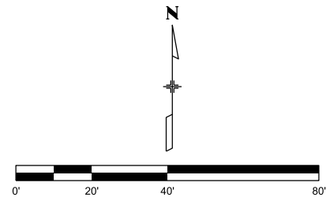

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Print Date: 2/11/2022		Sheet Revisions			CITY OF ARVADA
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Horiz. Scale: 1:40	Vert. Scale: As Noted				
Unit Information	Unit Leader Initials				
MULLER ENGINEERING COMPANY					

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	WATER LINE PLAN OAK STREET		
Revised:	Designer: SNB	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: WATERLINE	Subset Sheets: 2 of 2	Sheet Number 180

TABULATION OF SANITARY SEWER QUANTITIES - CP 2

STATION (ALIGNMENT: 72ND AVENUE SANITARY SEWER)	OFFSET	SIDE	8 INCH PLASTIC PIPE SEWER (SDR35)[1]	MANHOLE SLAB BASE (10 FOOT)[2]	COMMENTS
			LF	EA	
CP2 Construction Phase					
1027+66	32	LT	46	1	See Note 1 and 2.
PROJECT TOTALS			46	1	

NOTES:

1. PLASTIC PIPE SHALL BE MEASURED BY THE LINEAR FOOT. ALL COSTS ASSOCIATED WITH INSTALLING SANITARY SEWER PIPE INCLUDING SERVICE LINE AND RECONNECTION OF SERVICE LATERALS) SHALL BE INCLUDED IN THE COST OF PIPE.
2. MANHOLE SLAB BASE SHALL BE 4 FEET IN DIAMETER AND SHALL INCLUDE ALL BUILT IN INVERTS WHERE EXISTING AND NEW SEWER LINES ARE TO BE CONNECTED. MANHOLES SHALL BE EITHER PRE-CAST OR CAST-IN-PLACE AS INDICATED ON THE PLAN SET.

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9/17/2021
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Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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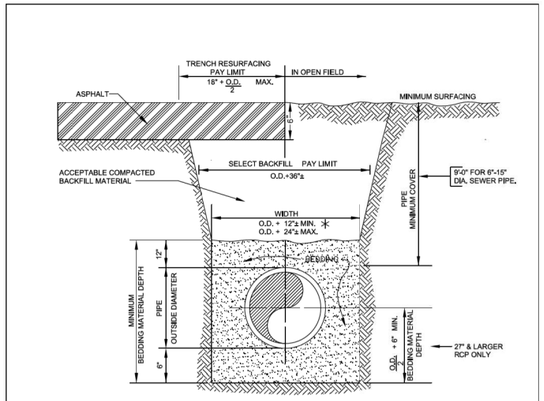
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
TABULATION OF SANITARY SEWER QUANTITIES

Designer: MAS
Detailer: SAD
Sheet Subset: SANITARY
Structure Numbers
Subset Sheets: 1 of 1

Project No./Code

Sheet Number 181



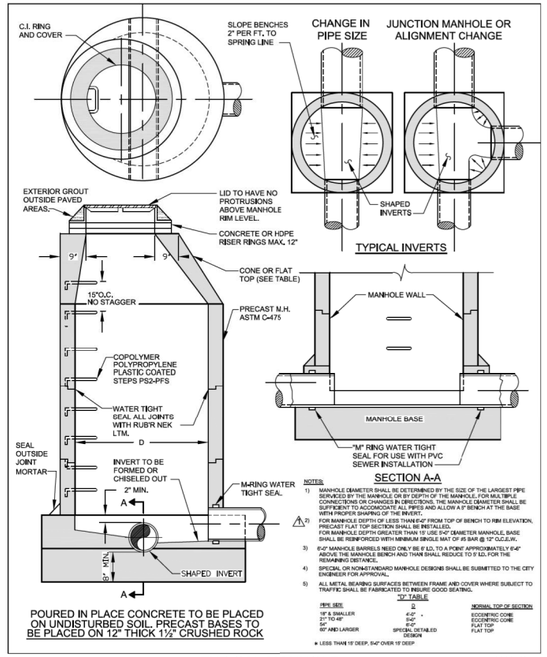
TYPICAL TRENCH

MINIMUM TRENCH WIDTHS FOR HDPE PIPE

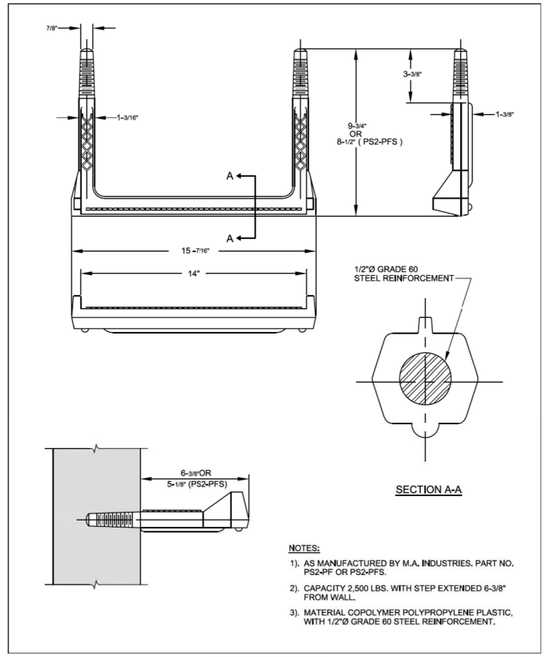
Nominal Pipe Diameter, Inches	Minimum Trench Width, Inches
4"	21"
6"	23"
8"	25"
10"	28"
12"	31"
15"	34"
18"	39"
24"	48"
30"	66"
36"	78"
42" annular	83"
42" HC	83"
48" HC	89"
60" HC	102"

* FOR HDPE PIPE, MINIMUM TRENCH WIDTH TO BE AS SHOWN IN TABLE.

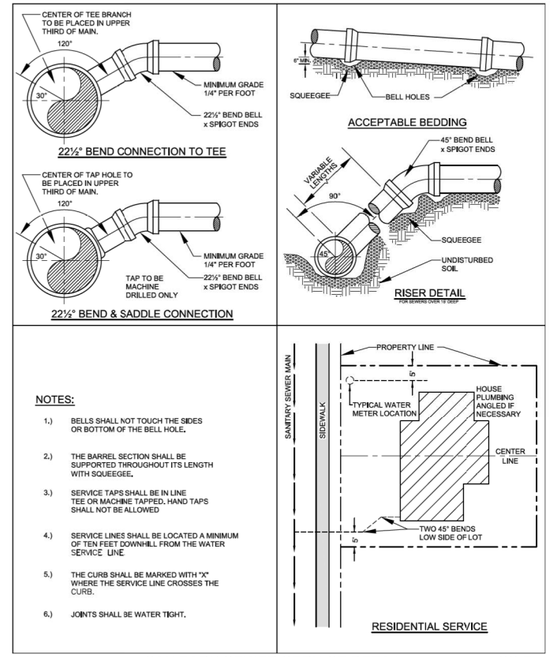
PIPE BEDDING AND BACKFILL LIMITS SEWER MAINS W-1



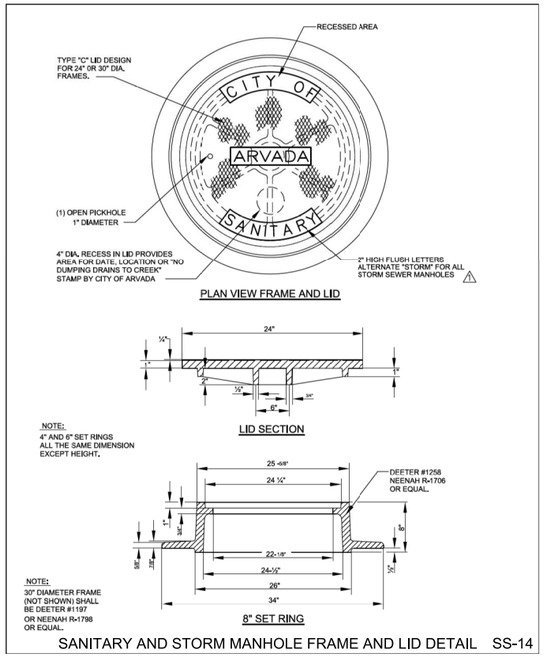
TYPICAL MANHOLE SS-3



MANHOLE STEP SS-5



SANITARY SEWER SERVICE DETAIL SS-7



SANITARY AND STORM MANHOLE FRAME AND LID DETAIL SS-14

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Drawing File Name: 18061_CP2_UTIL_DetailSanitary01.dgn		Date:	Comments	Init.	No Revisions:	SANITARY SEWER DETAILS			
Horiz. Scale: 1:1 Vert. Scale: As Noted					Revised:	Designer: MAS	Structure Numbers		
Unit Information Unit Leader Initials						Detailer: SAD			
MULLER ENGINEERING COMPANY					Void:	Sheet Subset: SANITARY	Subset Sheets: 1 of 1		Sheet Number 182

CITY OF ARVADA

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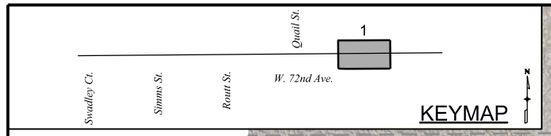

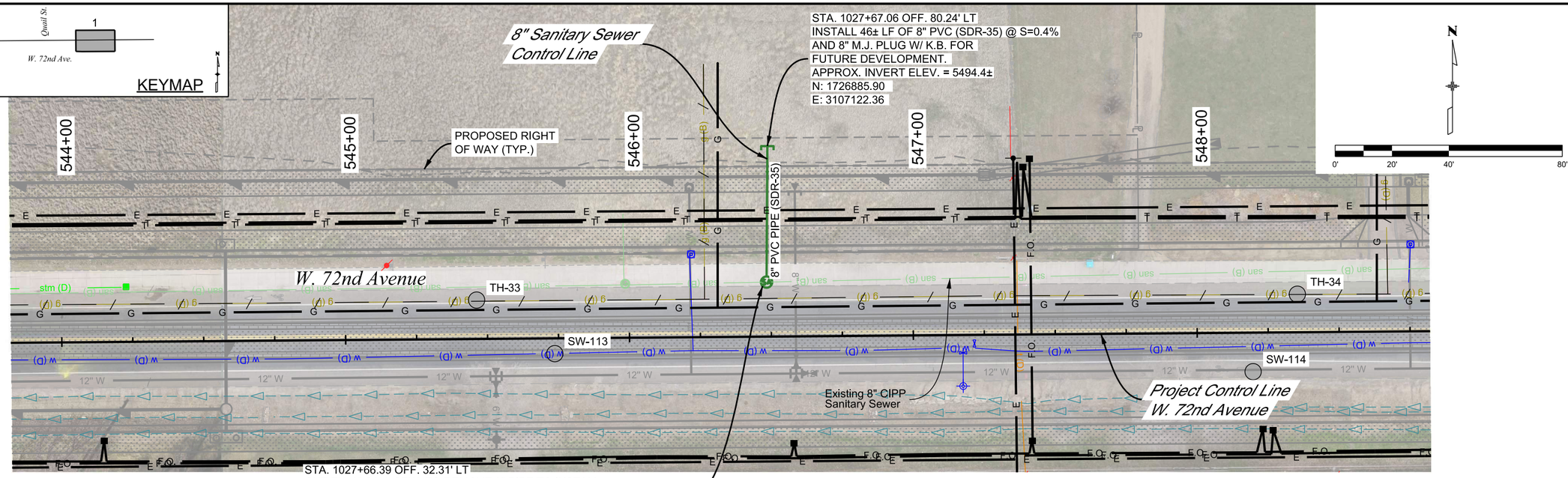

STA. 1027+66.39 OFF. 32.31' LT
CUT EX. 8" SAN. SEW. TO REMOVE 8" PIPE TO INSTALL
CAST-IN-PLACE SANITARY SEWER MANHOLE (4' DIAMETER).
CONNECT EX. 8" SANITARY SEWER (W&E) AND NEW 8" PVC (N)
W/ COUPLERS. MATCH EX. INVERT ELEV. (CONTRACTOR
TO VERIFY BEFORE CONSTRUCTION).
APPROX. INVERT ELEV. AT NEW MH = 5494.2±
N: 1726837.98
E: 3107122.08

NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITES WHERE CONFLICTS WITH THE PROPOSED SANITARY SEWER LINE MAY EXIST PRIOR TO INSTALLING THE SANITARY SEWER LINE.

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0' 20' 40'
10'
5'
0'

Print Date: 12/10/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	Designer: MAS / Detailer: SAD / Sheet Subset: SANITARY
Unit Information Unit Leader Initials				Void:	Structure Numbers / Subset Sheets: 1 of 1
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code / Sheet Number 183

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DRAINAGE GENERAL NOTES

1. THE MANUFACTURER'S JOINT TOLERANCE FOR ALL PIPE TYPES USED SHALL BE SUPPLIED TO THE ENGINEER. FOR DEFLECTIONS GREATER THAN THE MANUFACTURER'S TOLERANCE, A CONCRETE PIPE COLLAR SHALL BE USED PER THE STORM SEWER DETAIL SHEETS. CONCRETE PIPE COLLARS SHALL BE USED FOR EXISTING PIPE TO PROPOSED PIPE CONNECTIONS. THE "PIPE CONNECTION" DETAIL SHALL APPLY TO ALL PIPE CONNECTIONS TO PROPOSED PRECAST CONCRETE STRUCTURES AND EXISTING STRUCTURES. THE COST OF THE CONCRETE PIPE COLLAR SHALL BE INCLUDED IN THE COST OF THE WORK.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING PIPE SIZES, LENGTHS AND LOCATIONS PRIOR TO ORDERING AND DELIVERY OF THE PIPE MATERIAL TO THE SITE.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING HORIZONTAL AND VERTICAL LOCATIONS, PIPE SIZES, LENGTHS AND MATERIAL OF ALL EXISTING STORM DRAIN CONNECTING TO PROPOSED STORM DRAIN PRIOR TO ORDERING PRECAST STRUCTURES AND PIPES.

4. ALL CONCRETE FLARED END SECTIONS MUST BE INSTALLED WITH JOINT FASTENERS. IN ADDITION, JOINT FASTENERS SHALL BE INSTALLED ON ALL PIPE JOINTS WITHIN 15-FEET OF THE DOWNSTREAM END OF ALL CULVERTS. (INCLUDING END SECTION LENGTH, IF APPLICABLE).

5. OTHER UTILITIES MAY BE CROSSED OR OTHERWISE IMPACT STORM SEWER CONSTRUCTION. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE. UNLESS NOTED OTHERWISE, PROTECTION OF EXISTING UTILITIES, INCLUDING INCIDENTAL SHORING THAT IS NOT INCLUDED AS A PAY ITEM, WILL NOT BE MEASURED SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

6. ALL PIPE LENGTHS ARE GIVEN AND PAID FOR IN THE HORIZONTAL DIMENSION, AND HAVE BEEN ROUNDED TO THE NEAREST FOOT. THE CONTRACTOR SHALL SUPPLY THE ADDITIONAL LENGTH OF PIPE TO ACCOUNT FOR SLOPES AND INCLUDE IT IN THE COST OF THE WORK.

7. RUBBER GASKETS SHALL BE USED FOR ALL RCP JOINTS IN ACCORDANCE WITH ASTM C443. THE COST OF ALL JOINT GASKETS, CRADLES, COLLARS AND PIPE CONNECTIONS FOR STORM SEWER CONSTRUCTION SHALL BE INCLUDED IN THE COST OF THE PIPE.

8. RIPRAP (SOIL RIPRAP) IS SHOWN ON THE DRAINAGE PLAN SHEETS, STRUCTURE PROFILES AND DRAINAGE DETAILS. FILTER MATERIAL IS REQUIRED BENEATH RIPRAP IN LIEU OF GEOTEXTILE UNLESS SPECIFIED OTHERWISE.

9. THE TOP PORTION OF INLETS AND MANHOLES SHALL FIT THE LONGITUDINAL PROFILE SLOPE AND TYPICAL SECTION REQUIREMENTS. THE CONTRACTOR SHALL CROSS REFERENCE THIS INFORMATION PRIOR TO CONSTRUCTING INLETS AND MANHOLES TO FINAL GRADE.

10. STATION/OFFSET INFORMATION FOR MANHOLES (SLAB BASE) IS TO THE CENTER OF THE STRUCTURE.

11. STATION/OFFSET INFORMATION FOR MEDIAN, TYPE R AND TYPE 16 COMBINATION INLETS IS TO THE CENTER OF THE STRUCTURE AT THE ROADWAY FLOWLINE. RIM ELEVATION FOR MEDIAN, TYPE R AND TYPE 16 COMBINATION INLETS IS MEASURED AT THE TOP OF CURB ELEVATION.

12. STATION/OFFSET INFORMATION FOR TYPE C INLETS, TYPE D INLETS, AND DRAIN BASIN INLETS IS TO THE CENTER OF THE STRUCTURE.

13. STATION/OFFSET INFORMATION FOR END SECTIONS IS TO THE INVERT OF THE FLARE AT THE DOWNSTREAM END.

14. TYPE R INLETS, TYPE C INLETS, TYPE D INLETS, AND MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CDOT M&S STANDARDS, JULY 2019 UNLESS NOTED OTHERWISE.

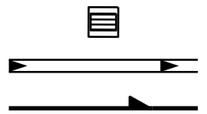
15. ALL TYPE C & D INLETS SHALL HAVE CLOSE MESH GRATES UNLESS OTHERWISE SPECIFIED.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING AND DIVERSION INCLUDING, BUT NOT LIMITED TO, STORM RUNOFF, LIVE STREAM FLOW AND GROUNDWATER AND OBTAINING THE APPLICABLE DEWATERING PERMIT FOR CONSTRUCTION AT THE SITE. THIS WILL BE PAID FOR AS WATER CONTROL (LS). THE CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS.

17. DRAINAGE WORK SHALL BE PER CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS, REVISED JANUARY 2016, UNLESS OTHERWISE MODIFIED BY THE PROJECT SPECIFICATIONS. PAY ITEM NAMES AND UNITS OF MEASUREMENT SHALL BE PER CDOT STANDARDS UNLESS NOTED OTHERWISE.

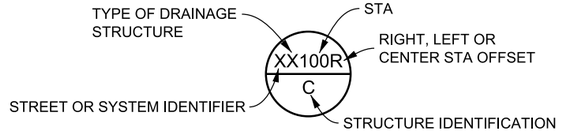
18. WHERE REINFORCED CONCRETE PIPE (RCP) IS SPECIFIED, THE CONTRACTOR MAY SUBSTITUTE POLYVINYL CHLORIDE (PVC), STEEL-REINFORCED POLYETHYLENE (PE), OR POLYPROPYLENE (PP) PIPE BASED ON THE CITY OF ARVADA PIPE MATERIAL SPECIFICATIONS. REFER TO TABLE 25.1 IN THE CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS. ALL RCP SHALL BE SULFATE RESISTANCE CLASS 2 PER CDOT STANDARD 601.04.

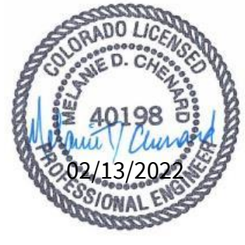
DRAINAGE LEGEND



STRUCTURE IDENTIFICATION	STRUCTURE TYPE
C	INLET TYPE C
CH	CHASE
D	INLET TYPE D
EX	EXISTING STRUCTURE (TYPE AS NOTED)
FES	FLARED END SECTION
IS	SPECIAL INLET (TYPE AS NOTED)
MHX	MANHOLE SLAB BASE (X DIAMETER)
DB	DRAIN BASIN
OS	OUTLET STRUCTURE
PC	PIPE COLLAR CONNECTION
RX	INLET TYPE R (X LENGTH)
TD	TRENCH DRAIN
16D	INLET TYPE 16 (DOUBLE)
16T	INLET TYPE 16 (TRIPLE)
IM	MEDIAN INLET

STRUCTURE ID KEY:





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Horiz. Scale: 1:1 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY	CITY OF ARVADA				

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRAINAGE GENERAL NOTES

Designer: MAS	Structure Numbers		Project No./Code
Detailer: SAD			
Sheet Subset: DRN NOTES	Subset Sheets: 1 of 1		Sheet Number 184

TABULATION OF DRAINAGE ITEMS

Structure Number/ Identifier	[4]ADJUST MANHOLE	[4]MODIFY MANHOLE	6 INCH PLASTIC PIPE	8 INCH PLASTIC PIPE	12 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	15 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	30 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	36 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	38X24 INCH REINFORCED CONCRETE PIPE ELLIPTICAL	45X29 INCH REINFORCED CONCRETE PIPE ELLIPTICAL (COMPLETE IN PLACE)	12 INCH REINFORCED CONCRETE END SECTION	24 INCH REINFORCED CONCRETE END SECTION	45X29 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	INLET												MANHOLE			RO			
																INLET TYPE C (5 FOOT)	INLET TYPE C (10 FOOT)	INLET TYPE 16 (DOUBLE) (10 FOOT)	INLET TYPE 16 (TRIPLE) (10 FOOT)	INLET TYPE R L 5 (5 FOOT)	INLET TYPE R L 5 (10 FOOT)	INLET TYPE R L 10 (5 FOOT)	INLET TYPE R L 10 (10 FOOT)	INLET TYPE R L 10 (15 FOOT)	INLET TYPE R L 15 (10 FOOT)	DRAIN BASIN	MEDIAN INLET	12 INCH SIDEWALK CHASE DRAIN	MANHOLE SLAB BASE (5 FOOT)	MANHOLE SLAB BASE (10 FOOT)	MANHOLE SLAB BASE (15 FOOT)	[1]EMBANKMENT MATERIAL (COMPLETE IN PLACE)	[1]STRUCTURE EXCAVATION	[1]STRUCTURE BACKFILL (CLASS 1)	[1]STRUCTURE BACKFILL (CLASS 2)
	EACH	EACH	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LF	EACH	EACH	EACH	CY	CY	CY	CY
WEST 72ND AVENUE																																			
I519R				133																						1						3	42	12	24
I520L						53										1																3	31	8	15
M520C								283																					1			65	283	61	105
I520R							6															1										4	1	2
I523L							26																				1					13	5	5
M523C - F22L												338			1															1		108	528	104	176
I525L			5																																
I524L								92								1																2	76	21	35
M524C											109																			1		89	198	28	49
I524R						16																	1										9	3	5
526L									8																										
M526C											149																				1	108	256	38	66
I527L						45															1												16	7	6
I527C							17																				1					2	13	3	6
M527C											103																				1	114	218	26	46
I527R							6															1										1	6	1	3
SM528L EX		1																																	
I530L							54																		1							13	45	9	17
M530C								334																							1	294	551	72	124
I530R							6																1									1	6	1	3
OM531R																															1				
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M533C								271																							1	142	351	59	101
I533R							6																		1							1	6	1	3
OI536L							33										1															19	40	6	11
OM536L									404																						1	309	706	108	177
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OI541L							6														1											0	5	1	3
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OI542L								28									1															19	43	7	11
OM542L								99																							1	68	146	22	37
I542L							54															1										3	31	9	12
M542C							136																								1	27	107	23	42
OM543L		1						144																								97	112	32	54
I544L							54														1											6	39	9	17
M544C							209																								1	24	146	35	64
I544R							6															1											5	1	2
OI547L								348									1															320	588	75	129
OI549L								152								1																113	231	33	57
OI550L								144								1																61	173	32	54
OM551L								97																							1	25	101	21	37
OM553L							168																									53	159	30	55
SUBTOTAL PAGE 1	**0**	**2**	**5**	**133**	**0**	**114**	**1637**	**2073**	**843**	**70**	**361**	**338**	**0**	**0**	**1**	**4**	**3**	**0**	**0**	**3**	**2**	**4**	**3**	**0**	**2**	**1**	**2**	**0**	**2**	**10**	**6**	**3088**	**7354**	**1208**	**2069**

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Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

TABULATION OF DRAINAGE ITEMS

Designer: MAS
Detailer: SAD
Sheet Subset: TAB
Structure Numbers
Subset Sheets: 1 of 2

Project No./Code

Sheet Number 185

TABULATION OF DRAINAGE ITEMS

Structure Number/ Identifier	[4]ADJUST MANHOLE	[4]MODIFY MANHOLE	6 INCH PLASTIC PIPE	8 INCH PLASTIC PIPE	12 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	15 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	30 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	36 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	38X24 INCH REINFORCED CONCRETE PIPE ELLIPTICAL	45X29 INCH REINFORCED CONCRETE PIPE ELLIPTICAL (COMPLETE IN PLACE)	12 INCH REINFORCED CONCRETE END SECTION	24 INCH REINFORCED CONCRETE END SECTION	45X29 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	INLET												MANHOLE			FIO			
																INLET TYPE C (5 FOOT)	INLET TYPE C (10 FOOT)	INLET TYPE 16 (DOUBLE) (10 FOOT)	INLET TYPE 16 (TRIPLE) (10 FOOT)	INLET TYPE R L 5 (5 FOOT)	INLET TYPE R L 5 (10 FOOT)	INLET TYPE R L 10 (5 FOOT)	INLET TYPE R L 10 (10 FOOT)	INLET TYPE R L 10 (15 FOOT)	INLET TYPE R L 15 (10 FOOT)	DRAIN BASIN	MEDIAN INLET	12 INCH SIDEWALK CHASE DRAIN	MANHOLE SLAB BASE (5 FOOT)	MANHOLE SLAB BASE (10 FOOT)	MANHOLE SLAB BASE (15 FOOT)	[1]EMBANKMENT MATERIAL (COMPLETE IN PLACE)	[1]STRUCTURE EXCAVATION	[1]STRUCTURE BACKFILL (CLASS 1)	[1]STRUCTURE BACKFILL (CLASS 2)
	EACH	EACH	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LF	EACH	EACH	EACH	CY	CY	CY	CY
SIDE STREETS																																		
SM23R EX	1																																	
I25L							73															1										28	72	13	23
M25R EX		1																																
M26R EX		1																																
I27L							84																1								56	107	14	26
SI27R																		1																
SI28R								8											2															
QI41L							17																	1							2	14	3	6
QM41C																														1				
QI41R						22																1										12	4	6
QM42C EX	1																																	
QM43C EX	1																																	
RI65R							8													1											3	7	2	1
RI63R				4			212														1					1						82	34	25
RI62R																												6						
RI61R					4		36						1							1												15	6	5
WATER QUALITY																																		
I21L - F21L								25						1																		24	7	10
I22L																												10						
SUBTOTAL PAGE 2	**3**	**2**	**0**	**4**	**4**	**22**	**430**	**33**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**0**	**16**	**0**	**1**	**0**	**89**	**333**	**84**	**103**
TOTAL	**3**	**4**	**5**	**137**	**4**	**136**	**2067**	**2106**	**843**	**70**	**361**	**338**	**1**	**1**	**1**	**4**	**3**	**1**	**2**	**5**	**3**	**5**	**4**	**1**	**3**	**2**	**2**	**16**	**2**	**11**	**6**	**3178**	**7687**	**1293**	**2173**

NOTES:

1. QUANTITIES CARRIED FORWARD TO SUMMARY OF EARTHWORK TABULATION.
2. ALL INLETS, MANHOLES, REINFORCED CONCRETE PIPE, AND REINFORCED CONCRETE END SECTIONS SHALL BE SULFATE RESISTANCE CLASS 2.
3. QUANTITIES CARRIED FORWARD TO TABULATION OF SURFACING QUANTITIES
4. QUANTITIES CARRIED FORWARD TO TABULATION OF REMOVALS, RESETS, AND ADJUSTMENTS.

TABULATION OF DRAINAGE ITEMS

Structure Number/ Identifier	[1]UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	[1]EMBANKMENT MATERIAL (COMPLETE IN PLACE)	[3]AGGREGATE BASE COURSE (CLASS 6)	[3]CONCRETE PAVEMENT (6 INCH)	GEOTEXTILE (DRAINAGE) (CLASS 2)	GROUTED BOULDERS (24 INCH)	GROUTED BOULDERS (36 INCH)	SOIL RIPRAP (12 INCH)	VOID FILLED RIPRAP (6 INCH)	VOID FILLED RIPRAP (12 INCH)	CONCRETE CLASS B: FOREBAY BASE	CONCRETE CLASS B: CURB WALL	CONCRETE CLASS B: 24" TOE WALL	OUTLET STRUCTURE 1
	CY	CY	TON	SY	SY	EACH	EACH	CY	CY	CY	CY	CY	CY	EACH
WATER QUALITY														
I21L - F21L										14.0			1.5	1
I22L									4.4					
FOREBAY						3	32			10.3	12.1			
ACCESS ROAD			38.0	26.2	167.9									
WQ POND	606.6	366.3						129.3				13.3		
TOTAL	607	367	38	27	168	3	32	130	5	25	13	14	2	1

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As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	TABULATION OF DRAINAGE ITEMS			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: TAB	Subset Sheets: 2 of 2		Sheet Number 186

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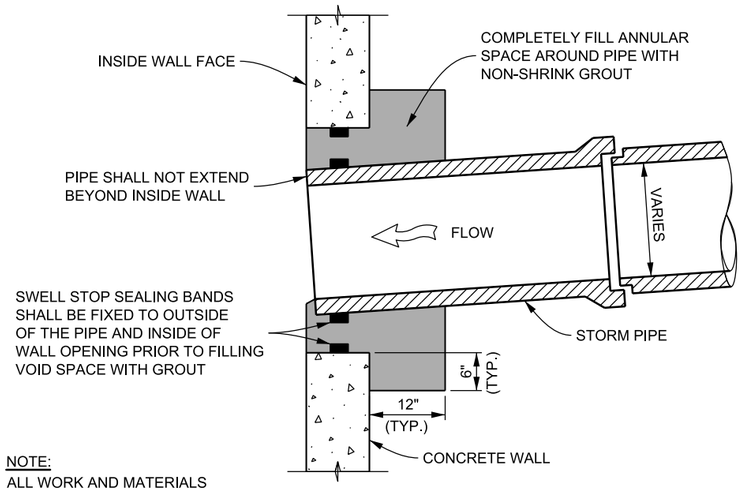
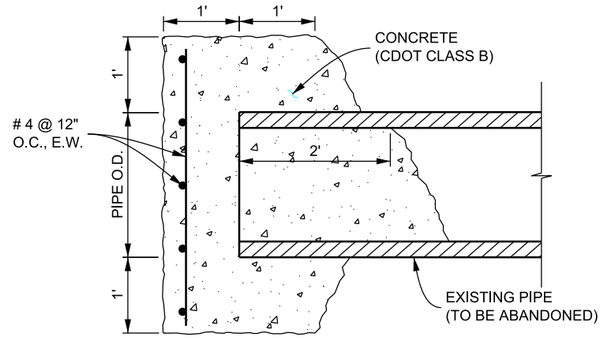


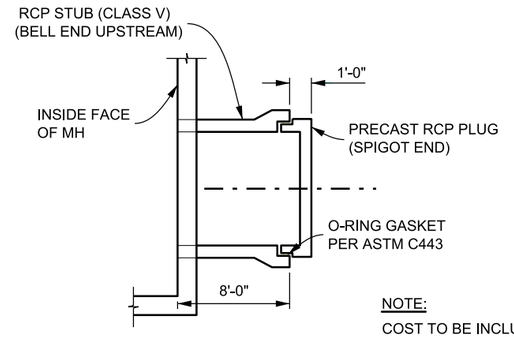
NOTE:
ALL WORK AND MATERIALS REQUIRED FOR PIPE CONNECTION IS INCLUDED IN THE COST OF PIPE.

PIPE CONNECTION DETA
(EXISTING AND PRECAST WALLS)
NOT TO SCALE



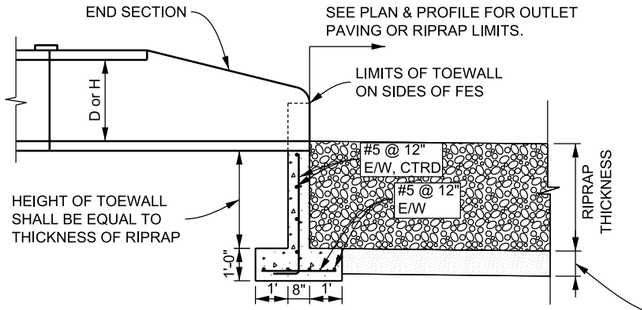
PLUG PIPE DETAIL
NOT TO SCALE

NOTE:
TO BE PAID FOR AS PLUG CULVERT.

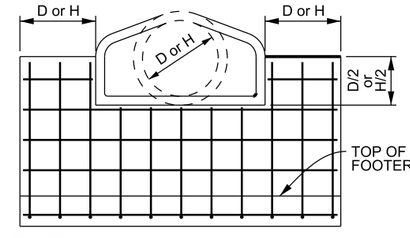


NOTE:
COST TO BE INCLUDED IN THE PRICE OF THE PIPE.

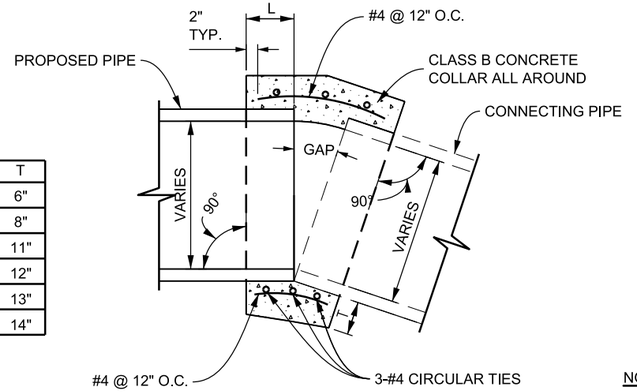
STUB AND PRECAST CONCRETE PLUG
NOT TO SCALE



TOEWALL DETAIL
NOT TO SCALE



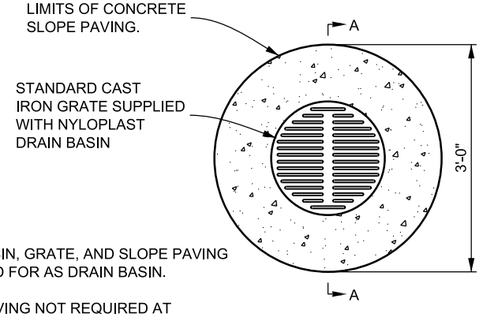
NOTES:
1. TOEWALLS SHALL BE USED IN LOCATIONS INDICATED ON STRUCTURE PROFILES.
2. BACKFILL BOTH SIDES OF WALL EVENLY (WITHIN 1'-0" OF EACH OTHER).
3. JOINT FASTENERS SHALL BE INSTALLED ON ALL FLARED END SECTIONS.
4. TOEWALL AND ALL ASSOCIATED WORK SHALL BE PAID FOR AS CONCRETE CLASS B. REINFORCING STEEL SHALL BE INCLUDED IN THE COST OF CONCRETE.
5. STRUCTURE EXCAVATION AND BACKFILL WILL NOT BE MEASURED SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE CONCRETE.



PIPE SIZE	L	T
12"-24"	1.0'	6"
30"-42"	1.5'	8"
48"-60"	2.0'	11"
66"-78"	2.5'	12"
84"-96"	3.0'	13"
102"-114"	3.5'	14"

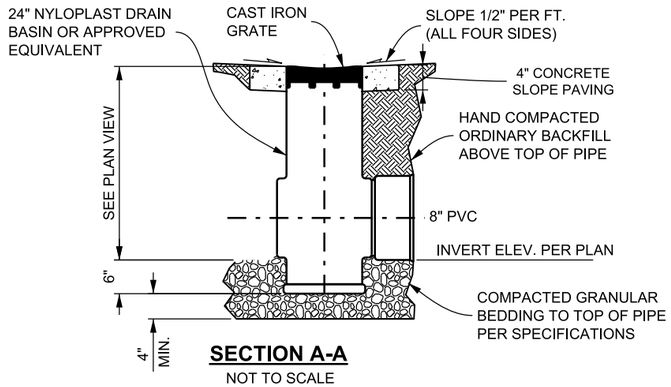
NOTE:
THIS IS INCLUDED IN THE COST OF PIPE.

CONCRETE PIPE COLLAR
NOT TO SCALE



NOTES:
1. DRAIN BASIN, GRATE, AND SLOPE PAVING TO BE PAID FOR AS DRAIN BASIN.
2. SLOPE PAVING NOT REQUIRED AT STRUCTURE RI63R

DRAIN BASIN PLAN
NOT TO SCALE



SECTION A-A
NOT TO SCALE

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No Revisions:	DRAINAGE DETAILS		
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Void:	Detailer: SAD		Sheet Number 187
	Sheet Subset: DRAINAGE	Subset Sheets: 1 of 7	

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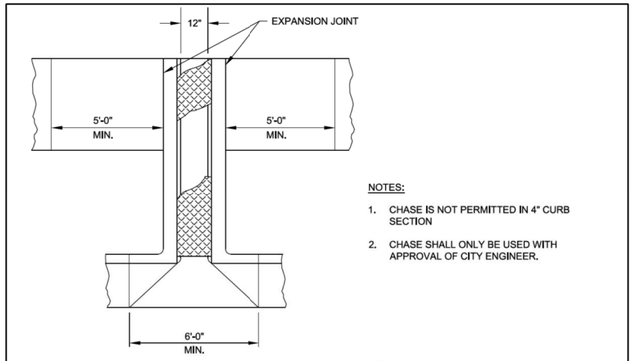
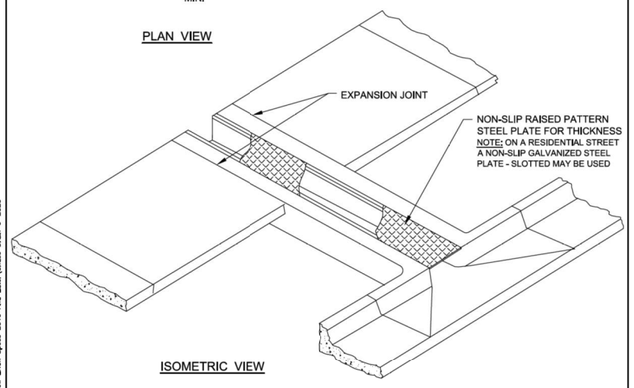


NOTES:

1. CHASE IS NOT PERMITTED IN 4" CURB SECTION
2. CHASE SHALL ONLY BE USED WITH APPROVAL OF CITY ENGINEER.

PLAN VIEW



ISOMETRIC VIEW

SHEET 1 OF 3

NO	DWN	DATE	REVISION

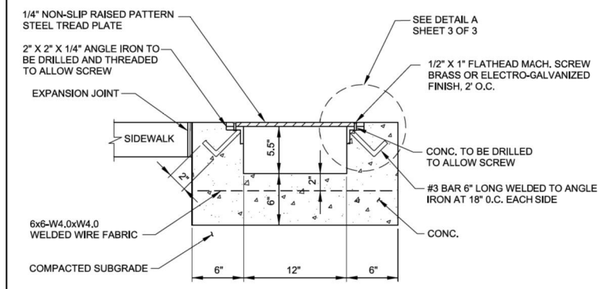
ARVADA

12" SIDEWALK CHASE

APPROVED:

DATE: 6–2020 | SCALE: NTS | DWN: KBC

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION



SIDEWALK CHASE DETAIL

SHEET 2 OF 3

NO	DWN	DATE	REVISION

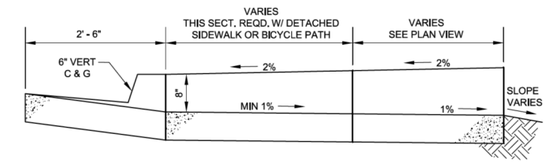
ARVADA

12" SIDEWALK CHASE

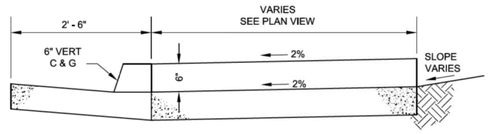
APPROVED:

DATE: 6–2020 | SCALE: NTS | DWN: KBC

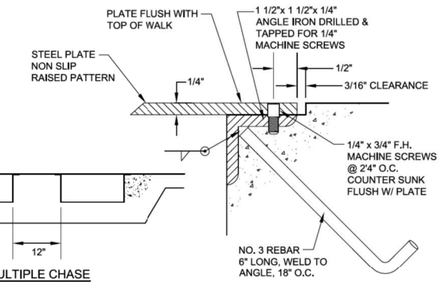
PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION



FLOW FROM GUTTER



FLOW TO GUTTER



MULTIPLE CHASE
WHEN OPENINGS LARGER THAN 12" ARE REQUIRED

DETAIL A

SHEET 3 OF 3

NO	DWN	DATE	REVISION

ARVADA

12" SIDEWALK CHASE

APPROVED:

DATE: 6–2020 | SCALE: NTS | DWN: KBC

PUBLIC WORKS DEPARTMI

NOTES:
SIDEWALK CHASE AND ALL ASSOCIATED WORK TO BE PAID FOR AS 12 INCH SIDEWALK CHASE DRAIN.

Item selection

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Date:	Comments	Init.

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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRAINAGE DETAILS

Designer:	MAS	Structure Numbers	
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Sheet Subset:	DRAINAGE	Subset Sheets:	2 of 7

Project No./Code

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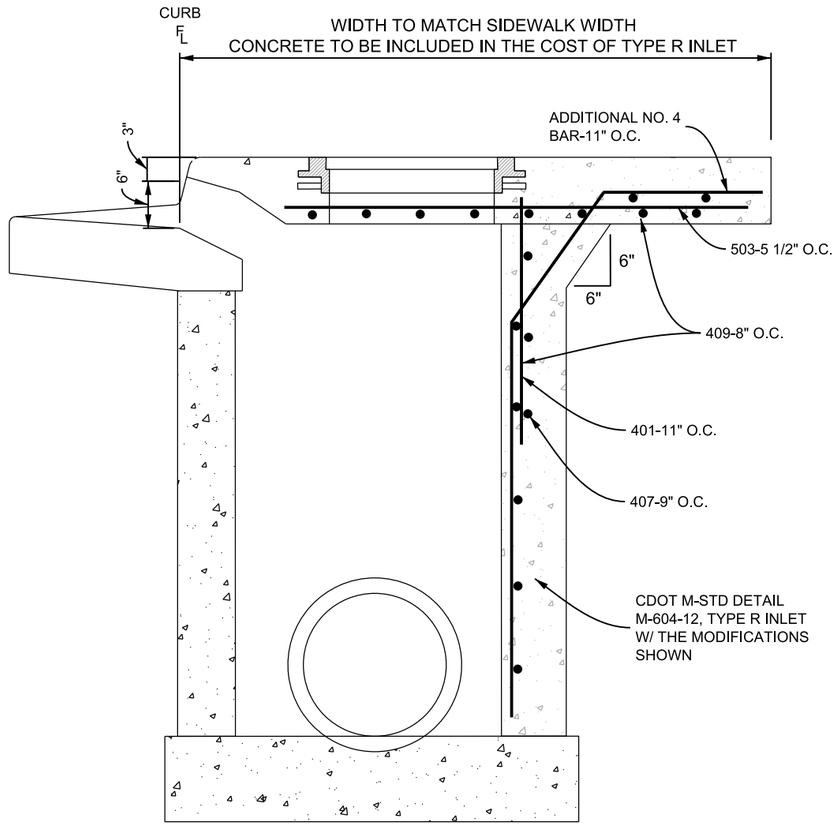
9/17/2021

NOTES:

1. TYPE R INLET TO BE CONSTRUCTED PER CDOT TYPE R INLET WITH THE MODIFICATION SHOWN.
2. THIS MODIFICATION SHALL BE APPLIED TO STRUCTURES I25L, QI41L, AND QI41R.
3. AT STRUCTURES I520R AND I524R, THE INLET TOP SHALL BE POURED MONOLITHICALLY WITH THE ~12' WIDE COMBINED SIDEWALK/BIKELANE.
4. MODIFIED INLETS SHALL BE MEASURED AND PAID FOR AS STANDARD INLETS.



TYPE R INLET DETAIL
MONOLITHIC SIDEWALK POUR
NOT TO SCALE

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Unit Information	Unit Leader Initials				Void:
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CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRAINAGE DETAILS

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Detailer:	SAD		
Sheet Subset:	DRAINAGE	Subset Sheets:	3 of 7

Project No./Code

Sheet Number 189

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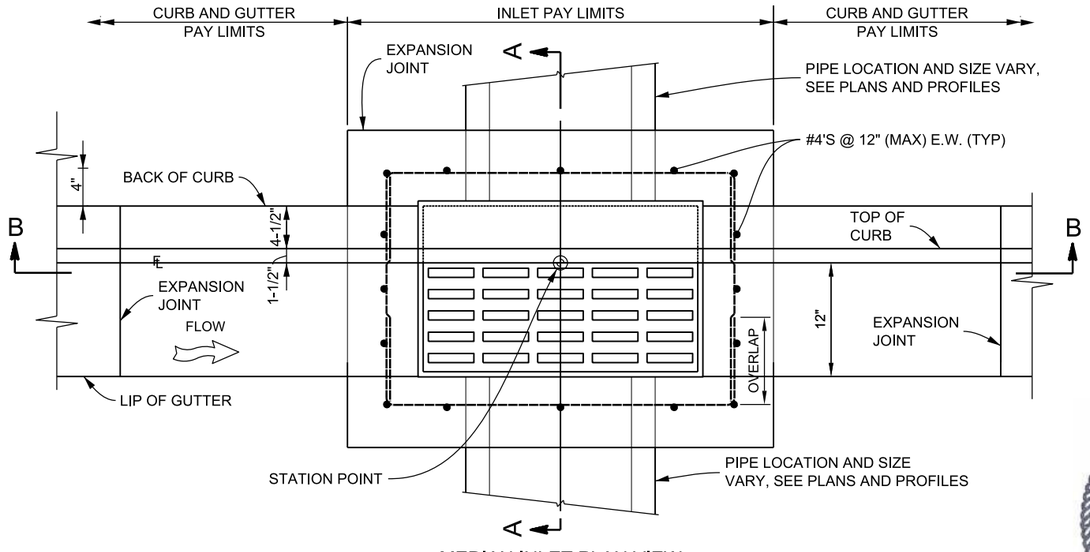
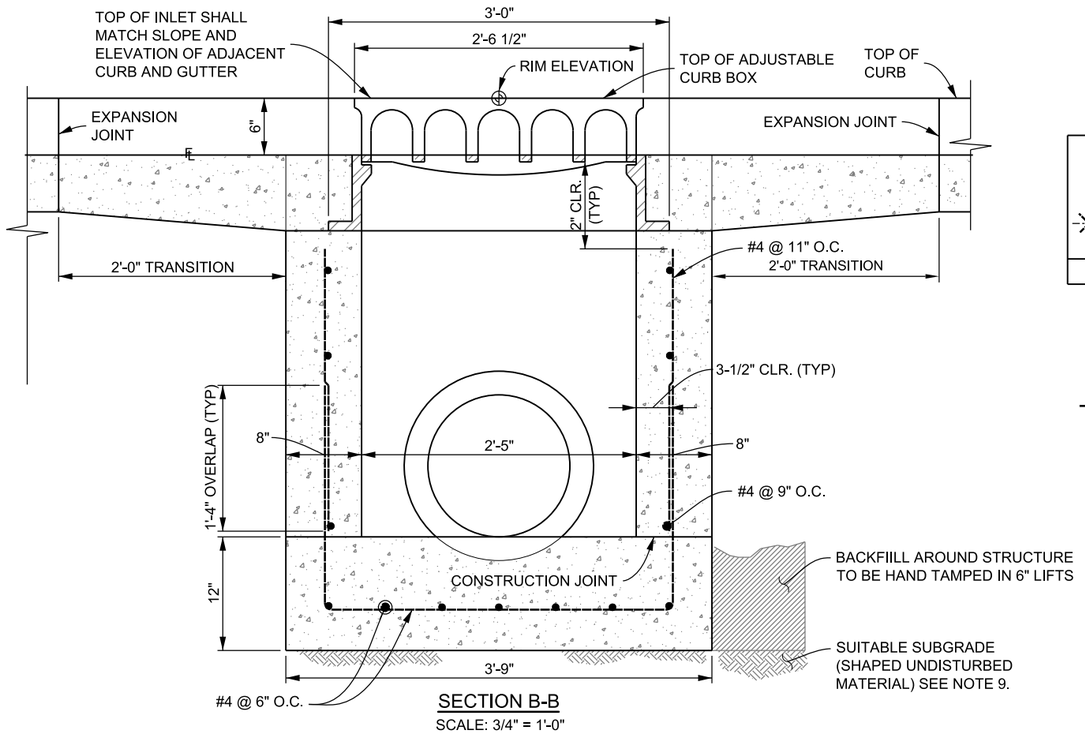


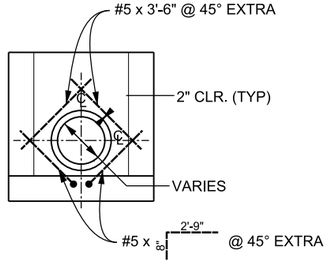
MEDIAN INLET PLAN VIEW

SCALE: 3/4" = 1'-0"



SECTION B-B

SCALE: 3/4" = 1'-0"

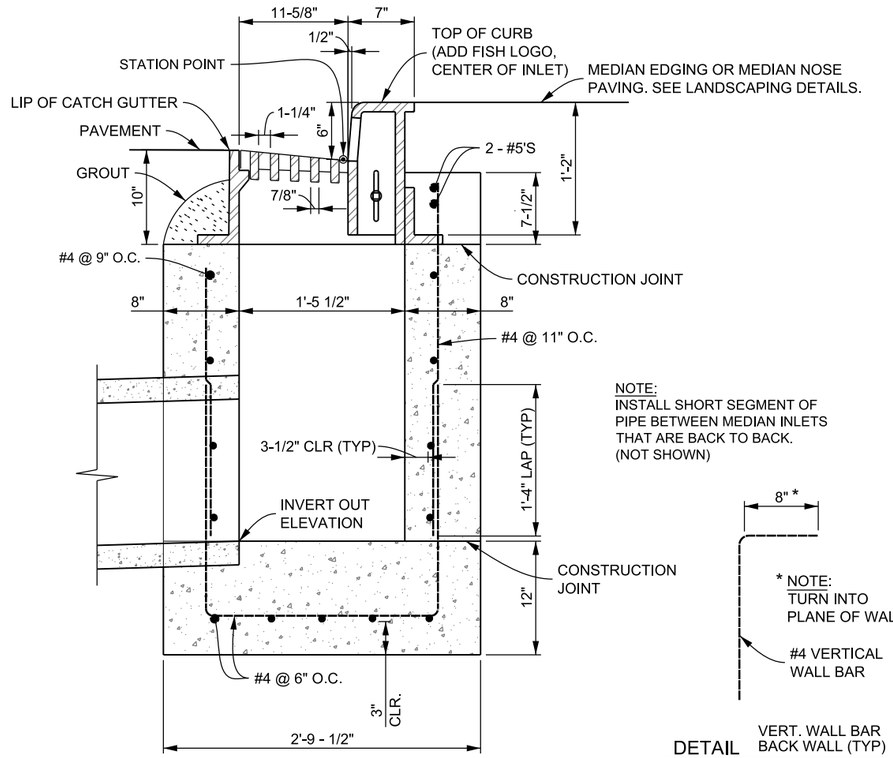


DETAIL REBAR PLACEMENT AROUND CONNECTOR PIPE

SCALE: 1/2" = 1'-0"

NOTES:

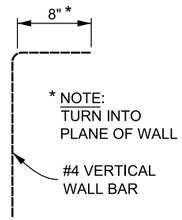
1. ALL CASTING SHALL CONFORM TO ASTM A-48(C1 35b) WITH A MINIMUM STRENGTH OF 35 ksi.
2. ALL CASTINGS SHALL BE HEAVY DUTY, AND CAPABLE OF WITHSTANDING AASHTO H20 LOADING.
3. FLOOR SLOPE MAY BE POURED MONOLITHIC WITH BASE.
4. ALL REINFORCING STEEL SHALL BE ASTM, A-615, GRADE 60 DEFORMED BARS. DIAMETER OF BEND MEASURED ON THE INSIDE OF THE BAR SHALL BE A MINIMUM OF 6 BAR DIAMETERS.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.
6. CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 4000 PSI.
7. SUBGRADE SHALL HAVE A GRADATION EQUAL TO CLASS B BEDDING COMPACTED TO 100% MAXIMUM DRY DENSITY, AASHTO T-99.
8. NO FORMWORK SHALL REMAIN INSIDE STRUCTURE WHEN COMPLETE.
9. SUB-GRADE SHALL BE SHAPED UNDISTURBED MATERIAL OR OVEREXCAVATED AND BACKFILLED WITH CLASS B BEDDING MATERIAL.
10. INLET WALLS SHALL BE FORMED BOTH INSIDE AND OUTSIDE. CASTING OF SIDEWALLS AGAINST EARTH IS NOT PERMITTED.
11. LEAN CONCRETE FILL TO BE f'_c = 2000 PSI.
12. MEDIAN INLETS SHALL BE MEASURED AND PAID AS MEDIAN INLET.



SECTION A-A

SCALE: 3/4" = 1'-0"

NOTE:
INSTALL SHORT SEGMENT OF PIPE BETWEEN MEDIAN INLETS THAT ARE BACK TO BACK. (NOT SHOWN)



DETAIL VERT. WALL BAR BACK WALL (TYP)

NOT TO SCALE

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9/17/2021
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Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_HYDR_Details04.dgn			
Horiz. Scale: 1:1	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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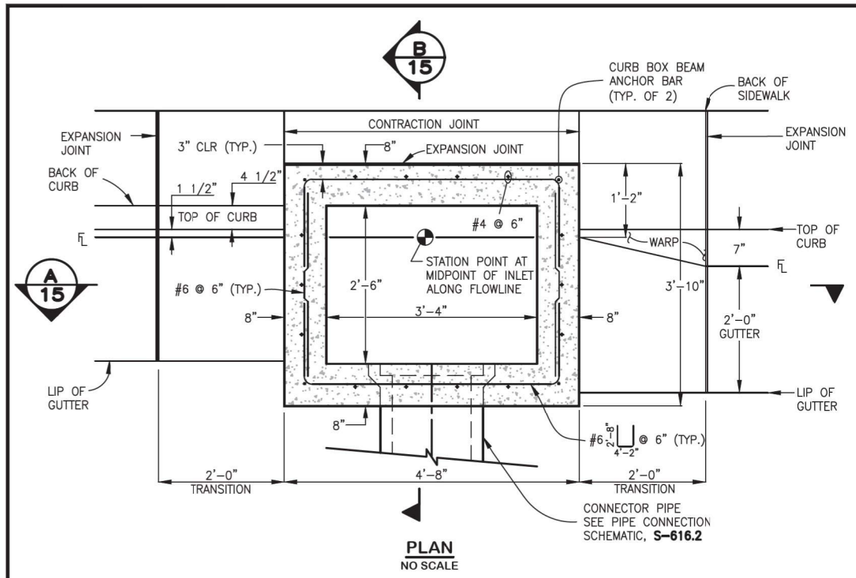
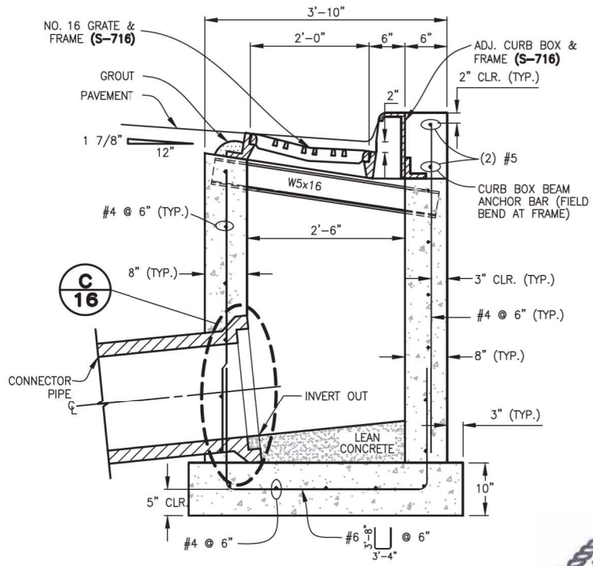
Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

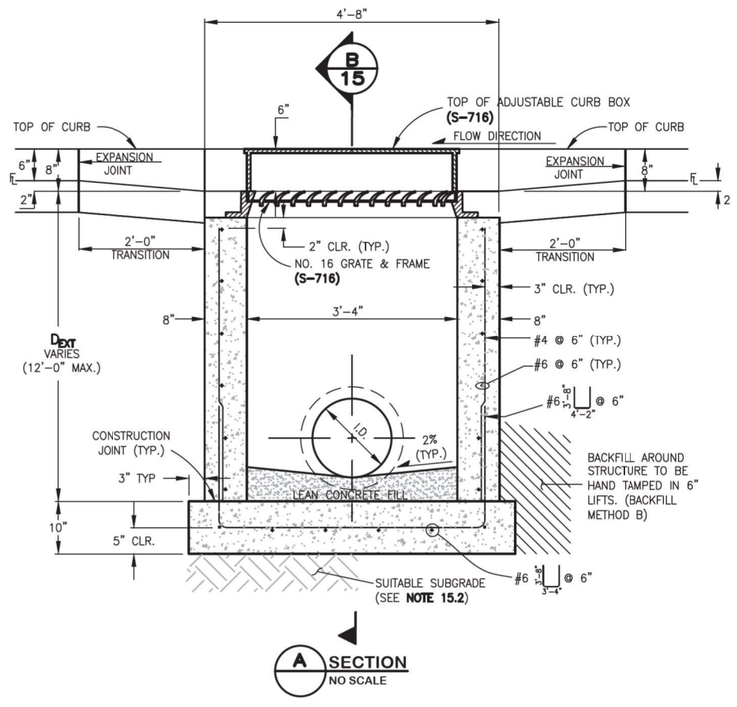
As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE DETAILS			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: LMR			Sheet Number 190
	Sheet Subset: DRAINAGE	Subset Sheets:	4 of 7	



PLAN
NO SCALE



B SECTION (TYPICAL, ALL SIZES)
NO SCALE



A SECTION
NO SCALE

SINGLE NUMBER 16 INLET NOTES:

15.1 FOR PAYMENT PURPOSES, INLET STRUCTURES SHALL ALSO INCLUDE 2'–0" CURB & GUTTER TRANSITION SECTION AT EACH END OF INLET PLUS SIDEWALK SECTIONS WHERE REQUIRED BEHIND INLET STRUCTURE AND TRANSITION SECTIONS.

15.2 SUB–GRADE SHALL BE 6–12" OF CLASS B BEDDING COMPACTED PER WCPM STANDARD CONSTRUCTION SPECIFICATIONS, ON SUITABLE, UNDISTURBED MATERIAL. IF SUBGRADE IS UNSUITABLE, THE SUBGRADE SHALL BE OVEREXCAVATED AND STABILIZED WITH CLASS B BEDDING PER WCPM STANDARD CONSTRUCTION SPECIFICATIONS.

15.3 FLOOR SLOPE MAY BE POURED MONOLITHIC WITH BASE.

15.4 Sc = SLOPE OF CONNECTOR = 2% MIN.

15.5 UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR OTHERWISE APPROVED, ALL NO. 16 INLETS SHALL BE CONSTRUCTED WITH AN ADJUSTABLE CAST IRON CURB BOX **(S–716)**.

15.6 DESIGN CONDITIONS FOR INLET ALLOWS DEPTHS OF 12'–0" (MAX.). FOR INLETS MORE THAN 12'–0" FEET IN DEPTH, SHOP DRAWINGS AND DESIGN ANALYSIS SHALL BE SUBMITTED FOR APPROVAL.

15.7 ALL REINFORCING STEEL SHALL BE ASTM, A–615, GRADE 60 DEFORMED BARS. DIAMETER OF BEND MEASURED ON THE INSIDE OF THE BAR SHALL BE A MINIMUM OF 6 BAR DIAMETER.

15.8 ALL SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, 2017.

15.9 NO FORMWORK SHALL WORK REMAIN INSIDE STRUCTURE WHEN COMPLETE.

15.10 CONCRETE MIX FOR GUTTER AND ANY ADDED STREET PANELS SHALL MEET CLASS 2 REQUIREMENTS FOR SULFATE RESISTANCE IN ACCORDANCE WITH CDOT STANDARD 601.04 ON STREETS WHERE MAGNESIUM CHLORIDE CHEMICAL DEICERS ARE APPLIED. REFER TO WCPM STANDARD CONSTRUCTION SPECIFICATIONS SECTION 11 FOR REQUIREMENTS FOR SULFATE RESISTANCE IN CONCRETE EXPOSED TO EARTH.

15.11 SPLICING OF REINFORCING STEEL SHALL BE PERMITTED ONLY WHERE DETAILED IN DRAWINGS.

15.12 INLET WALLS SHALL BE FORMED BOTH INSIDE AND OUTSIDE. CASTING OF SIDEWALLS AGAINST EARTH IS NOT PERMITTED.

15.13 LEAN CONCRETE FILL TO BE F'C = 2000 PSI. INLET STRUCTURE, LID, STREET CURB AND GUTTER, AND PAVEMENT TO BE F'C = 4,500 PSI, MAX W/CM = 0.45 AND AIR ENTRAINED 5% TO 8%. F'C = 28 DAY COMPRESSIVE STRENGTH REQUIREMENT FOR MIX DESIGN, FIELD ACCEPTANCE.

15.14 FOR THROUGH STRUCTURES, BENCHES MUST COME TO TOP OF PIPE.

15.15 NO CORNER PENETRATIONS ON STRUCTURE.

15.16 SEE WCPM STANDARD CONSTRUCTION SPECIFICATIONS SECTION 11.04 STORM INLETS FOR MORE INFORMATION. USE OF THIS DETAIL WITHOUT SPECIFICATIONS SHALL BE CONSIDERED NON–COMPLIANT.

15.17 SEE **S–616.2** FOR REBAR PLACEMENT AT WALL PENETRATION DETAIL.

15.18 REFER TO "TRANSPORTATION STANDARDS AND DETAILS FOR THE ENGINEERING DIVISION" FOR ADJACENT ROADWAY AND SIDEWALK DESIGN CRITERIA.

COLORADO LICENSED
MELANIE D. CHENARD
40198
PROFESSIONAL ENGINEER
For selection
02/13/2022

NO.	DESCRIPTION OF REVISIONS	DATE	BY

DENVER THE MILE HIGH CITY

CITY AND COUNTY OF DENVER
2000 W. 3RD AVE. DENVER, CO 80223
www.denvergov.org

STANDARD DETAILS
SINGLE NUMBER 16 INLET
S-616.1

DRAWN BY: ----
DESIGNED BY: ASP/JDMT
APPROVED BY: ----
DRAWING NAME: S616-1.dwg
DATE: JUNE 2020
SHEET NO.: 15

PLOT DATE: May 1, 2020
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9/17/2021

Print Date: 9/17/2021		Sheet Revisions	
Drawing File Name: 18061_CP2_HYDR_Details05.dgn		Date:	Comments / Init.
Horiz. Scale: 1:1	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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CITY OF ARVADA

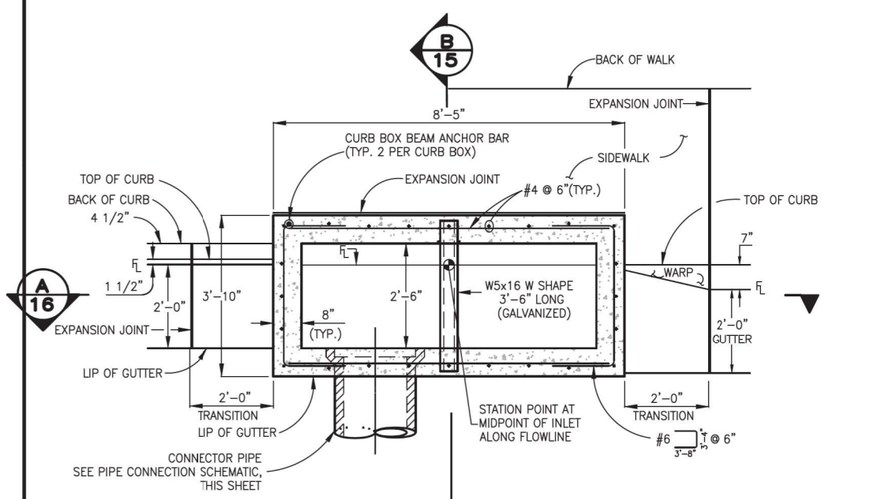
As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRAINAGE DETAILS

Designer:	MAS	Structure Numbers	
Detailer:	LMR		
Sheet Subset:	DRAINAGE	Subset Sheets:	5 of 7

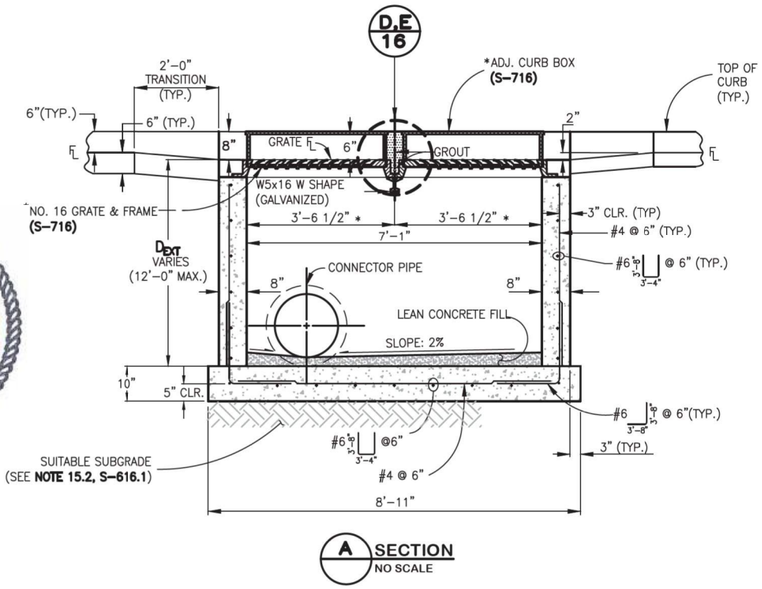
Project No./Code

Sheet Number 191



6" VERTICAL CURB AND GUTTER | **COMBINATION CURB GUTTER AND SIDEWALK**

PLAN
NO SCALE



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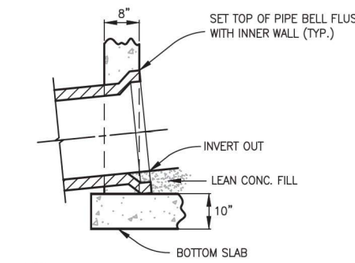

C DETAIL - CONNECTOR OUTLET
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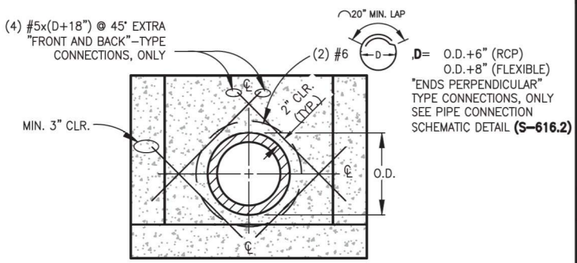
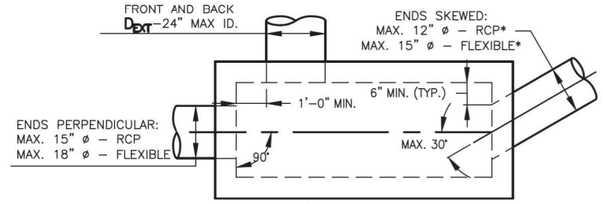
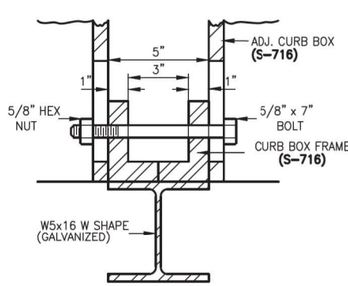


DETAIL - REBAR PLACEMENT AROUND CONNECTOR PIPE
NO SCALE

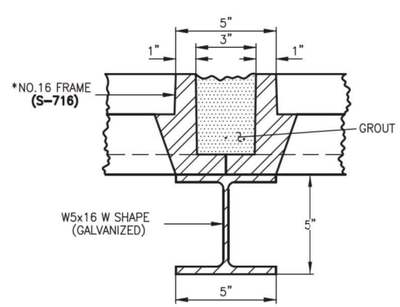


*ANGLED CONNECTIONS REQUIRE CITY APPROVAL.

PIPE CONNECTION SCHEMATIC (NO. 16 INLET)
THIS DIAGRAM IS PROVIDED FOR GENERAL GUIDANCE ONLY. THE DESIGNER IS RESPONSIBLE FOR VERIFYING PROJECT SPECIFIC GEOMETRY.



D DETAIL - PLACEMENT OF ADJ. CURB BOX ON SUPPORT RAIL (TYP.)
NO SCALE



E DETAIL - FRAME PLACEMENT ON SUPPORT RAIL (TYP.)
NO SCALE

DOUBLE NUMBER 16 INLET NOTES:

16.1 SEE DETAIL SPECIFICATIONS SECTION 11.05 STORM INLETS FOR MORE INFORMATION. USE OF THIS DETAIL WITHOUT SPECIFICATIONS SHALL BE CONSIDERED NON–COMPLIANT.

16.2 SEE GENERAL NOTES ON **S–616.1.**

16.3 EXPANSION JOINT MATERIAL SHALL BE PLACED FULL DEPTH OF THE CURB AND GUTTER, SIDEWALK, CONCRETE PAVEMENT, AS APPLICABLE. THE TOP PORTION OF THE JOINT SHALL BE SEALED WITH SILICONE SEALANT.

16.4 SEE **S–616.1** FOR REBAR PLACEMENT AT WALL PENETRATION DETAIL.

* STANDARD DETAIL **S–716** APPLIES TO ALL OF THE GRATE & FRAME GEOMETRIC DIMENSIONS FOR THE DOUBLE NUMBER 16 INLET EXCEPT FOR THE FRAME LENGTH. FRAME LENGTH SHOULD BE MANUFACTURED FOR THE DIMENSIONS CALLED OUT ON THIS SHEET.

NO.	DESCRIPTION OF REVISIONS	DATE	BY

DENVER
THE MILE HIGH CITY

CITY AND COUNTY OF DENVER
2000 W. 3RD AVE. DENVER, CO 80223
www.denvergov.org

STANDARD DETAILS
DOUBLE NUMBER 16 INLET
S-616.2

DRAWN BY:	----
DESIGNED BY:	ASP/JDMT
APPROVED BY:	----
DRAWING NAME:	S616-2.dwg
DATE:	JUNE 2020
SHEET NO.:	16

Selection only.

COLORADO LICENSED
MELANIE D. CHENARD
40198
PROFESSIONAL ENGINEER
02/13/2022

PLOT DATE: May 1, 2020
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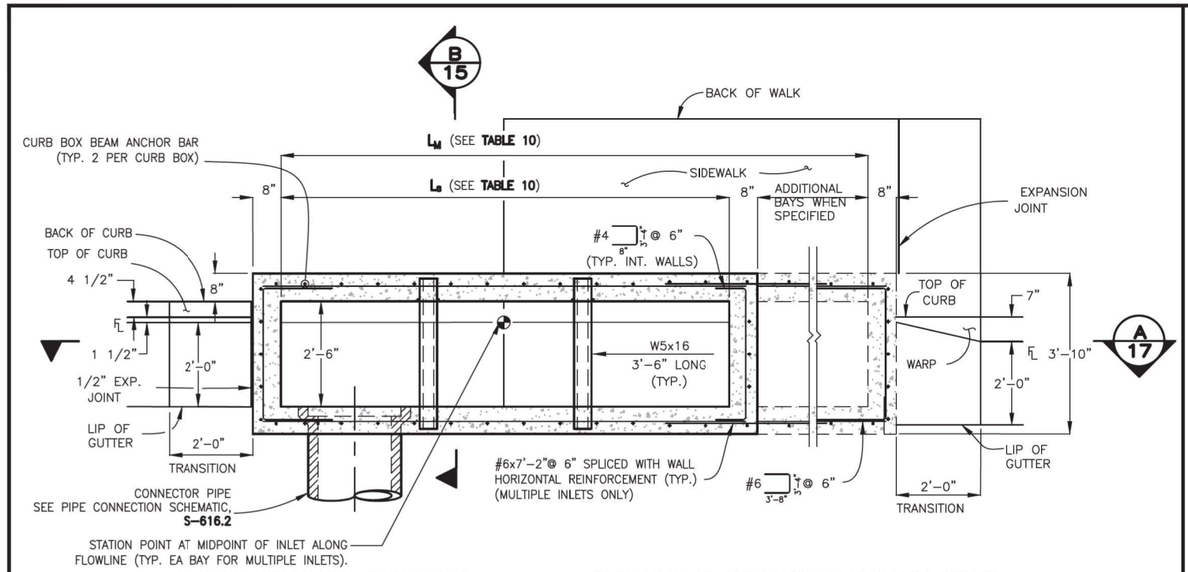
Print Date: 9/17/2021		Sheet Revisions			
Drawing File Name: 18061_CP2_HYDR_Details06.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:1	Vert. Scale: As Noted				
Unit Information	Unit Leader Initials				
MULLER ENGINEERING COMPANY					

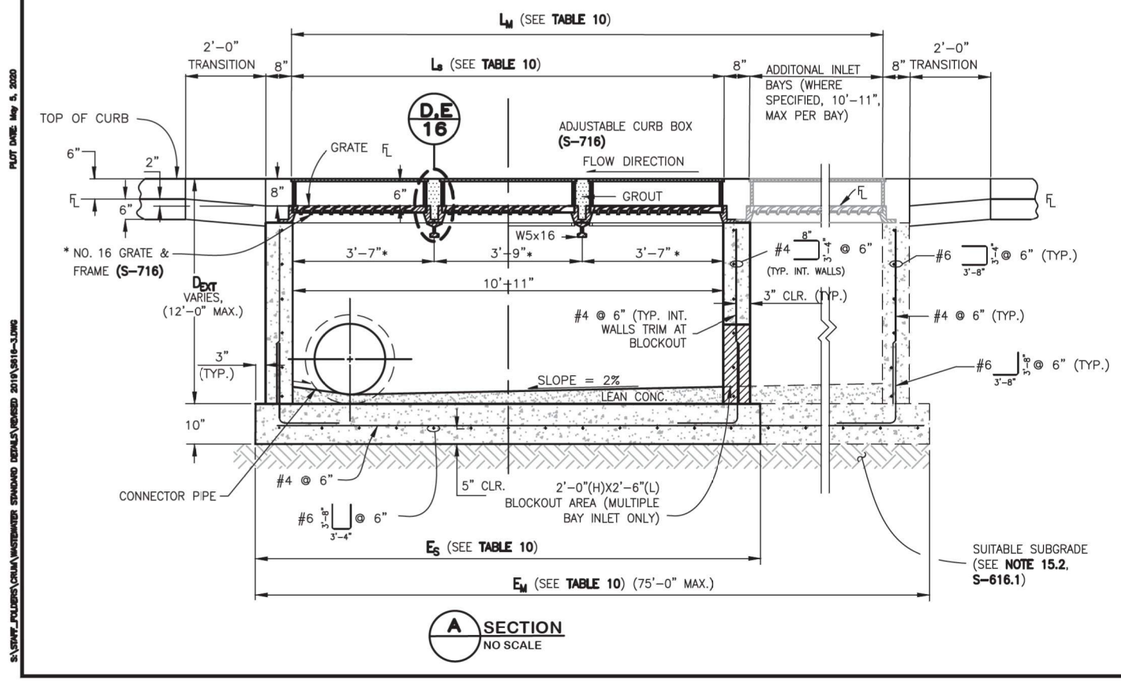
CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE DETAILS			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 192
	Sheet Subset: DRAINAGE	Subset Sheets: 6 of 7		



6" VERTICAL CURB AND GUTTER **COMBINATION CURB GUTTER AND SIDEWALK**

PLAN
NO SCALE



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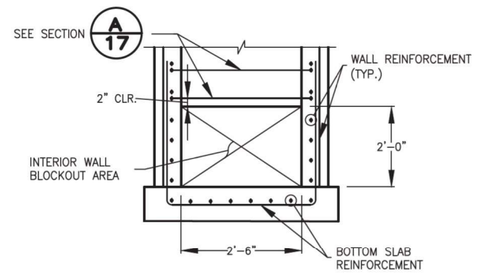

DETAIL - TYPICAL INTERIOR WALL BLOCK-OUT
NO SCALE

Selection only.

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MELANIE D. CHENARD
40198
PROFESSIONAL ENGINEER
02/13/2022

TRIPLE NUMBER 16 INLET NOTES:

17.1 SEE WCPM STANDARD CONSTRUCTION SPECIFICATIONS SECTION 11.05 STORM INLETS FOR MORE INFORMATION. USE OF THIS DETAIL WITHOUT SPECIFICATIONS SHALL BE CONSIDERED NON–COMPLIANT.

17.2 SEE GENERAL NOTES ON **S–616.1**

17.3 EXPANSION JOINT MATERIAL SHALL BE PLACED FULL DEPTH OF THE CURB AND GUTTER, SIDEWALK, CONCRETE PAVEMENT, AS APPLICABLE. THE TOP PORTION OF THE JOINT SHALL BE SEALED WITH SILICONE SEALANT.

17.4 SEE **S–616.2** FOR REBAR PLACEMENT AROUND CONNECTOR PIPE.

* STANDARD DETAIL **S–716** APPLIES TO ALL OF THE GRATE & FRAME GEOMETRIC DIMENSIONS FOR THE TRIPLE NUMBER 16 INLET EXCEPT FOR THE FRAME LENGTH. FRAME LENGTH SHOULD BE MANUFACTURED FOR THE DIMENSIONS CALLED OUT ON THIS SHEET.

TABLE 10. NO. 16 TOTAL INLET LENGTH

INLET CONFIGURATION	L_S OR L_M INLET LENGTH	■ E_S OR E_M TOTAL BOTTOM SLAB LENGTH
TRIPLE NO. 16	10'–11"	12'–9"
NO. 16 3–3–2 (EXAMPLE CONFIGURATION)	10'–11", 10'–11", 7'–1"	32'–1"
NO. 16 (CONFIGURATION TEMPLATE)	L_{S_1}, L_{S_2}, L_{S_3}	=3"+8"+L_{S_1}+8"+L_{S_2}+8"+L_{S_3}+8"+3"

■ MAX. BOTTOM SLAB LENGTH = 75'–0"

NO.	DESCRIPTION OF REVISIONS	DATE	BY

DENVER THE MILE HIGH CITY

CITY AND COUNTY OF DENVER
2000 W. 3RD AVE. DENVER, CO 80223
www.denvergov.org

STANDARD DETAILS
TRIPLE NUMBER 16 INLET
S-616.3

DRAWN BY: ---
DESIGNED BY: ASP/JDMT
APPROVED BY: ---
DRAWING NAME: S616-3.dwg
DATE: JUNE 2020
SHEET NO.: 17

PLOT DATE: May 5, 2020
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Print Date: 9/17/2021
Drawing File Name: 18061_CP2_HYDR_Details07.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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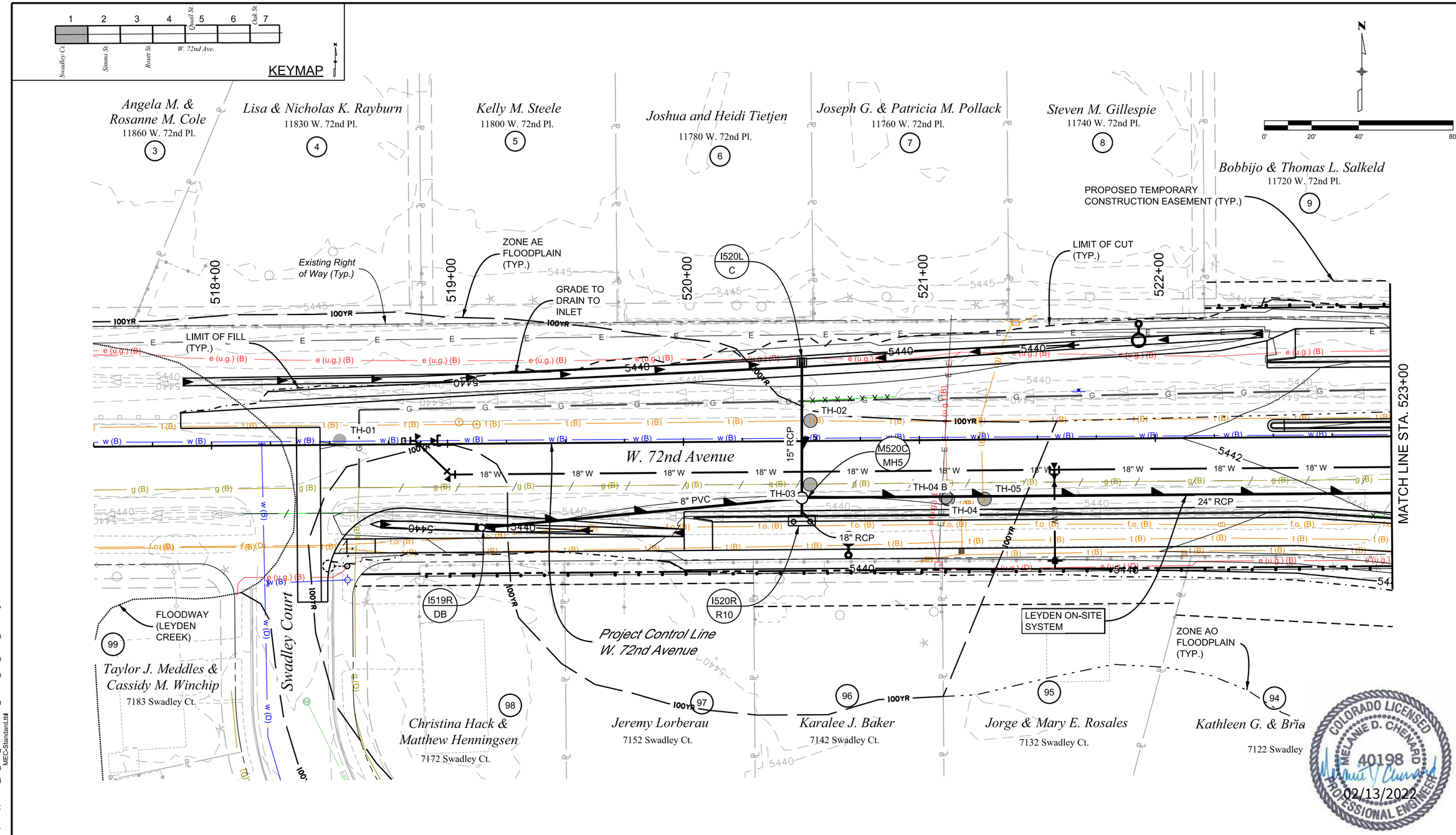
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRAINAGE DETAILS

Designer: MAS
Detailer: SAD
Sheet Subset: DRAINAGE
Structure Numbers
Subset Sheets: 7 of 7

Project No./Code

Sheet Number 193



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Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_HYDR_Plan01.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

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Revised:

Void:

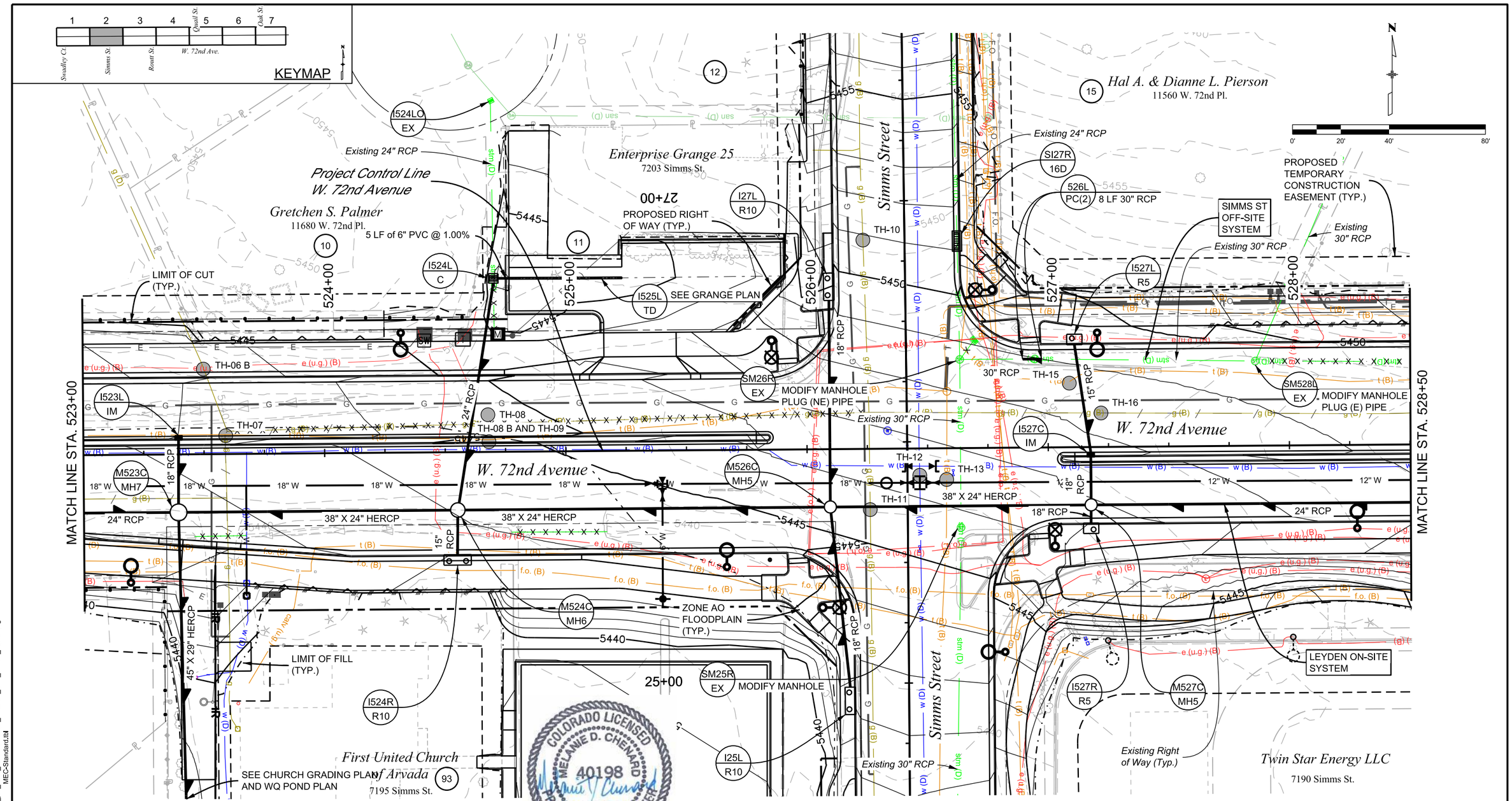
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRAINAGE PLAN W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	DRAINAGE	Subset Sheets:	1 of 7

Project No./Code

Sheet Number 194



SEE SIMMS ST DRAINAGE PLAN FOR ADDITIONAL INFORMATION

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_Plan02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

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No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRAINAGE PLAN
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	DRAINAGE	Subset Sheets:	2 of 7

Project No./Code

Sheet Number 195

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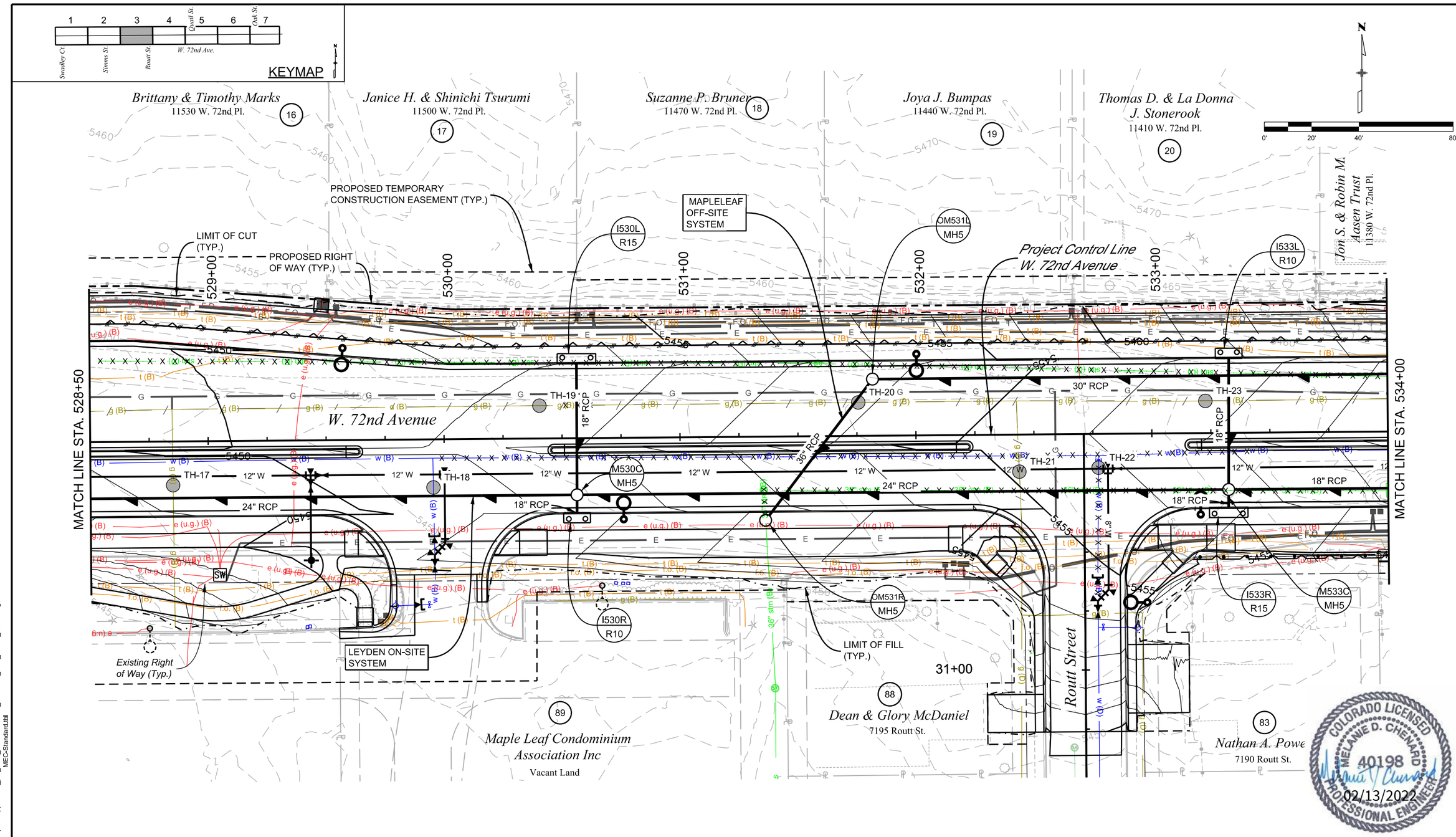

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Print Date: 9/17/2021		Sheet Revisions	
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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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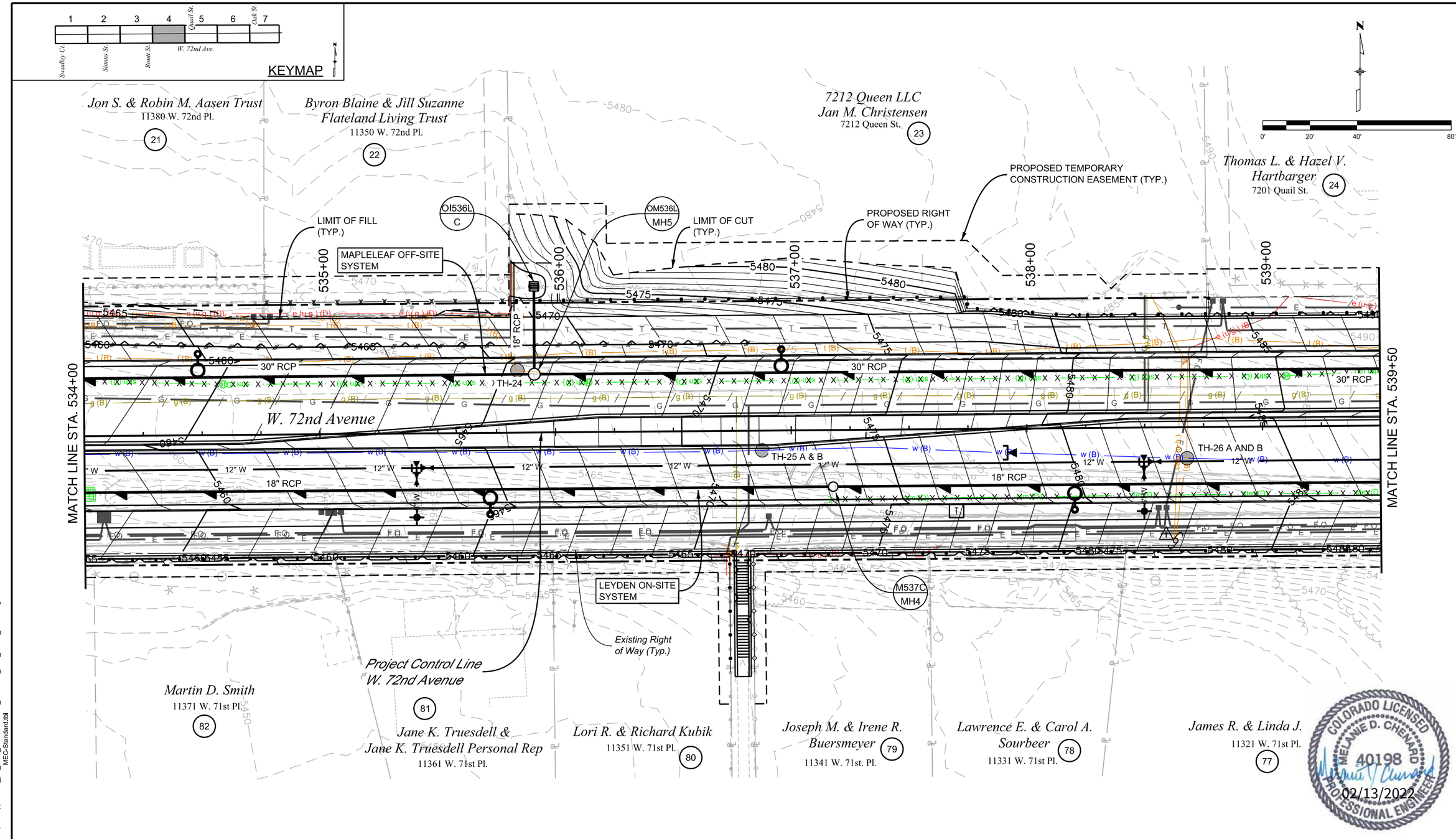
CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	DRAINAGE PLAN		
Revised:	W. 72ND AVENUE		
Void:	Designer: MAS	Structure Numbers	
	Detailer: SAD		Sheet Number 196
	Sheet Subset: DRAINAGE	Subset Sheets: 3 of 7	



COLORADO LICENSED
MELANIE D. CHENARD
40198
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_Plan04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE PLAN W. 72ND AVENUE			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: DRAINAGE	Subset Sheets: 4 of 7		Sheet Number 197

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KEYMAP

1 2 3 4 5 6 7

Swadley Ct. | Simms St. | Routt St. | Quail St. | Oak St. | W. 72nd Ave.

N

0' 20' 40' 80'

Thomas L. & Hazel V. Hartbarger
7201 Quail St.

David M. & Ruth S. Macklin
11205 W. 72nd Ave.
27

Quail Street

Project Control Line
W. 72nd Avenue

W. 72nd Avenue

Pierson Street

LIMIT OF CUT (TYP.)

DEVELOPMENT BY OTHERS

DEVELOPMENT ASSUMED TO PRECEDE PROJECT.
IF DEVELOPMENT IS DELAYED, GRADE DITCH BETWEEN OI547L AND OM543L FOR INTERIM CONDITION

MAPLELEAF OFF-SITE SYSTEM

PROPOSED RIGHT OF WAY

BY OTHERS MODIFY MANHOLE PLUG (S) PIPE

LEYDEN ON-SITE SYSTEM

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Right of Way (Typ.)

LIMIT OF FILL (TYP.)

MATCH LINE STA. 539+50

MATCH LINE STA. 545+00

41+00 | 540+00 | 541+00 | 542+00 | 543+00 | 544+00

TH-28 | TH-29 | TH-30 | TH-31 A AND B | TH-32

OI541L R5 | OI542L C | I542L R10 | I544L R5

OM540L MH5 | OM541L MH5 | OM542L MH5 | OM543L MH5

M541C MH4 | M542C MH4 | M544C MH4

I541L R5 | I541R R10 | I544R R10

24" RCP | 30" RCP | 18" RCP | 12" W | 8" W

Kenneth Pincus
11200 W. 71st Pl.
76

Bradley M. Blickenstaff & Mary E. Sullivan
7150 Pierson Ct.
75

Barbara L. Burgar Trust
1108 W. 71st. Pl.
74

Levi E. & Tiffany E. Parsons
11061 W. 71st Pl.
73

COLORADO LICENSED
MELANIE D. CHENARD
40198
PROFESSIONAL ENGINEER
02/13/2022

SEE QUAIL ST DRAINAGE PLAN FOR ADDITIONAL INFORMATION

Print Date: 2/11/2022	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_HYDR_Plan05.dgn	Date:	Comments	Init.	No Revisions:	DRAINAGE PLAN
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	W. 72ND AVENUE
Unit Information Unit Leader Initials				Void:	Designer: MAS / Detailer: SAD / Sheet Subset: DRAINAGE / Structure Numbers / Subset Sheets: 5 of 7
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code / Sheet Number 198

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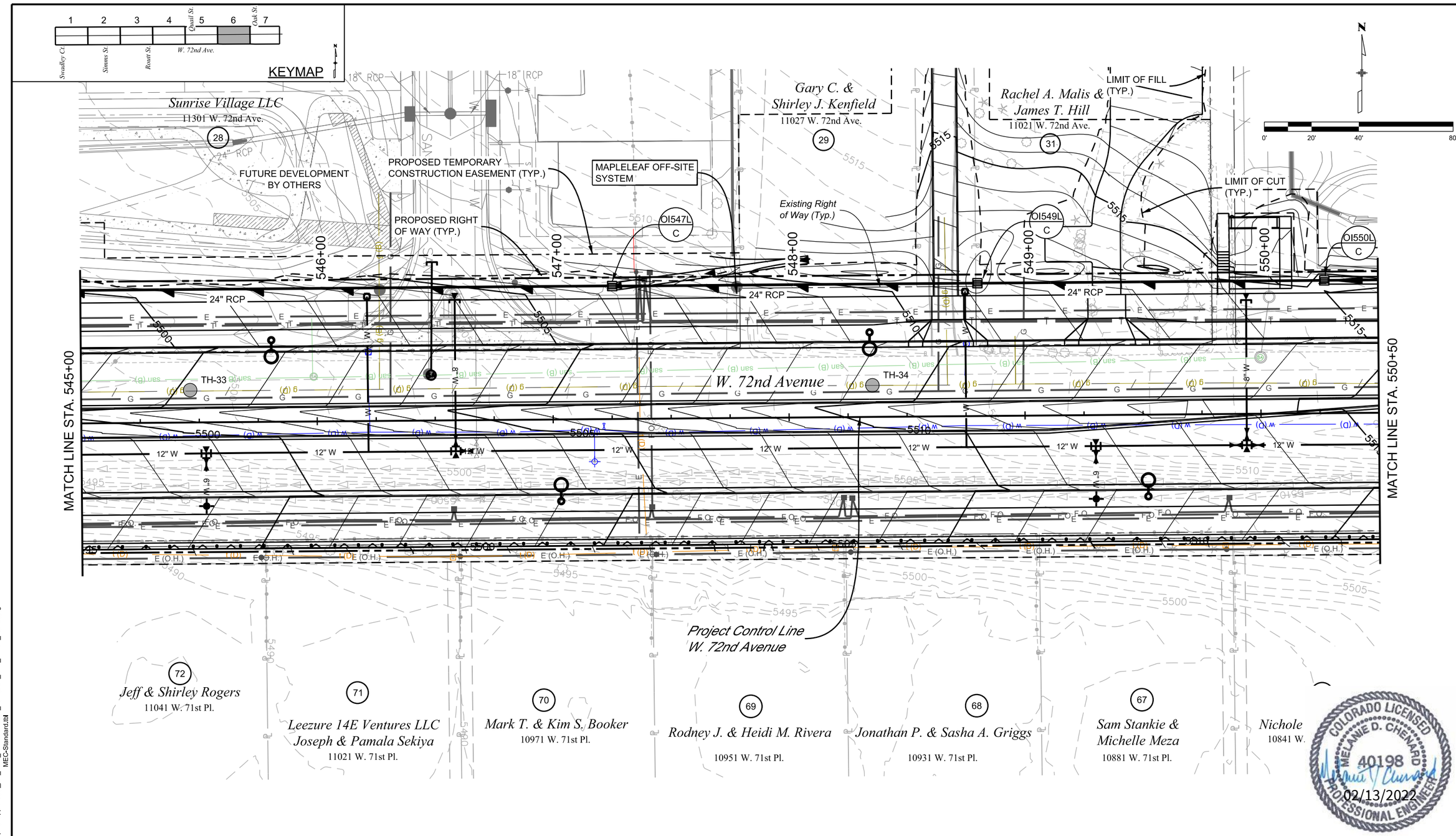

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PROFESSIONAL ENGINEER
02/13/2022

Print Date: 2/11/2022	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_Plan06.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE PLAN W. 72ND AVENUE			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 199
	Sheet Subset: DRAINAGE	Subset Sheets:	6 of 7	

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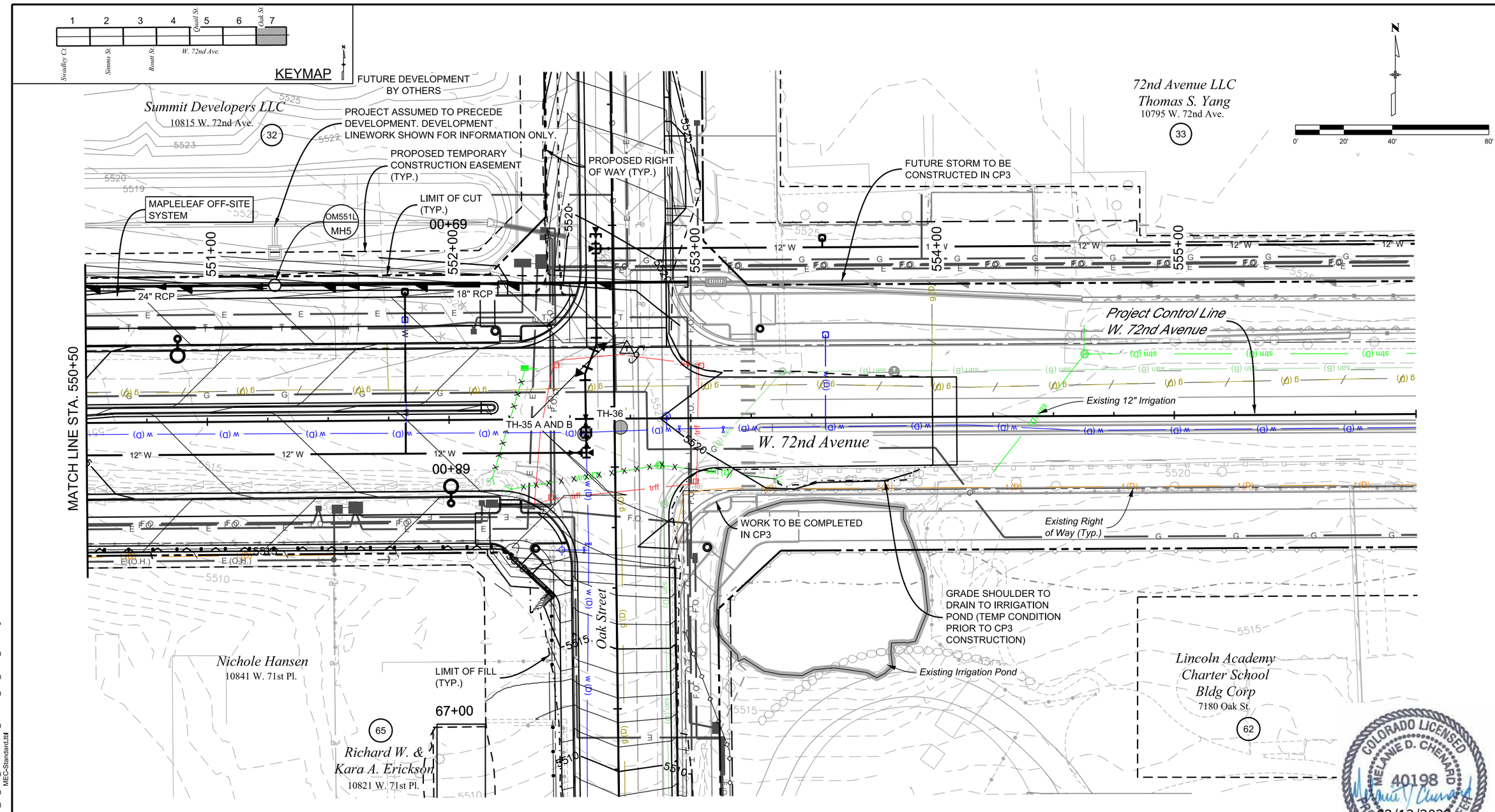

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tplotdrvm.plt

Print Date:	2/11/2022		
Drawing File Name:	18061_CP2_HYDR_Plan07.dgn		
Horiz. Scale:	1:40	Vert. Scale:	As Noted
Unit Information		Unit Leader Initials	

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:

Revised:

Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRAINAGE PLAN
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	DRAINAGE	Subset Sheets:	7 of 7

Project No./Code

Sheet Number 200

First United Church of Arvada
7195 Simms St.
93

SEE CHURCH GRADING PLAN AND WATER QUALITY POND

24" RCP

100YR

21+00

22+00

23+00

24+00

PROPOSED RIGHT OF WAY (TYP.)

Existing Right of Way (Typ.)

ZONE AO FLOODPLAIN (TYP.)

MATCH LINE STA. 25+00

Simms Street

I25L R10

LIMIT OF CUT (TYP.)

Existing 30" RCP

SM23R EX

ADJUST MANHOLE

SIMMS ST. OFF-SITE SYSTEM

Maple Leaf Condominium Association Inc

Vacant Land

Twin Star Energy LLC

7190 Simms St.

KEYMAP

Simms St. | Routt St. | Quail St. | Oak St. | W. 72nd Ave.

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Drawing File Name: 18061_CP2_HYDR_SideSt_Plan01.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET DRAINAGE PLAN SIMMS STREET STA. 20+00.00 TO STA. 25+00.00

Designer: MAS
Detailer: SAD
Sheet Subset: SIDE STREET
Structure Numbers
Subset Sheets: 1 of 5

Project No./Code

Sheet Number 201

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KEYMAP

MATCH LINE STA. 25+00

W. 72nd Avenue

Simms Street

Enterprise Grange 25
7203 Simms St.
11

James K. & Jill A. Reichard
11670 W. 72nd Pl.
12

Gretchen K. Gentry
11600 W. 72nd Pl.
13

Natalie & Ryan Bı
11605 W. 72nd Pl.
103

Hal A. & Dianne L. Pierson
11560 W. 72nd Pl.
15

James A. & Marilyn R. Purdy
11590 W. 72nd Pl.
14

Curtis J. Schneider & Holly M. Flanagan
11595 W. 72nd Pl.
104

ZONE AO FLOODPLAIN (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

Existing Right of Way (Typ.)

LIMIT OF FILL (TYP.)

LIMIT OF CUT (TYP.)

PROPOSED PERMANENT EASEMENT (TYP.)

SM25R EX MODIFY MANHOLE

M526C MH5

I27L R10

SM26R EX MODIFY MANHOLE PLUG (NE) PIPE

SI28R 16T(2)

SI27R 16D

LEYDEN ON-SITE SYSTEM

SIMMS ST OFF-SITE SYSTEM

18" RCP

Existing 30" RCP

Existing 24" RCP

4 LF 24" RCP

Existing Storm Manhole (Typ.)

Existing Type 16 Inlet

TH-10 TH-11 TH-12 TH-13 TH-15 TH-16

25+00 26+00 27+00 28+00 29+00 526+00 527+00 528+00

0' 20' 40' 80'

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SEE W. 72ND DRAINAGE PLANS FOR ADDITIONAL INFORMATION

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_SideSt_Plan02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET DRAINAGE PLAN SIMMS STREET STA. 25+00.00TO STA. 30+00.00

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIDE STREET	Subset Sheets:	2 of 5

Project No./Code

Sheet Number 202

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MEC-Standard.tbl

KEYMAP

W. 72nd Avenue

Thomas L. & Hazel V. Hartbarger
7201 Quail St.
24

Phyllis I. & Wilbur F. Woodson
7221 Quail St.
25

Penny S. & Richard A. Visser
7241 Quail St.
25A

Carmen M. & Richard G. Likins
7261 Quail St.

Existing Utility Easement (Typ.)

Project Control Line
Quail Street

41+00
42+00
43+00
44+00
45+00

QI41L
R15

QI41R
R10

QM42C
EX
ADJUST MANHOLE

QM43C
EX
ADJUST MANHOLE

QM41C
MH5

QM540L
MH5

PC

24" RCP

18" RCP

15" RCP

Existing 24" RCP

Existing 24" RCP

LIMIT OF FILL (TYP.)

LIMIT OF CUT (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

QI44R
EX

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Right of Way (Typ.)

Quail Street

MAPLELEAF OFF-SITE SYSTEM

LEYDEN ON-SITE SYSTEM

David M. & Ruth S. Macklin
11205 W. 72nd Ave.
27

Jefferson County School Dist R1
7300 Quail St.
26

0' 20' 40' 80'

COLORADO LICENSED
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02/13/2022

SEE W. 72ND DRAINAGE PLANS FOR ADDITIONAL INFORMATION

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_SideSt_Plan03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET DRAINAGE PLAN QUAIL STREET STA. 40+00.00 TO STA. 45+75.00

Designer: MAS
Detailer: SAD
Sheet Subset: SIDE STREET
Structure Numbers
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Project No./Code

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MEC-Standard.tbl
9/17/2021
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KEYMAP

Simms St. | Routt St. | Quail St. | W. 72nd Ave. | Oak St.

Thomas E. & Madeline C. Reynolds
7099 Parfet St.
63

Charles E. & Vicky L. Hill
10820 W. 71st Ave.
64

Lincoln Academy Charter School Bldg Corp
7180 Oak St.
62

61+00 | 62+00 | 63+00 | 64+00 | 65+00 | 66+00

Parfet Street | Oak Street | 71st Place

Existing Right of Way (Typ.)

TH-37 A AND B

TH-38 A AND B

8"W

RI61R R5 | PC | 18" RCP | 4 LF 12" RCP @ 1.00% | 18" RCP | 4 LF 8" PVC @ 1.00% (INTERIM CONDITION) | 18" RCP | 18" RCP

PLUG PIPE

RF61R FES | INV = 5471.60

Existing 12" CMP

GRADE TO DRAIN EXISTING IRRIGATION DITCH AND EXISTING 12" CMP TO RF61R

Existing Irrigation Ditch

RI62R CH

WORK TO BE COMPLETED IN CP3

LIMIT OF CUT (TYP.)

LIMIT OF FILL (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

PROPOSED PERMANENT EASEMENT (TYP.)

RI63R R5 | 18" RCP

PROPOSED RIGHT OF WAY (TYP.)

RI65R R5 | BLOCK INLET ENTRANCE (INTERIM CONDITION)

RI63R DB | RIM 5485.8 | INV OUT = 5482.50 (INTERIM CONDITION)

MATCH LINE STA. 65+50

0' 20' 40' 80'

NOTES:

1. JOINT FASTENERS NOT REQUIRED AT FES RF61R. FES TO BE REMOVED WITH FUTURE LINCOLN ACADEMY IMPROVEMENTS.
2. ITEMS NOTED AS INTERIM CONDITION ARE NOT NEEDED IF CP2 AND CP3 ARE CONSTRUCTED CONCURRENTLY.
3. SKEW OF STUBBED-OUT PIPE SEGMENTS SHALL BE VERIFIED WITH FINAL CP3 PLANS PRIOR TO CONSTRUCTION.

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Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:

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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET DRAINAGE PLAN OAK STREET STA. 60+00.00 TO STA. 65+50.00

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIDE STREET	Subset Sheets:	4 of 5

Project No./Code

Sheet Number 204

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MEC-Standard.tbl
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mullerpw01app02$ 9/29/2021

KEYMAP

Simms St. | Robb St. | Quail St. | W. 72nd Ave. | Oak St.

0' 20' 40' 80'

Nichole Hansen
10841 W. 71st Pl.
66

Richard W. & Kara A. Erickson
10821 W. 71st Pl.
65

Summit Developers LLC
10815 W. 72nd Ave.
32

Lincoln Academy Charter School Bldg Corp
7180 Oak St.
62

W. 72nd Avenue

Oak Street

Existing Right of Way (Typ.)

Existing Irrigation Pond

MATCH LINE STA. 65+50

67+00 | 68+00 | 69+00 | 70+00

552+00 | 553+00

TH-35A AND B

TH-36

LIMIT OF CUT (TYP.)

LIMIT OF FILL (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

WORK TO BE COMPLETED IN CP3

PROPOSED PERMANENT EASEMENT (TYP.)

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02/13/2022

SEE W. 72ND DRAINAGE PLANS FOR ADDITIONAL INFORMATION

Print Date: 2/11/2022
Drawing File Name: 18061_CP2_HYDR_SideSt_Plan05.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET DRAINAGE PLAN OAK STREET STA. 65+50.00 TO STA. 69+20.00

Designer: MAS
Detailer: SAD
Sheet Subset: SIDE STREET
Structure Numbers
Subset Sheets: 5 of 5

Project No./Code

Sheet Number 205

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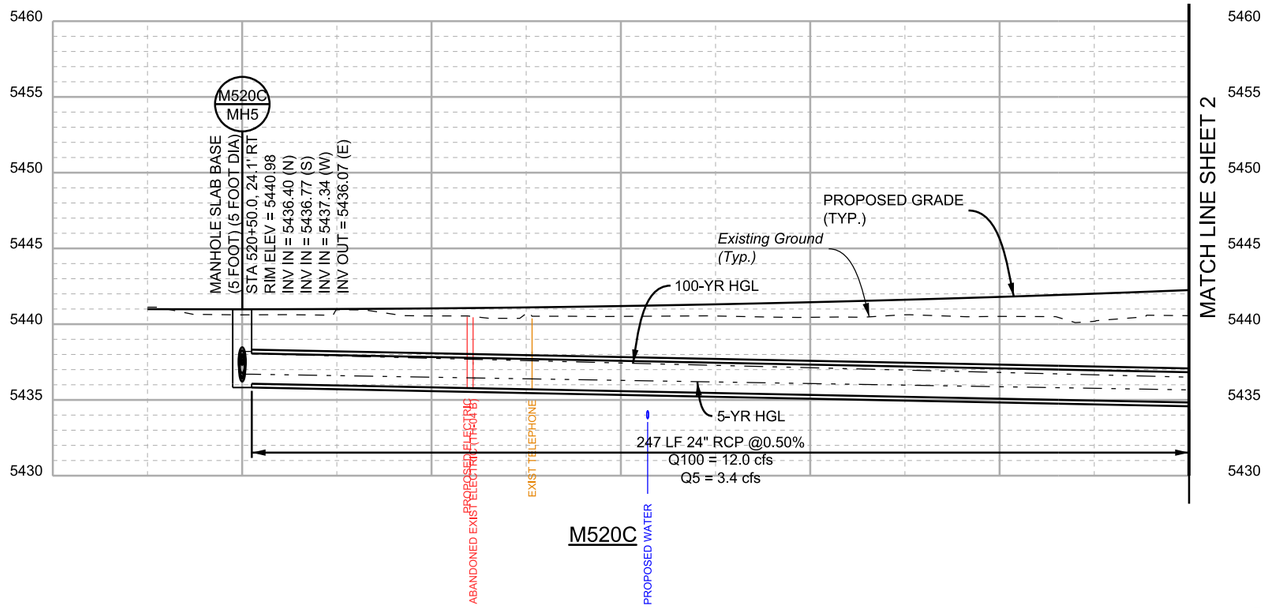
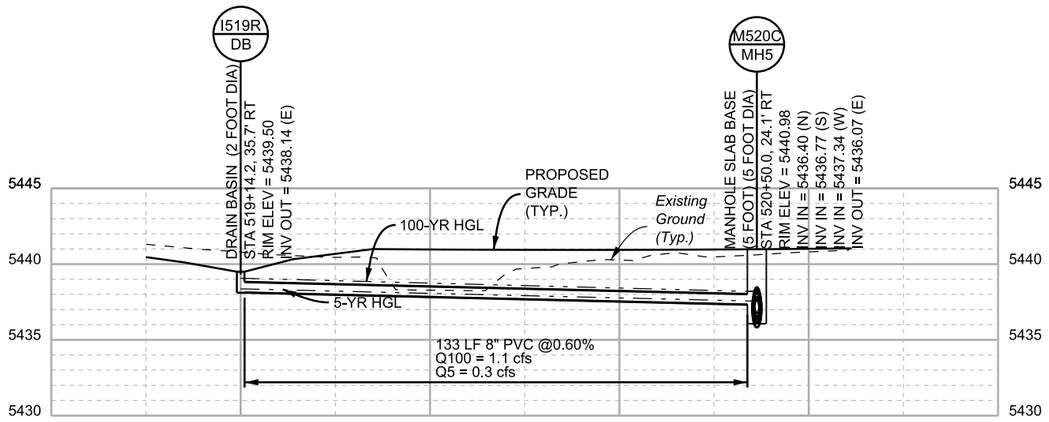


I519L - M520C



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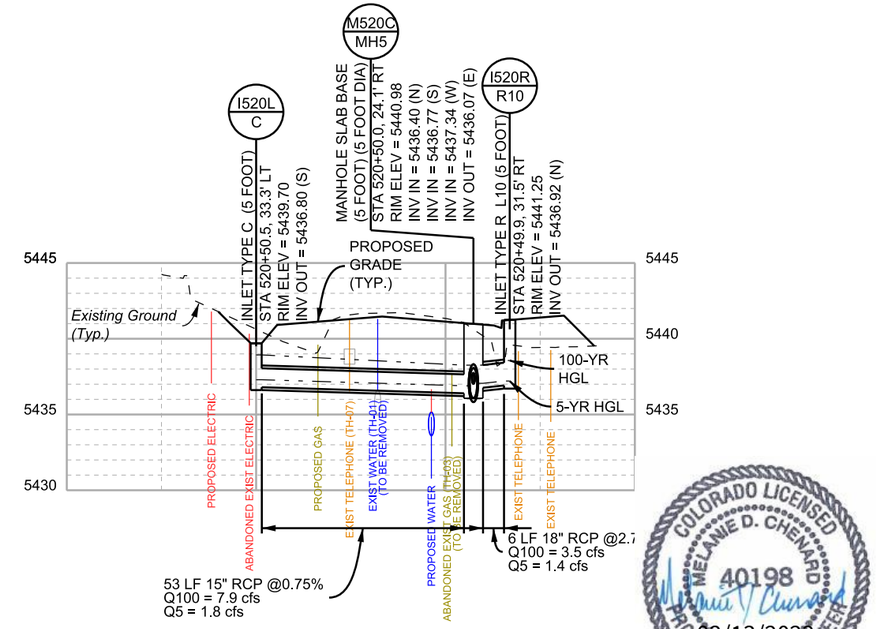

I520L - I520R

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Print Date: 9/17/2021	Sheet Revisions		
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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE STRUCTURE PROFILES W. 72ND AVENUE - LEYDEN ON-SITE			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 206
	Sheet Subset: DRN PROF	Subset Sheets:	1 of 11	

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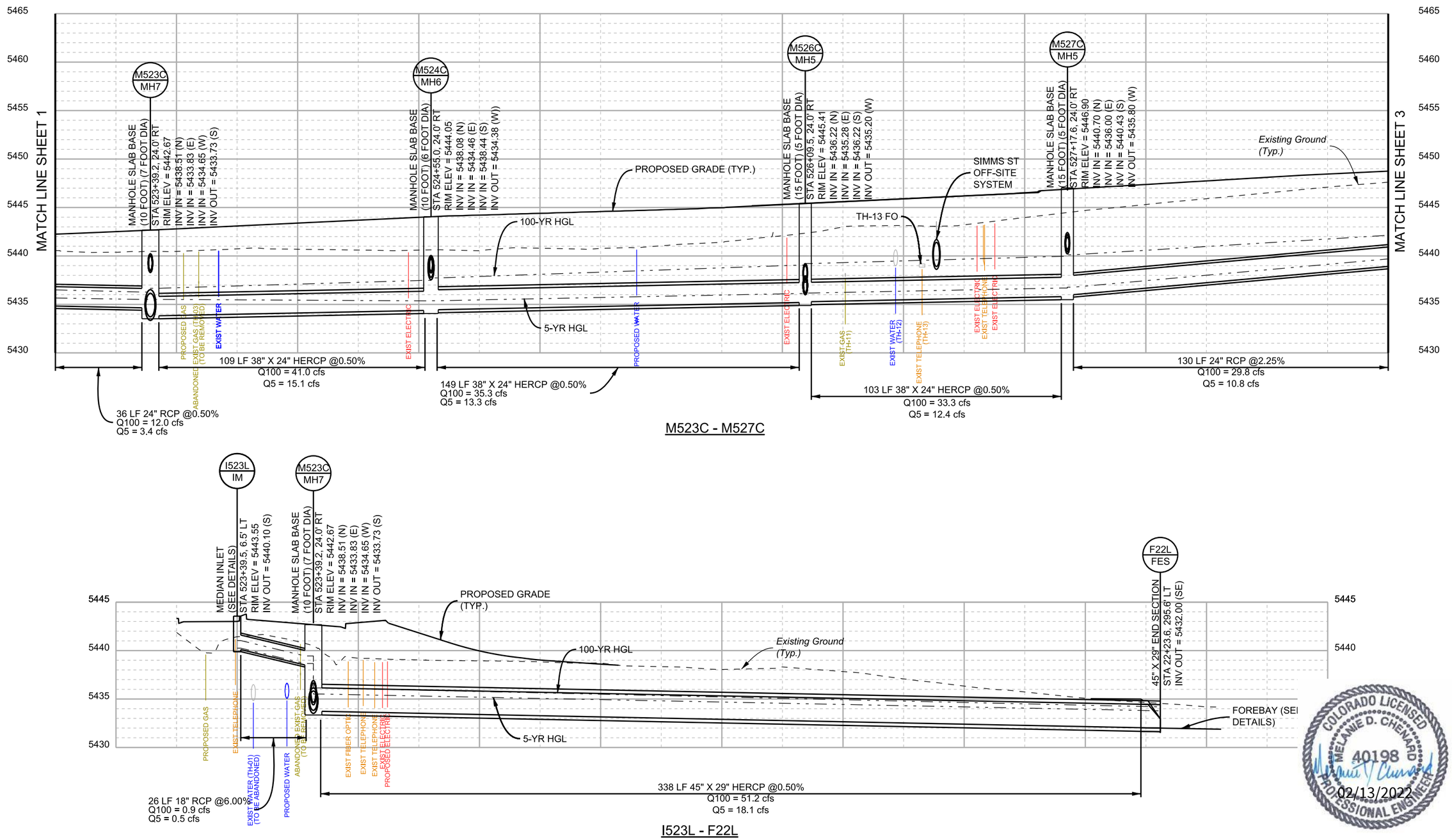

M523C - M527C

I523L - F22L

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MELANIE D. CHENARD
40198
02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_Profile02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE STRUCTURE PROFILES W. 72ND AVENUE - LEYDEN ON-SITE			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 207
	Sheet Subset: DRN PROF	Subset Sheets:	2 of 11	

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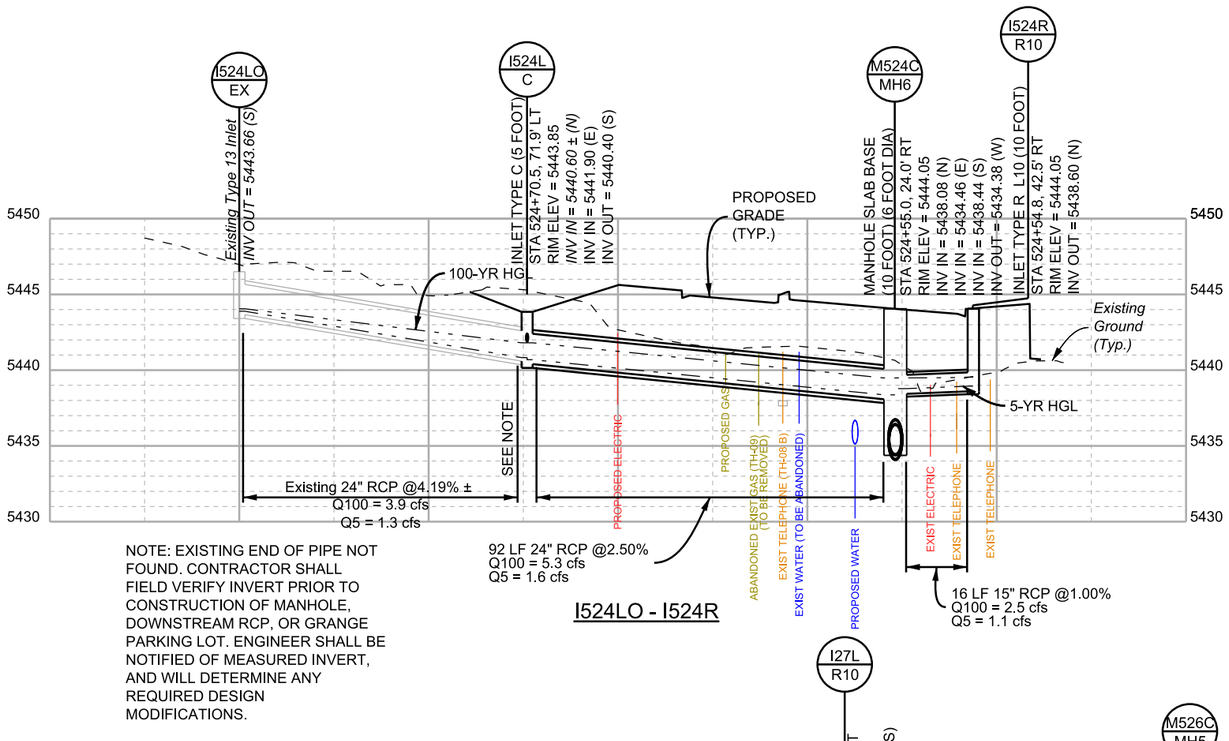
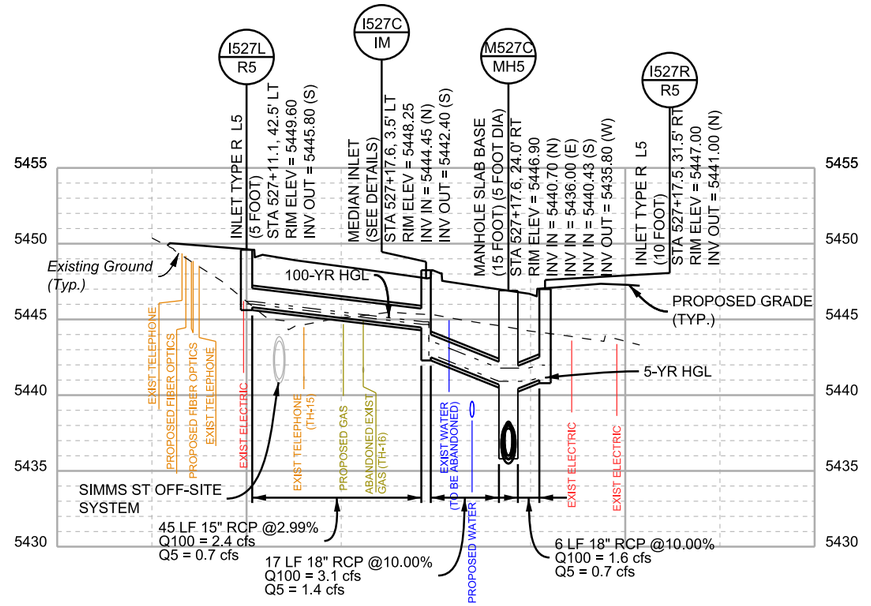
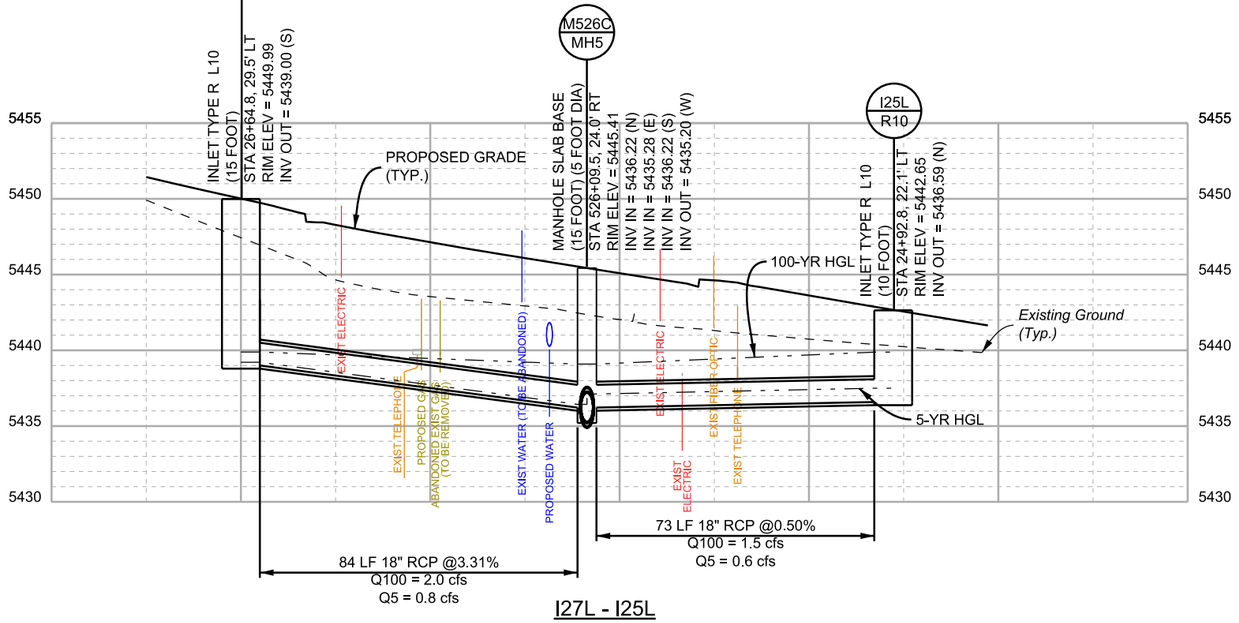


NOTE: EXISTING END OF PIPE NOT FOUND. CONTRACTOR SHALL FIELD VERIFY INVERT PRIOR TO CONSTRUCTION OF MANHOLE, DOWNSTREAM RCP, OR GRANGE PARKING LOT. ENGINEER SHALL BE NOTIFIED OF MEASURED INVERT, AND WILL DETERMINE ANY REQUIRED DESIGN MODIFICATIONS.

I524LO - I524R



I527L - I527R



I27L - I25L

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Print Date: 9/17/2021	Sheet Revisions		
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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE STRUCTURE PROFILES W. 72ND AVENUE - LEYDEN ON-SITE			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: DRN PROF	Subset Sheets: 3 of 11		Sheet Number 208

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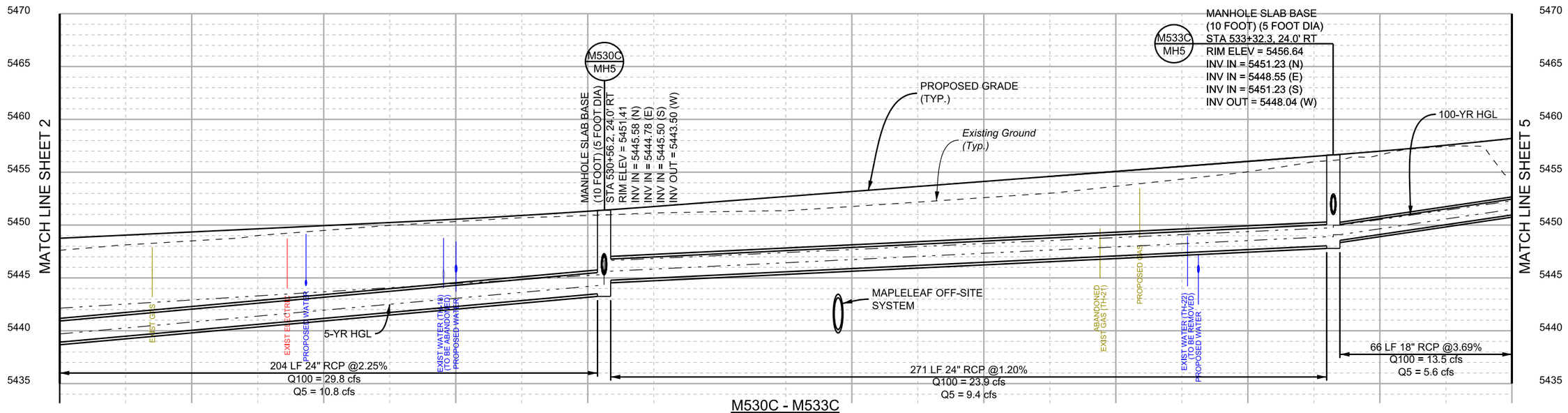
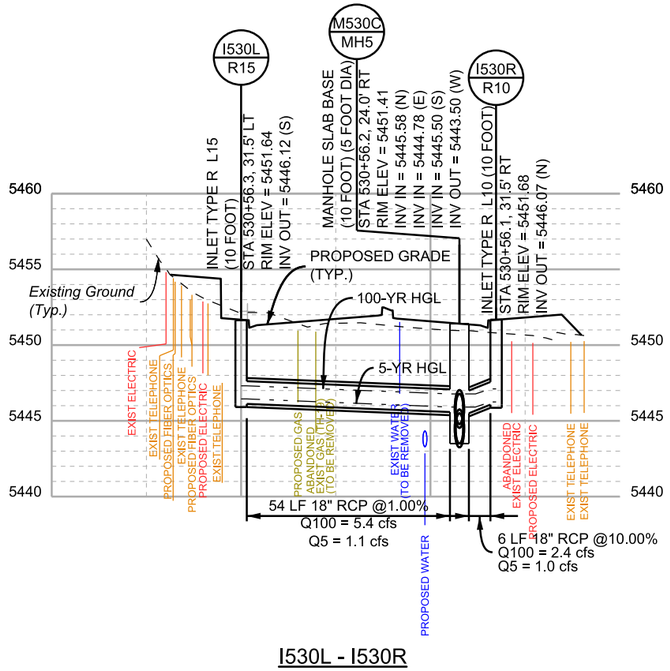
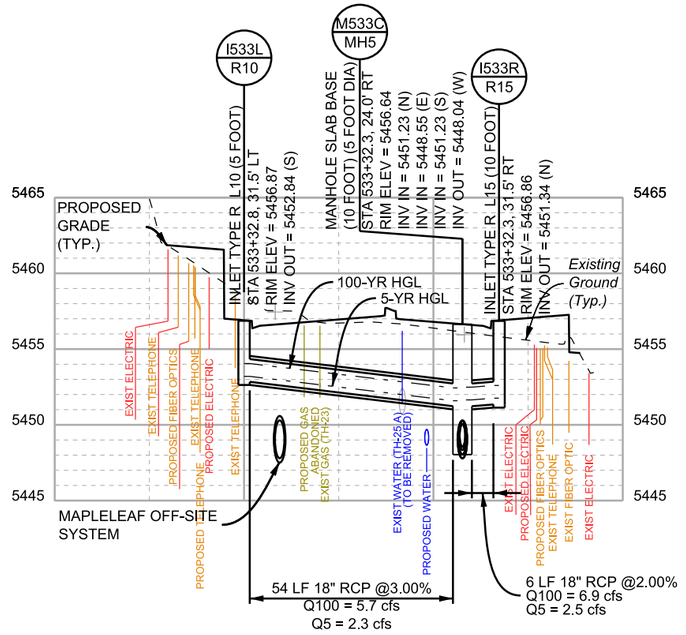


M530C - M533C



I530L - I530R



I533L - I533R

COLORADO LICENSED
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02/13/2022

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Print Date: 2/11/2022			
Drawing File Name: 18061_CP2_HYDR_Profile04.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:

Revised:

Void:

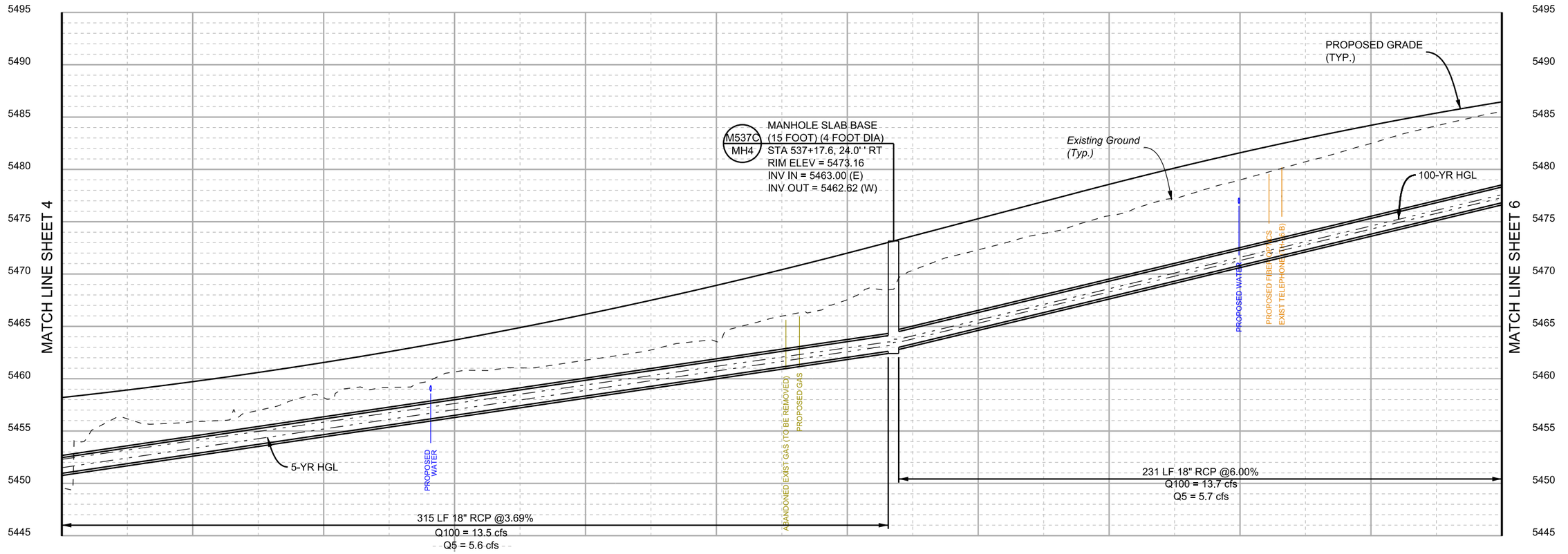
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRAINAGE STRUCTURE PROFILES
W. 72ND AVENUE - LEYDEN ON-SITE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	DRN PROF	Subset Sheets:	4 of 11

Project No./Code

Sheet Number 209



M537C

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02/13/2022

Print Date: 9/17/2021		Sheet Revisions			As Constructed
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Horiz. Scale: 1:40	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

DRAINAGE STRUCTURE PROFILES
W. 72ND AVENUE - LEYDEN ON-SITE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	DRN PROF	Subset Sheets:	5 of 11

Project No./Code

Sheet Number 210

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9/17/2021
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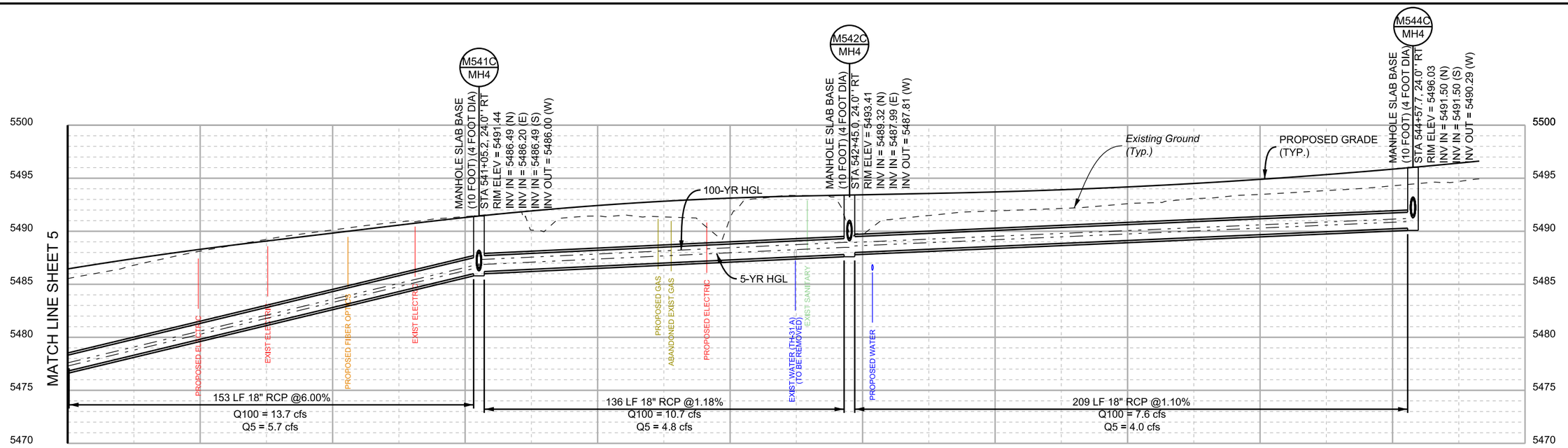
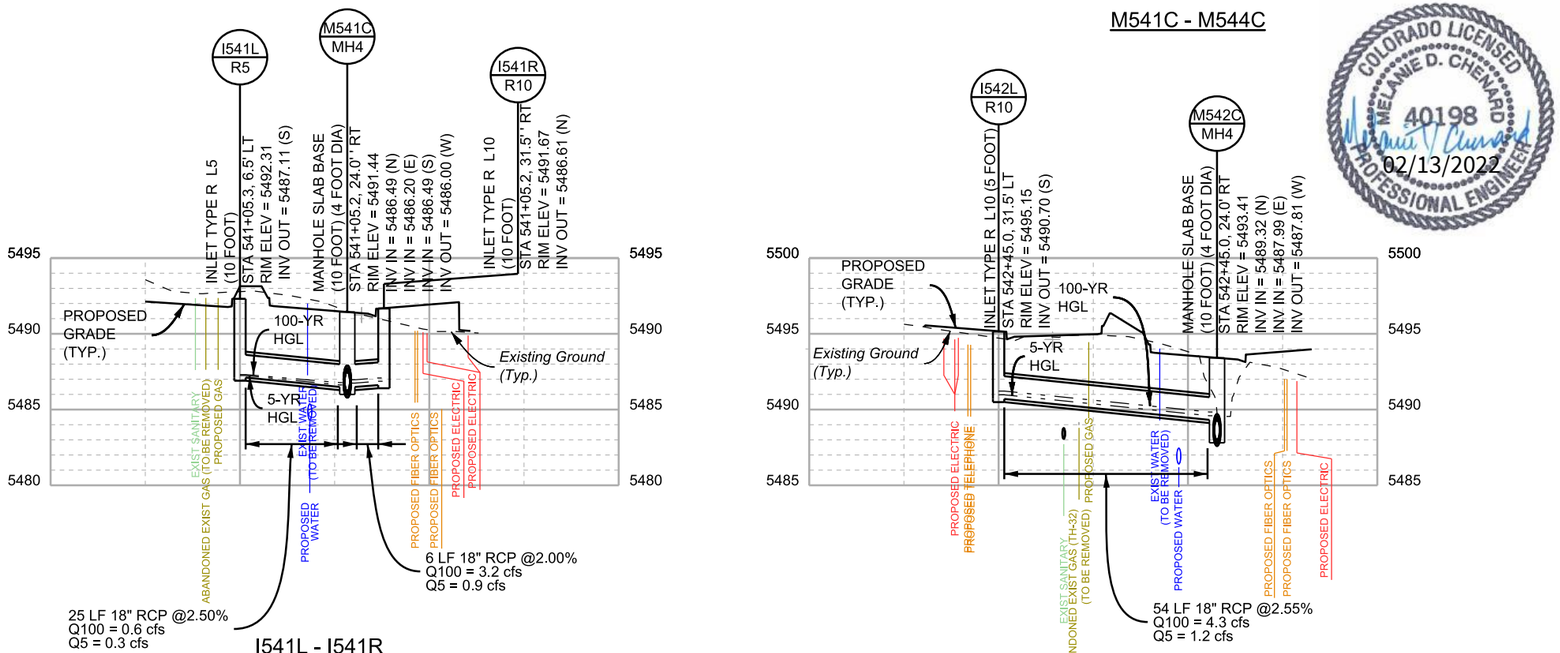


M541C - M544C



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02/13/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_Profile06.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	DRAINAGE STRUCTURE PROFILES		
Revised:	W. 72ND AVENUE - LEYDEN ON-SITE		
Void:	Designer: MAS	Structure Numbers	
	Detailer: SAD		
	Sheet Subset: DRN PROF	Subset Sheets: 6 of 11	Sheet Number 211

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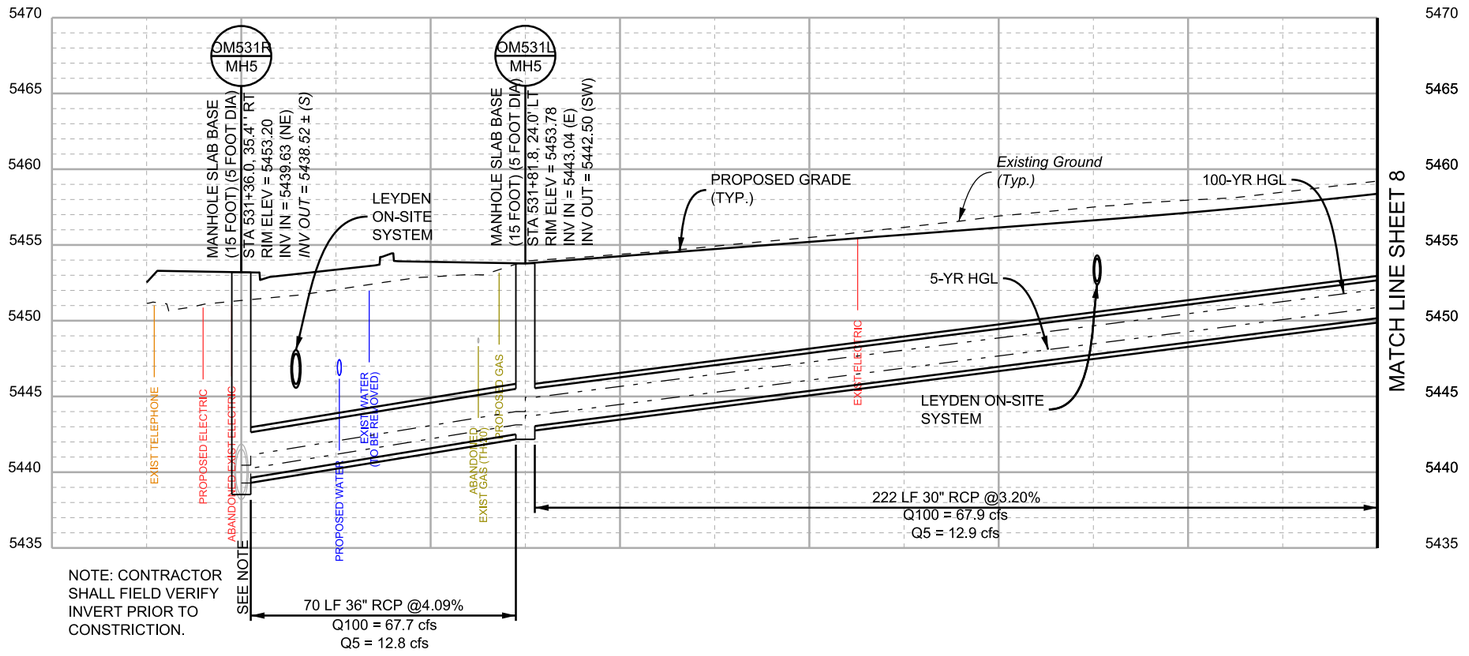

OM531R

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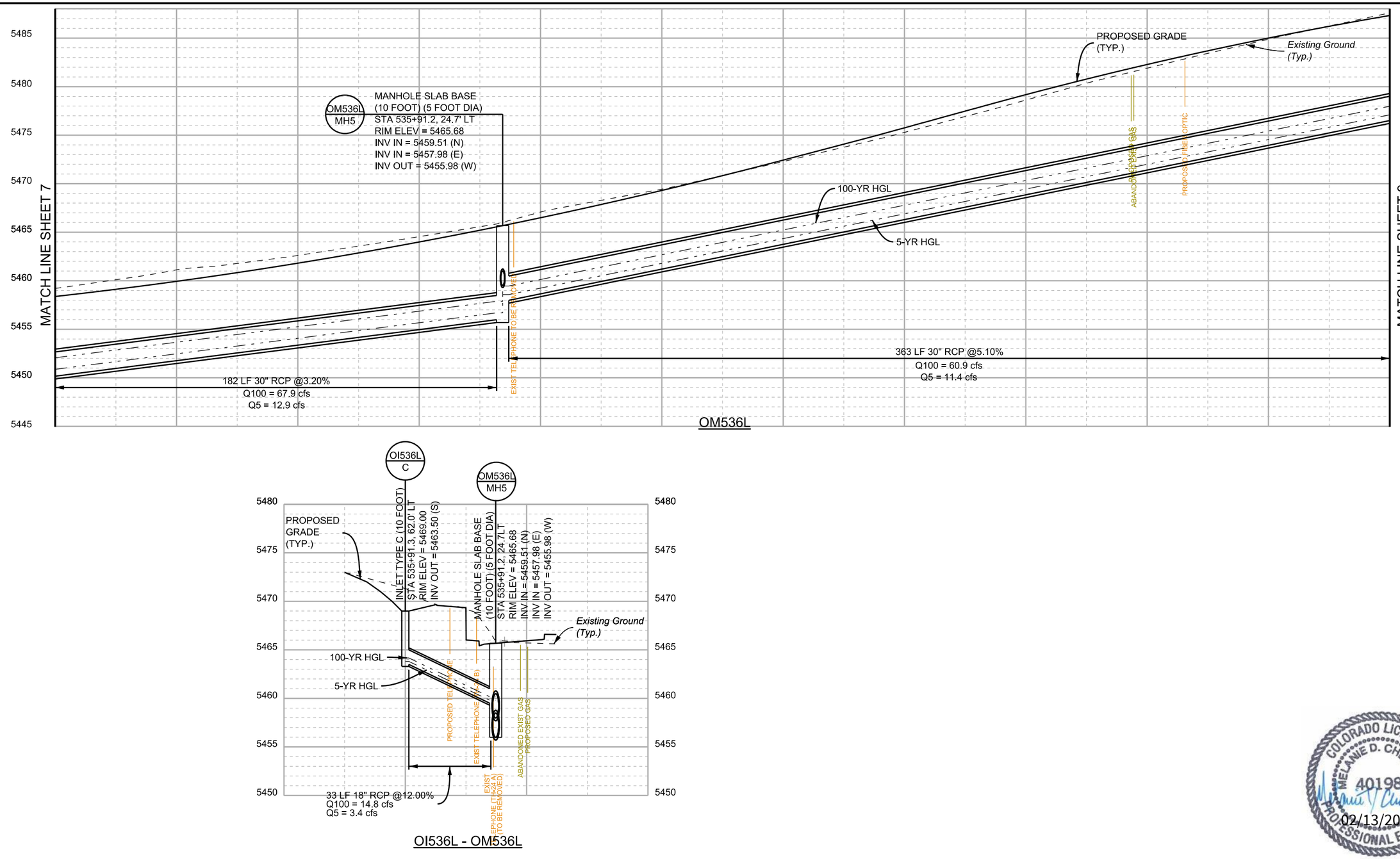
9/17/2021

Print Date: 9/17/2021		Sheet Revisions	
Drawing File Name: 18061_CP2_HYDR_Profile07.dgn		Date:	Comments: Init.
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	DRAINAGE STRUCTURE PROFILES		
Revised:	W. 72ND AVENUE - MAPLELEAF OFF-SITE		
Void:	Designer: MAS	Structure Numbers	
	Detailer: SAD		
	Sheet Subset: DRN PROF	Subset Sheets: 7 of 11	Sheet Number 212



02/13/2022

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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	DRAINAGE STRUCTURE PROFILES		
Revised:	W. 72ND AVENUE - MAPLELEAF OFF-SITE		
Void:	Designer: MAS	Structure Numbers	
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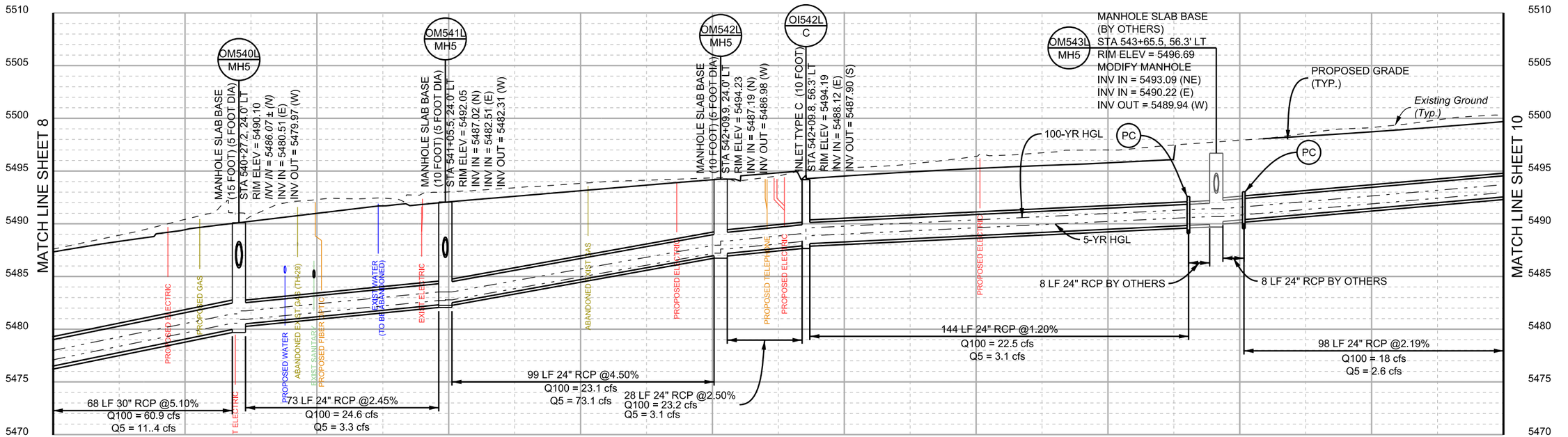
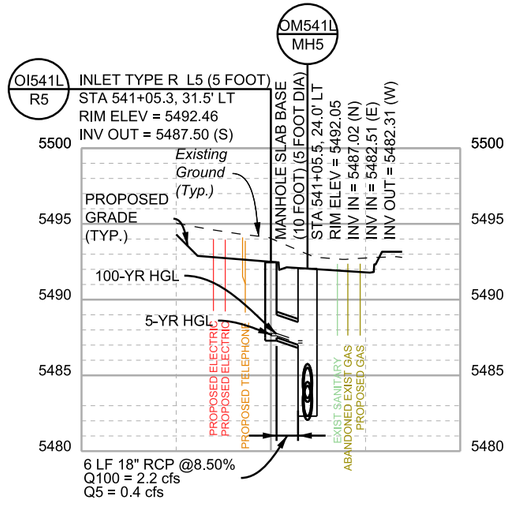


OM540L - OM543L



OI541L - OM541L

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02/13/2022

Print Date: 12/10/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_HYDR_Profile09.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:40 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRAINAGE STRUCTURE PROFILES
W. 72ND AVENUE - MAPLELEAF OFF-SITE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	DRN PROF	Subset Sheets:	9 of 11

Project No./Code

Sheet Number 214

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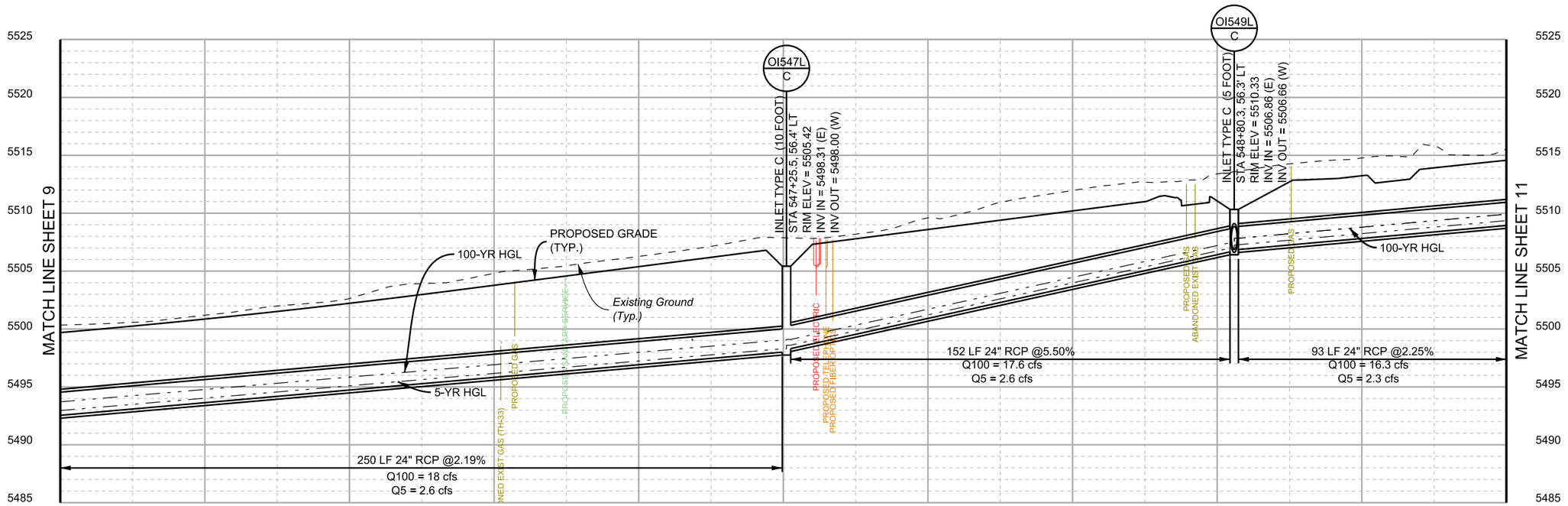

OI547L - OI549L

NOTE:
PROPOSED SANITARY SERVICE (SHOWN) AND WATER SERVICE (NOT SHOWN) FOR ADJACENT DEVELOPMENT MAY PRECEDE STORM CONSTRUCTION. VERIFY LOCATION AND DEPTHS WITH DEVELOPMENT PRIOR TO CONSTRUCTION.

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02/13/2022

Print Date: 12/10/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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Unit Information Unit Leader Initials				Void:	Designer: MAS / Detailer: SAD / Sheet Subset: DRN PROF / Structure Numbers / Subset Sheets: 10 of 11
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code / Sheet Number 215

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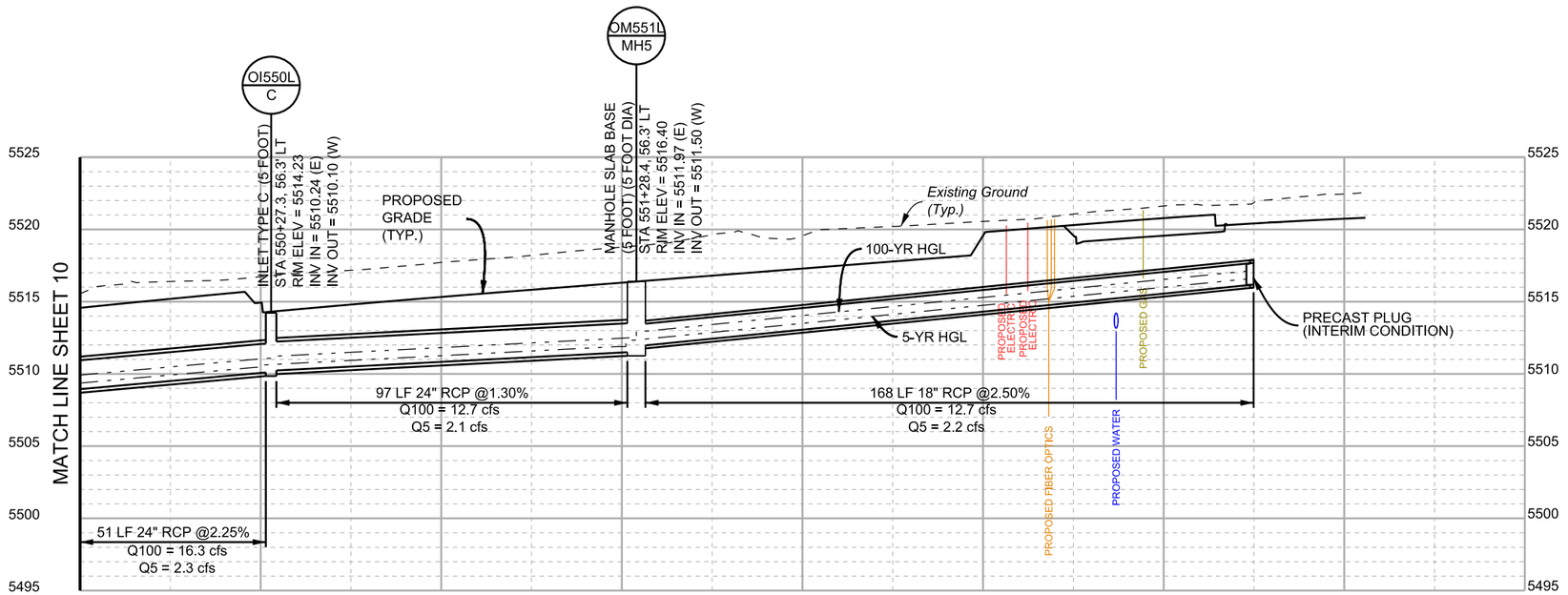

OI550L - OM553L

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02/13/2022

Print Date: 1/19/2022
Drawing File Name: 18061_CP2_HYDR_Profile11.dgn
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Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
DRAINAGE STRUCTURE PROFILES
W. 72ND AVENUE - MAPLELEAF OFF-SITE

Designer: MAS
Detailer: SAD
Sheet Subset: DRN PROF
Structure Numbers
Subset Sheets: 11 of 11

Project No./Code

Sheet Number 216

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1/19/2022
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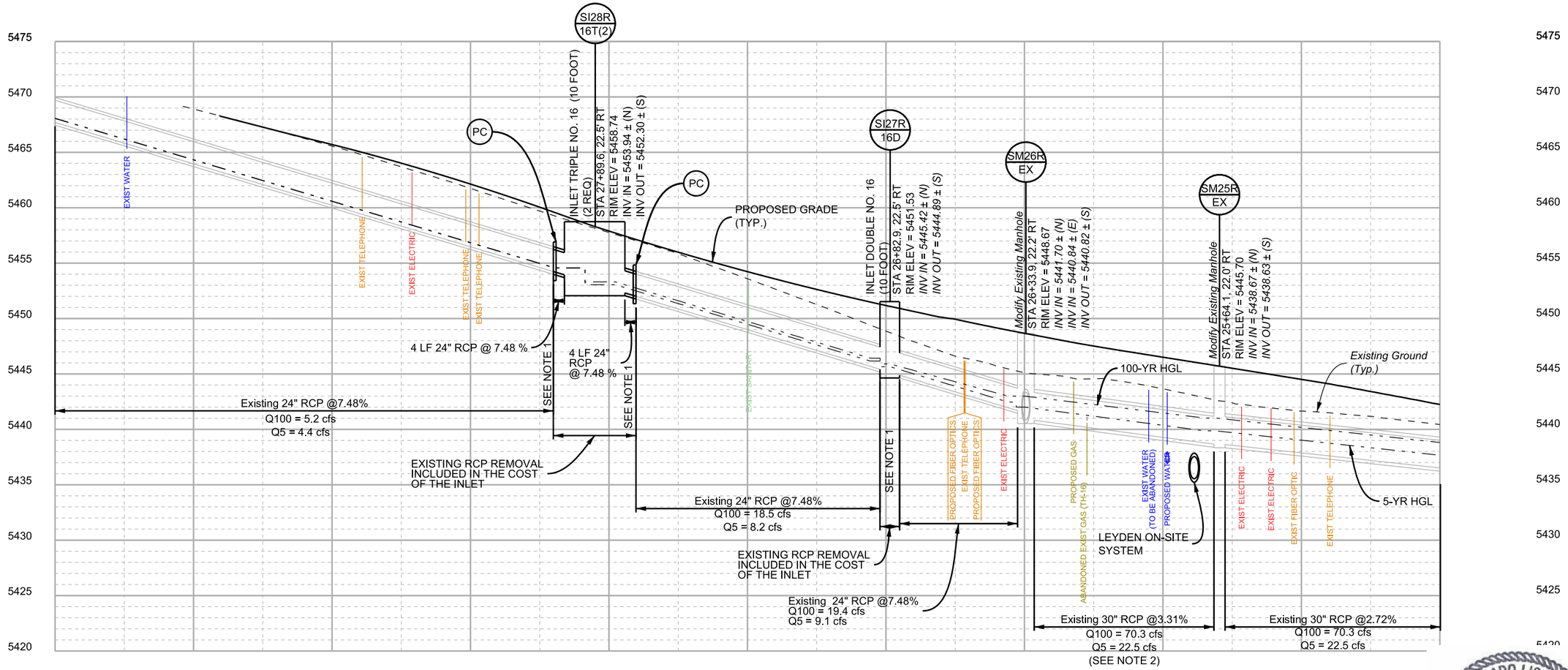

SI28R - SM25R

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY INVERT PRIOR TO CONSTRICTION.

2. CONTRACTOR SHALL INSPECT 30" RCP BETWEEN SM26R AND SM25R AND PROVIDE VIDEO TO ENGINEER FOR REVIEW. INSPECTION SHALL BE PAID AS PIPE SCOPE. IF DIRECTED BY ENGINEER, CONTRACTOR SHALL RELAY PIPE (30 INCH) (QTY 67 LF).

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02/13/2022

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9/17/2021

Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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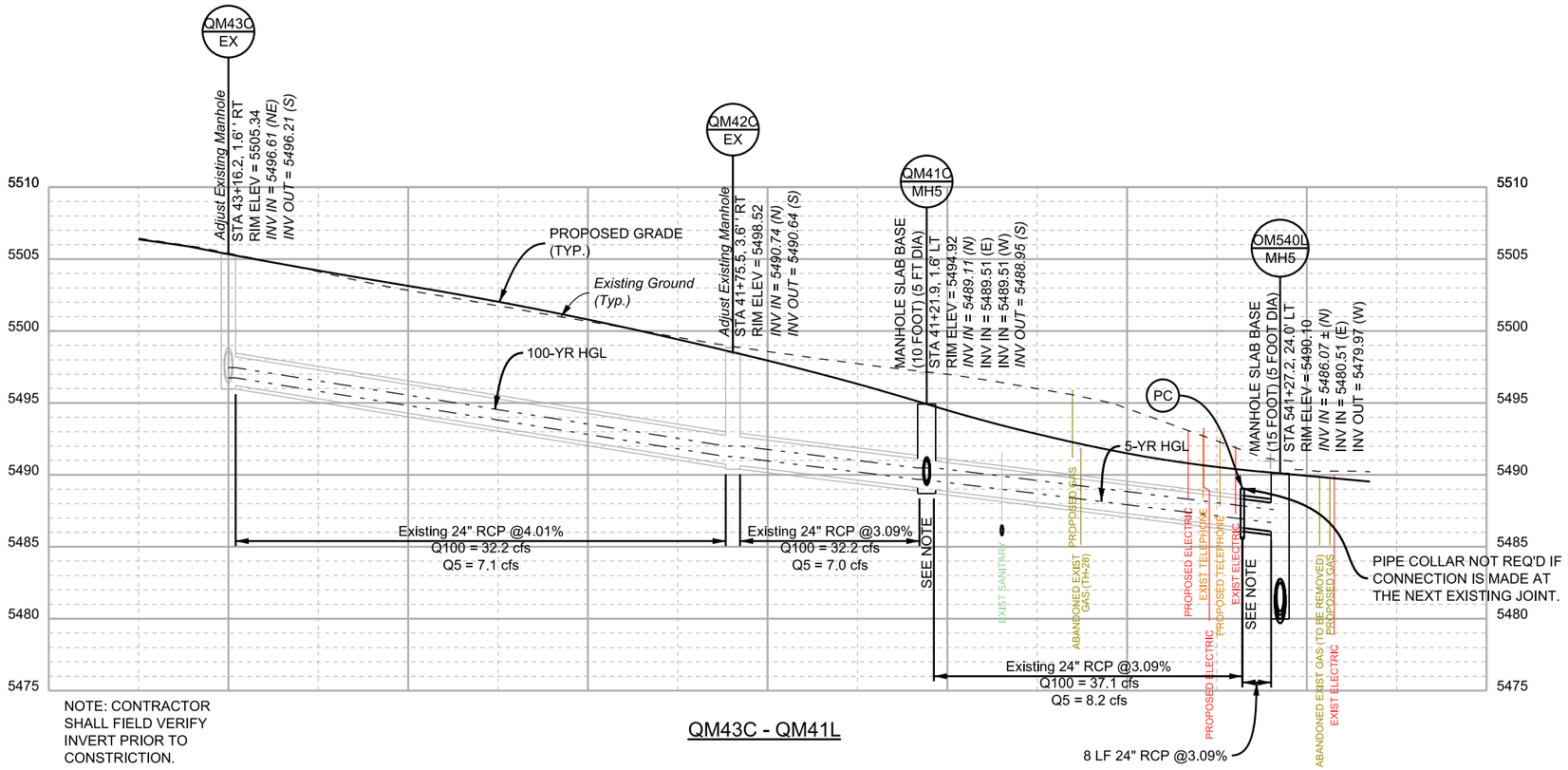
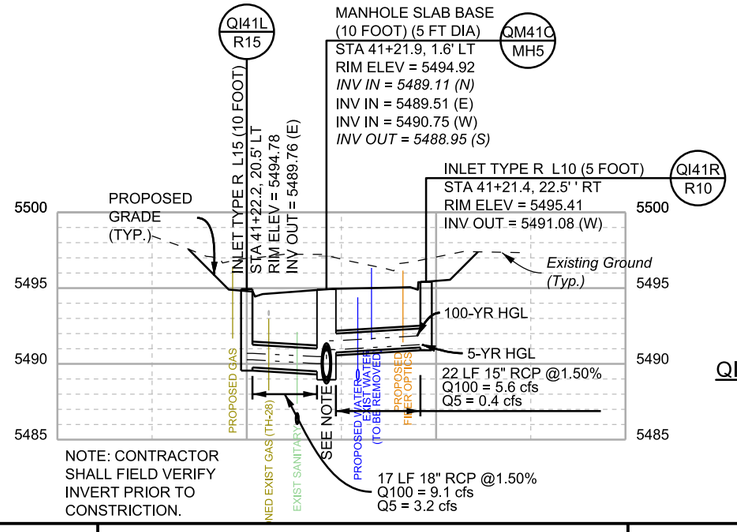
Unit Information Unit Leader Initials				Void:	Designer: MAS / Detailer: SAD / Sheet Subset: DRN PROF / Structure Numbers / Subset Sheets: 1 of 3
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code / Sheet Number 217



NOTE: CONTRACTOR SHALL FIELD VERIFY INVERT PRIOR TO CONSTRICTION.

QM43C - QM41L



NOTE: CONTRACTOR SHALL FIELD VERIFY INVERT PRIOR TO CONSTRICTION.

QI41L - QI41R

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02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_HYDR_ProfileSideSt02.dgn	Date:	Comments	Init.
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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	DRAINAGE STRUCTURE PROFILES QUAIL STREET - MAPLELEAF OFF-SITE			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: DRN PROF	Subset Sheets: 2 of 3		Sheet Number 218

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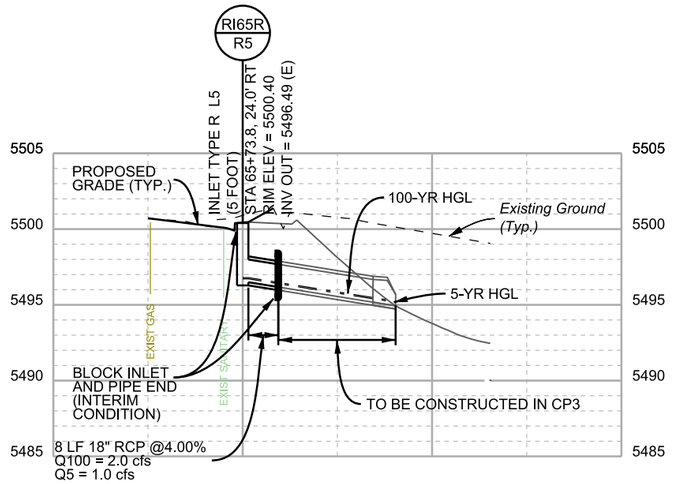
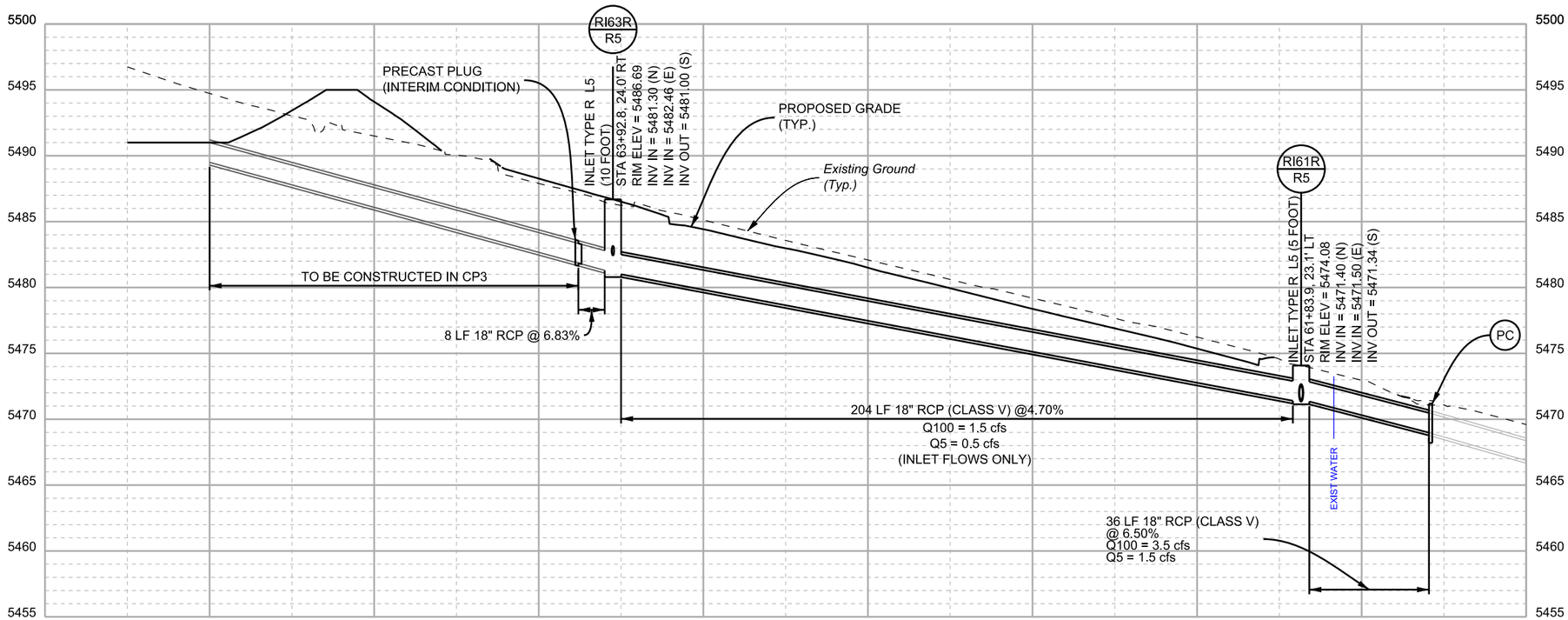
9/17/2021
MEC-Standard.tbl
plotdrvm.plt

NOTES:

1. FLOW RATES TO BE UPDATED AND HGLS SHOWN IN CP3 SUBMITTAL.
2. ITEMS NOTED AS INTERIM CONDITION ARE NOT NEEDED IF CP2 AND CP3 ARE CONSTRUCTED CONCURRENTLY.
3. SLOPES OF STUBBED-OUT PIPE SEGMENTS SHALL BE VERIFIED WITH FINAL CP3 PLANS PRIOR TO CONSTRUCTION.



RI65R



RI63R - RI61R

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02/13/2022

Print Date: 9/17/2021	Sheet Revisions	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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Unit Information Unit Leader Initials		Void:	Designer: MAS / Detailer: SAD / Sheet Subset: DRN PROF
MULLER ENGINEERING COMPANY	CITY OF ARVADA		Structure Numbers / Subset Sheets: 3 of 3
			Project No./Code / Sheet Number 219

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9/17/2021
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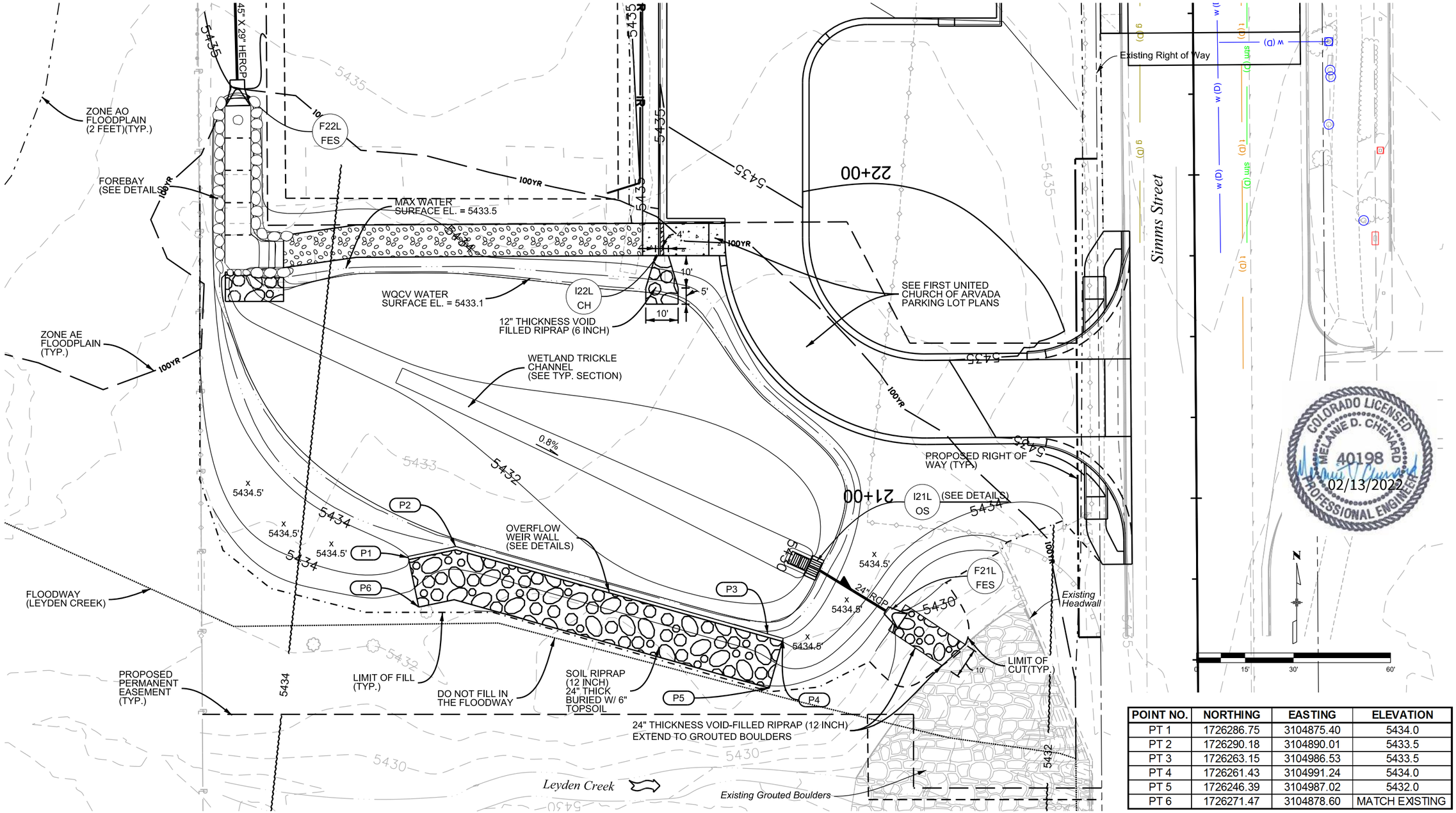

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PT 2	1726290.18	3104890.01	5433.5
PT 3	1726263.15	3104986.53	5433.5
PT 4	1726261.43	3104991.24	5434.0
PT 5	1726246.39	3104987.02	5432.0
PT 6	1726271.47	3104878.60	MATCH EXISTING

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Print Date: 9/17/2021
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Horiz. Scale: 1:30 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

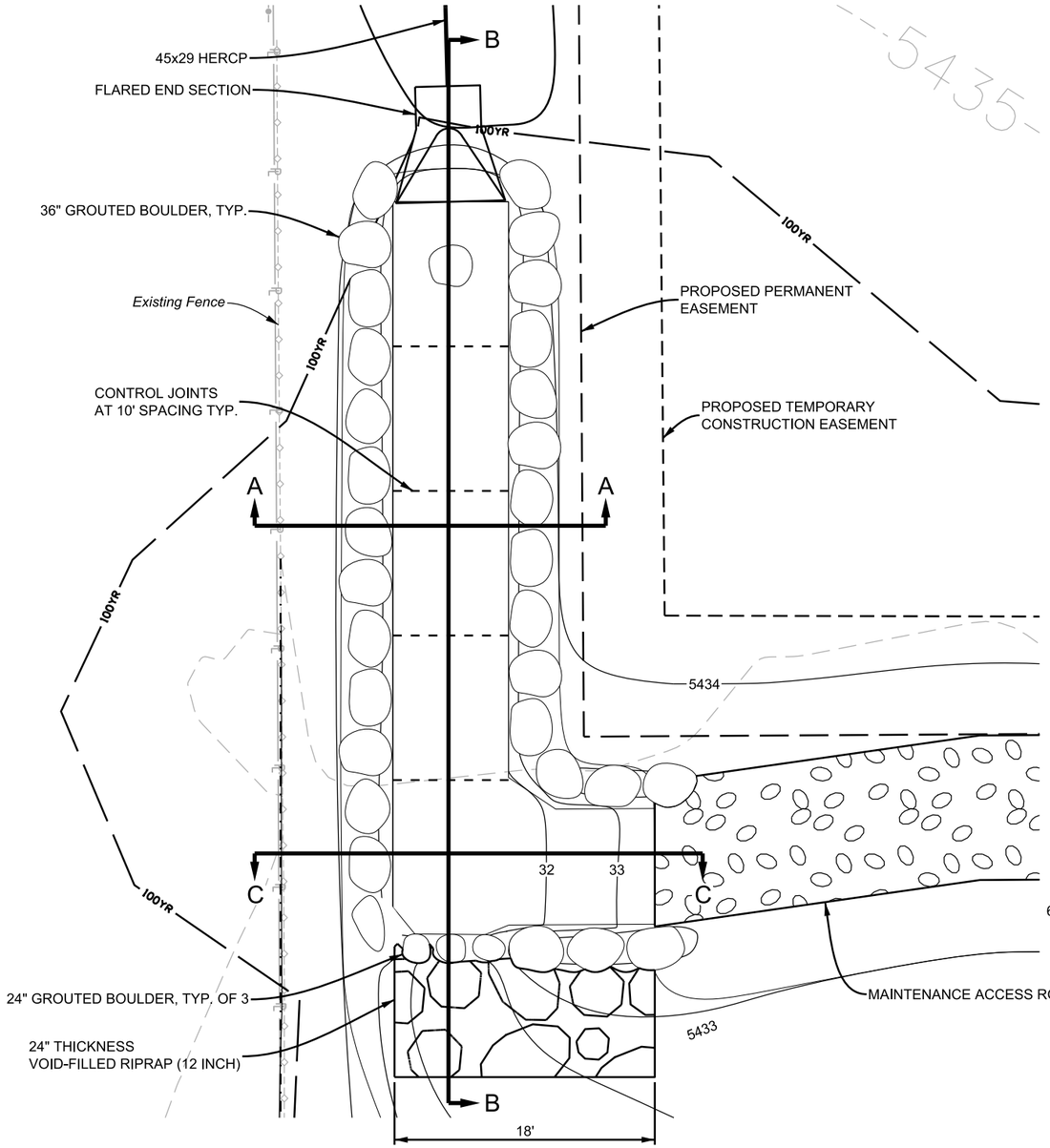
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WATER QUALITY POND PLAN

Designer: MAS
Detailer: MAS
Sheet Subset: WQ POND
Structure Numbers:
Subset Sheets: 1 of 1

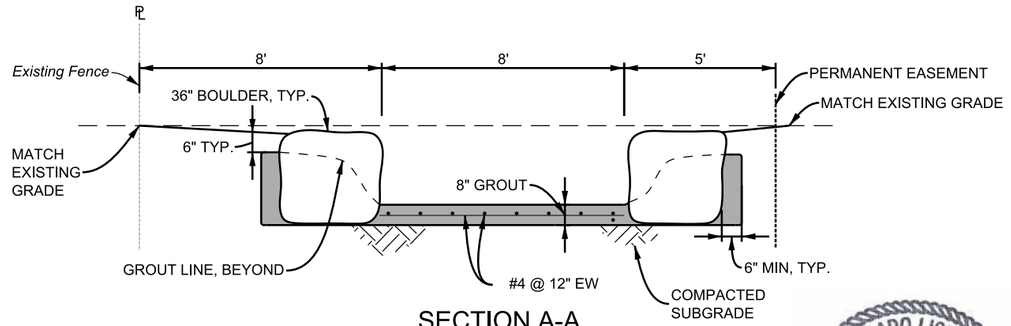
Project No./Code: 18061.01

Sheet Number 220



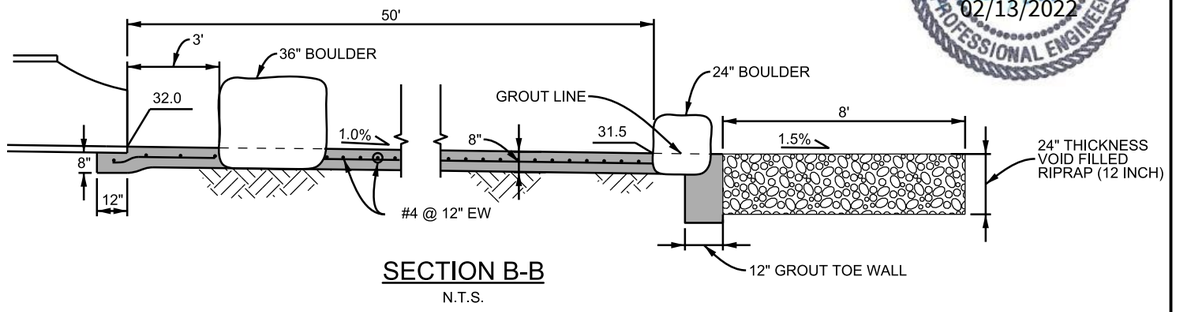
FOREBAY PLAN

SCALE: 1"=10'



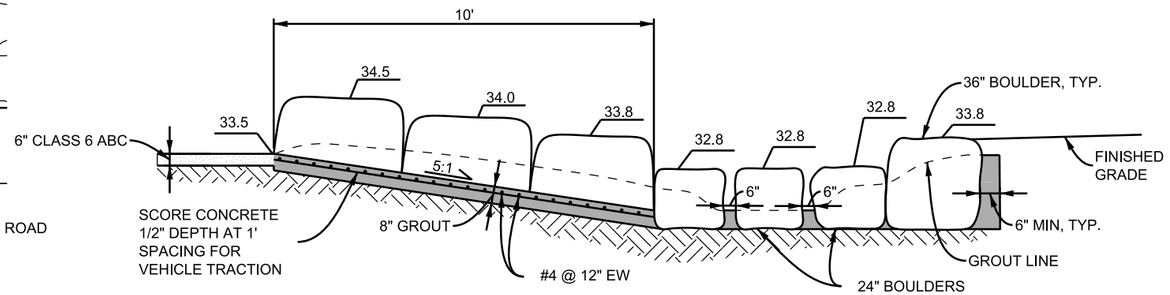
SECTION A-A

N.T.S.



SECTION B-B

N.T.S.



SECTION C-C

N.T.S.

NOTE: FOREBAY AND ALL ASSOCIATED WORK TO BE PAID FOR AS GROUTED BOULDERS (24 INCH), GROUTED BOULDERS (36 INCH), AND CONCRETE CLASS B: FOREBAY. REINFORCING STEEL, STRUCTURE EXCAVATION AND BACKFILL WILL NOT BE MEASURED SEPARATELY BUT SHALL BE INCLUDED IN THE COST.

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Drawing File Name: 18061_CP2_HYDR_WQ Details01.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:1	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:

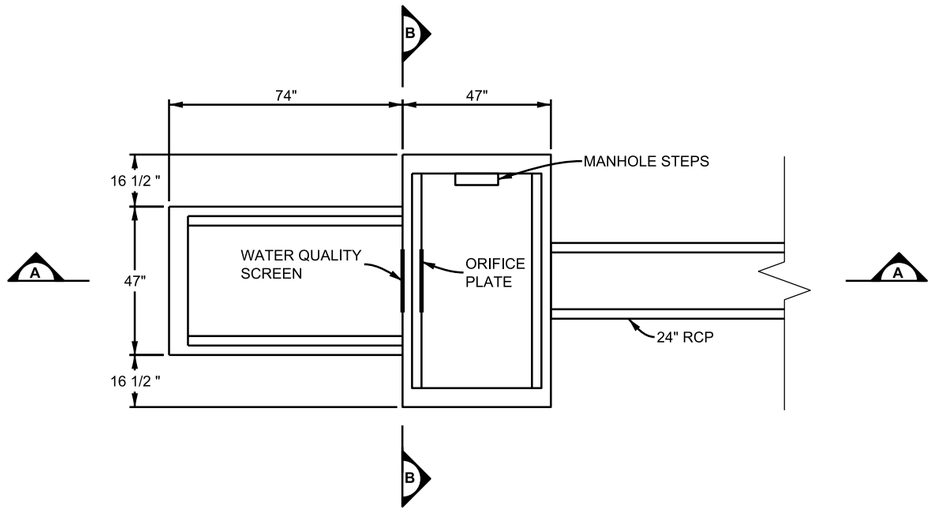
MULLER ENGINEERING COMPANY

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WATER QUALITY DETAILS

				Project No./Code
Designer:	MAS	Structure Numbers		
Detailer:	SAD			
Sheet Subset:	WQ DETAILS	Subset Sheets:	1 of 3	Sheet Number 221



OUTLET STRUCTURE PLAN

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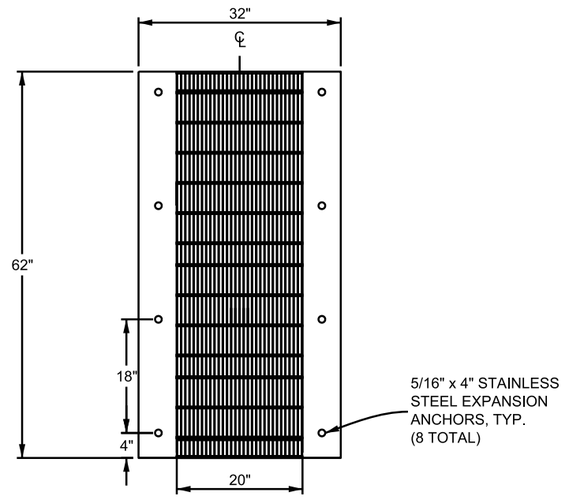
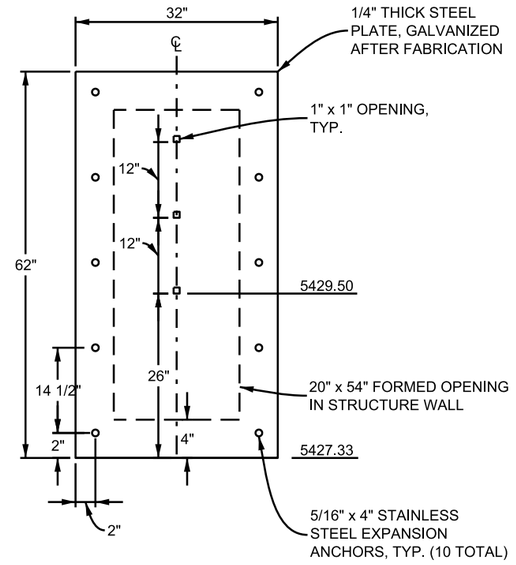


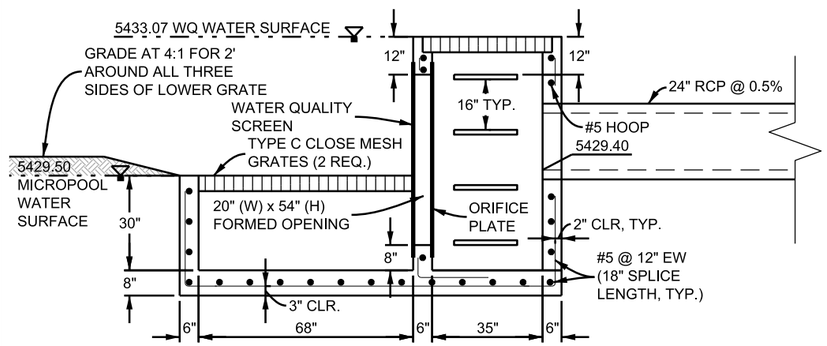
WATER QUALITY SCREEN FRONT ELEVATION

1/2" = 1'



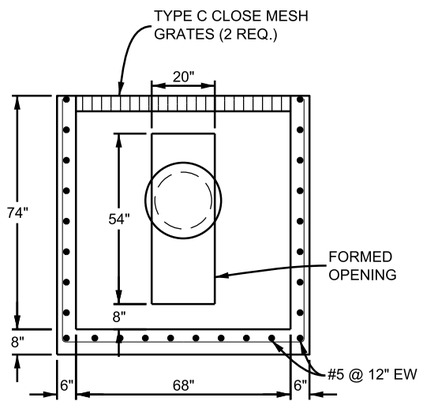
ORIFICE PLATE DETAIL

1/2" = 1'



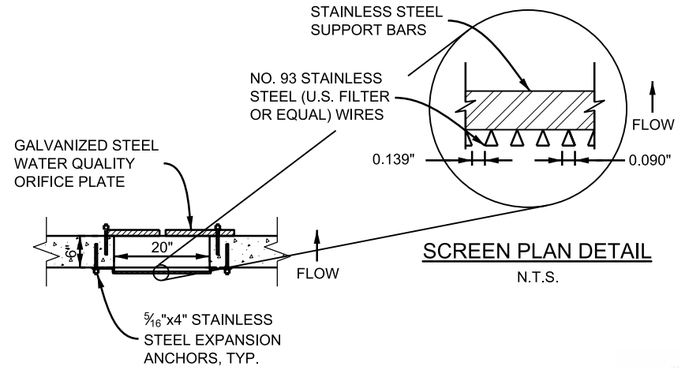
SECTION A-A

1/4" = 1'



SECTION B-B

1/4" = 1'



SCREEN PLAN DETAIL

N.T.S.

PLAN VIEW

N.T.S.

WATER QUALITY SCREEN DETAILS

NOTES:

US FILTER (OR EQUAL) STAINLESS STEEL WELL-SCREEN WITH #93 VEE WIRE. 0.139" OPENING BETWEEN WIRES, TE 0.074"x0.75" SUPPORT RODS ON 1" ON-CENTER SPACING, TOTAL RACK THICKNESS OF 1.03" AND 1'-0"x6" ANGLE BAR CARBON STEEL FRAME.

COLORADO LICENSED
MELANIE D. CHENARD
40198
PROFESSIONAL ENGINEER
02/13/2022

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Drawing File Name: 18061_CP2_HYDR_WQ Details02.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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Revised:
Void:

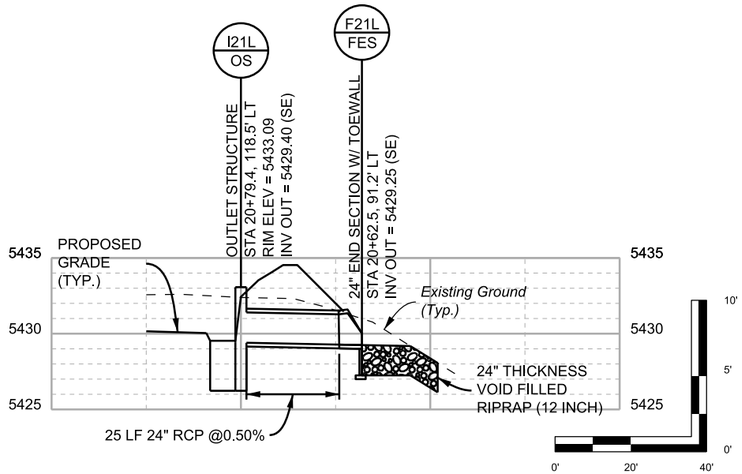
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WATER QUALITY DETAILS

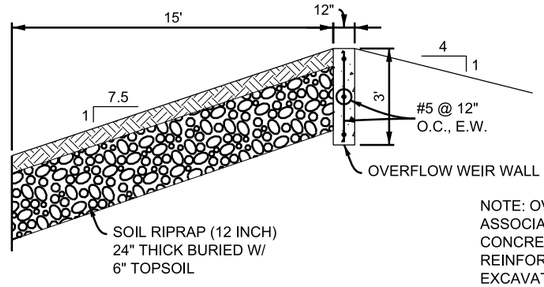
Designer: MAS
Detailer: SAD
Sheet Subset: WQ DETAILS
Structure Numbers
Subset Sheets: 2 of 3

Project No./Code

Sheet Number 222



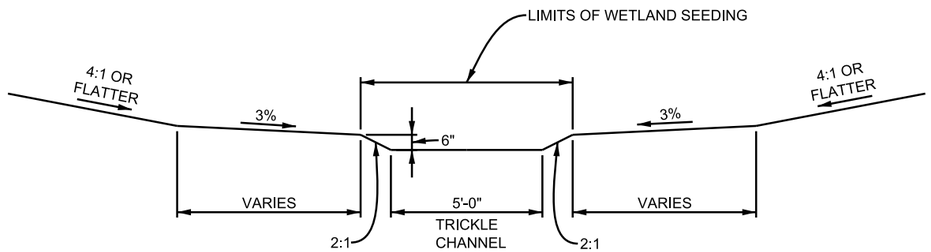
WATER QUALITY OUTLET STRUCTURE PROFILE



SPILLWAY SECTION

N.T.S.

NOTE: OVERFLOW WEIR WALL AND ALL ASSOCIATED WORK TO BE PAID FOR AS CONCRETE CLASS B: CURB WALL. REINFORCING STEEL, STRUCTURE EXCAVATION AND BACKFILL WILL NOT BE MEASURED SEPARATELY BUT SHALL BE INCLUDED IN THE COST.



WATER QUALITY POND TYPICAL SECTION

N.T.S.

COLORADO LICENSED
MELANIE D. CHENARD
40198
PROFESSIONAL ENGINEER
02/13/2022

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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_HYDR_WQ Details03.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:1 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WATER QUALITY DETAILS

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WQ DETAILS	Subset Sheets:	3 of 3

Project No./Code

Sheet Number 223

SUMMARY OF WALL QUANTITIES

STATION	WALL	MAGNUM STONE WALL	PERFORATED METAL RAIL	COMMENTS
		SF	LF	
72ND AVENUE				
523+45 TO 524+25	A (MSC)	233		
523+70 TO 524+75	B (MSH)	369	106	
527+65 TO 536+90	C (MSH)	3,525	925	
533+17 TO 552+33	D (MSP)	13,208		
537+75 TO 539+95	E (MSF)	881		
SIMMS STREET				
26+50 TO 27+00	F (MSH)	200	49	
28+42 TO 29+15	G (MSF)	184		
PROJECT TOTALS		18600	1080	

NOTES:
1. WALL AREAS ARE BASED ONLY ON THE EXPOSED FINISHED FACE OF THE WALL AND DO NOT INCLUDE ADDITIONAL AREA REQUIRED FOR WALL EMBEDMENT. THE COST OF THE WALL EMBEDMENT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE MAGNUM STONE WALL ITEM.
2. ALL STRUCTURAL EXCAVATION AND BACKFILL, DRAINAGE MATERIALS, LEVELING PADS, STABILIZATION FABRIC AND ANY OTHER MATERIALS REQUIRED TO COMPLETE THE WALLS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE MAGNUM STONE WALL ITEM.

LEGEND

MSC MAGNUMSTONE WALL WITH TEXTURED STEP CAP
MSH MAGNUMSTONE WALL WITH HANDRAIL
MSF MAGNUMSTONE WALL WITH FENCE
MSP MAGNUMSTONE WALL WITH DOUBLE SIDED BLOCK PAPAPET WITH FENCE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

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Print Date: 12/10/2021
Drawing File Name: 18061_CP2_BRG_WallQuantities.dgn
Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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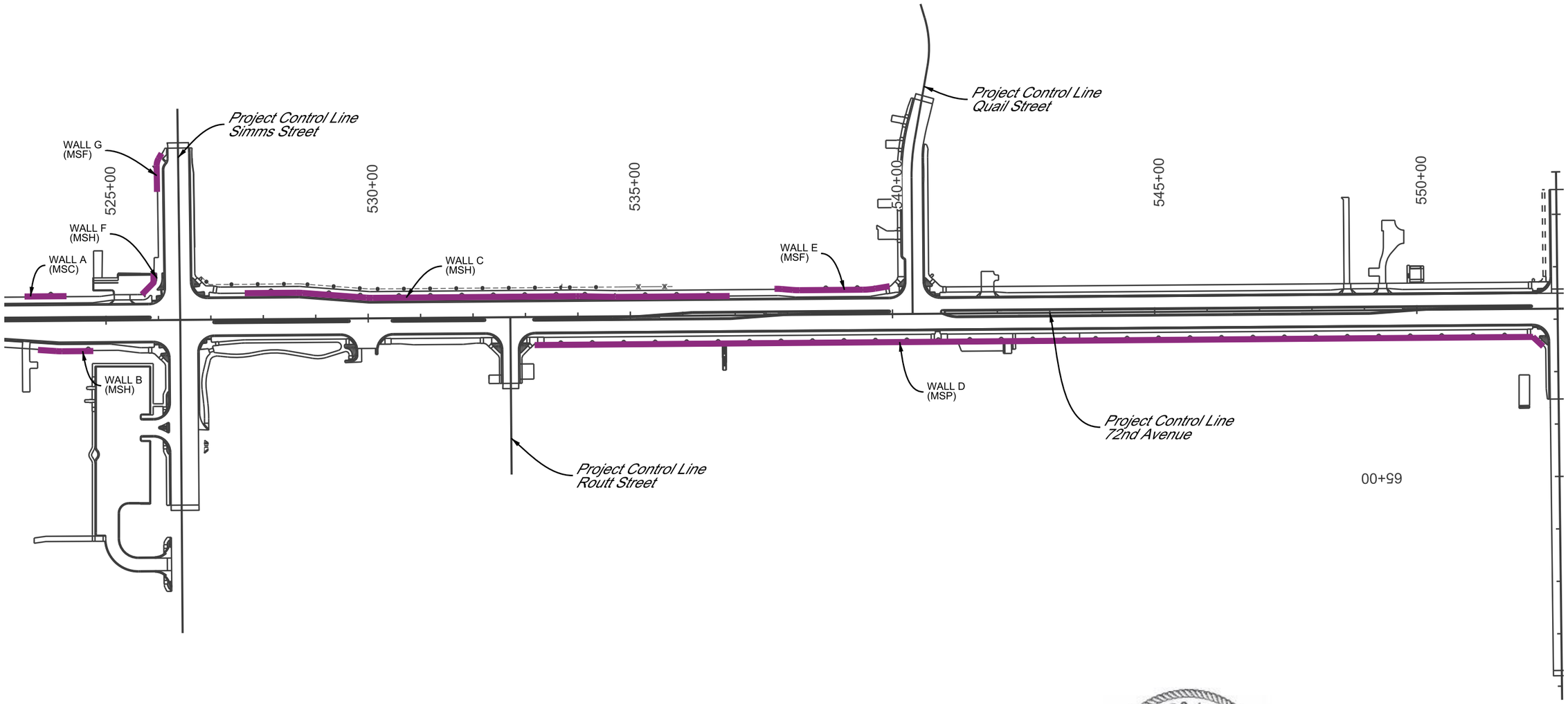
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
TABULATION OF WALL QUANTITIES

Designer: HEC
Detailer: SAD
Sheet Subset: WALL
Structure Numbers
Subset Sheets: 1 of 20

Project No./Code

Sheet Number 224



LEGEND

MSC MAGNUMSTONE WALL WITH TEXTURED STEP CAP
MSH MAGNUMSTONE WALL WITH HANDRAIL
MSF MAGNUMSTONE WALL WITH FENCE
MSP MAGNUMSTONE WALL WITH DOUBLE SIDED BLOCK PAPAPET WITH FENCE

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 100' 200' 400'

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallLocationPlan.dgn
Horiz. Scale: 1:200 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WALL LOCATION PLAN

Designer: HEC
Detailer: SAD
Sheet Subset: WALL
Structure Numbers
Subset Sheets: 2 of 20

Project No./Code

Sheet Number 225

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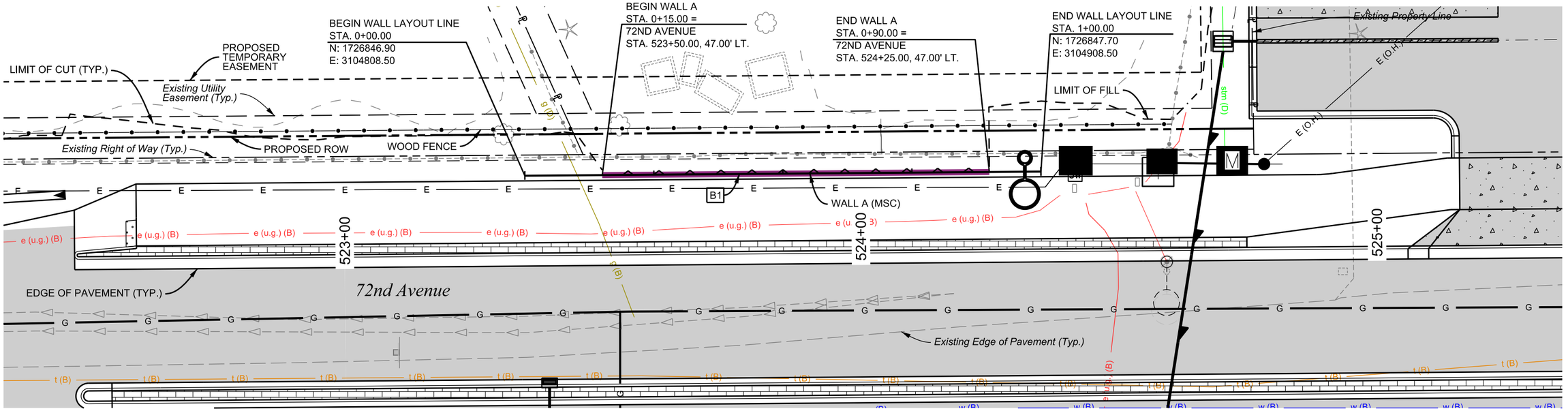
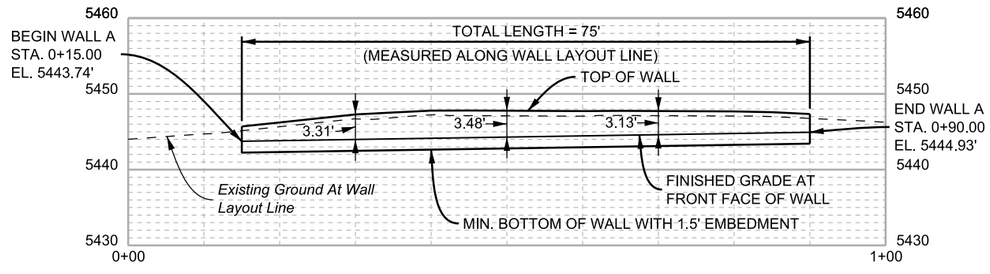


PLAN



WALL A - MSC PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE BOTTOM OF WALL LINE (EXCLUDING ANY EMBEDMENT). THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL.
2. BOTTOM OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

BEARING DATA

B1 N89°32'27"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 12/10/2021		Sheet Revisions		
Drawing File Name: 18061_CP2_BRG_WallPlan01.dgn		Date:	Comments	Init.
Horiz. Scale: 1:20	Vert. Scale: As Noted			
Unit Information	Unit Leader Initials			
MULLER ENGINEERING COMPANY				

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	WALL A - MSC GENERAL LAYOUT			
Revised:	Designer: HEC	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: WALL	Subset Sheets: 3 of 20		Sheet Number 226

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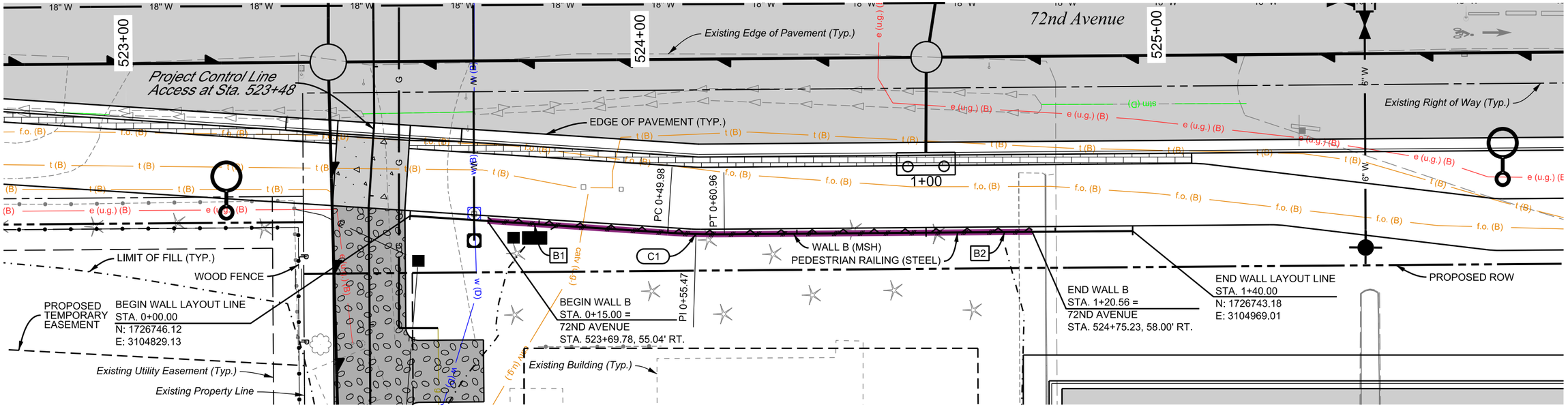

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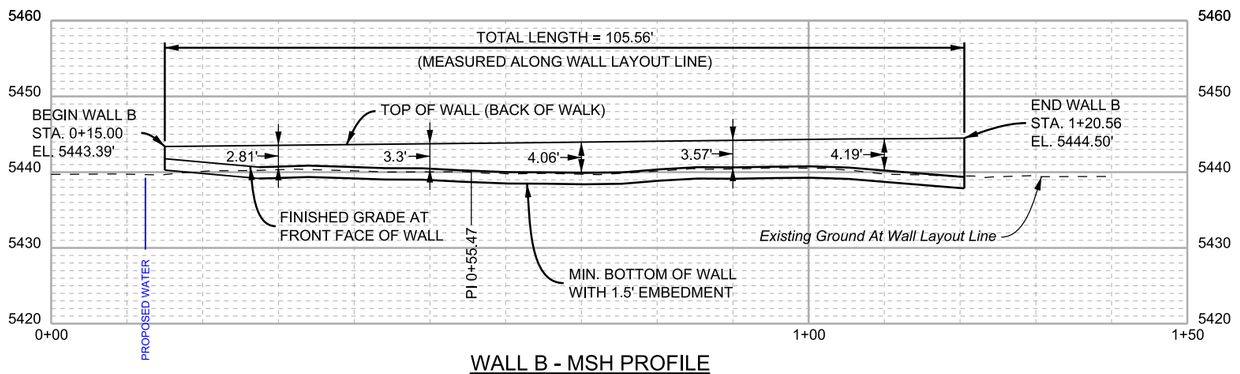

WALL B - MSH PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

BEARING DATA

B1	S86°15'54"E
B2	N89°32'27"E

CURVE DATA

C1 — CURVE 1
Δ =4°11'39"
R =150.00'
T =5.49'
L =10.98'
ENTRANCE BRG = S86°15'54"E
EXIT BRG = N89°32'27"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan02.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL B - MSH
GENERAL LAYOUT

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	4 of 20

Project No./Code

Sheet Number 227

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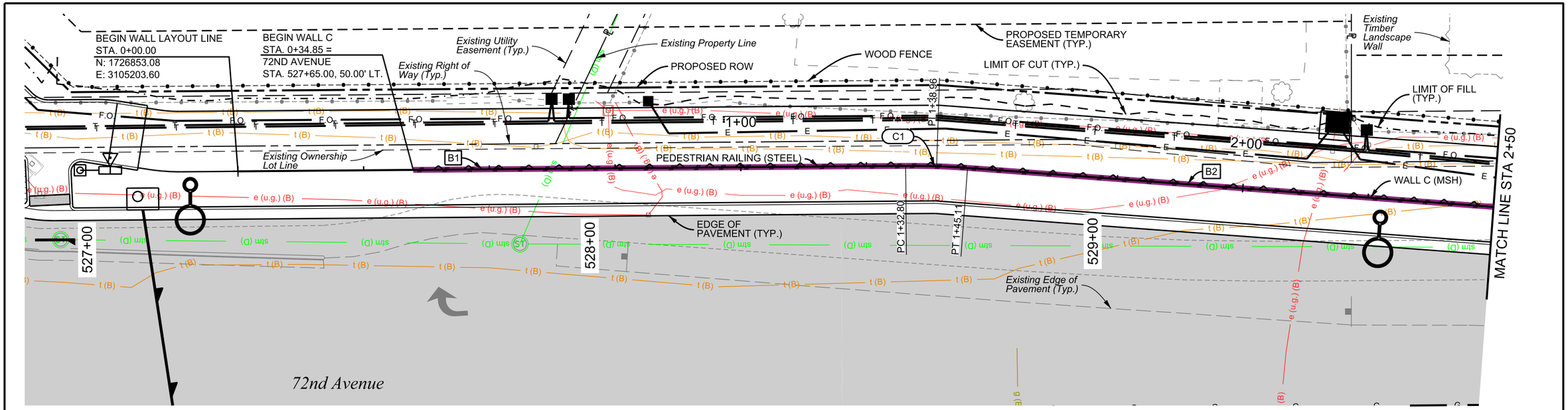

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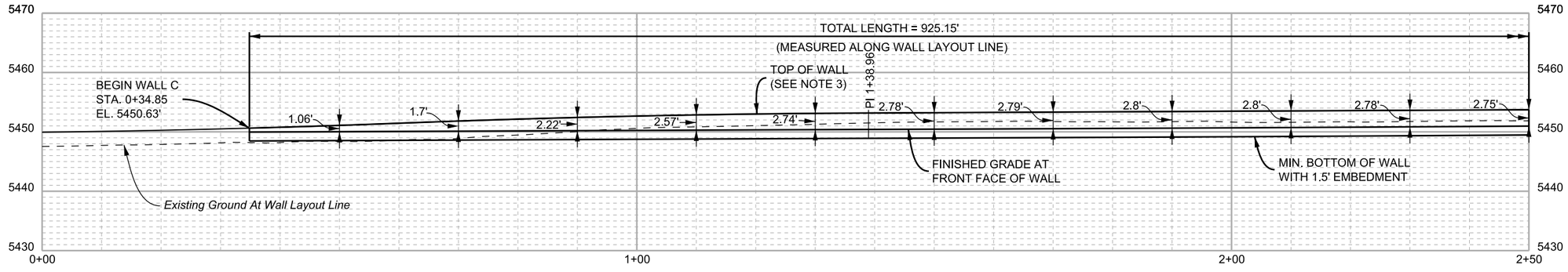


WALL C - MSH PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL SHALL FOLLOW THE FACE OF WALK FINISH GRADE. NO STEPPING ON TOP OF WALL ALLOWED.
3. SEE SIDEWALK GEOMETRY SHEET FOR MORE INFORMATION ON THE TOP OF WALL LOCATION.
4. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
5. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

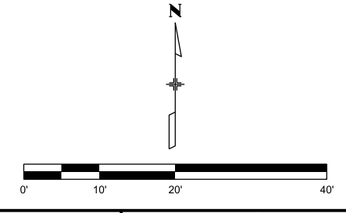
BEARING DATA

B1	N89°31'54"E
B2	S85°45'49"E

CURVE DATA

C1 CURVE 1
Δ =4°42'17"
R =150.00'
T =6.16'
L =12.32'
ENTRANCE BRG = N89°31'54"E
EXIT BRG = S85°45'49"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022



LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 12/10/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_BRG_WallPlan03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	WALL C - MSH GENERAL LAYOUT (1 OF 4)			
Revised:	Designer: HEC	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: WALL	Subset Sheets: 5 of 20		Sheet Number 228

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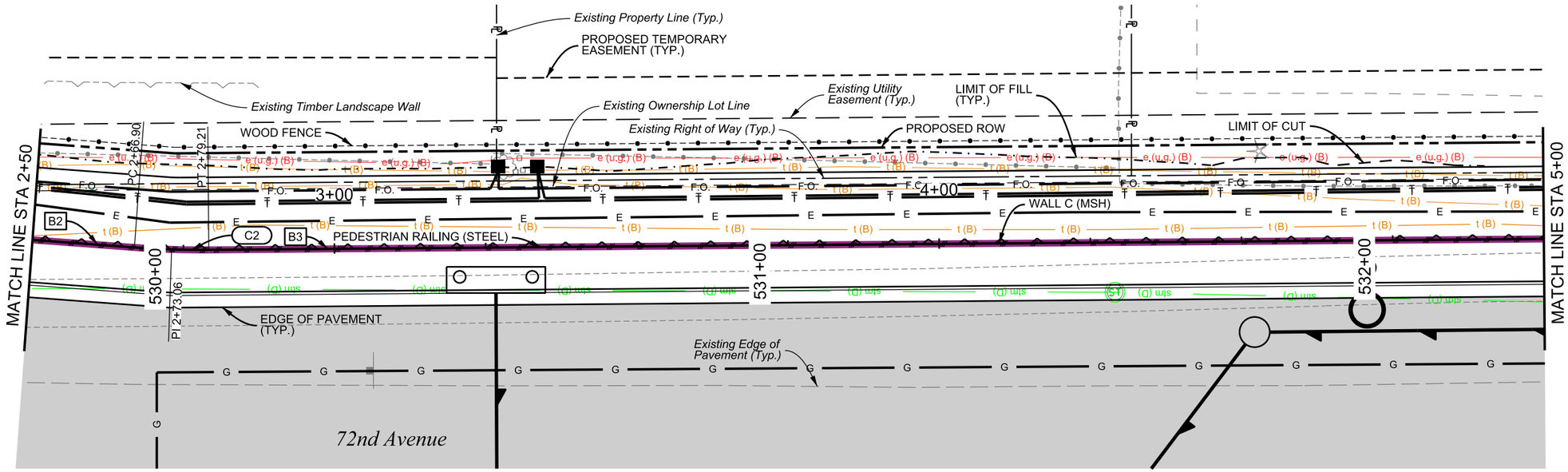

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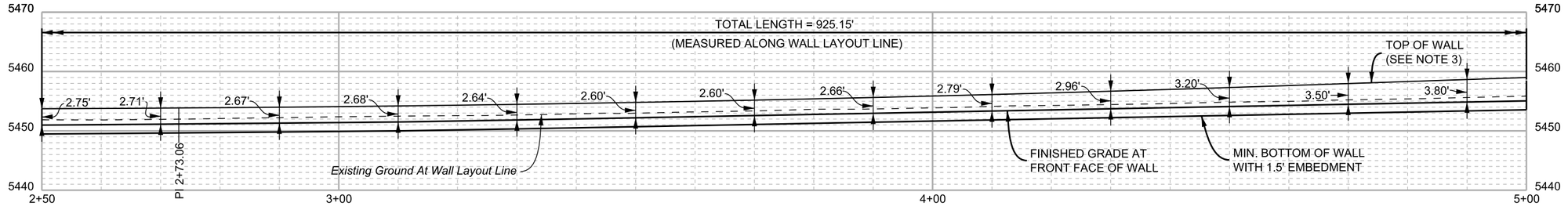

WALL C - MSH PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL SHALL FOLLOW THE FACE OF WALK FINISH GRADE. NO STEPPING ON TOP OF WALL ALLOWED.
3. SEE SIDEWALK GEOMETRY SHEET FOR MORE INFORMATION ON THE TOP OF WALL LOCATION.
4. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
5. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

BEARING DATA

B2	S85°45'49"E
B3	N89°31'54"E

CURVE DATA

C2 CURVE 1
Δ =4°42'17"
R =150.00'
T =6.16'
L =12.32'
ENTRANCE BRG = S85°45'49"E
EXIT BRG = N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 12/10/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_BRG_WallPlan04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL C - MSH
GENERAL LAYOUT (2 OF 4)

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	6 of 20

Project No./Code

Sheet Number 229

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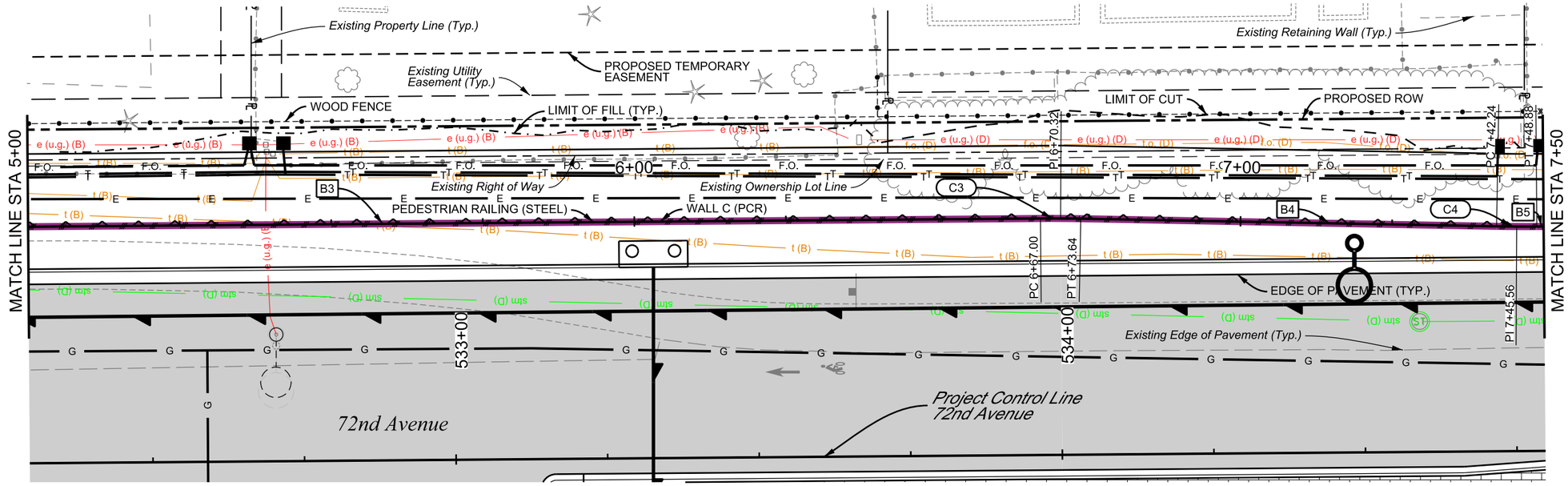

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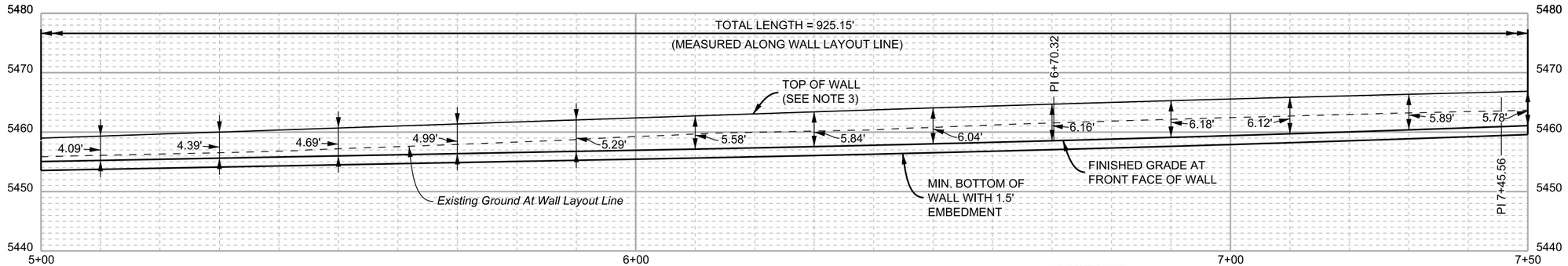

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL SHALL FOLLOW THE FACE OF WALK FINISH GRADE. NO STEPPING ON TOP OF WALL ALLOWED.
3. SEE SIDEWALK GEOMETRY SHEET FOR MORE INFORMATION ON THE TOP OF WALL LOCATION.
4. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
5. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

WALL C - MSH PROFILE

1:1 VERTICAL EXAGGERATION

BEARING DATA

B3	N89°31'54"E
B4	S88°56'43"E
B5	N89°31'54"E

CURVE DATA

C3 CURVE 1
Δ =1°31'23"
R =250.00'
T =3.32'
L =6.65'
ENTRANCE BRG = N89°31'54"E
EXIT BRG = S88°56'43"E

C4 CURVE 2
Δ =1°31'23"
R =250.00'
T =3.32'
L =6.65'
ENTRANCE BRG = S88°56'43"E
EXIT BRG = N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 12/10/2021
Drawing File Name: 18061_CP2_BRG_WallPlan05.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL C - MSH
GENERAL LAYOUT (3 OF 4)

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	7 of 20

Project No./Code

Sheet Number 230

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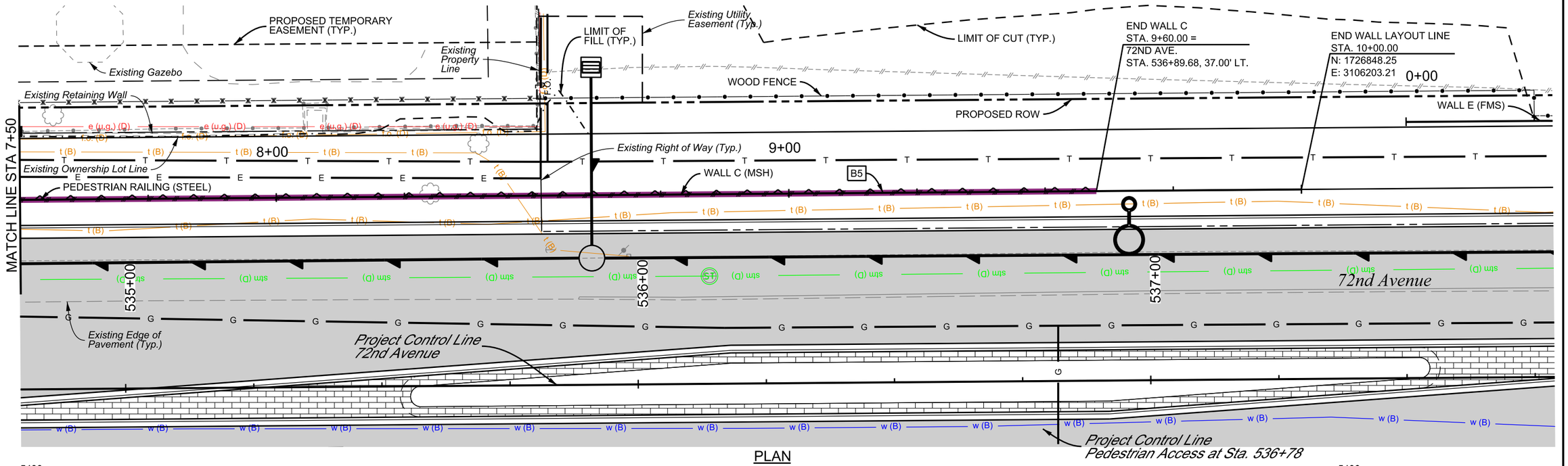
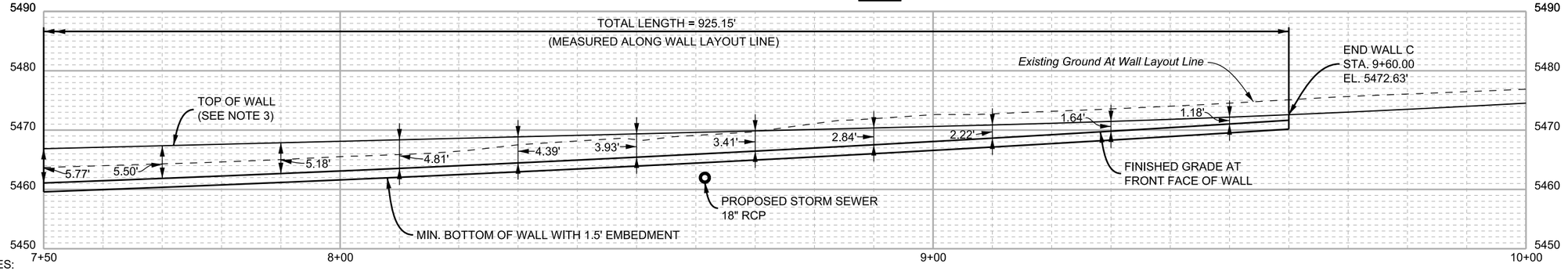


PLAN



WALL C - MSH PROFILE

1:1 VERTICAL EXAGGERATION

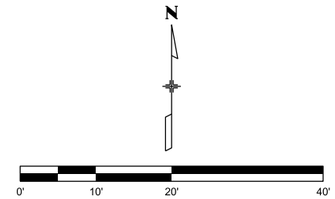
NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL SHALL FOLLOW THE FACE OF WALK FINISH GRADE. NO STEPPING ON TOP OF WALL ALLOWED.
3. SEE SIDEWALK GEOMETRY SHEET FOR MORE INFORMATION ON THE TOP OF WALL LOCATION.
4. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
5. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

BEARING DATA

B5 N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
02/13/2022
PROFESSIONAL ENGINEER



LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 12/10/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_BRG_WallPlan06.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	WALL C - MSH GENERAL LAYOUT (4 OF 4)			
Revised:	Designer: HEC	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: WALL	Subset Sheets: 8 of 20		Sheet Number 231

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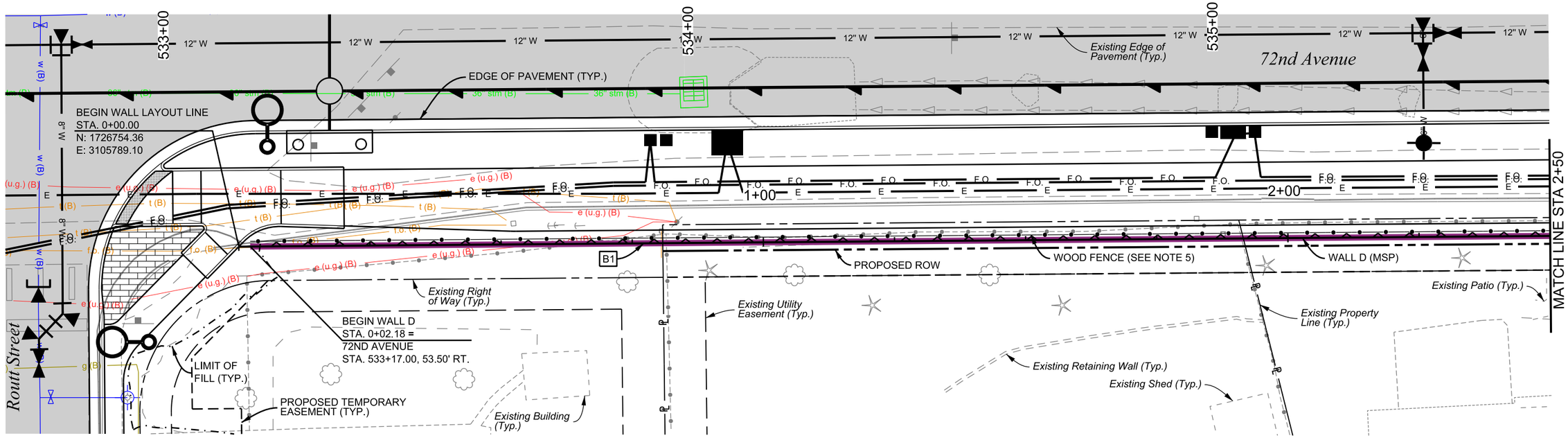

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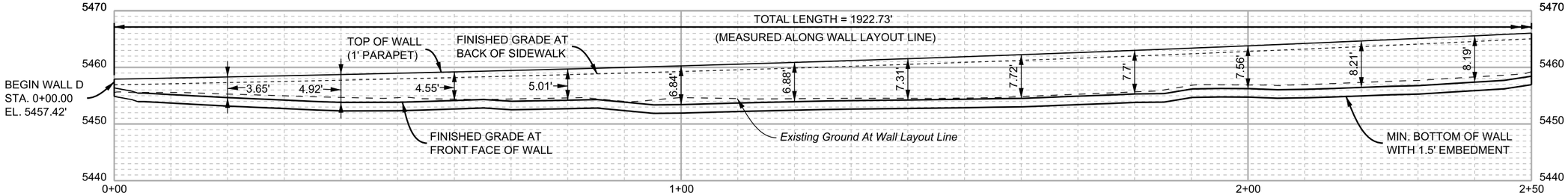

WALL D - MSP PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

BEARING DATA

B1	N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan07.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL D - MSP
GENERAL LAYOUT (1 OF 8)

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	9 of 20

Project No./Code

Sheet Number 232

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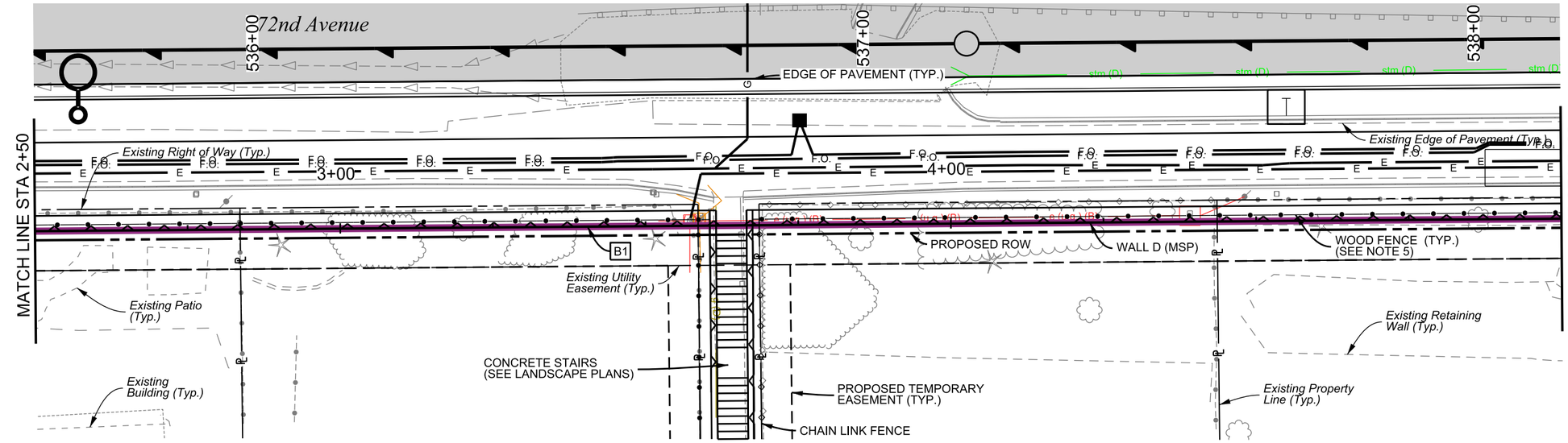

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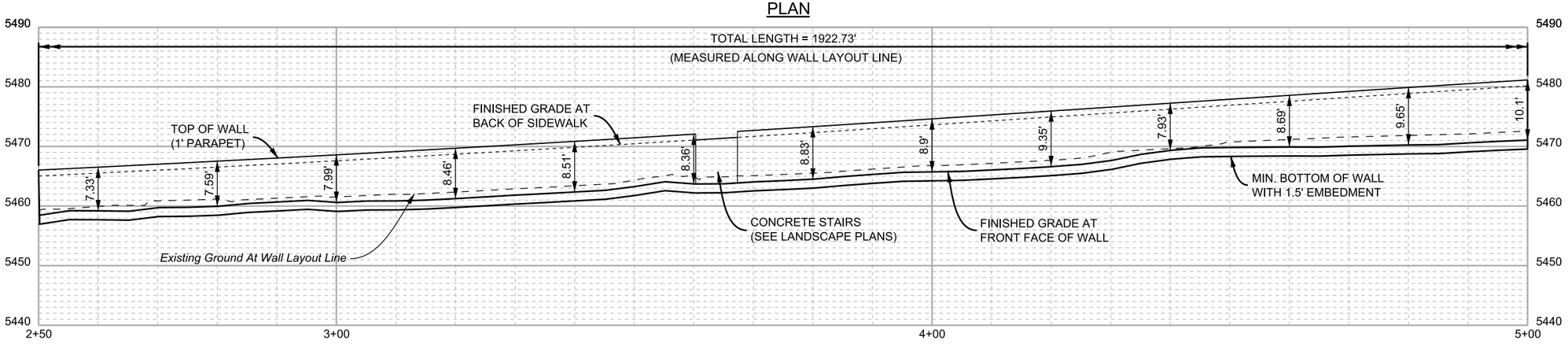

WALL D - MSP PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

BEARING DATA

B1	N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan08.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WALL D - MSP
GENERAL LAYOUT (2 OF 8)

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	10 of 20

Project No./Code

Sheet Number 233

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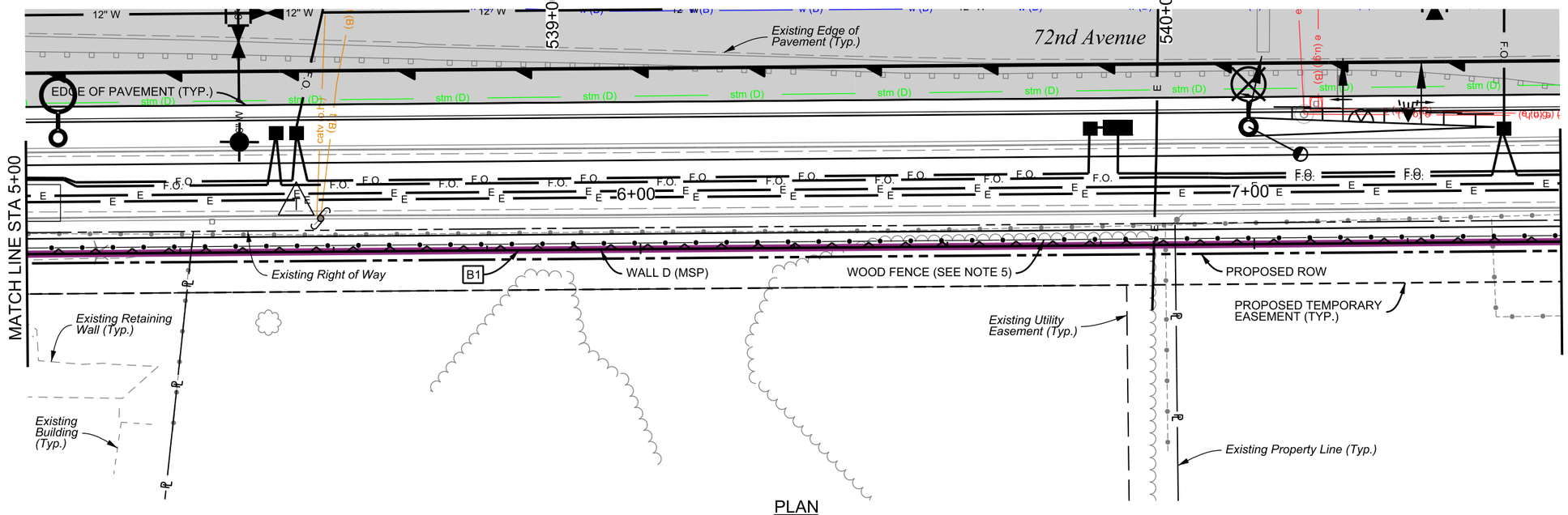

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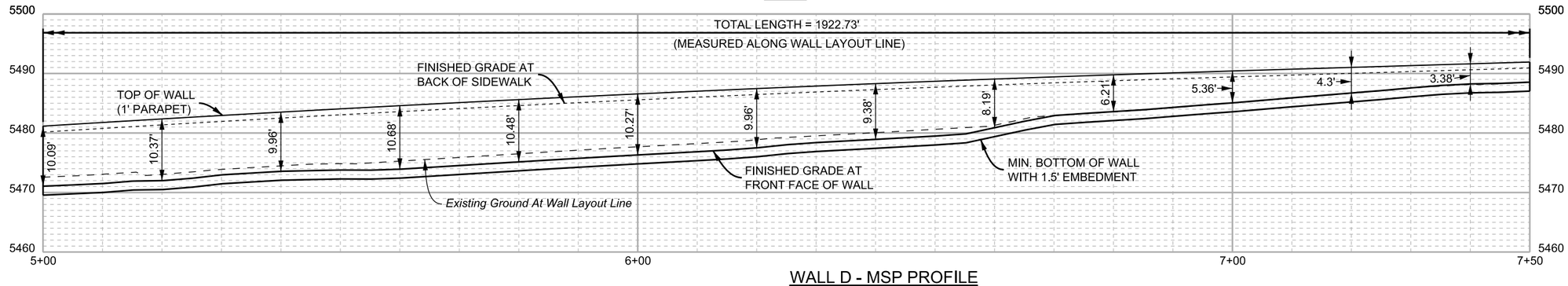

WALL D - MSP PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

BEARING DATA

B1	N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
02/13/2022
PROFESSIONAL ENGINEER

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan09.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL D - MSP
GENERAL LAYOUT (3 OF 8)

Designer: HEC
Detailer: SAD
Sheet Subset: WALL
Structure Numbers
Subset Sheets: 11 of 20

Project No./Code

Sheet Number 234

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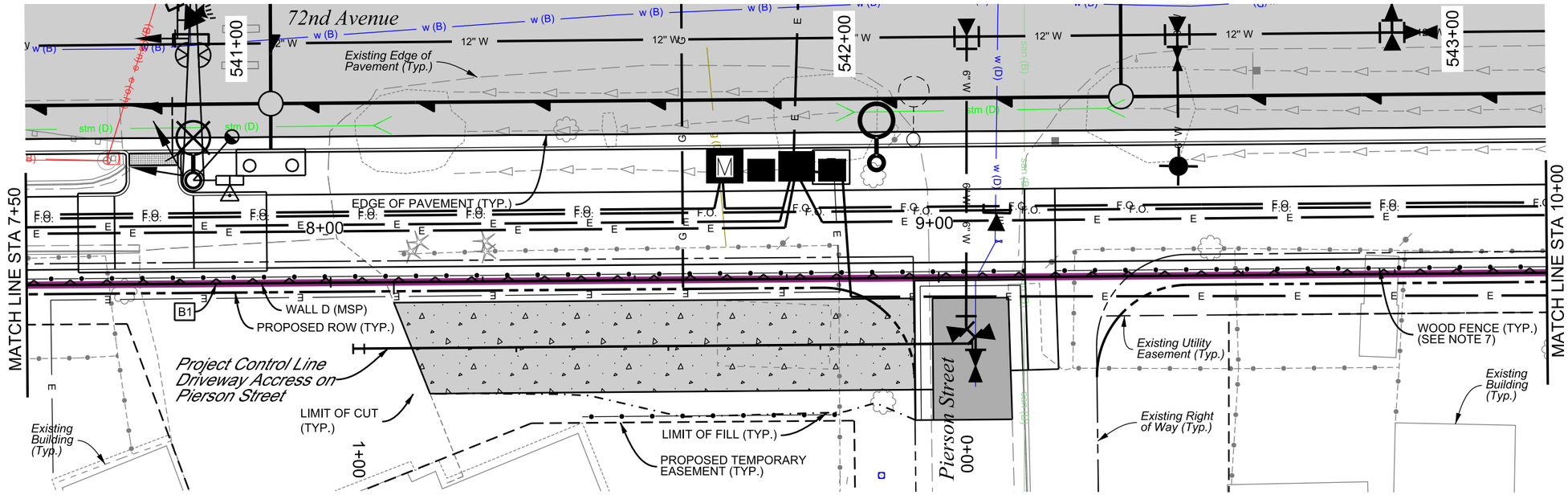

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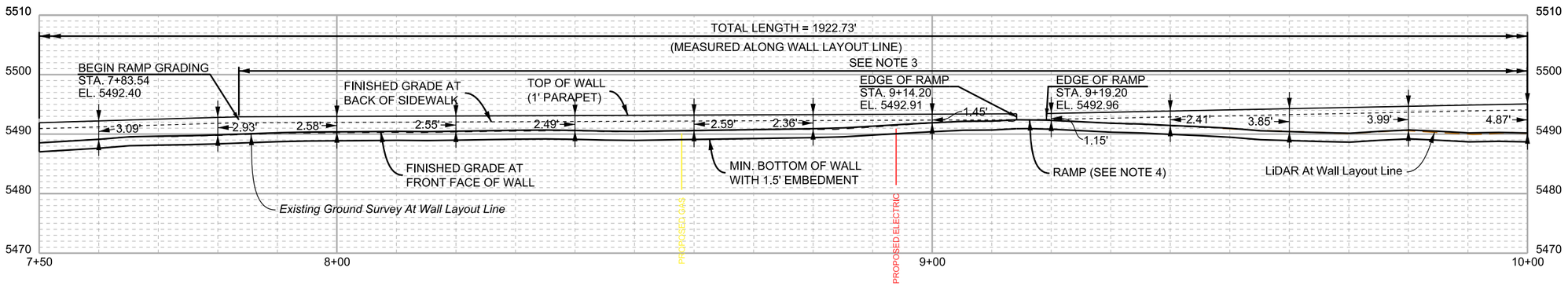

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. TOP OF WALL IN THIS AREA DOES NOT FOLLOW THE ROADWAY FINISHED GRADE. THE TOP OF WALL ELEVATION SHOULD BE OBTAINED BY GRADING BETWEEN THE POINTS PROVIDED. SEE GEOMETRY PLANS FOR ADDITIONAL INFORMATION.
4. WITHIN LIMITS OF THE RAMP THE PARAPET AND FENCE SHALL BE DISCONTINUED.
5. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
7. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

WALL D - MSP PROFILE

1:1 VERTICAL EXAGGERATION

BEARING DATA

B1	N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
02/13/2022
PROFESSIONAL ENGINEER

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan10.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL D - MSP
GENERAL LAYOUT (4 OF 8)

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	12 of 20

Project No./Code

Sheet Number 235

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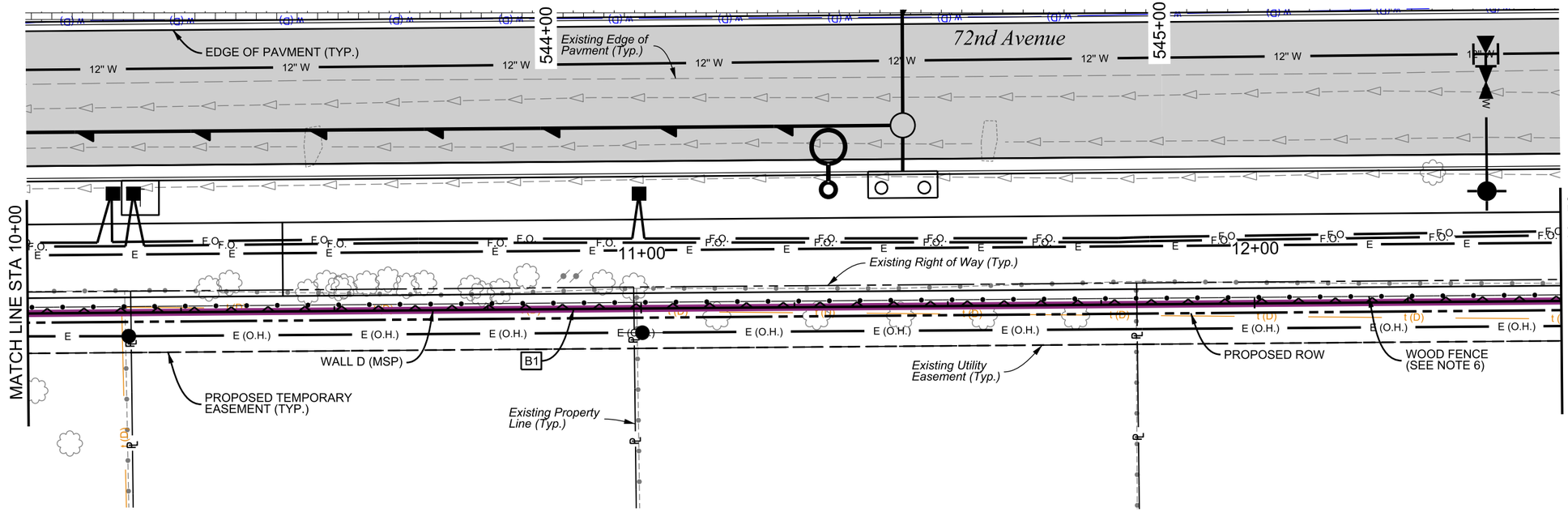

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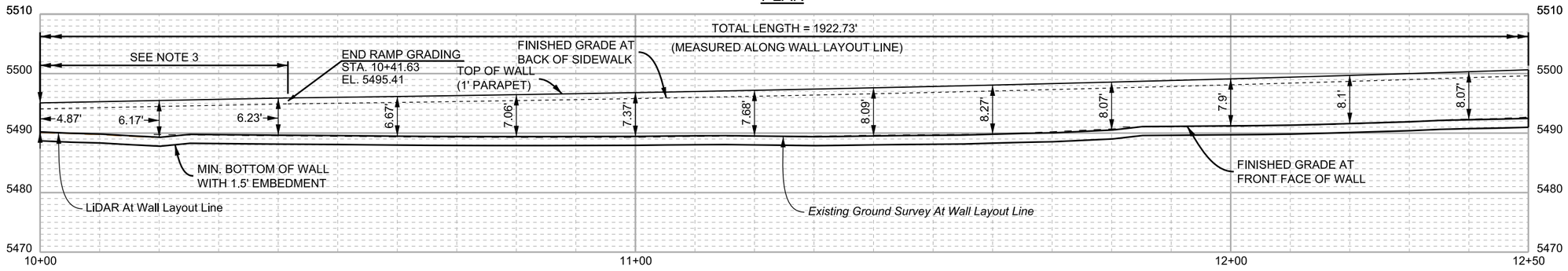


NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. TOP OF WALL IN THIS AREA DOES NOT FOLLOW THE ROADWAY FINISHED GRADE. THE TOP OF WALL ELEVATION SHOULD BE OBTAINED BY GRADING BETWEEN THE POINTS PROVIDED. SEE GEOMETRY PLANS FOR ADDITIONAL INFORMATION.
4. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
5. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
6. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

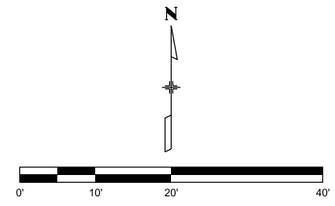
WALL D - MSP PROFILE

1:1 VERTICAL EXAGGERATION

BEARING DATA

B1	N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022



LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan11.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL D - MSP
GENERAL LAYOUT (5 OF 8)

Designer: HEC
Detailer: SAD
Sheet Subset: WALL
Structure Numbers
Subset Sheets: 13 of 20

Project No./Code

Sheet Number 236

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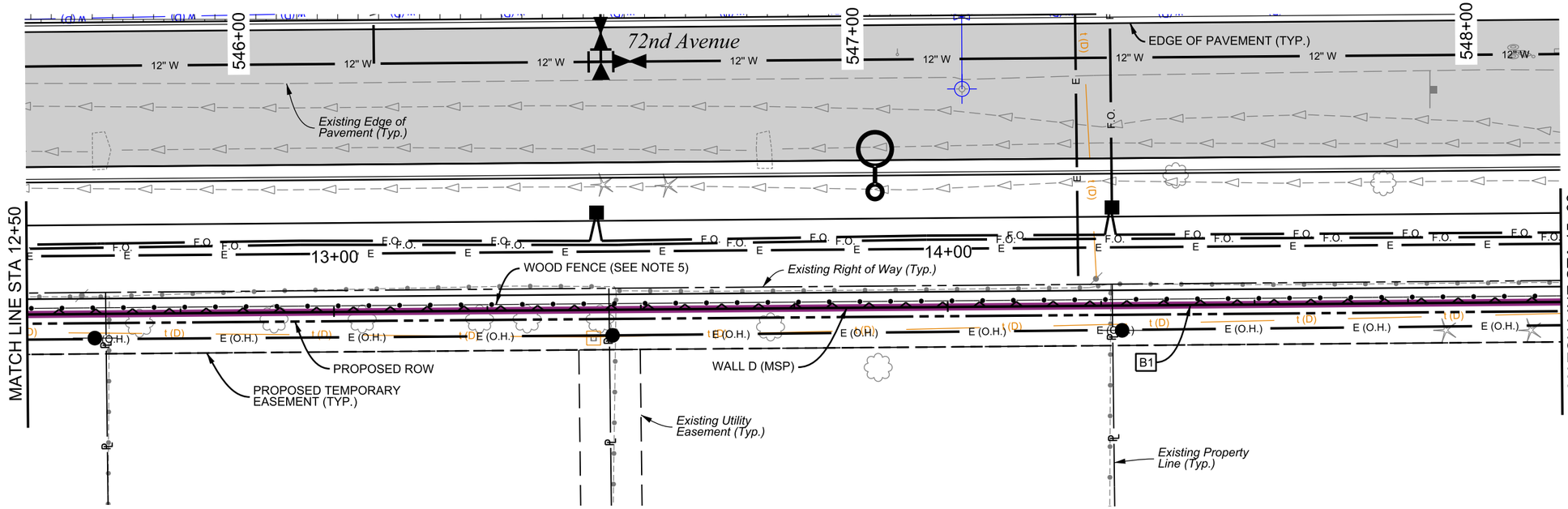

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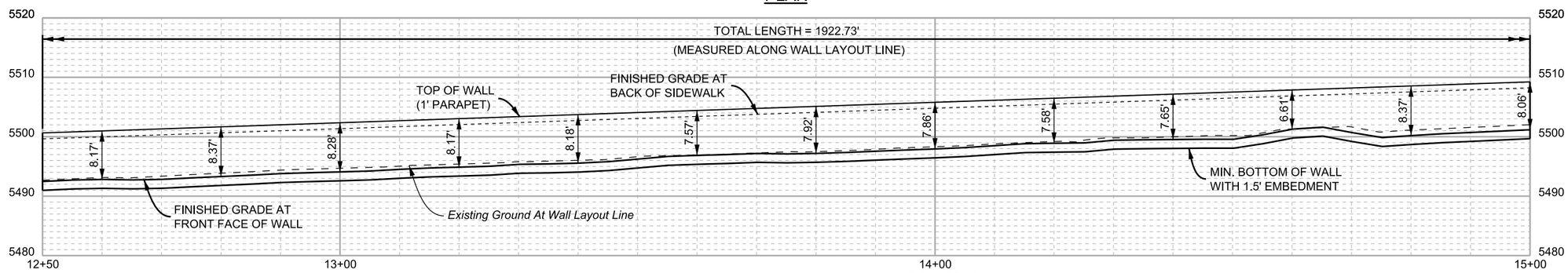


WALL D - MSP PROFILE

1:1 VERTICAL EXAGGERATION

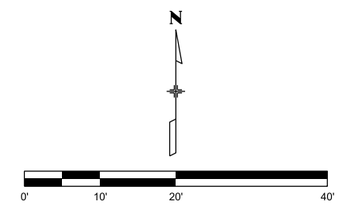
NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

BEARING DATA

B1	N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022



LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan12.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL D - MSP
GENERAL LAYOUT (6 OF 8)

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	14 of 20

Project No./Code

Sheet Number 237

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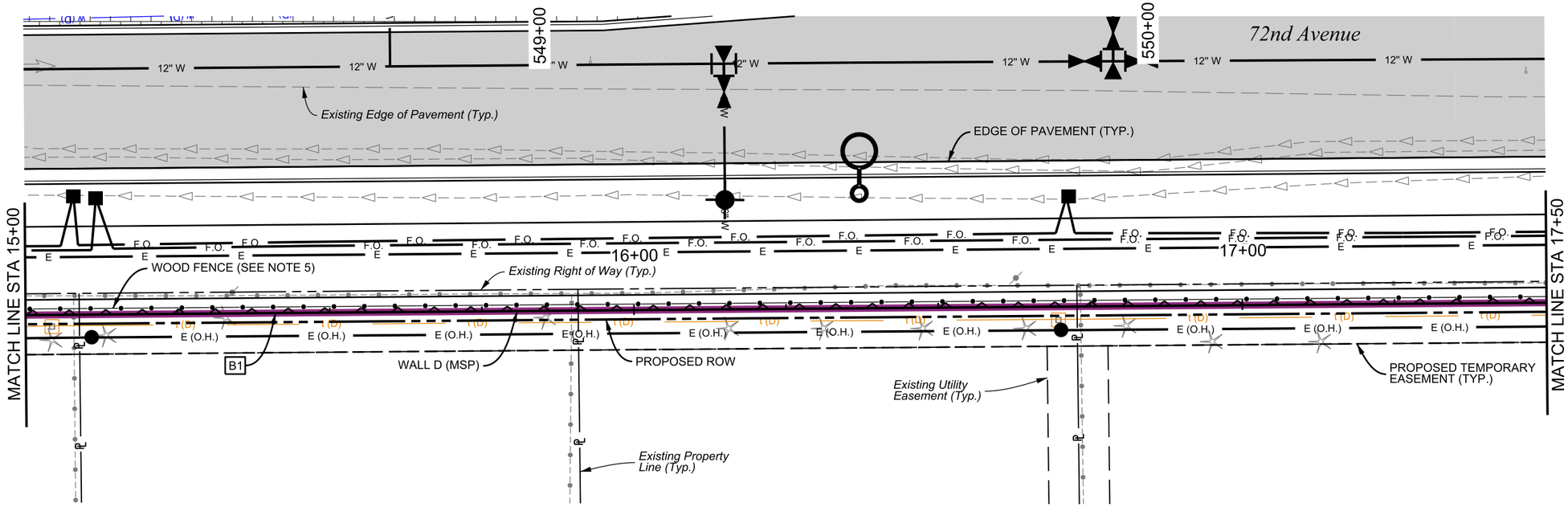

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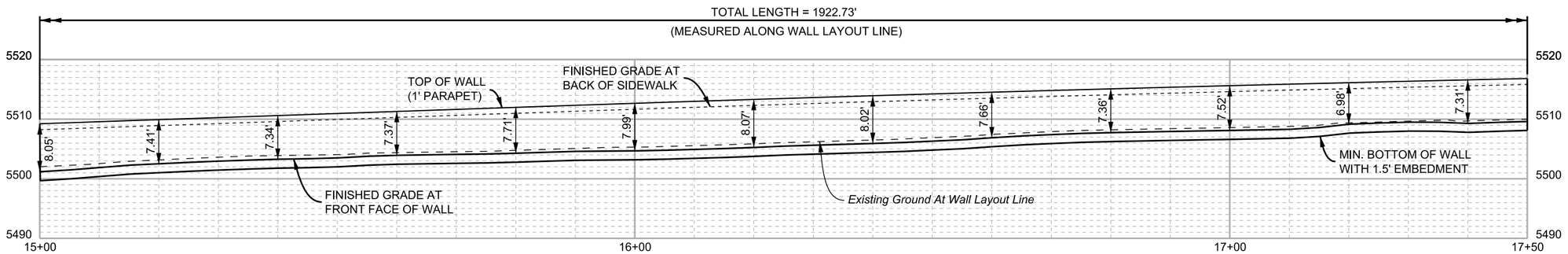

WALL D - MSP PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

BEARING DATA

B1 N89°31'54"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan13.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL D - MSP
GENERAL LAYOUT (7 OF 8)

Designer: HEC
Detailer: SAD
Sheet Subset: WALL
Structure Numbers
Subset Sheets: 15 of 20

Project No./Code

Sheet Number 238

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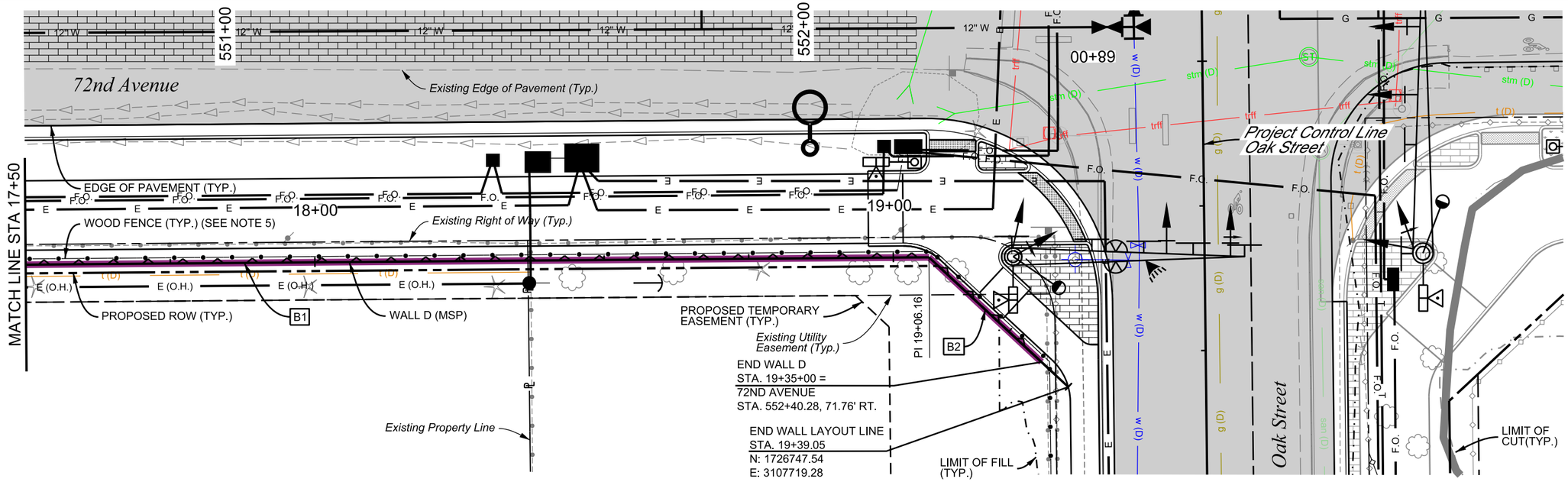

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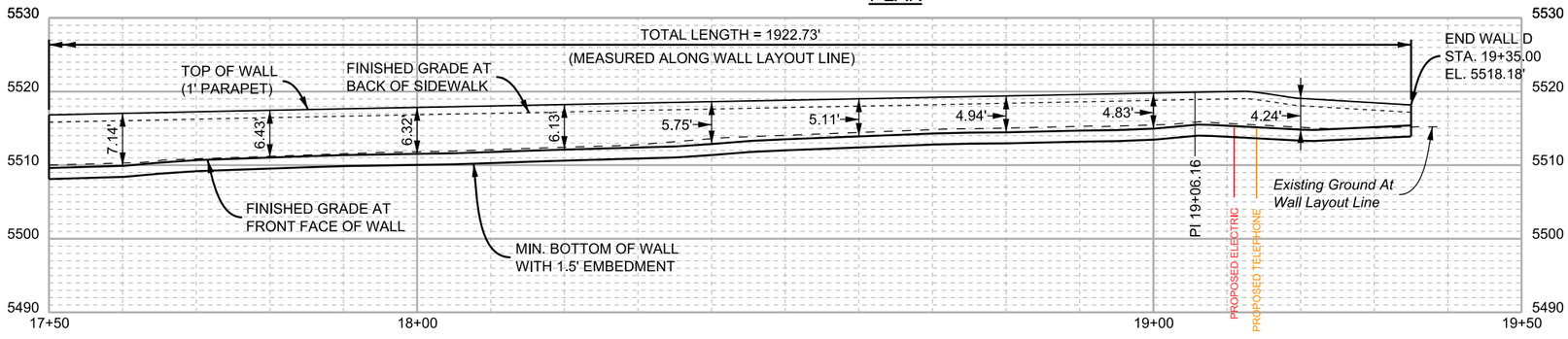

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE DOUBLE SIDED BLOCK PARAPET WITH 6' FENCE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

WALL D - MSP PROFILE
1:1 VERTICAL EXAGGERATION

BEARING DATA

B1	N89°31'54"E
B2	S47°04'05"E

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

N
0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

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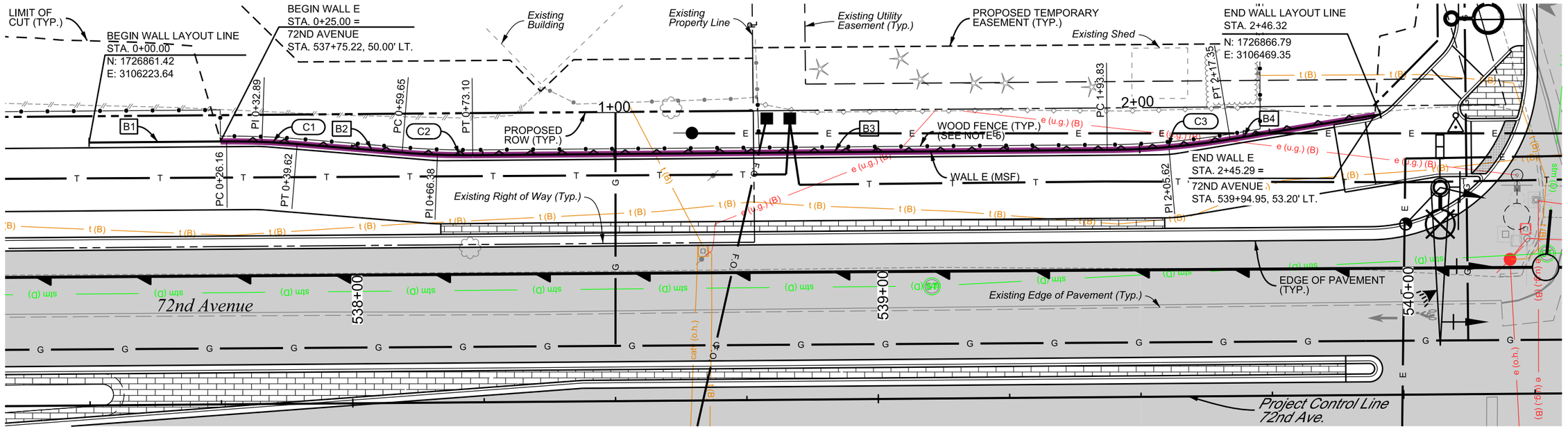
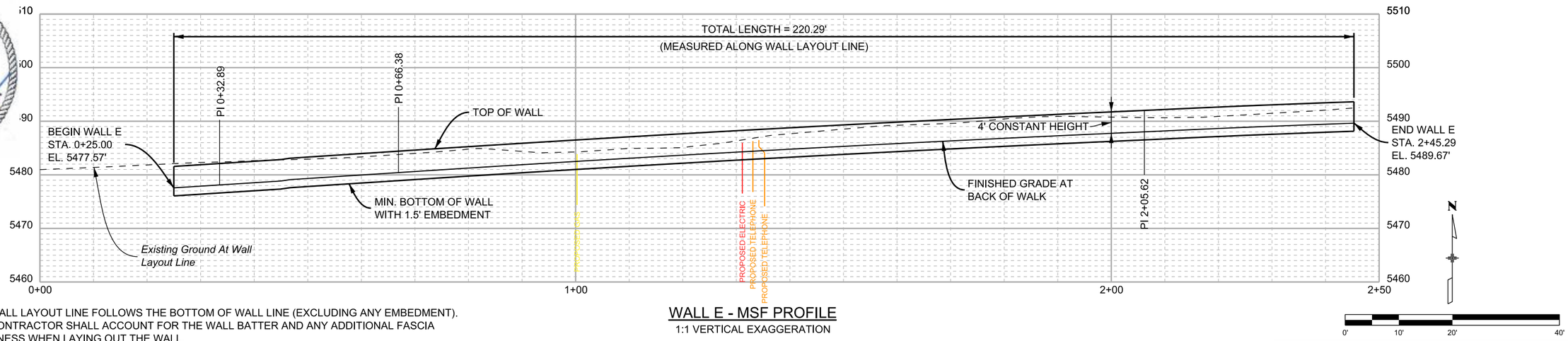
Print Date: 9/20/2021		Sheet Revisions			
Drawing File Name: 18061_CP2_BRG_WallPlan14.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:20	Vert. Scale: As Noted				
Unit Information	Unit Leader Initials				
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	WALL D - MSP			
Revised:	GENERAL LAYOUT (8 OF 8)			
Void:	Designer: HEC	Structure Numbers		
	Detailer: SAD			
	Sheet Subset: WALL	Subset Sheets: 16 of 20		Sheet Number 239



PLAN



WALL E - MSF PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE BOTTOM OF WALL LINE (EXCLUDING ANY EMBEDMENT). THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL.
2. BOTTOM OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE FENCE POST IN MAGNUMSTONE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

BEARING DATA

B1	N89°31'54"E
B2	S85°19'48"E
B3	N89°31'54"E
B4	N80°32'59"E

CURVE DATA

C1 CURVE 1
Δ =5°08'18"
R =150.00'
T =6.73'
L =13.45'
ENTRANCE BRG = N89°31'54"E
EXIT BRG = S85°19'48"E

C2 CURVE 2
Δ =5°08'18"
R =150.00'
T =6.73'
L =13.45'
ENTRANCE BRG = S85°19'48"E
EXIT BRG = N89°31'54"E

C3 CURVE 3
Δ =8°58'54"
R =150.00'
T =11.78'
L =23.51'
ENTRANCE BRG = N89°31'54"E
EXIT BRG = N80°32'59"E

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_BRG_WallPlan15.dgn		
Horiz. Scale:	1:20	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WALL E - MSF
GENERAL LAYOUT

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	17 of 20

Project No./Code

Sheet Number 240

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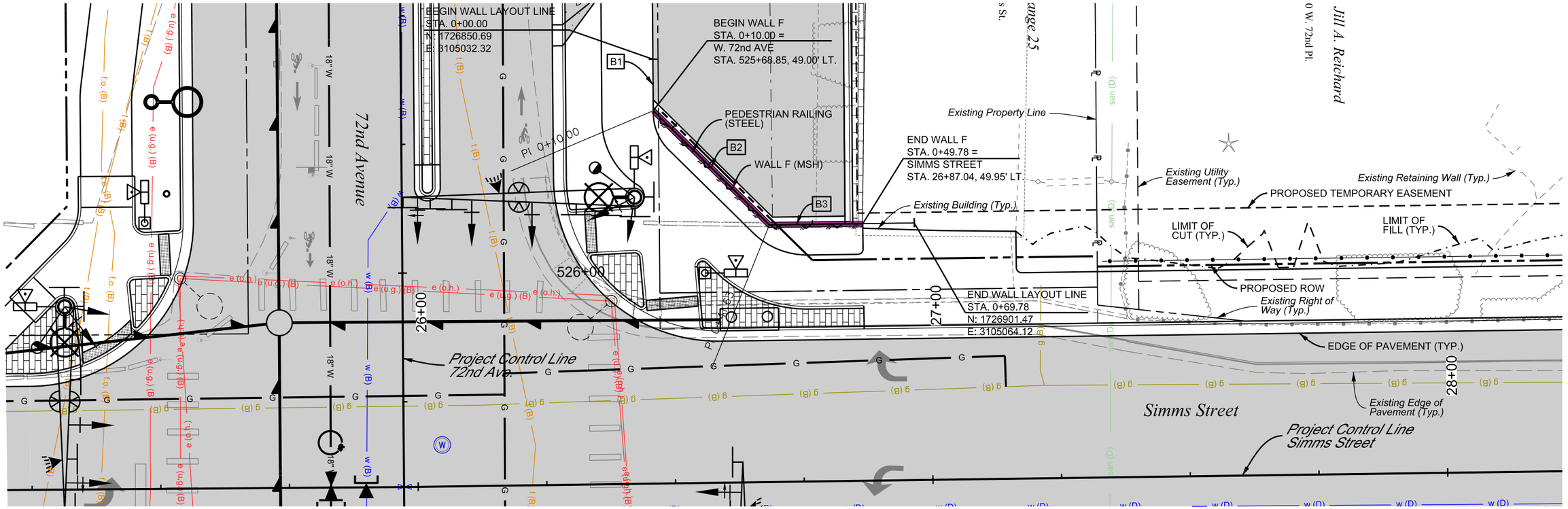

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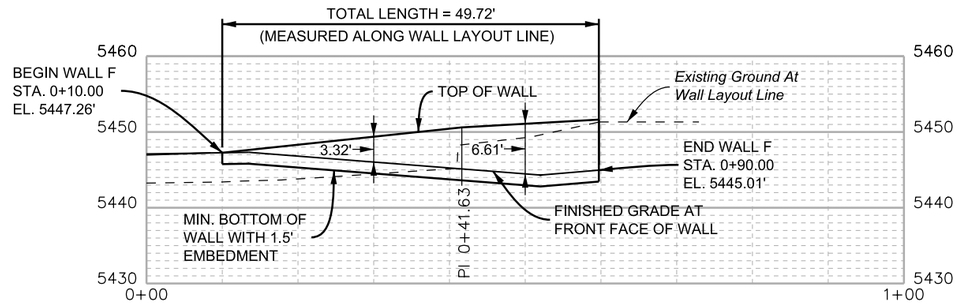

WALL F - MSH PROFILE
1:1 VERTICAL EXAGGERATION

NOTES:

1. THE WALL LAYOUT LINE FOLLOWS THE TOP FACE OF THE WALL. THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL TO ENSURE THAT THE TOP FACE OF THE WALL MATCHES THE HORIZONTAL LOCATION OF THE WALL LAYOUT LINE.
2. TOP OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.

BEARING DATA

B1	N89°32'27"E
B2	N44°32'27"E
B3	N0°46'59"W

COLORADO LICENSED DANIEL K. HELLRUNG 56232 PROFESSIONAL ENGINEER
02/13/2022

0' 10' 20' 40'

LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_BRG_WallPlan16.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
WALL F - MSH
GENERAL LAYOUT

Designer:	HEC	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	WALL	Subset Sheets:	18 of 20

Project No./Code

Sheet Number 241

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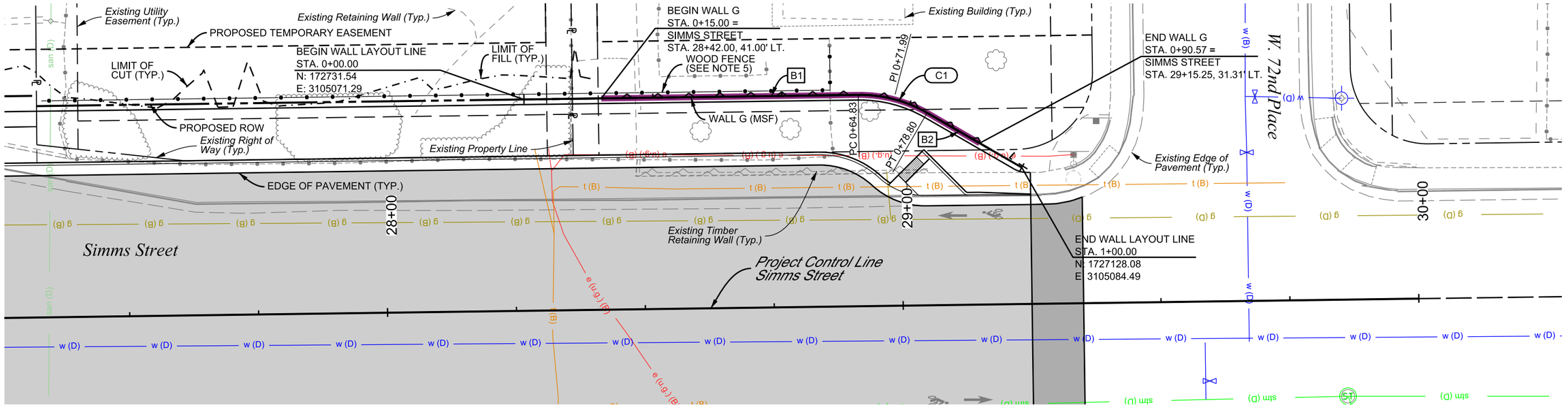
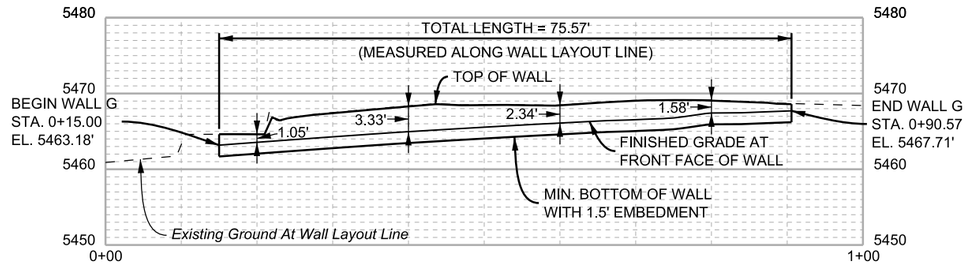


PLAN



WALL G - MSF PROFILE

1:1 VERTICAL EXAGGERATION

NOTES:

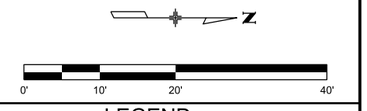
1. THE WALL LAYOUT LINE FOLLOWS THE BOTTOM OF WALL LINE (EXCLUDING ANY EMBEDMENT). THE CONTRACTOR SHALL ACCOUNT FOR THE WALL BATTER AND ANY ADDITIONAL FASCIA THICKNESS WHEN LAYING OUT THE WALL.
2. BOTTOM OF WALL GENERALLY FOLLOWS ROADWAY FINISHED GRADE.
3. EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
4. SEE WALL DETAILS, ROADWAY PLANS, PROFILES, AND TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
5. THE WOOD FENCE SHALL BE INSTALLED SUCH THAT IT IS INTEGRAL WITH THE WALL. SEE FENCE POST IN MAGNUMSTONE DETAIL ON WALL DETAILS SHEET FOR MORE INFORMATION.

BEARING DATA

B1	N0°46'59"W
B2	N30°00'00"E

CURVE DATA

C1 CURVE 1
Δ =30°46'59"
R =26.00'
T =7.16'
L =13.97'
ENTRANCE BRG = N0°46'59"W
EXIT BRG = N30°00'00"E



LEGEND

- LIMIT OF FULL DEPTH PAVEMENT (H.M.A)
- LIMIT OF H.M.A OVERLAY
- LIMIT OF CONCRETE PAVEMENT
- LIMIT OF DRIVEWAY ABC (CLASS 6)
- MEDIAN COVER MATERIAL
- LANDSCAPE AREA

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_BRG_WallPlan17.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	WALL G - MSF GENERAL LAYOUT		
Revised:	Designer: HEC	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: WALL	Subset Sheets: 19 of 20	Sheet Number 242

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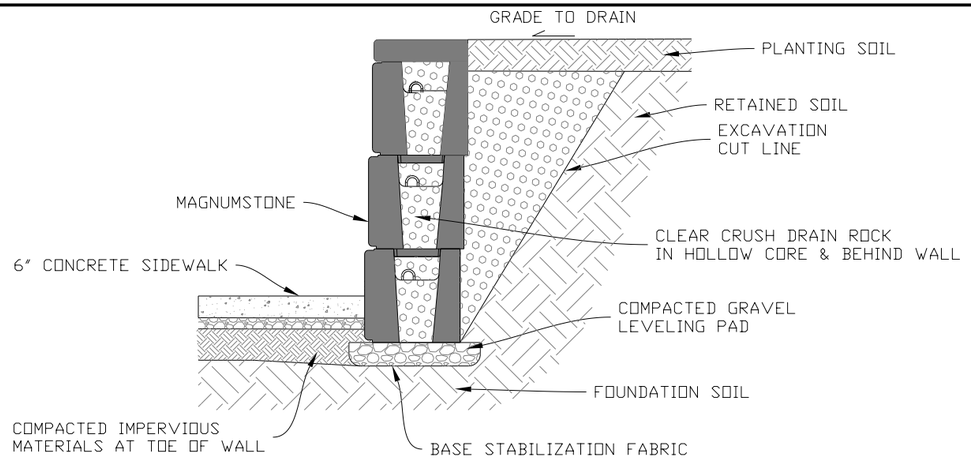
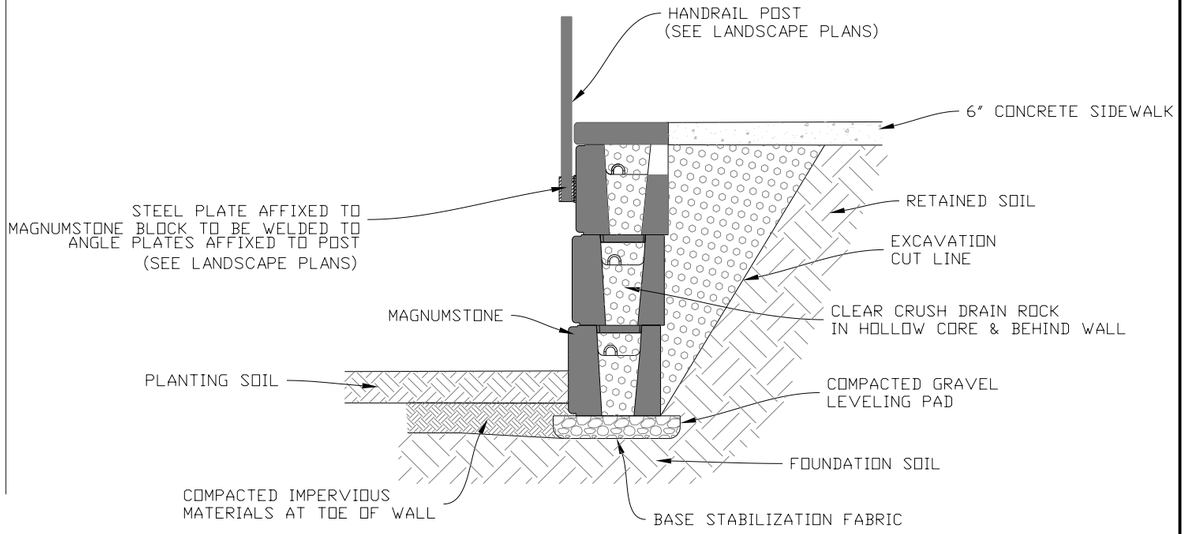


MAGNUMSTONE WITH TEXTURED STEP CAP (MSC)

WALL A

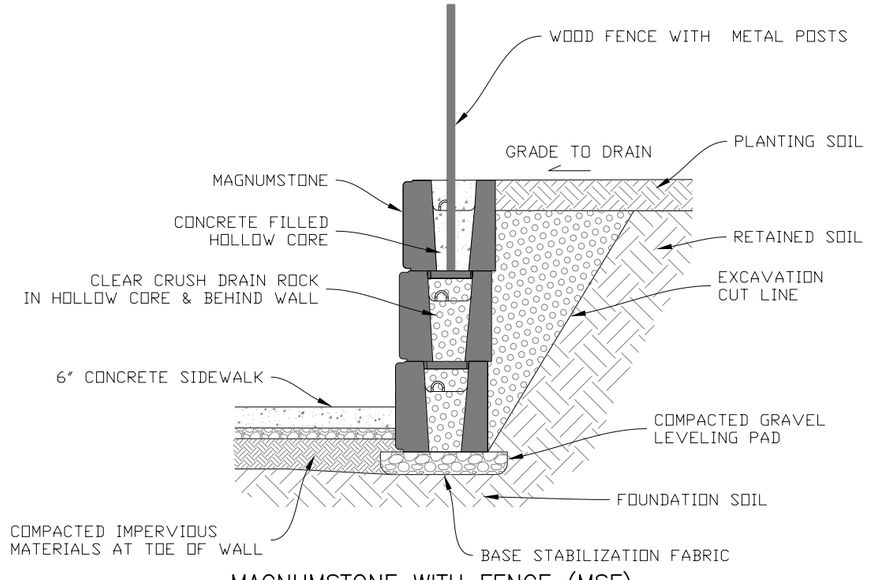


MAGNUMSTONE WITH HANDRAIL (MSH)

WALL B, WALL C AND WALL F

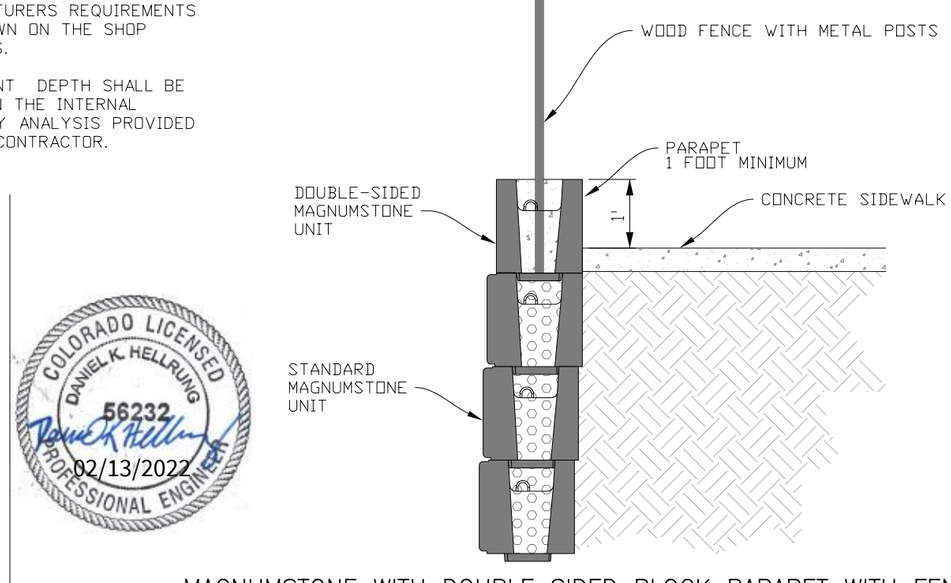
NOTES:

1. DETAILS PROVIDED BY SEMA PRECAST AND DESIGNED BY MAGNUMSTONE.
2. WALL DRAINS ARE NOT SHOWN IN THESE DETAILS AND SHALL BE INSTALLED PER MANUFACTURERS REQUIREMENTS AND SHOWN ON THE SHOP DRAWINGS.
3. EMBEDMENT DEPTH SHALL BE BASED ON THE INTERNAL STABILITY ANALYSIS PROVIDED BY THE CONTRACTOR.



MAGNUMSTONE WITH FENCE (MSF)

WALL E AND WALL G



MAGNUMSTONE WITH DOUBLE SIDED BLOCK PARAPET WITH FENCE (MSP)

WALL D

COLORADO LICENSED DANIEL K. HELLRUNG 56232 02/13/2022 PROFESSIONAL ENGINEER

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_BRG_WallDetails.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:1 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

WALL DETAILS

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	WALL	Subset Sheets:	20 of 20

Project No./Code

Sheet Number 243

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EROSION CONTROL NOTES

1) AT ANYTIME THE CITY DETERMINES THE PROJECT TO BE OUT OF COMPLIANCE WITH EROSION AND SEDIMENT CONTROL / GOOD HOUSEKEEPING REQUIREMENTS, THEY HAVE THE AUTHORITY TO IMMEDIATELY STOP WORK ON THE PROJECT UNTIL THE DETERMINATION HAS BEEN MADE BY CITY STAFF THAT THE SITE HAS REGAINED COMPLIANCE WITH REQUIREMENTS.

2) THE CONTRACTOR SHALL ENSURE STORMWATER QUALITY BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED TO MINIMIZE SOIL EROSION, SEDIMENTATION, INCREASED POLLUTANT LOADS, AND CHANGED WATER FLOW CHARACTERISTICS RESULTING FROM LAND DISTURBING ACTIVITY TO THE MAXIMUM EXTENT PRACTICAL, SO AS TO MINIMIZE POLLUTION TO THE MS4 OR RECEIVING WATERS.

3) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REQUIRED STATE OR LOCAL PERMITS. STANDARD FEES FOR THE CITY PERMIT SHALL BE WAIVED BY THE CITY. THE CITY RESERVES THE RIGHT TO WITHHOLD RETAINAGE ON A PROJECT AS NECESSARY FOR PERFORMANCE OF MAINTENANCE ON BMP's DUE TO CONTRACTORS FAILURE TO COMPLY OR PERFORM EROSION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN.

4) AT A MINIMUM ALL BEST MANAGEMENT PRACTICES (BMP's) AS GENERALLY OUTLINED IN STANDARD DRAWINGS, IN ACCORDANCE WITH CITY OF ARVADA SITE DEVELOPMENT PERMIT REQUIREMENTS AND IN ACCORDANCE WITH APPROVED INSTALLATION AND MAINTENANCE DETAILS, WILL BE CORRECTLY INSTALLED AND FUNCTIONING AS DESIGNED AT ALL TIMES.

5) CONTRACTOR SHALL DESIGNATE AN EROSION CONTROL REPRESENTATIVE AVAILABLE ON-CALL AT ALL TIMES. REPRESENTATIVE SHALL PERFORM ROUTINE AND POST-STORM INSPECTIONS OF ALL BMP's PER CITY SITE DEVELOPMENT PERMIT REQUIREMENTS.

6) ALL BMP's IDENTIFIED BY THE CITY AS DEFICIENT SHALL BE MAINTAINED, REPAIRED, OR INSTALLED BY CONTRACTOR AS SOON AS POSSIBLE, IN MOST CASES IMMEDIATELY.

7) CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING & MAINTAINING EROSION & SEDIMENT CONTROL MEASURES AT ALL TIMES BEFORE, DURING AND AFTER LAND DISTURBING ACTIVITIES. SUCH MEASURES SHALL BE PLACED AS CONSTRUCTION SEQUENCING & ACCESS DICTATES. CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM EROSION CONTROL MEASURES AFTER EACH EROSIVE EVENT, AS NEEDED AND AT THE DIRECTION OF THE CITY.

8) THE CITY MAY REQUEST THE MODIFICATION OF THE EROSION & SEDIMENT CONTROLS AS FIELD CONDITIONS WARRANT.

9) SEE ARVADA DETAILS FOR BMP INSTALLATION AND MAINTENANCE STANDARDS FOR THE FOLLOWING BMP's: ROCK SOCKS, INLET PROTECTION, SILT FENCE, SEDIMENT CONTROL LOGS, CONCRETE WASHOUT AREA, EROSION CONTROL BLANKET, STABILIZED STAGING AREA AND VEHICLE TRACKING CONTROL. OTHER APPROVED BMP INSTALLATION / MAINTENANCE DETAILS CAN BE FOUND IN THE UDFCD VOLUME III CRITERIA MANUAL.

10) SURFACE DRAINAGE PASSING THROUGH OR ORIGINATING FROM EACH SITE SHALL BE TREATED / CAPTURED BY ONE OR MORE BMP's DEPENDENT ON AREA OF DISTURBANCE.

11) SOIL STABILIZATION MEASURES SHALL BE IMPLEMENTED WITHIN 14 DAYS TO ALL DISTURBED AREAS THAT MAY OR MAY NOT BE AT FINAL GRADE BUT WILL REMAIN UNDISTURBED FOR PERIODS LONGER THAN 30 CALENDAR DAYS OR FOR AN INDETERMINATE LENGTH OF TIME.

12) ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMP's MUST BE REMOVED UPON FINAL STABILIZATION.

13) ALL CONSTRUCTION WASTES, FUEL, LUBRICANTS, CHEMICAL WASTES, TRASH OR DEBRIS SHALL BE CONTAINED WHEN STORED ON SITE AND PROTECTED FROM CONTACT WITH RAIN / SNOWFALL OR SURFACE RUNOFF. PROPER DISPOSAL OF SUCH WASTES SHALL BE IMMEDIATE AND THE RESPONSIBILITY OF THE CONTRACTOR.

(continued next sheet)

NO	DWN	DATE	REVISION

ARVADA

STANDARD EROSION CONTROL NOTES FOR CITY PROJECTS

APPROVED:

DATE: 6–2015 | SCALE: NTS | DWN: KBC

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

Sht 1 of 2

SW-13

EROSION CONTROL NOTES (continued)

14) ROUTINE VEHICLE MAINTENANCE SHALL NOT BE PERFORMED ON SITE. IF EQUIPMENT MAINTENANCE / REPAIR BECOMES NECESSARY APPROPRIATE BMP's WILL BE IMPLEMENTED SUCH AS DRIP PANS, SPILL MATERIALS, ETC. ON SITE FUELING SHOULD BE PERFORMED BY DELIVERY VEHICLES WITH ADEQUATE SPILL PREVENTION AND RESPONSE CAPABILITY.

15) CONCRETE WASHOUT ACTIVITIES MUST BE CONDUCTED IN A MANNER THAT DOES NOT CONTRIBUTE POLLUTANTS TO SURFACE WATERS OR STORMWATER RUNOFF. CONCRETE WASHOUT SHALL BE PERFORMED IN A DESIGNATED CONCRETE WASHOUT AREA OR OFFSITE WASHOUT. PORTABLE UNITS ARE ACCEPTABLE WITH A MANUFACTURES SPECIFICATION.

16) CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST EMISSIONS. A WATER TRUCK SHALL BE USED WITHIN TWENTY FOUR (24) HOURS OF REQUEST BY CITY.

17) CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF TRACKED MATERIALS ON STREETS, SIDEWALKS, DRIVEWAYS OR PARKING LOTS. TRACKED MATERIAL WILL BE REMOVED IMMEDIATELY BY SCRAPING AND SWEEPING. FLUSHING MATERIALS FROM HARD SURFACE WITH WATER IS PROHIBITED. CONTRACTOR WILL HAVE ACCESS TO MEANS OF MECHANICAL SWEEPING AT ALL TIMES.

18) AREAS TO BE RESEEDED AT THE COMPLETION OF UTILITY INSTALLATION OR GRADING ACTIVITIES SHOULD BE IN ACCORDANCE WITH UDFCD VOL III SEED/MULCH SPECIFICATIONS.

19) NECESSARY EROSION CONTROL MEASURES MUST REMAIN IN PLACE AND FUNCTIONING AS DESIGNED UNTIL A VIABLE VEGETATIVE COVER HAS BEEN ESTABLISHED OR ROAD RESURFACED.

20) IN HIGH TRAFFIC AREAS WHERE LANE CLOSURES ARE OPENED AT THE END OF THE WORK DAY, BMP's MAY BE REMOVED AT THE END OF THE DAY AND REINSTALLED AT THE BEGINNING OF THE NEXT WORK DAY PROVIDED ALL DIRT AND MATERIALS ARE REMOVED FROM THE AREA AND AT THE DISCRETION OF THE CITY OF ARVADA INSPECTOR.

NO	DWN	DATE	REVISION

ARVADA

STANDARD EROSION CONTROL NOTES FOR CITY PROJECTS

APPROVED:

DATE: 6–2015 | SCALE: NTS | DWN: KBC

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

Sht 2 of 2

SW-13a

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Drawing File Name:	18061_CP2_SWMP_Notes01.dgn
Horiz. Scale:	1:1
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

EROSION CONTROL NOTES
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SWMP	Subset Sheets:	1 of 2

Project No./Code	
Sheet Number	244

ADDITIONAL EROSION CONTROL NOTES

21. EROSION CONTROL PLAN INFORMATION OR SWMP SITE MAP SHOWN IS BASED UPON EXISTING CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR MAKING DETERMINATION AS TO THE ACCURACY OF BMP/CONTROL MEASURE TYPES AND LOCATIONS SHOWN. THE CONTRACTED EROSION CONTROL SUPERVISOR SHALL COORDINATE WITH THE SUPERINTENDENT AND ENGINEER AS TO THE APPROPRIATE BMPS/CONTROL MEASURES AND THEIR LOCATIONS AND SHALL MAKE THE UPDATES TO THE EROSION CONTROL PLANS AS SOON AS THE CHANGES ARE KNOWN.
22. CONTRACTOR SHALL USE CONSTRUCTION FENCE AND BARRIERS AROUND LIMITS OF WORK AS NECESSARY TO KEEP PEDESTRIANS OUT OF WORK AREA AND CONSTRUCTION VEHICLES WITHIN WORK AREA SHOWN ON PLANS.
23. CONTRACTOR SHALL SWEEP UP SAWCUT SLURRY AFTER SAWCUTTING OPERATIONS TO KEEP IT FROM BEING TRANSPORTED INTO EXISTING DRAINAGE SYSTEM.
24. VEHICLE TRACKING PAD AND CONCRETE WASHOUT AREA LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND DRAWN ON THE PLANS WITHIN THE LIMITS OF CONSTRUCTION. FOR THE TABULATION OF STORMWATER QUANTITIES, IT WAS ASSUMED THAT FIVE VEHICLE TRACKING PADS AND FIVE CONCRETE WASHOUT AREAS ARE NEEDED.
25. IF STABILIZED STAGING AREA IS USED BY THE CONTRACTOR, THE LOCATION SHALL BE SHOWN ON THE PLANS WITHIN THE LIMITS OF CONSTRUCTION, WITH APPROPRIATE BMPS/CONTROL MEASURES.
26. INLET PROTECTION SHALL BE INSTALLED ON EXISTING INLETS PRIOR TO THE START OF CONSTRUCTION. PROTECTION FOR PROPOSED INLETS SHALL BE INSTALLED ONCE THE INLET IS IN PLACE.
27. STREET SWEEPING SHALL BE COMPLETED IN ACCORDANCE WITH CDOT SUBSECTION 208.04.
28. PRIOR TO ANY GROUND DISTURBING ACTIVITY PLASTIC FENCE SHALL BE INSTALLED OUTSIDE OF THE DRIPLINE OF ALL TREES OR VEGETATION TO BE PROTECTED.
29. ADDITIONAL BMP/CONTROL MEASURE QUANTITIES FOR STOCKPILE PROTECTION, PERIMETER CONTROL, AND OTHER MISCELLANEOUS EROSION PROTECTION ARE INCLUDED IN THE TABULATION AS FOLLOWS: 100 LF SILT FENCE, 500 LF OF SEDIMENT CONTROL LOG, AND 2.8 ACRE SEEDING.
30. CITY OF ARVADA AND MHFD DETAILS SHOWN IN PLANS TAKE PRECEDENCE OVER CDOT DETAILS. REFER TO CDOT M&S STANDARD M-208-1 FOR CULVERT PROTECTION AND INLET PROTECTION (TYPE II).

TABULATION OF EROSION CONTROL QUANTITIES

CDOT Pay Item	Description	Pay Unit	Initial Const.	Interim Const.	Permanent Stabilization	Total Quantity
203-01500	Blading	Hour		50		50
203-01550	Dozing	Hour		50		50
207-00700	Topsoil (Onsite)[1]	CY			3,021	3,021
208-00002	(Sediment Control Log) Erosion Log Type 1 (12 inch)	LF	4,295	4,315		8,610
208-00035	(Rock Sock) Aggregate Bag	LF	84	906		990
208-00045	Concrete Washout Structure	Each		3		3
208-00051	Storm Drain Inlet Protection (Type I) (Curb Inlets)	Each	5	21		26
208-00054	Storm Drain Inlet Protection (Type II) (Combination Inlets)	Each		5		5
208-00056	Storm Drain Inlet Protection (Type III) (Area Inlets)	Each	6	9		15
208-00075	Pre-fabricated Vehicle Tracking Pad	Each		5		5
208-00103	Removal and Disposal of Sediment (Labor)	Hour		20		20
208-00105	Removal and Disposal of Sediment (Equipment)	Hour		20		20
208-00106	Sweeping (Sediment Removal)	Hour		100		100
208-00200	Erosion Control Management (ECM)	L S		1		1
212-00006	Seeding (Native)	Acre			8.4	8.4
212-00028	Seeding (Wetlands)	Acre			0.03	0.1
212-00032	Soil Conditioning	Acre			5.6	5.6
213-00003	Mulching (Weed Free)	Acre			5.6	5.6
213-00061	Mulch Tackifier	LB			1,124	1,124
216-00221	(Erosion Control Blanket) Soil Retention Blanket (Coconut)	SY		1,736		1,736
208-00020	Silt Fence	LF	100			100
607-11525	Fence (Plastic)	LF	75	150		225

1 Quantity carried forward to the summary of earthwork tabulation.

NATIVE SEED MIX

COMMON NAME	SCIENTIFIC NAME	LBS. PLS PER ACRE
WESTERN WHEATGRASS	*Pascopyron smithii 'Arriba'*	4.0
SLENDER WHEATGRASS	*Elymus trachycaulus 'First Strike'*	4.0
LITTLE BLUESTEM	*Schizachyrium scoparium*	1.5
SIDEOATS GRAMA	*Bouteloua curtipendula*	2.0
BUFFALOGRASS	*Bouteloua dactyloides*	7.0
BLUE GRAMA	*Bouteloua gracilis*	1.5
	TOTAL LBS. PLS PER ACRE	20.0

PLS = Pure Live Seed. Double seeding rates for broadcast seeding.

WETLAND SEED MIX

COMMON NAME	SCIENTIFIC NAME	LBS. PLS PER ACRE
ALKALI SACATON	*Sporobolus airoides*	0.4
INLAND SALTGRASS	*Distichlis spicata*	1.2
NUTTALL'S ALKALIGRASS	*Puccinellia nuttalliana*	0.2
PRAIRIE CORDGRASS	*Spartina pectinata*	3.0
SLENDER WHEATGRASS	*Elymus trachycaulus spp.*	3.8
WESTERN WHEATGRASS	*Pascopyrum smithii*	5.5
FOWL MANNAGRASS	*Glyceria striata*	3.3
HARDSTEM BULRUSH	*Scirpus acutus*	1.6
BALTIC RUSH	*Juncus balticus*	0.1
CREEPING SPIKERUSH	*Eleocharis palustris*	1.0
	TOTAL LBS. PLS PER ACRE	20.1

PLS = Pure Live Seed. Double seeding rates for broadcast seeding.

EROSION CONTROL LEGEND

- CWA — CONCRETE WASHOUT AREA
- SCL — SEDIMENT CONTROL LOG
- SCL — SEDIMENT CONTROL LOG
- IP3 — STORM DRAIN AREA INLET PROTECTION ROCK SOCK TYPE 3
- RS — ROCK SOCK
- IP# — INLET PROTECTION TYPE 1 OR TYPE 2
- VTC — VEHICLE TRACKING PAD
- LDA — LIMITS OF DISTURBANCE
- LOC — LIMITS OF CONSTRUCTION
- SF — SILT FENCE
- PF — PLASTIC FENCE
- GB — GRASSY BUFFER
- RC — EXISTING RIPRAP CHECK DAMS
- SM — NATIVE GRASS SEEDING AND MULCHING
- SW — WETLAND SEEDING
- PS — LANDSCAPE PLANTING OR SOD SEE LANDSCAPE PLANS
- ECB — EROSION CONTROL BLANKET
- SSA — STABILIZED STAGING AREA
- EXISTING WETLANDS
- IMPACTED W.O.U.S.
- IMPACTED WETLANDS
- XXXX — EXISTING CONTOUR
- XXXX — PROPOSED CONTOUR
- EXISTING W.O.U.S.
- TOE OF FILL
- TOP OF CUT
- FLOW ARROW
- PHASE: INTERIM, AND/OR FINAL
- PHASE / XXX / QTY
- BMP IDENTIFICATION
- QUANTITY OF BMP

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Horiz. Scale: 1:1	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

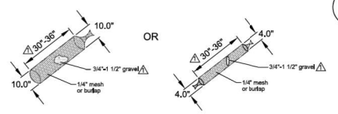
EROSION CONTROL NOTES
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SWMP	Subset Sheets:	2 of 2

Project No./Code

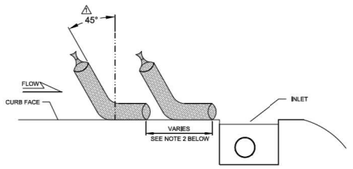
Sheet Number 245

RS



10" DIAMETER 4" DIAMETER

DETAIL 1



DETAIL 2

NOTES:

1) ROCK SOCKS WILL BE USED UPGRADE OF INLET PERPENDICULAR WITH CURB.
2) PLACEMENT AND NUMBER OF ROCK SOCKS VARIES FOR DIFFERENT APPLICATIONS.
3) INCLINE AT 45 DEGREES FROM PERPENDICULAR, OPPOSITE THE DIRECTION OF FLOW (SEE DETAIL 2).
4) EROSION CONTROL MEASURES SHALL BE MAINTAINED AND FUNCTIONING AS DESIGNED AT ALL TIMES AND AS DIRECTED BY THE CITY OF ARVADA INSPECTOR,
5) ROCK SOCKS CAN BE USED IN LIEU OF INLET PROTECTION FOR UTILITY PROJECTS AND AS DIRECTED BY THE CITY OF ARVADA INSPECTOR
6) ROCK SOCKS USED IN CONJUNCTION WITH STOCKPILE PROTECTION INSTALLATION DETAIL WILL VARY IN LENGTH

* THIS DETAIL MAY BE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER OR EY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	K.B.C.	6/05/15	DETAIL TITLE, NOTES, MISC.

ROCK SOCK

APPROVED:

DATE: 6-2015 SCALE: NTS DWN: RGN

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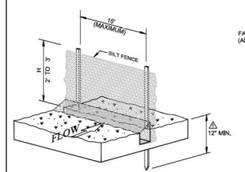
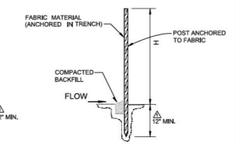
SW-2

SF

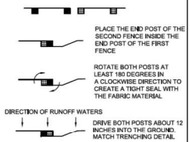




SILT FENCE INSTALLATION

NOTES:

1. SILT FENCE SHALL BE CONSTRUCTED BEFORE ANY UPSLOPE OR LAND DISTURBANCE BEGINS.
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. TO PREVENT WATER PONDED BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION.
4. WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AND ENSURE IT MATCHES THE APPROVED ACREAGE OF DISTURBANCE FOR LINEAL FOOTAGE OF SILT FENCE, NO MORE THAN 1/4 ACRE OF DISTURBANCE PER 100 FEET OF SILT FENCE LENGTH, MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1.
5. SILT FENCE USED AT THE TOE OF A SLOPE SHALL BE PLACED 6" TO 18" BEYOND THE TOE TO PROVIDE STORAGE CAPACITY..
6. MAINTENANCE - SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSED FLOW THROUGH THE FABRIC MATERIAL. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: 1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, 2) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR 3) OTHER PRACTICES SHALL BE ADDED AS DIRECTED.
7. EROSION CONTROL MEASURES SHALL BE MAINTAINED AND FUNCTIONING AS DESIGNED AT ALL TIMES AND UNTIL STABILIZATION IS COMPLETED.



SILT FENCE REPAIR & JOINING

* THIS DETAIL MAY BE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER OR BY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	KBC	6/05/15	NOTES, REMOVE 4" TRENCH

SILT FENCE

APPROVED:

DATE: 6-2015 SCALE: NTS DWN: RGN

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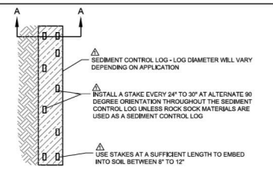
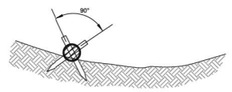
SW-3

SCL



PLAN



SECTION A - A

NOTE: SEDIMENT CONTROL LOGS MAY CONSIST OF MATERIAL DEFINED IN THIS DETAIL OR ROCK SOCKS - SEE DETAIL SW-2.

NOTES

1) SEE PLAN VIEW FOR LOCATION OF SEDIMENT CONTROL CONTROL LOG.
2) SEDIMENT CONTROL LOGS INDICATED ON INITIAL EROSION CONTROL PLANS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES OTHER THAN INITIAL GRADING.
3) SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
4) **NOT FOR USE IN CONCENTRATED FLOW AREAS.**
5) THE SEDIMENT CONTROL LOGS SHALL BE TRENCHED INTO THE GROUND BETWEEN 1" AND 2" AND BE DESIGNED TO CURVE UPHILL/UPSTREAM OF FLOW DIRECTION.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

1) THE SEDIMENT CONTROL LOGS SHALL BE INSPECTED ROUTINELY, DURING AND AFTER ANY STORM EVENT. MAKE REPAIRS AND REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT IMMEDIATELY.
2) SEDIMENT CONTROL LOGS IS SHALL BE MAINTAINED AND FUNCTIONING AS DESIGNED AT ALL TIMES.
3) SEDIMENT CONTROL LOGS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE COVERED WITH TOP SOIL, DRILL SEEDED AND CRIMPED MULCHED OR OTHERWISE STABILIZED IN A MANNER AS APPROVED BY THE CITY OF ARVADA INSPECTOR.

* THIS DETAIL MAY BE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER OR BY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	KBC	6/08/15	MODIFY NOTES & SECTION A-A

SEDIMENT CONTROL LOG

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DATE: 6-2015 SCALE: NTS DWN: RGN

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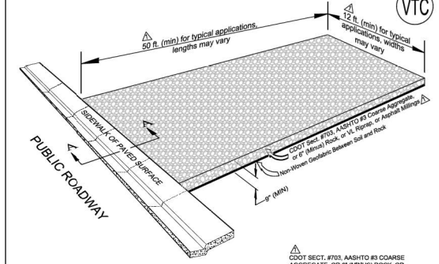
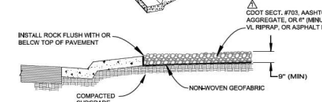
SW-4

VTC





SECTION A-A

NOTES:

1. ALL ROCK WILL BE REMOVED UPON COMPLETION OF CONSTRUCTION OR SOONER BASED UPON INFRASTRUCTURE PHASING AND APPROVAL BY THE CITY OF ARVADA INSPECTOR.
2. ALL PUBLIC ROADWAYS. CURB AND GUTTER. AND SIDEWALK WILL BE KEPT CLEAN AND FREE OF MUD, DIRT. ROCK AND DEBRIS AT ALL TIMES.
3. EROSION CONTROL MEASURES SHALL BE MAINTAINED AND FUNCTIONING PER DESIGN AT ALL TIMES AND AS DIRECTED BY THE CITY OF ARVADA INSPECTOR,
4. TEMPORARY OR PORTABLE TRACKING CONTROLS MAY SE USED IN LOCATIONS APPROPRIATE FOR MINIMIZED ACCESS AND APPROVED BY THE CITY OF ARVADA INSPECTOR,
5. SITES LARGER THAN 5 ACRES MUST IMPLEMENT ADDITIONAL CONTROLS SUCH AS EXTENDING THE LENGTH OF THE CONTROL OR INCORPORATING A WHEEL WASH, REFER TO URBAN DRAINAGE AND FLOOD CONTROL DISTRICT VOLUME III FOR INSTALLATION DETAILS
6. CONTROL SHALL EXTEND FULL WIDTH OF INGRESS AND EGRESS.

* THIS DETAIL MAY BE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER OR BY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	KBC	6/08/15	MODIFY NOTES

VEHICLE TRACKING CONTROL

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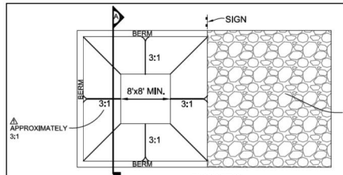
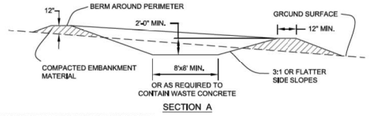
SW-5

CWA



PLAN VIEW



SECTION A

CONCRETE WASHOUT AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATIONS OF CONCRETE WASHOUT AREA.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE OR ON THE PROJECT.
3. VEHICLE TRACKING CONTROL IS REQUIRED AT THE ACCESS POINT OR AS DETERMINED BY THE CITY OF ARVADA PROJECT ENGINEER OR THE CITY OF ARVADA INSPECTOR, INSTALLATION OF TRACKING CONTROL IS DEPENDENT ON LOCATION OF WASHOUT AREA.
4. A SIGN WILL BE PLACED ON SITES LARGER THAN 1 ACRE TO CLEARLY INDICATE THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL CAN BE UTILIZED IN THE PERIMETER BERM CONSTRUCTION.
6. PORTABLE CONCRETE WASHOUTS ARE ACCEPTED AS A SOLUTION TO HAVING A PERMANENT STRUCTURE OR AS DETERMINED BY THE CITY OF ARVADA PROJECT ENGINEER OR THE CITY OF ARVADA INSPECTOR.

CONCRETE WASHOUT AREA MAINTENANCE NOTES

1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE,
2. AT THE END OF CONSTRUCTION ,AS SOON AS POSSIBLE AND IMMEDIATELY IF NOT PROPERLY CONTAINED, ALL CONCRETE WASTE SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF,
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, COVER THE DISTURBED AREA WITH CLEAN TOPSOIL, DRILL SEED AND CRIMP MULCH OR OTHERWISE STABILIZE IN A MANNER AS APPROVED BY THE CITY OF ARVADA PROJECT ENGINEER OR BY THE CITY OF ARVADA INSPECTOR,
4. EROSION CONTROL MEASURES SHALL BE MAINTAINED AND FUNCTIONING AS DESIGNED AT ALL TIMES AND AS DIRECTED BY THE CITY OF ARVADA INSPECTOR,

* THIS DETAIL MAY BE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER ORBY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	KBC	6/08/15	MODIFY NOTES

CONCRETE WASHOUT AREA

APPROVED:

DATE: 6-2015 SCALE: NTS DWN: RGN

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

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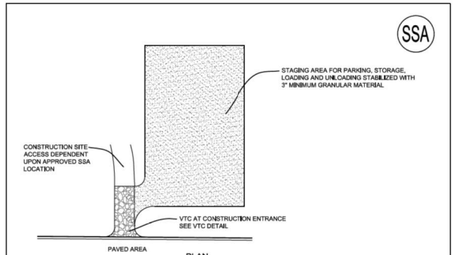
SW-6

SSA



PLAN

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH APPROVAL FROM THE CITY OF ARVADA INSPECTOR,
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
3. INCLUSION OF CONSTRUCTION SITE ACCESS IS DEPENDENT ON LOCATION OF THE STABILIZED STAGING AREA.
4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE OTHER THAN INITIAL GRADING.
5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL .

STABILIZED STAGING AREA MAINTENANCE NOTES

1. THE CONTRACTOR SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND ADD MATERIAL AS NECESSARY AND AS DIRECTED BY THE CITY OF ARVADA INSPECTOR,
2. CONTRACTOR SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED,
3. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
4. ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA IMMEDIATELY.
5. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE CITY OF ARVADA INSPECTOR, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.
6. EROSION CONTROL MEASURES SHALL BE MAINTAINED AND FUNCTIONING AS DESIGNED AT ALL TIMES AND AS DIRECTED BY THE CITY OF ARVADA INSPECTOR,

* THIS DETAIL MAY BE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER OR BY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	KBC	6/08/15	MODIFY NOTES

STABILIZED STAGING AREA

APPROVED:

DATE: 6-2015 SCALE: NTS DWN: RGN

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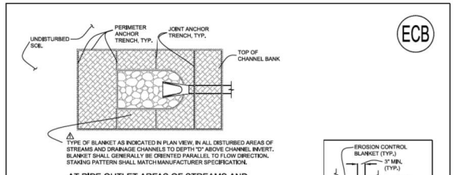
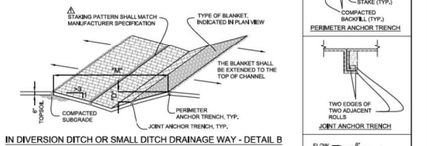
SW-7

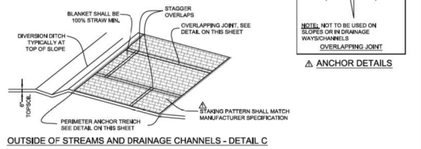
ECB



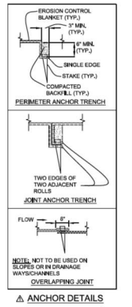
AT PIPE OUTLET AREAS OF STREAMS AND DRAINAGE CHANNELS - DETAIL A



IN DIVERSION DITCH OR SMALL DITCH DRAINAGE WAY - DETAIL B



OUTSIDE OF STREAMS AND DRAINAGE CHANNELS - DETAIL C



ANCHOR DETAILS

* THIS DETAIL MAY BE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER OR BY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	KBC	6/08/15	MODIFY NOTES/ANCHOR DETAILS

EROSION CONTROL BLANKET

APPROVED:

DATE: 6-2015 SCALE: NTS DWN: RGN

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

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Sht 1 of 2

SW-8

ECB

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
   - TYPE OF BLANKET (STRAW, STRAW/COCONUT, COCONUT, OR EXCELSIOR).
   - AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
2. ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL! NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTO DEGRADABLE, SHALL BE ALLOWED,
3. IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION AND SEEDING, SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL BLANKETS.
6. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1,
7. ANY AREAS DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKET SHALL BE RESEEDED AND MULCHED,
8. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM ONES SHOWN HERE;

TABLE 7.1 - EROSION CONTROL BLANKET TYPE

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	NETTING MIN.
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW/COCONUT	30% MIN.	70% MAX.	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

* FOR OUTSIDE OF STREAMS AND DRAINAGE CHANNELS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE CITY OF ARVADA INSPECTOR.
3. ANY EROSION CONTROL BLANKET PULLED OUT, "TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED, ANY SUBGRADE AREAS BELOW THE BLANKET THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR "HAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND THE EROSION CONTROL BLANKET REINSTALLED.
4. ERCSION CONTROL MEASURES SHALL BE MAINTAINED AND FUNCTIONING AS DESIGNED AT ALL TIMES AND AS DIRECTED BY THE CITY OF ARVADA INSPECTOR,

* THIS DETAIL MAY EE MODIFIED UPON APPROVAL BY THE CITY OF ARVADA PROJECT ENGINEER OR BY THE CITY OF ARVADA INSPECTOR.*

NO	DWN	DATE	REVISION
A	KBC	6/08/15	MODIFY NOTES, REMOVE STAKING

EROSION CONTROL BLANKET (CONTINUED)

APPROVED:

DATE: 6-2015 SCALE: NTS DWN: RGN

PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

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Sht 2 of 2

SW-8a

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_SWMP_Details01.dgn
Horiz. Scale:	1:1
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

EROSION CONTROL DETAILS
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SWMP	Subset Sheets:	1 of 2

Project No./Code

Sheet Number 246

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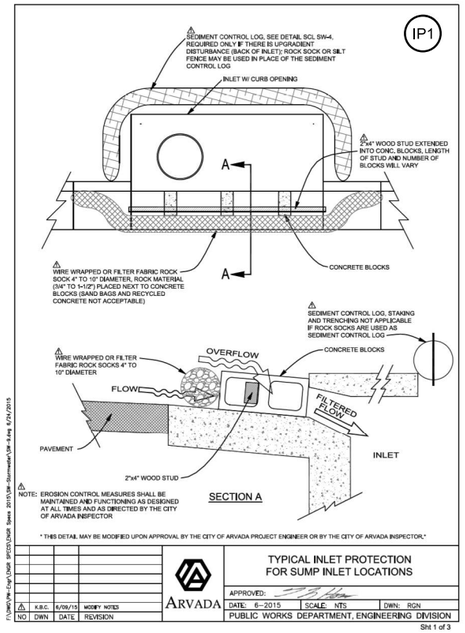
9/17/2021



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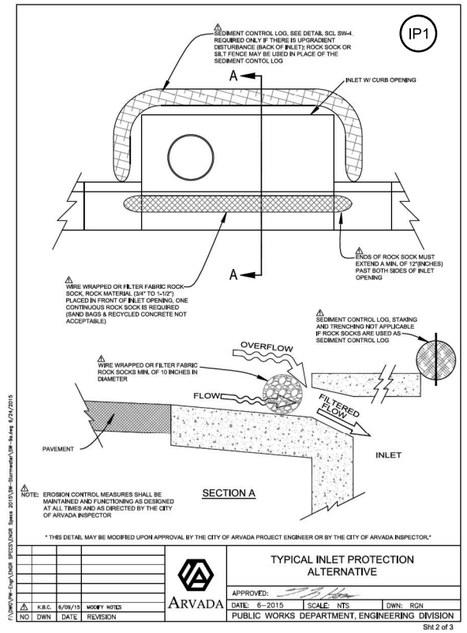

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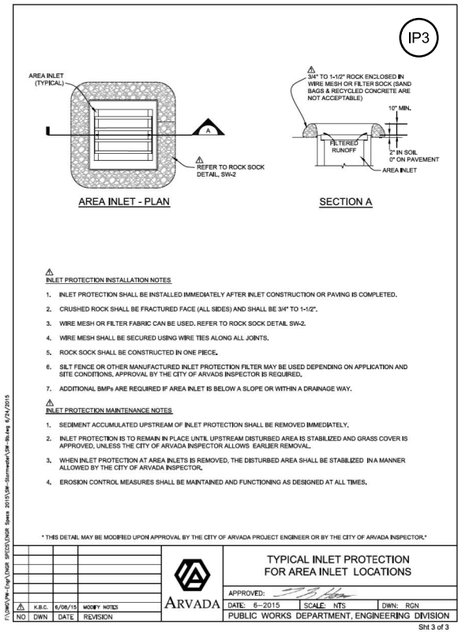

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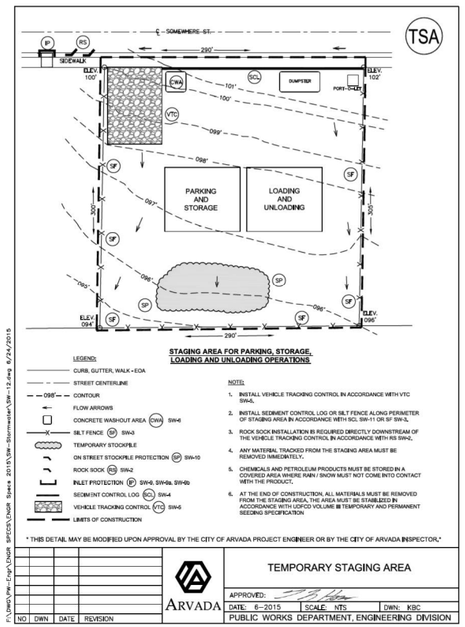

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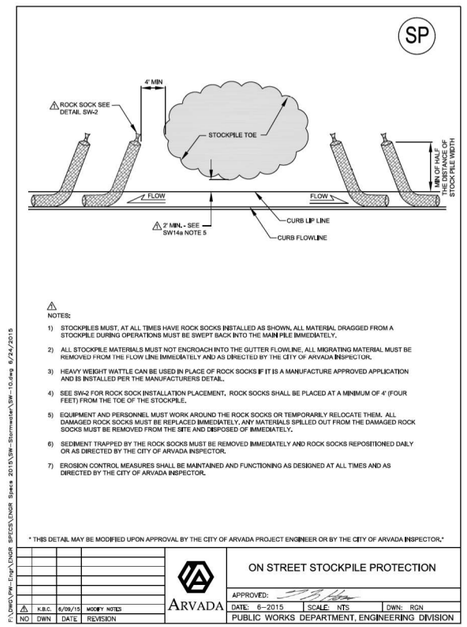
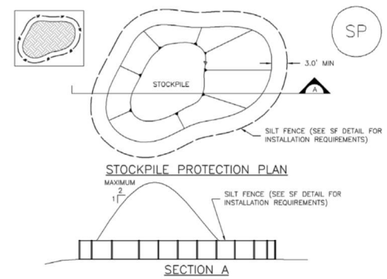


SW-10

Stockpile Management (SP) MM-2



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF STOCKPILES.
   - TYPE OF STOCKPILE PROTECTION.

2. INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30–60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	EROSION CONTROL DETAILS W. 72ND AVENUE		
Revised:	Designer: MAS	Structure Numbers	
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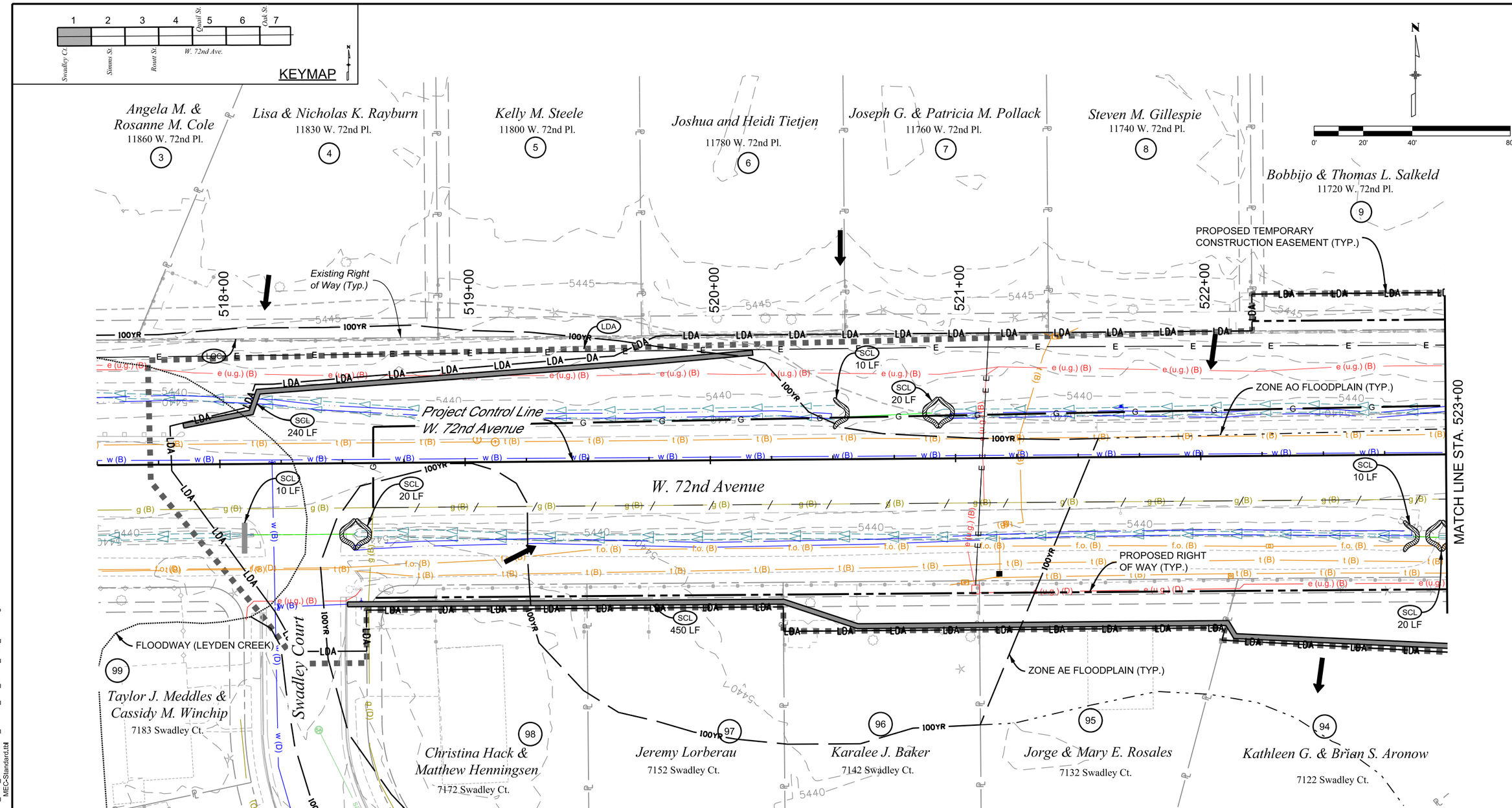

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MULLER ENGINEERING COMPANY			

CITY OF ARVADA

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No Revisions:	SWMP - INITIAL W. 72ND AVENUE			
Revised:	Designer: MAS	Structure Numbers		
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KEYMAP

1 2 3 4 5 6 7

Swadley Ct. | Simms St. | Routt St. | Quail St. | Oak St. | W. 72nd Ave.

N

0' 20' 40' 80'

Gretchen S. Palmer
11680 W. 72nd Pl.

Enterprise Grange 25
7203 Simms St.

Hal A. & Dianne L. Pierson
11560 W. 72nd Pl.

First United Church of Arvada
7195 Simms St.

Twin Star Energy LLC
7190 Simms St.

Simms Street

W. 72nd Avenue

Project Control Line
W. 72nd Avenue

ZONE AO FLOODPLAIN (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Right of Way (Typ.)

MATCH LINE STA. 523+00

MATCH LINE STA. 528+50

523+00 524+00 525+00 526+00 527+00 528+00

25+00 27+00

10 11 12 15 93

LDA SCL 10 LF SCL 20 LF SCL 35 LF SCL 130 LF SCL 165 LF SCL 25 LF

IP1 EACH RS 6 LF IP3 EACH LOC

SEE SIMMS ST DRAINAGE PLAN FOR ADDITIONAL INFORMATION

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Unit Information	Unit Leader Initials		

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - INITIAL
W. 72ND AVENUE

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Detailer:	SAD		
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Project No./Code

Sheet Number 249

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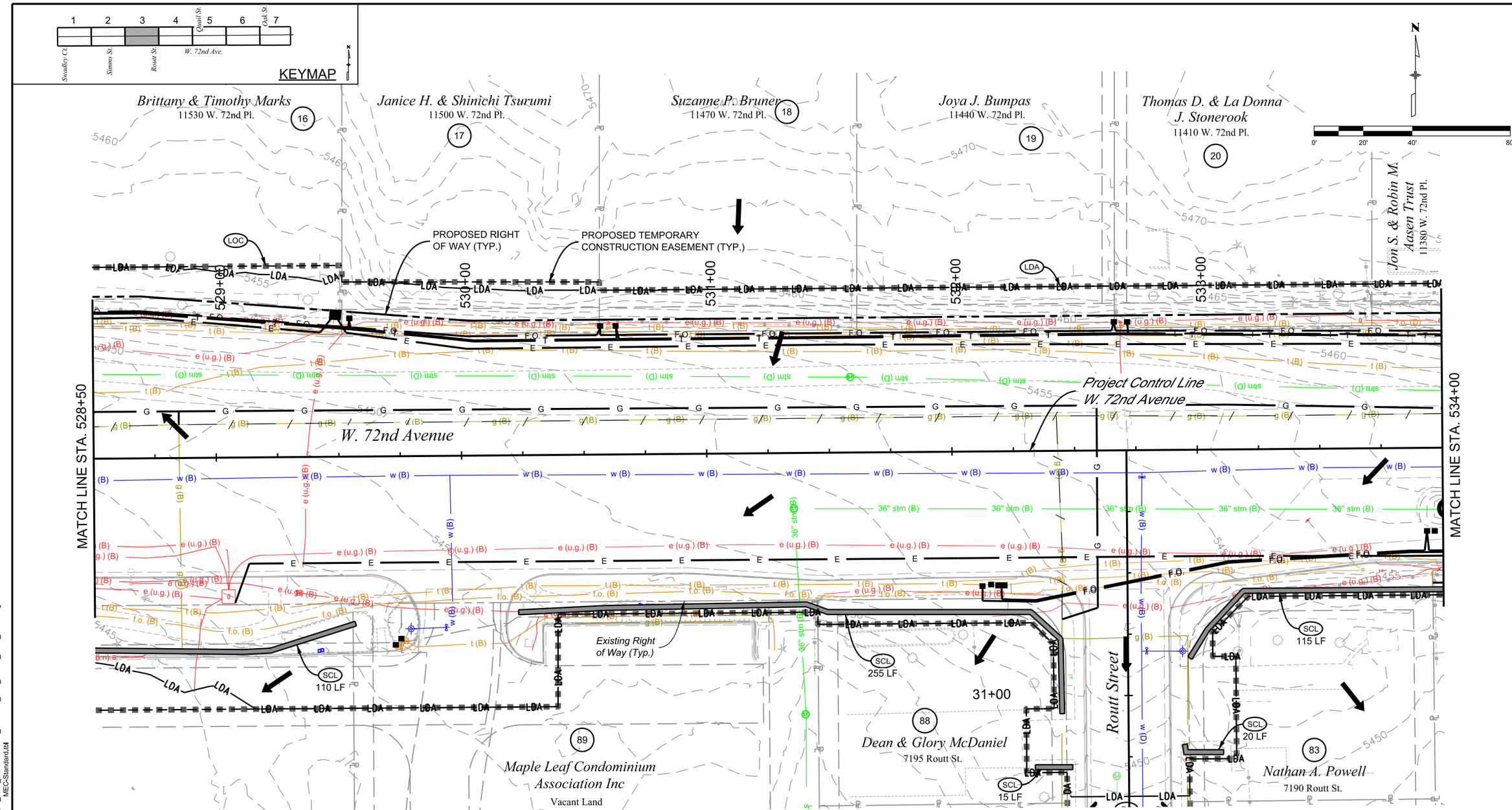

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MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
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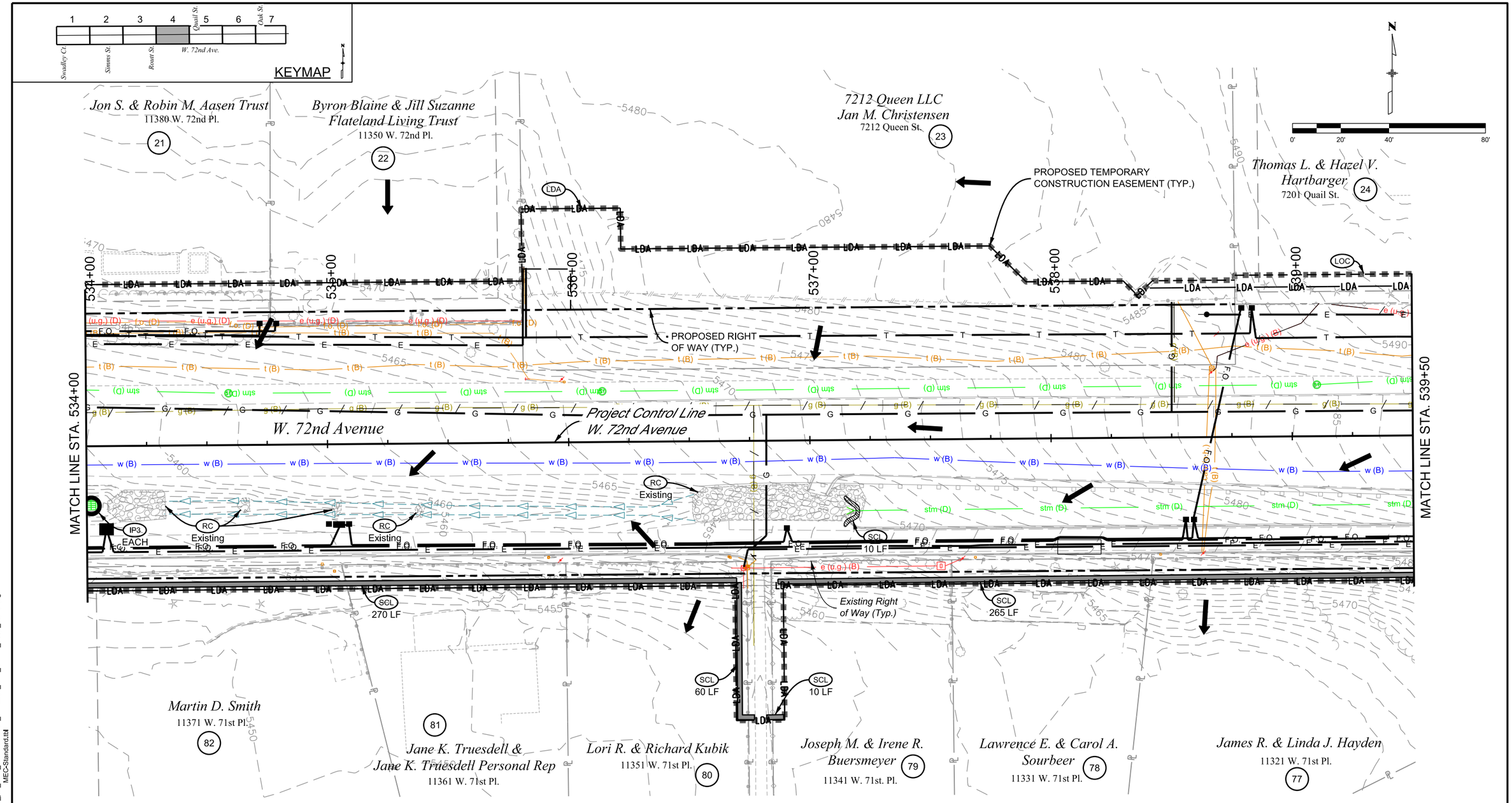

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - INITIAL
W. 72ND AVENUE

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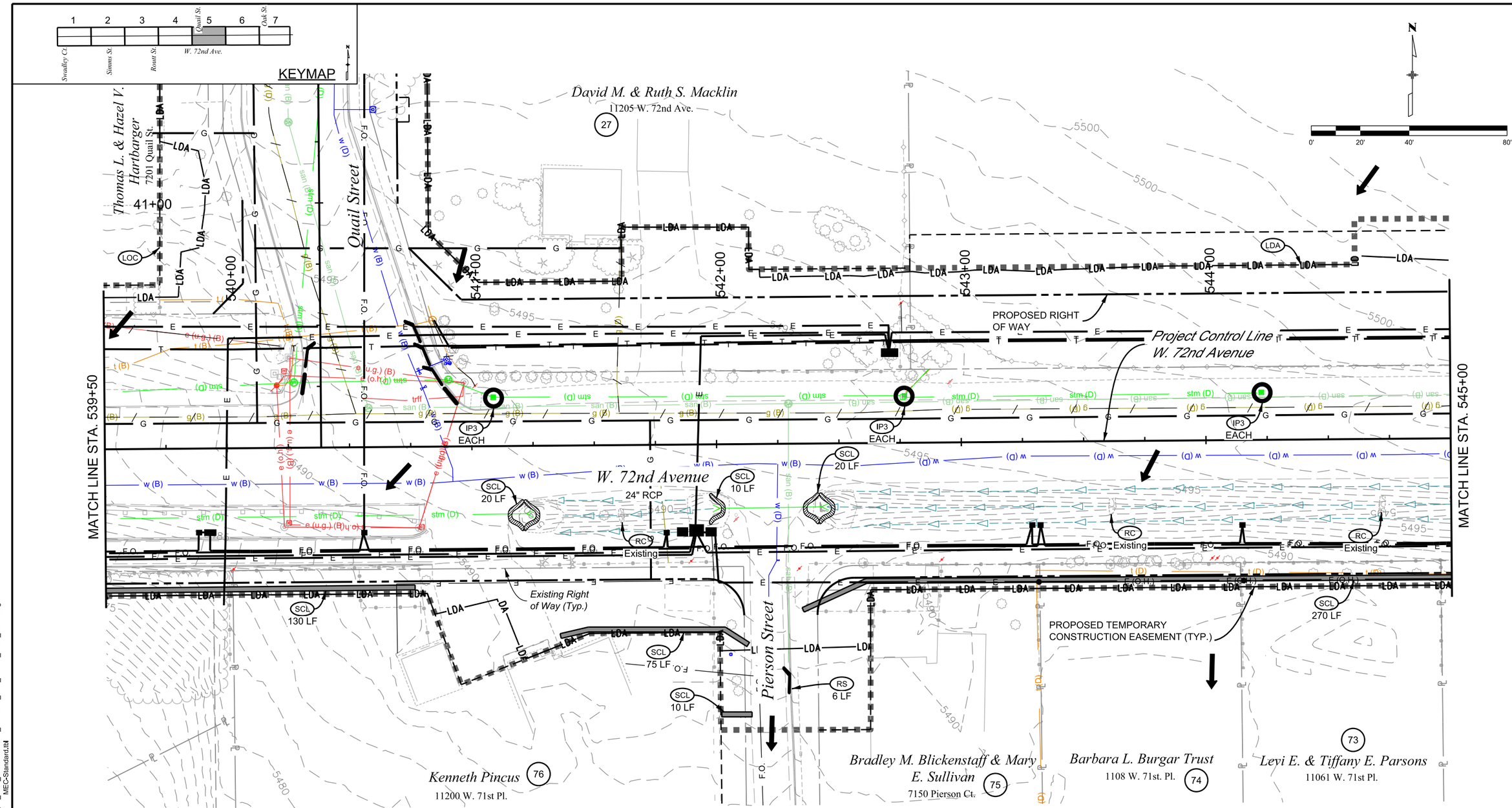
Project No./Code

Sheet Number 251



SEE QUAIL ST DRAINAGE PLAN FOR ADDITIONAL INFORMATION

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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
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KEYMAP

1 2 3 4 5 6 7

Swadley Ct. | Simms St. | Routt St. | Quail St. | Oak St. | W. 72nd Ave.

N

Sunrise Village LLC
28
11301 W. 72nd Ave.

Gary C. & Shirley J. Kenfield
29
11627 W. 72nd Ave.

Rachel A. Malis & James T. Hill
31
11021 W. 72nd Ave.

0' 20' 40' 80'

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

Project Control Line
W. 72nd Avenue

W. 72nd Avenue

545+00 546+00 547+00 548+00 549+00 550+00

MATCH LINE STA. 545+00

MATCH LINE STA. 550+50

LOC

RC Existing

RC Existing

SCL
550 LF

72 Jeff & Shirley Rogers
11041 W. 71st Pl.

71 Leezure 14E Ventures LLC
Joseph & Pamala Sekiya
11021 W. 71st Pl.

70 Mark T. & Kim S. Booker
10971 W. 71st Pl.

69 Rodney J. & Heidi M. Rivera
10951 W. 71st Pl.

68 Jonathan P. & Sasha A. Griggs
10931 W. 71st Pl.

67 Sam Stankie & Michelle Meza
10881 W. 71st Pl.

66 Nichole Hansen
10841 W. 71st Pl.

Print Date:	9/17/2021
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Unit Information	Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - INITIAL
W. 72ND AVENUE

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Detailer:	SAD		
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Project No./Code

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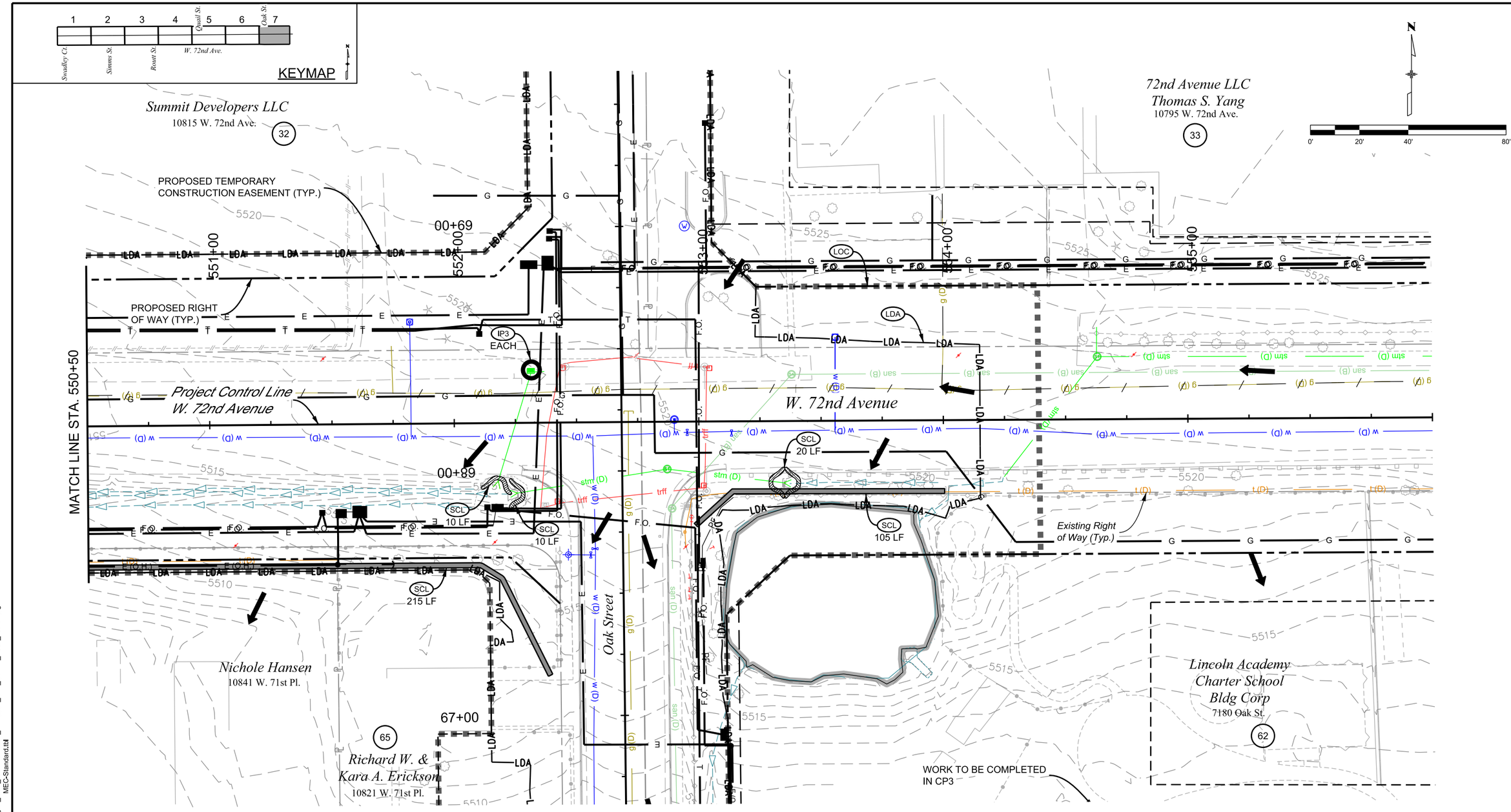

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MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SWMP - INITIAL
W. 72ND AVENUE

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Project No./Code

Sheet Number 254

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KEYMAP

Quail St. | W. 72nd Ave. | Simms St. | Routt St. | Oak St.

0' 20' 40' 80'

SCL
270 LF

FLOODWAY

PROPOSED PERMANENT EASEMENT (TYP.)

Leyden Creek

ZONE AE FLOODPLAIN (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Right of Way (Typ.)

ZONE AO FLOODPLAIN (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

Simms Street

Project Control Line Simms Street

W. 72nd Avenue

21+00 22+00 23+00 24+00 25+00

Print Date:	9/17/2021		
Drawing File Name:	18061_CP2_SWMP_SideSt_Initial_Plan01.dgn		
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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - INITIAL

FIRST UNITED CHURCH OF ARVADA

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Detailer:	DKH		
Sheet Subset:	SWMP INITIAL	Subset Sheets:	1 of 6

Project No./Code

Sheet Number 255

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21+00
22+00
23+00
24+00
MATCH LINE STA. 25+00
PROPOSED RIGHT OF WAY (TYP.)
Existing Right of Way (Typ.)
ZONE AO FLOODPLAIN (TYP.)
Simms Street
Project Control Line Simms Street
RS 6 LF
IP1 EACH
LOC
LDA
100YR
Maple Leaf Condominium Association Inc
Vacant Land
Twin Star Energy LLC
0' 20' 40' 80'
N

KEYMAP
Simms St.
Quail St.
Robb St.
W. 72nd Ave.
Oak St.

Print Date:	9/17/2021	
Drawing File Name:	18061_CP2_SWMP_SideSt_Initial_Plan02.dgn	
Horiz. Scale:	1:40	Vert. Scale: As Noted
Unit Information		Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - INITIAL SIMMS STREET
STA. 20+00.00 TO STA. 25+00.00

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SWMP INITIAL	Subset Sheets:	2 of 6

Project No./Code

Sheet Number 256

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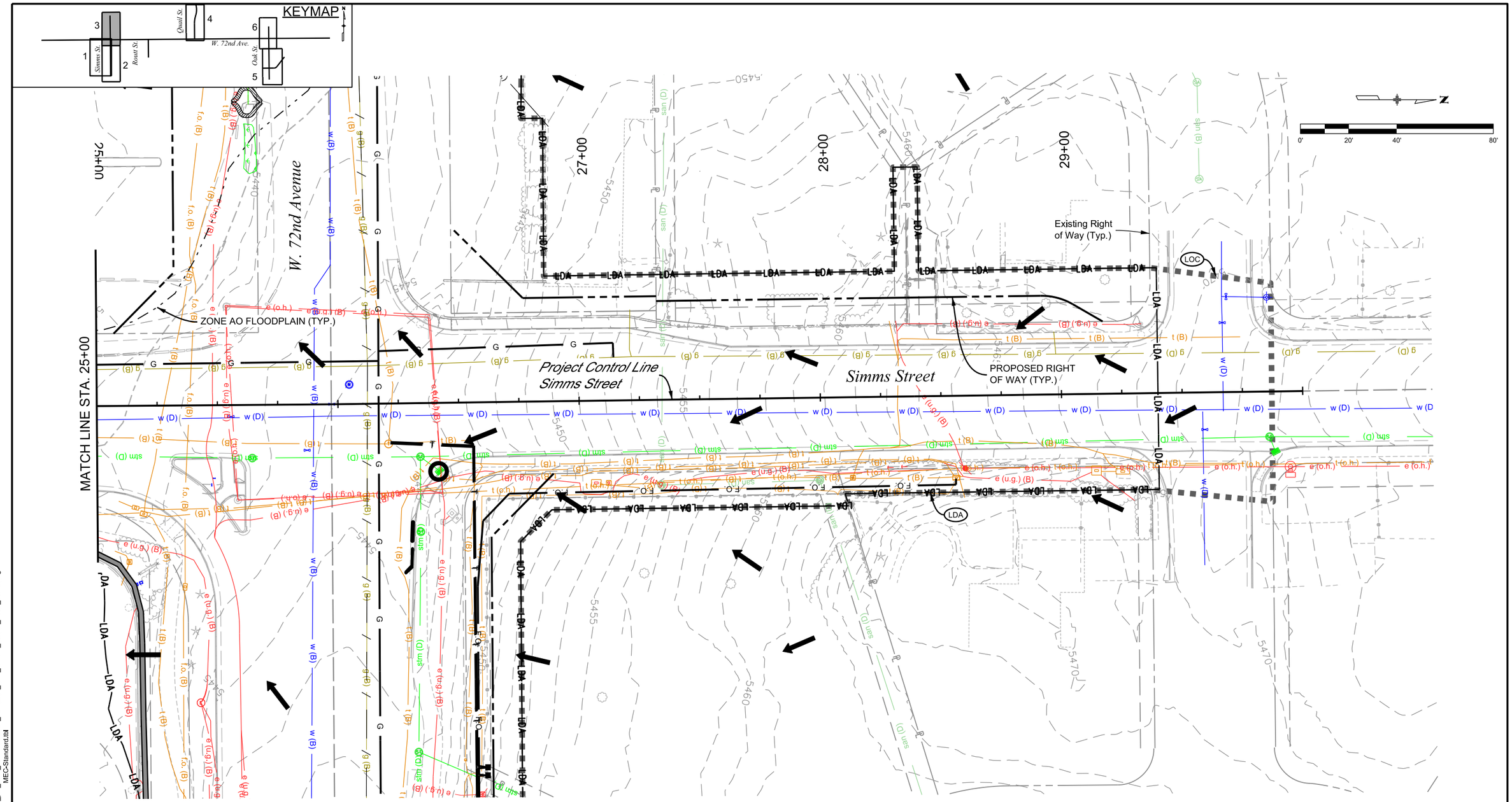

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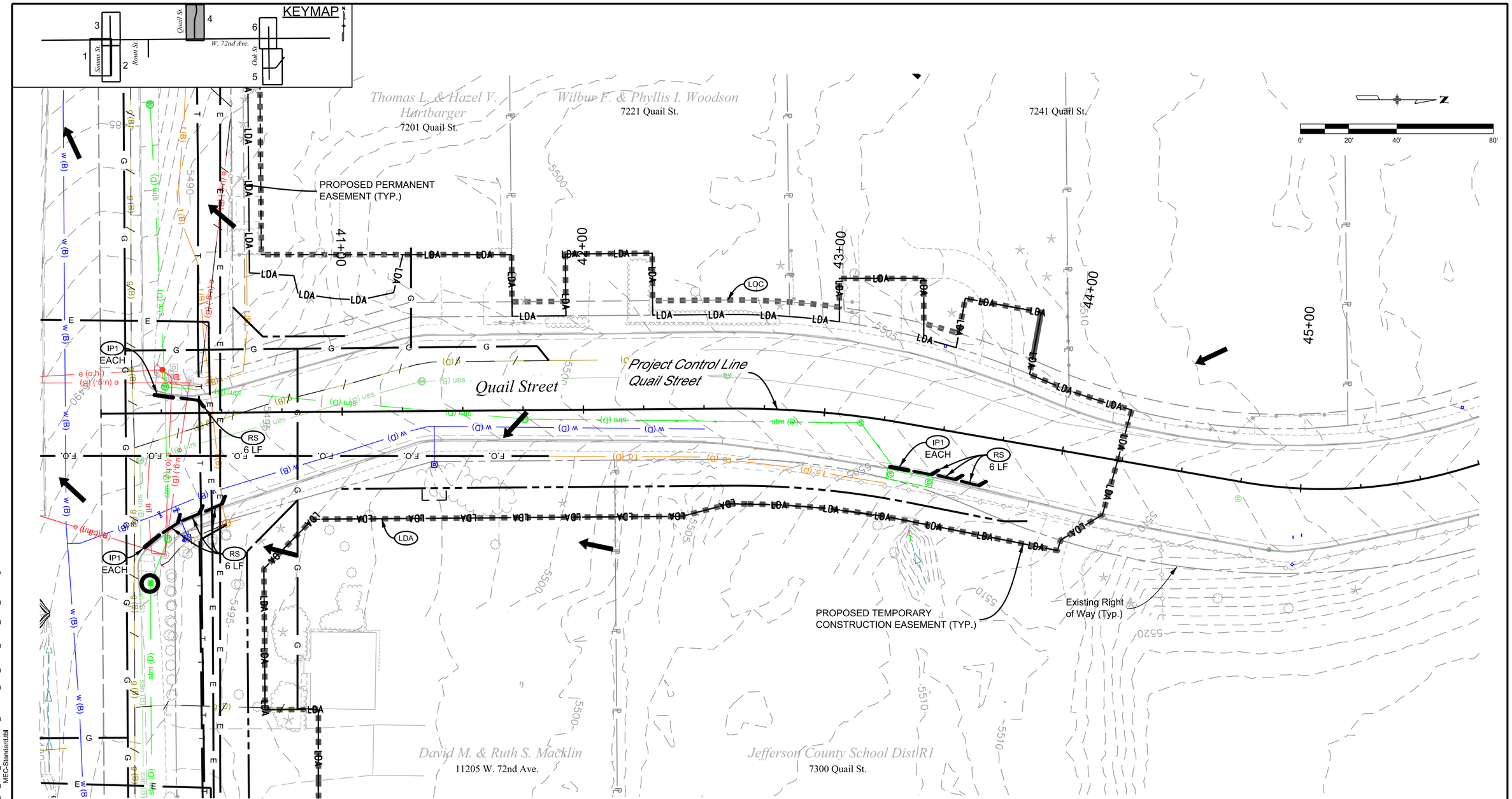
Unit Information	Unit Leader Initials				
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SWMP - INITIAL SIMMS STREET			
Revised:	STA. 25+00.00TO STA. 30+00.00			
Void:	Designer: MAS	Structure Numbers		
	Detailer: SAD			
	Sheet Subset: SWMP INITIAL	Subset Sheets: 3 of 6		Sheet Number 257



SEE W. 72ND DRAINAGE PLANS FOR ADDITIONAL INFORMATION

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_SWMP_SideSt_Initial_Plan04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SWMP - INITIAL QUAIL STREET		
Revised:	STA. 40+00.00 TO STA. 45+75.00		
Void:	Designer: MAS	Structure Numbers	
	Detailer: SAD		
	Sheet Subset: SWMP INITIAL	Subset Sheets: 4 of 6	Sheet Number 258

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9/17/2021
ejkolorvin.plt
MEC-Standard.tbl

KEYMAP

Simms St. | Quail St. | W. 72nd Ave. | Oak St. | Routt St.

61+00 | 62+00 | 63+00 | 64+00 | 65+00 | 66+00

Parfet Street

Project Control Line
Oak Street

Oak Street

71st Place

Existing Right of Way (Typ.)

PROPOSED RIGHT OF WAY (TYP.)

PROPOSED PERMANENT EASEMENT (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

RS 6 LF

RS 6 LF

LOC

IP3 EACH

SCL 265 LF

1+00

2+00

Lincoln Academy Charter School Bldg Corp
7180 Oak St.
62

MATCH LINE STA. 65+50

0' 20' 40' 80'

N

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9/20/2021

Print Date:	9/20/2021
Drawing File Name:	18061_CP2_SWMP_SideSt_Initial_Plan05.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:

Revised:

Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - INITIAL OAK STREET
STA. 60+00.00 TO STA. 65+50.00

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SWMP INITIAL	Subset Sheets:	5 of 6

Project No./Code

Sheet Number 259

KEYMAP

Simms St. | Quail St. | Routt St. | W. 72nd Ave. | Oak St.

MATCH LINE STA. 65+50

Existing Right of Way (Typ.)

W. 72nd Avenue

Project Control Line
Oak Street

Oak Street

67+00 | 68+00 | 69+00 | 70+00

PROPOSED RIGHT OF WAY (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

PROPOSED PERMANENT EASEMENT (TYP.)

Lincoln Academy Charter School Bldg Corp

PF 75 LF

62

LOC

LDA

F.O.

SEE W. 72ND DRAINAGE PLANS FOR ADDITIONAL INFORMATION

Print Date: 9/20/2021
Drawing File Name: 18061_CP2_SWMP_SideSt_Initial_Plan06.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SWMP - INITIAL OAK STREET
STA. 65+50.00 TO STA. 69+20.00

Designer: MAS
Detailer: SAD
Sheet Subset: SWMP INITIAL
Structure Numbers
Subset Sheets: 6 of 6

Project No./Code

Sheet Number 260

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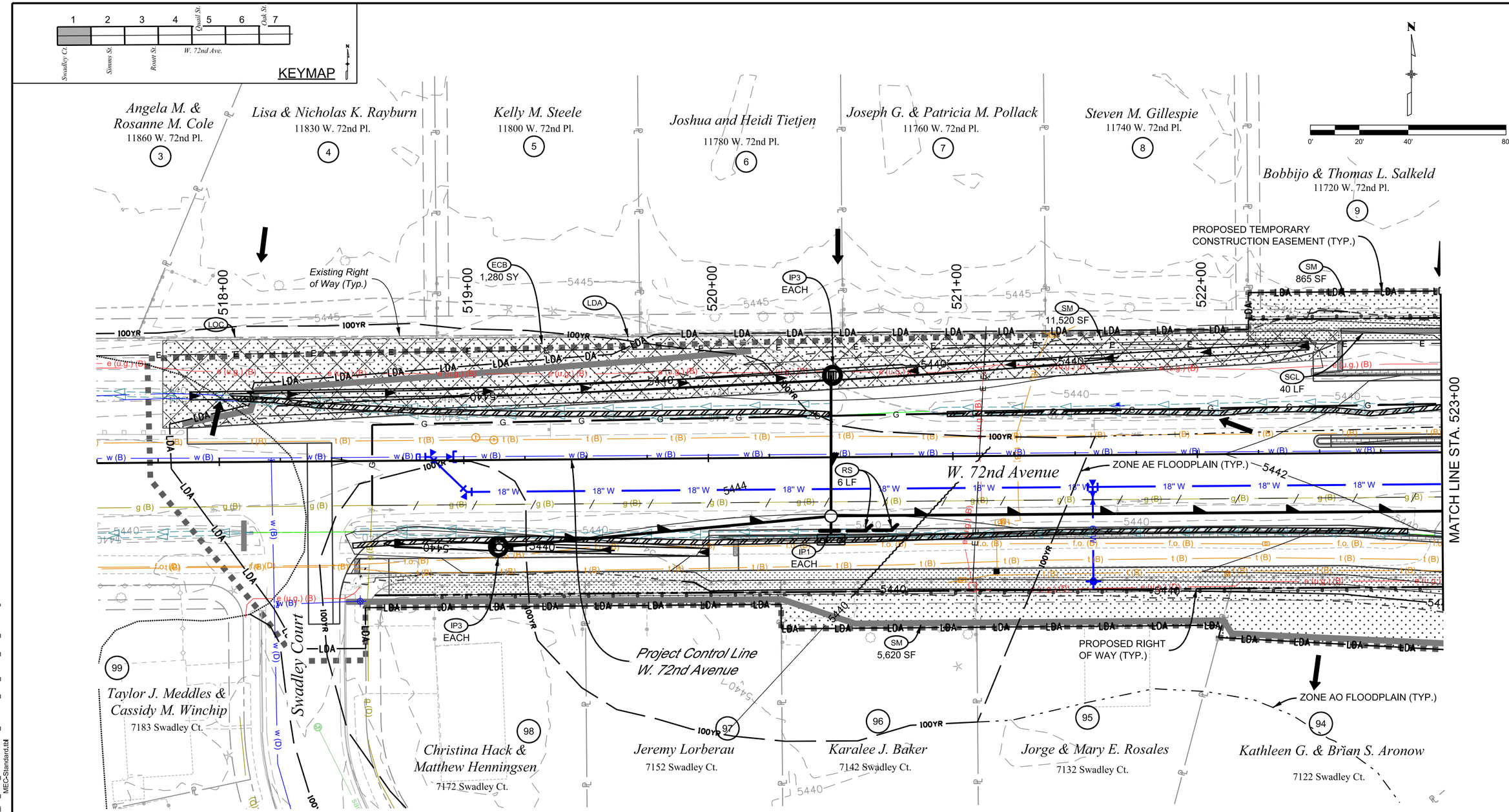

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9/17/2021

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Drawing File Name: 18061_CP2_SWMP_Final_Plan01.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:40	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SWMP - INTERIM & FINAL
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset: SWMP ITM/FNL		Subset Sheets:	1 of 7

Project No./Code

Sheet Number 261

KEYMAP

1 2 3 4 5 6 7

Swadley Ct. | Simms St. | Routt St. | Quail St. | Oak St. | W. 72nd Ave.

N

Gretchen S. Palmer
11680 W. 72nd Pl.
10

Enterprise Grange 25
7203 Simms St.
11

12

Hal A. & Dianne L. Pierson
11560 W. 72nd Pl.
15

First United Church of Arvada
7195 Simms St.
93

Twin Star Energy LLC
7190 Simms St.

Simms Street

W. 72nd Avenue

Project Control Line.
W. 72nd Avenue

PROPOSED RIGHT OF WAY (TYP.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Right of Way (Typ.)

MATCH LINE STA. 523+00

MATCH LINE STA. 528+50

523+00 524+00 525+00 526+00 527+00 528+00

27+00 25+00

SM 2,300 SF
SM 1,825 SF
SM 2,205 SF
SCL 45 LF
SCL 25 LF
SCL 115 LF
SCL 135 LF
RS 100 LF
RS 6 LF
RS 6 LF
IP1 EACH
IP2 EACH
IP3 EACH
LOC

0' 20' 40' 80'

SEE SIMMS ST DRAINAGE PLAN FOR ADDITIONAL INFORMATION

Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_SWMP_Final_Plan02.dgn	Date:	Comments	Init.	No Revisions:	SWMP - INTERIM & FINAL
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	W. 72ND AVENUE
Unit Information Unit Leader Initials				Void:	Designer: MAS / Detailer: SAD / Structure Numbers
MULLER ENGINEERING COMPANY					Sheet Subset: SWMP ITM/FNL / Subset Sheets: 2 of 7

CITY OF ARVADA

Project No./Code

Sheet Number 262

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9/17/2021
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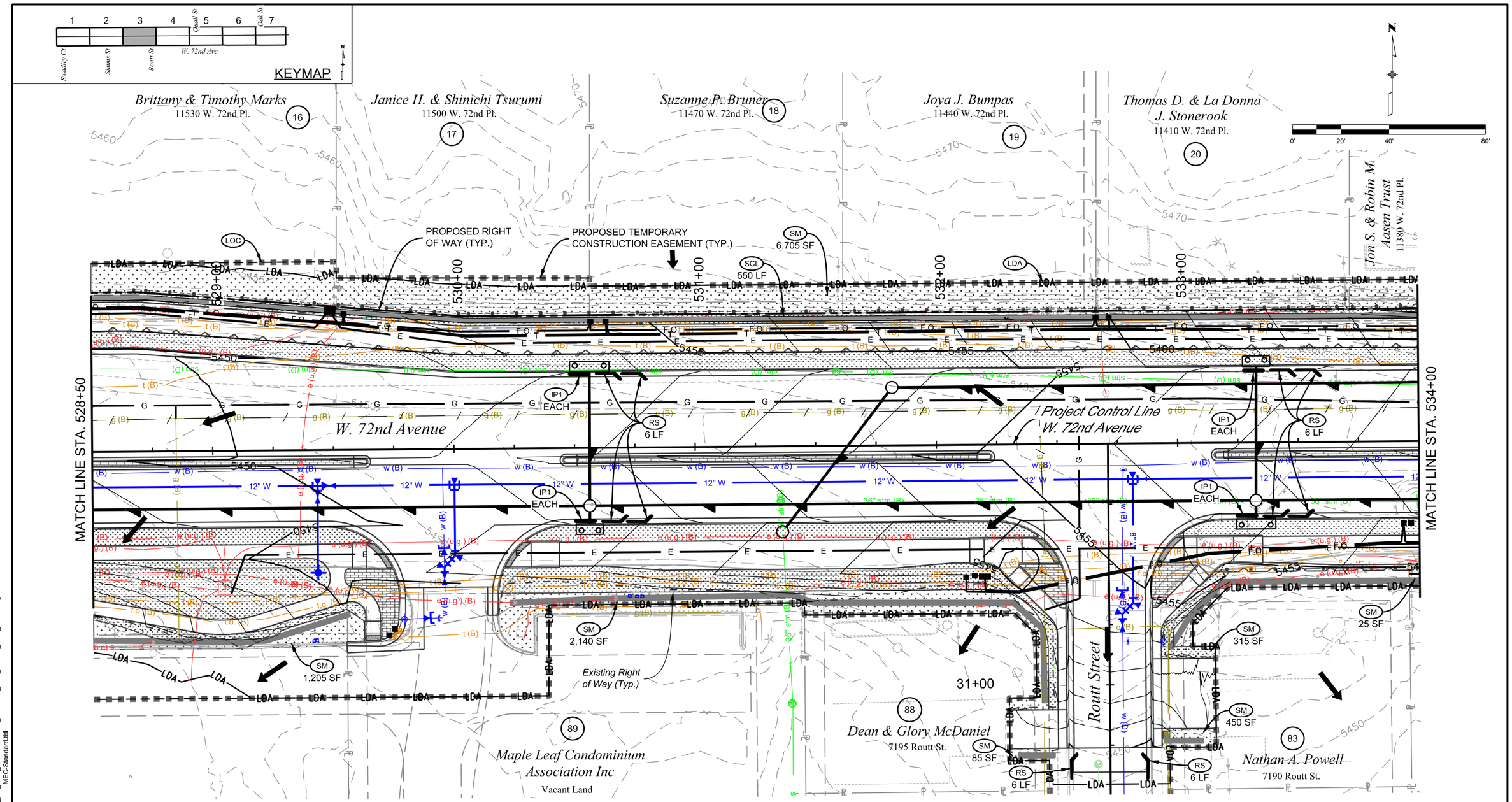

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Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SWMP - INTERIM & FINAL
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset: SWMP ITM/FNL		Subset Sheets:	3 of 7

Project No./Code

Sheet Number 263

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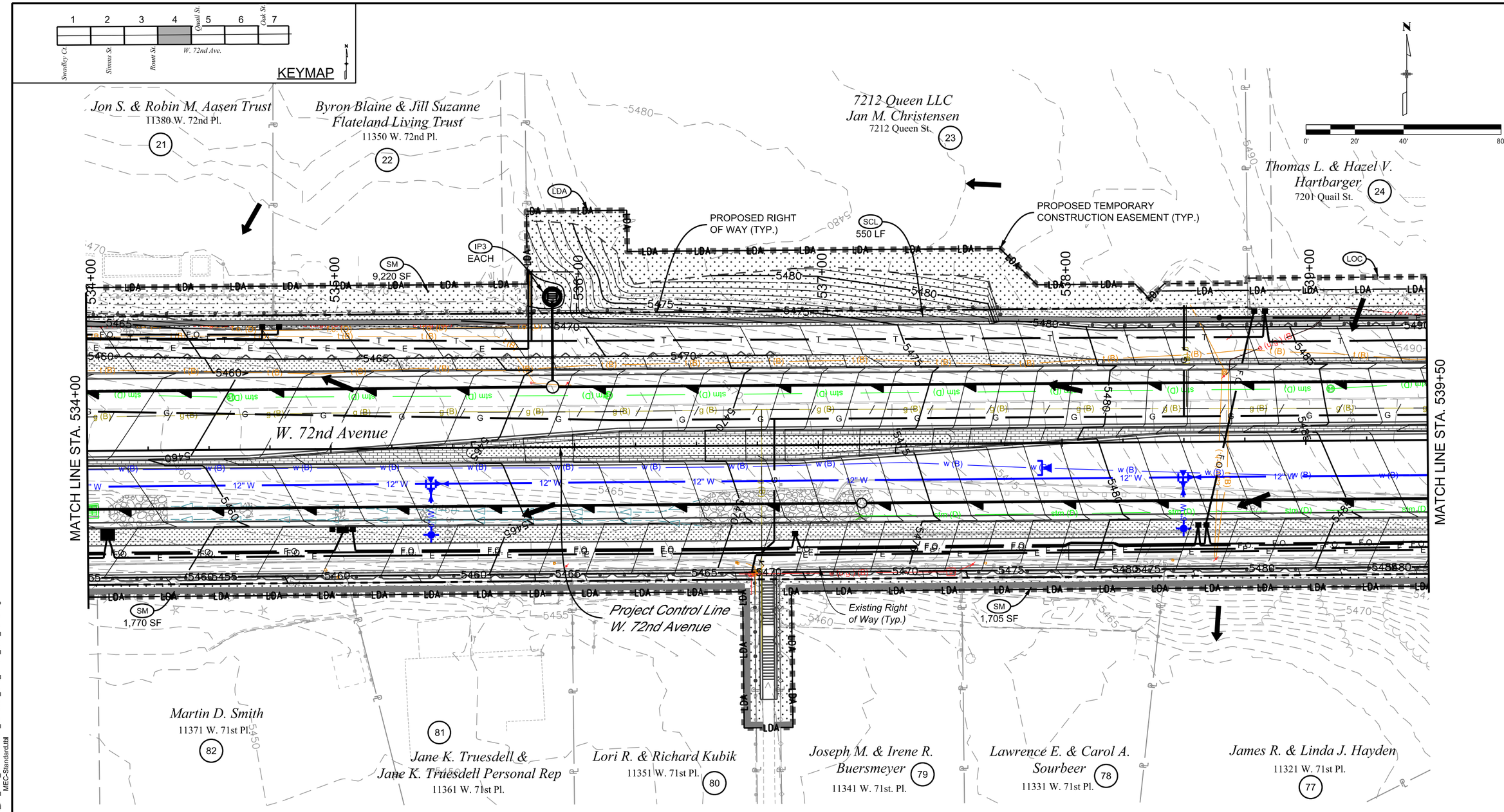
9/17/2021



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9/17/2021

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Drawing File Name: 18061_CP2_SWMP_Final_Plan04.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - INTERIM & FINAL
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset: SWMP ITM/FNL		Subset Sheets:	4 of 7

Project No./Code	
Sheet Number	264

KEYMAP

1 2 3 4 5 6 7

Swadley Ct. | Simms St. | Routt St. | Quail St. | Oak St.

W. 72nd Ave.

N

0' 20' 40' 80'

MATCH LINE STA. 539+50

MATCH LINE STA. 545+00

Thomas L. & Hazel V. Hartbarger
7201 Quail St.

David M. & Ruth S. Macklin
11205 W. 72nd Ave.
27

Quail Street

W. 72nd Avenue

Project Control Line
W. 72nd Avenue

PROPOSED RIGHT OF WAY

24" RCP

Pierson Street

Existing Right of Way (Typ.)

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

41+00 | 540+00 | 541+00 | 542+00 | 543+00 | 544+00

LOC

IP1 EACH

IP3 EACH

SCL 115 LF

SCL 70 LF

SCL 310 LF

SCL 20 LF

SCL 10 LF

RS 6 LF

SM 3,565 SF

SM 670 SF

SM 700 SF

SM 145 SF

SM 505 SF

SM 1,450 SF

Kenneth Pincus
11200 W. 71st Pl.
76

Bradley M. Blickenstaff & Mary E. Sullivan
7150 Pierson Ct.
75

Barbara L. Burgar Trust
1108 W. 71st. Pl.
74

Levi E. & Tiffany E. Parsons
11061 W. 71st Pl.
73

SEE QUAIL ST DRAINAGE PLAN FOR ADDITIONAL INFORMATION

Print Date: 2/11/2022
Drawing File Name: 18061_CP2_SWMP_Final_Plan05.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SWMP - INTERIM & FINAL
W. 72ND AVENUE

Designer: MAS
Detailer: SAD
Sheet Subset: SWMP ITM/FNL
Structure Numbers
Subset Sheets: 5 of 7

Project No./Code

Sheet Number 265

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2/11/2022 tjdotdvm.tbl
MEC-Standard.tbl

KEYMAP

1 2 3 4 5 6 7

Swadley Ct. | Simms St. | Routt St. | Quail St. | Oak St. | W. 72nd Ave.

N

Sunrise Village LLC
11301 W. 72nd Ave.
28

Gary C. & Shirley J. Kenfield
11027 W. 72nd Ave.
29

Rachel A. Malis
James T. Hill
11021 W. 72nd Ave.
31

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

Project Control Line
W. 72nd Avenue

W. 72nd Avenue

MATCH LINE STA. 545+00

MATCH LINE STA. 550+50

545+00 546+00 547+00 548+00 549+00 550+00

18" RCP

24" RCP

12" W

8" W

LOC

LDA

SCL 365 LF

SM 9,425 SF

IP3 EACH

SCL 160 LF

SCL 160 LF

SM 3,625 SF

SCL 70 LF

SCL 20 LF

SM 5,015 SF

SCL 60 LF

SCL 40 LF

SCL 60 LF

SCL 35 LF

E (O.H.)

F.O.

SM 2,750 SF

0' 20' 40' 80'

72 Jeff & Shirley Rogers
11041 W. 71st Pl.

71 Leezure 14E Ventures LLC
Joseph & Pamala Sekiya
11021 W. 71st Pl.

70 Mark T. & Kim S. Booker
10971 W. 71st Pl.

69 Rodney J. & Heidi M. Rivera
10951 W. 71st Pl.

68 Jonathan P. & Sasha A. Griggs
10931 W. 71st Pl.

67 Sam Stankie & Michelle Meza
10881 W. 71st Pl.

66 Nichole Hansen
10841 W. 71st Pl.

Print Date:	2/11/2022		
Drawing File Name:	18061_CP2_SWMP_Final_Plan06.dgn		
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Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:

Revised:

Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SWMP - INTERIM & FINAL
W. 72ND AVENUE

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SWMP ITM/FNL	Subset Sheets:	6 of 7

Project No./Code

Sheet Number 266

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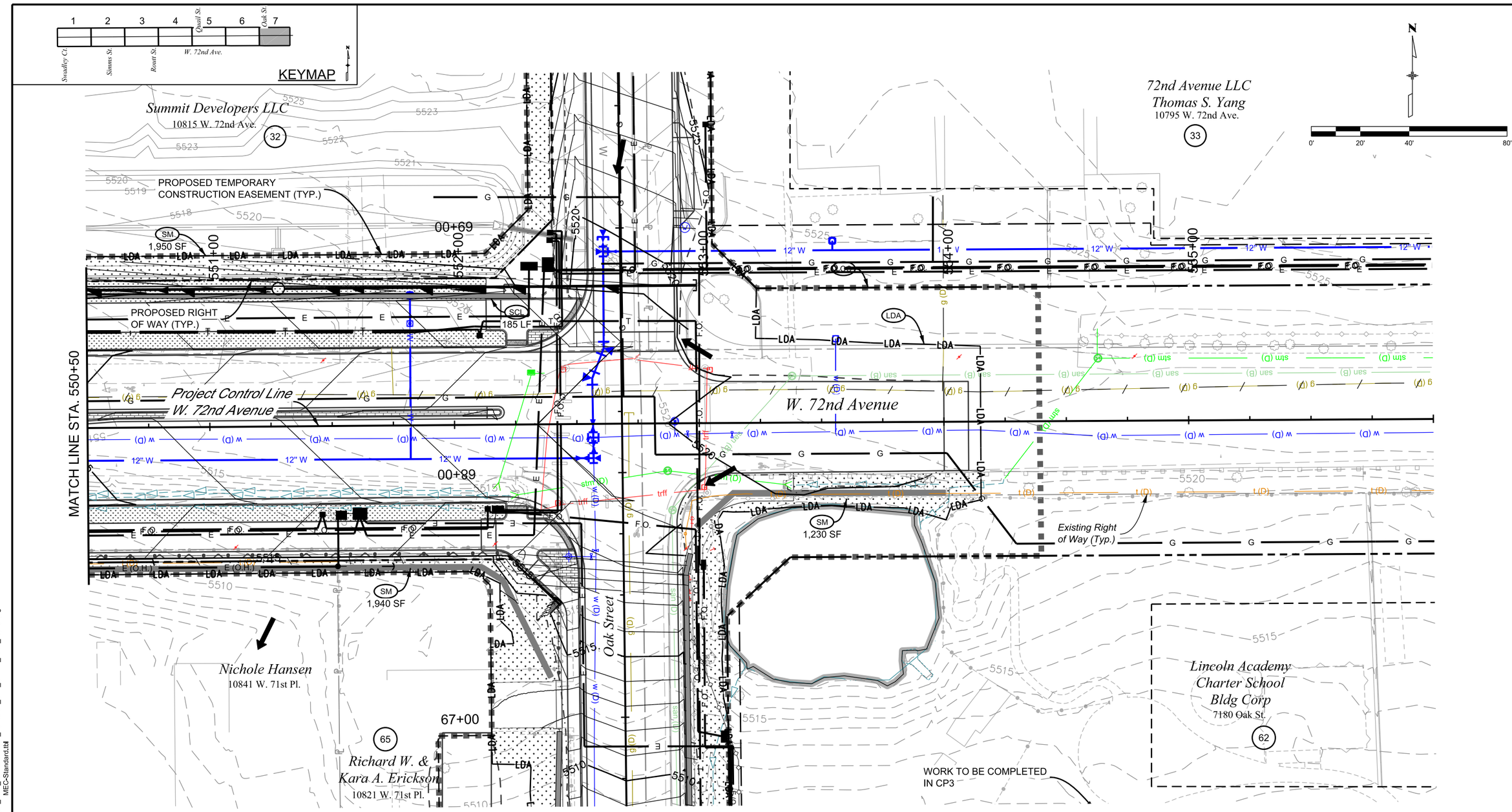

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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SWMP - INTERIM & FINAL W. 72ND AVENUE			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: SWMP ITM/FNL	Subset Sheets: 7 of 7		Sheet Number 267

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2/11/2022
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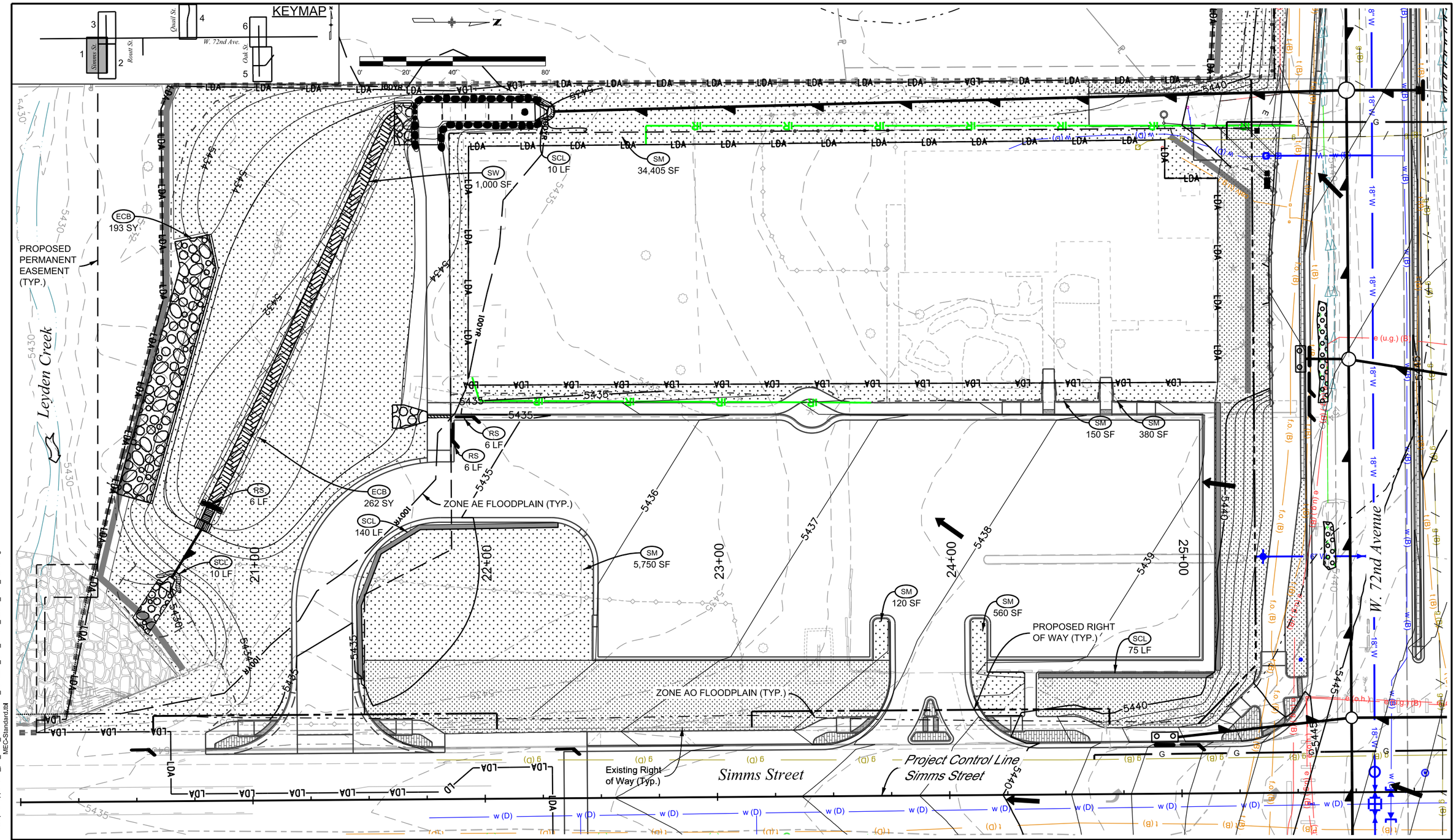

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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - FINAL

FIRST UNITED CHURCH OF ARVADA

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	SWMP FINAL	Subset Sheets:	1 of 6

Project No./Code	
Sheet Number	268

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ZONE AE FLOODPLAIN (TYP.)

ZONE AO FLOODPLAIN (TYP.)

PROPOSED RIGHT OF WAY (TYP.)

Existing Right of Way (Typ.)

Simms Street

Project Control Line Simms Street

MATCH LINE STA. 25+00

RS 6 LF

LDA

LOC

SM 320 SF

SM 1,145 SF

IP1 EACH

Maple Leaf Condominium Association Inc

Vacant Land

Twin Star Energy LLC

KEYMAP

Simms St.
Quail St.
Robb St.
Oak St.
W. 72nd Ave.

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_SWMP_SideSt_Final_Plan02.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:

Revised:

Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SWMP - FINAL SIMMS STREET
STA. 20+00.00 TO STA. 25+00.00

Designer:	MAS	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SWMP FINAL	Subset Sheets:	2 of 6

Project No./Code

Sheet Number 269

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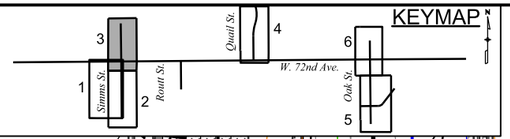

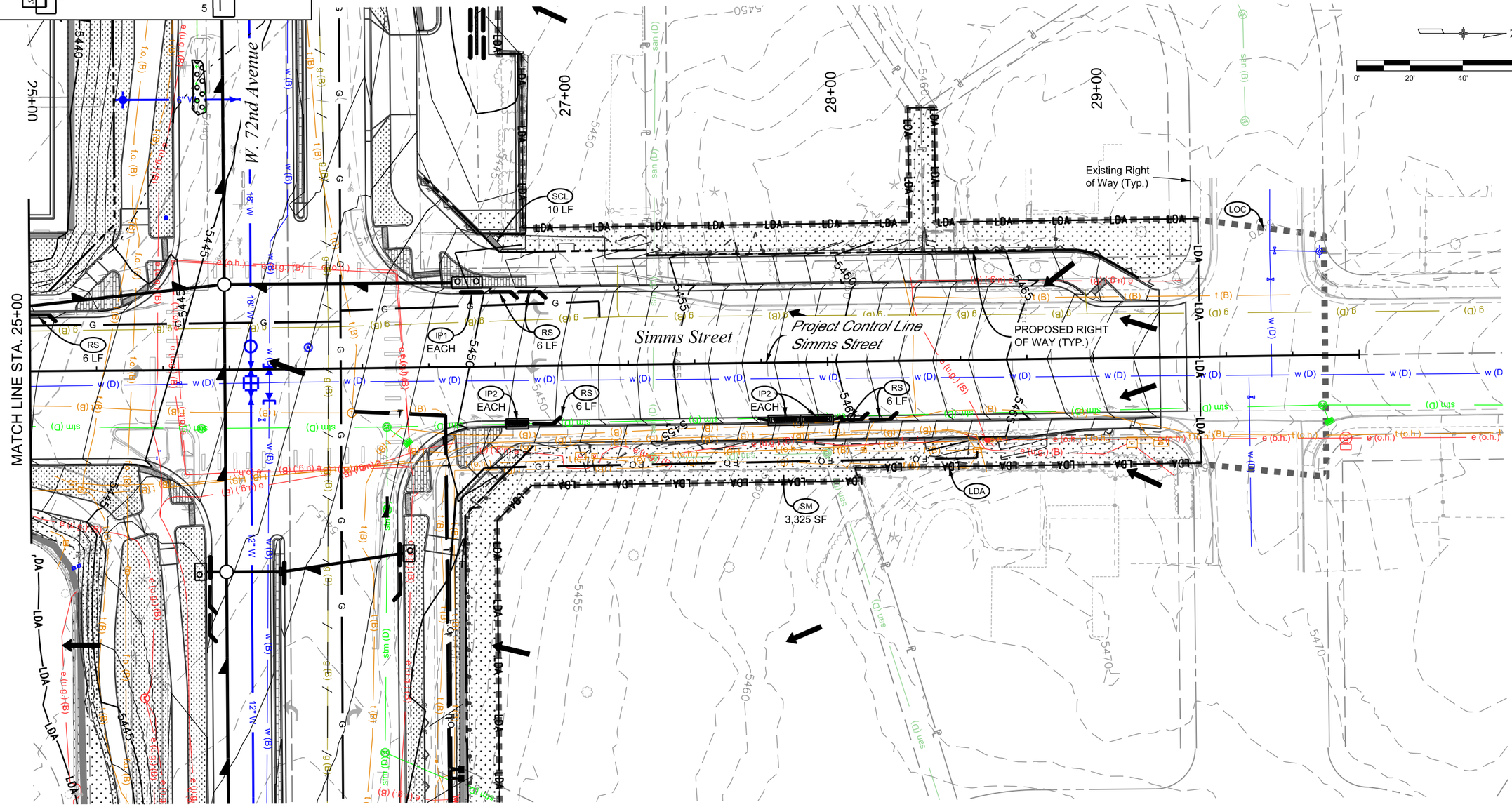

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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SWMP - FINAL SIMMS STREET STA. 25+00.00TO STA. 30+00.00			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: SWMP FINAL	Subset Sheets:	3 of 6	Sheet Number 270

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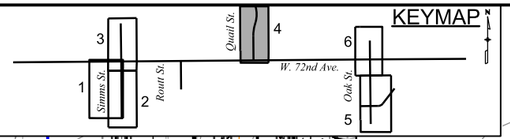
KEYMAP



Thomas L. & Hazel V. Hartbarger
7201 Quail St.

Wilbur F. & Phyllis I. Woodson
7221 Quail St.

7241 Quail St.

PROPOSED PERMANENT EASEMENT (TYP.)

SM 2,260 SF

SM 310 SF

SM 260 SF

SM 255 SF

SM 155 SF

SM 210 SF

SM 195 SF

SM 265 SF

LOC

41+00

42+00

43+00

44+00

45+00

Project Control Line
Quail Street

Quail Street

IP1 EACH

RS 6 LF

SM 3,425 SF

LDA

PROPOSED TEMPORARY CONSTRUCTION EASEMENT (TYP.)

Existing Right of Way (Typ.)

David M. & Ruth S. Macklin
11205 W. 72nd Ave.

Jefferson County School Dist R1
7300 Quail St.

SEE W. 72ND SWMP PLANS FOR ADDITIONAL INFORMATION

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_SWMP_SideSt_Final_Plan04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SWMP - FINAL QUAIL STREET STA. 40+00.00 TO STA. 45+75.00			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
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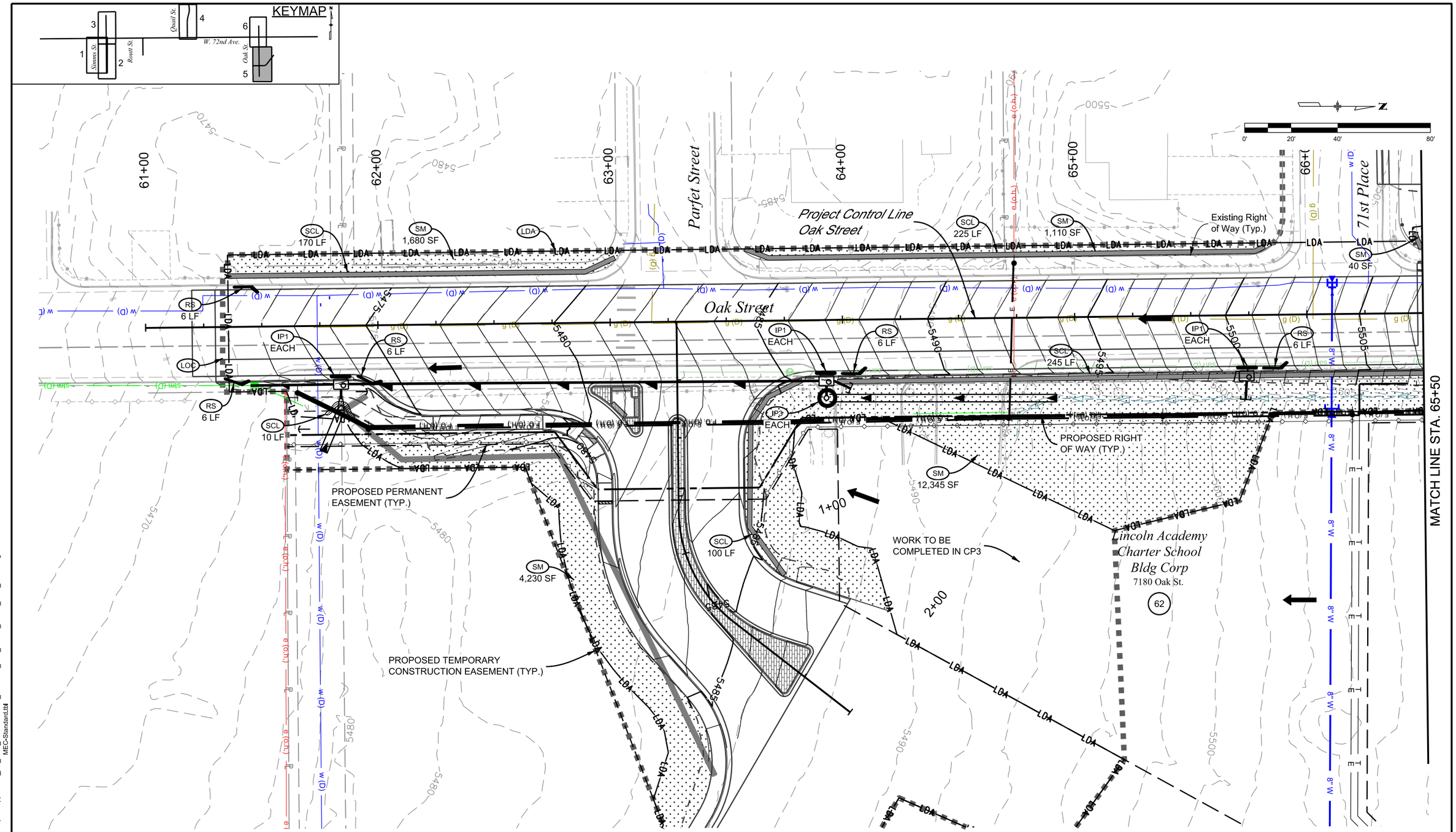
9/17/2021



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Drawing File Name: 18061_CP2_SWMP_SideSt_Final_Plan05.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:40 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
MULLER ENGINEERING COMPANY					

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SWMP - FINAL OAK STREET STA. 60+00.00 TO STA. 65+50.00			
Revised:	Designer: MAS	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: SWMP FINAL	Subset Sheets: 5 of 6		Sheet Number 272

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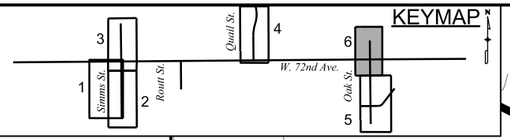

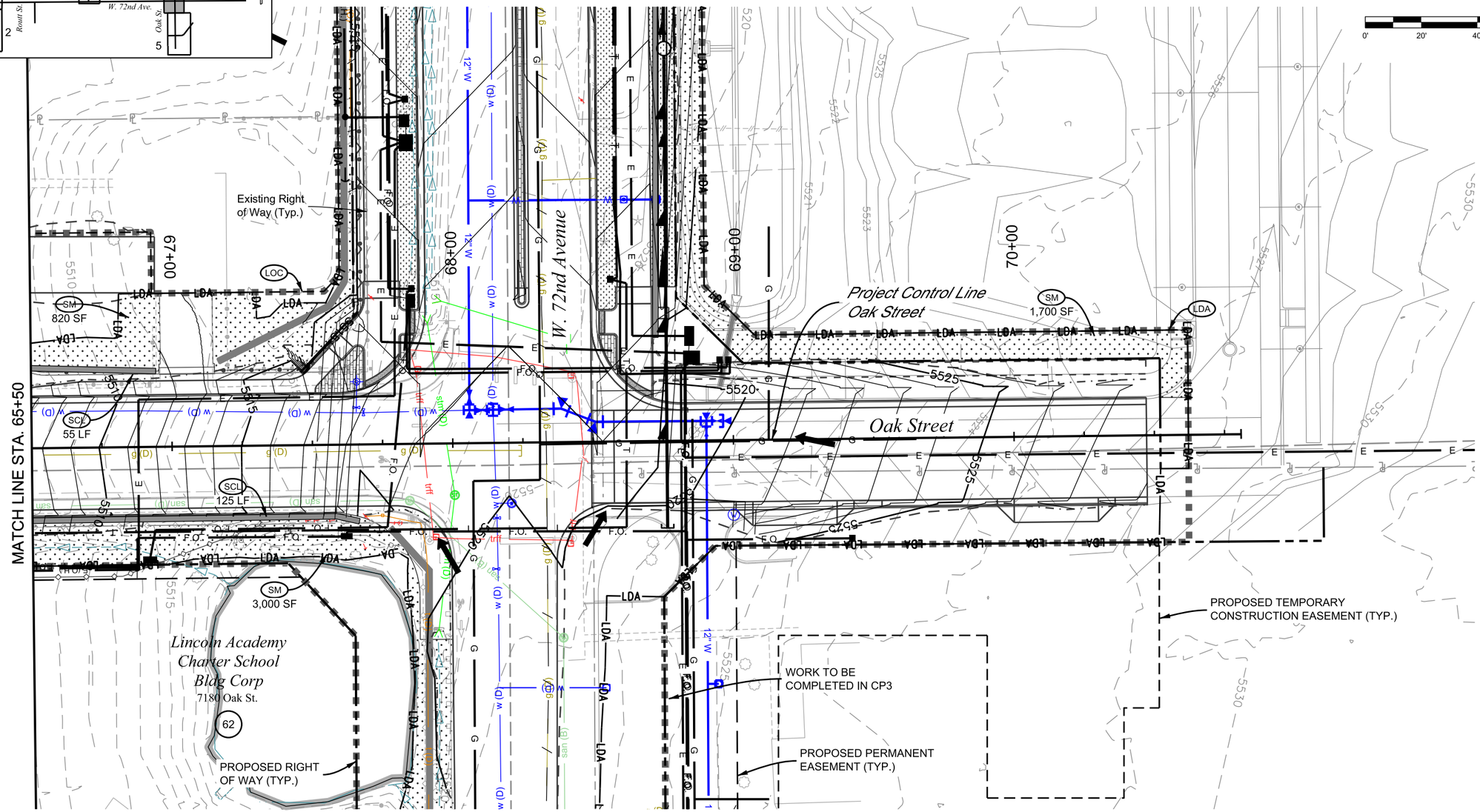

SEE W. 72ND SWMP PLANS FOR ADDITIONAL INFORMATION

Print Date: 2/11/2022
Drawing File Name: 18061_CP2_SWMP_SideSt_Final_Plan06.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SWMP - FINAL OAK STREET
STA. 65+50.00 TO STA. 69+20.00

Designer: MAS
Detailer: SAD
Sheet Subset: SWMP FINAL
Structure Numbers
Subset Sheets: 6 of 6

Project No./Code

Sheet Number 273

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GENERAL LAYOUT NOTES

ALL EXISTING GRADING, CURB LAYOUT, EASEMENTS AND UTILITIES ARE BASED ON SURVEY INFORMATION PROVIDED BY MULLER ENGINEERING, AND ARE SHOWN FOR INFORMATION ONLY.

ALL PROPOSED UTILITIES, STREET LAYOUT AND GRADING INFORMATION WAS PREPARED BY MULLER ENGINEERING AND ARE SHOWN FOR INFORMATION ONLY. REFER TO CIVIL DRAWINGS FOR FURTHER INFORMATION. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES. CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES ABOVE AND BELOW GRADE PRIOR TO CONSTRUCTION.

THESE DRAWINGS USE A SYSTEM OF KEYNOTES FOR MATERIAL DESIGNATIONS AND SPECIFIC SITUATION NOTES. CONTRACTOR TO BE FAMILIAR WITH SYSTEM PRIOR TO COMMENCING WORK. CONTACT LANDSCAPE ARCHITECT IF CONFLICTS ARE FOUND OR SYSTEM IS NOT CLEAR.

WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.

ALL LAYOUT DIMENSIONS ARE FROM PLAN VIEW CALCULATIONS. FIELD DIMENSIONS MAY VARY FROM PLAN DUE TO ACTUAL LENGTHS ALONG SLOPED SURFACES.

ALL LAYOUT DIMENSIONS ARE TO BACK OF CURB, FACE OF WALL AND/OR FACE OF BUILDING UNLESS OTHERWISE NOTED.

DIMENSIONS MARKED "VERIFY" ARE TO BE FIELD MEASURED. ANY DISCREPANCIES FROM THE NOTED DIMENSIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO CONTINUING WORK.

LIMIT OF WORK LINE FOR CONSTRUCTION IS SHOWN DIAGRAMMATICALLY AND OCCURS AT BACK OF CURB, EDGE OF ROAD, FACE OF BUILDING OR PROPERTY LINE UNLESS OTHERWISE NOTED.

DRAWING AND PLAN NOTES REPRESENT FINISHED, BUILT CONDITIONS. ALL BRACING, TEMPORARY SUPPORTS AND SHORING NECESSARY FOR CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

ALL SYMBOLS ARE SHOWN DIAGRAMMATICALLY ILLUSTRATING APPROXIMATE LOCATION OF EXISTING AND PROPOSED MATERIALS. ANY DISCREPANCIES OR CONFLICTS BETWEEN EXISTING AND PROPOSED CONDITIONS SHALL BE REPORTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION PERTAINING TO THE PROJECT MATERIALS, PROCEDURES AND INSTALLATION.

REFER TO IRRIGATION DRAWINGS FOR GENERAL NOTES REGARDING IRRIGATION SYSTEM CONSTRUCTION.

GENERAL PLANTING NOTES

PLANT QUANTITIES ARE PROVIDED FOR BIDDING PURPOSES TO BE VERIFIED BY CONTRACTOR PRIOR TO INSTALLATION. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL PLANT MATERIALS SHOWN AND AT SPECIFIED SPACING

STAKE ALL TREE AND SHRUB LOCATIONS BASED UPON THESE PLANS. OBTAIN ARCHITECT'S APPROVAL OF STAKED LOCATIONS PRIOR TO PLANTING

ALL SHRUB AREAS ARE TO BE PREPARED AS CONTINUOUS BEDS, AND SHALL BE SEPARATED FROM LAWN AREAS BY EDGING MATERIALS UNLESS OTHERWISE NOTED.

UTILITY/PLANTING CONFLICTS MAY EXIST, VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO PLANTING. ANY CONFLICTS SHALL BE RESOLVED IN THE FIELD BY THE ARCHITECT.

TREE AND EDGING LAYOUT SHALL TAKE PRECEDENCE OVER IRRIGATION VALVE BOX LOCATIONS. INSTALLED VALVE BOXES WHICH CONFLICT WITH PROPOSED TREE AND EDGING LAYOUT SHALL BE MOVED TO ANOTHER LOCATION AS DIRECTED BY ARCHITECT AT NO ADDITIONAL COST TO OWNER.

CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING IRRIGATION, LANDSCAPE AND HARDSCAPE THAT MAY OCCUR DURING CONSTRUCTION AT NO ADDITIONAL COST TO OWNER.

CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL INCLUDING SOD/SEED AREAS IN A HEALTHY STATE DURING CONSTRUCTION AND UNTIL FINAL ACCEPTANCE. ANY DAMAGE TO PLANT MATERIAL DUE TO NEGLECT BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

PROVIDE 3" DOUBLE GROUND NATURAL MULCH, WITH NO COLOR OR DYES, AT ALL SHRUB PLANTING AREAS.

PROVIDE A1 ORGANICS PREAMMENDED TOP SOIL, OR APPROVED EQUAL, FOR ALL SHRUB AND PERENNIAL PLANTING AREAS AT 18" DEPTH. PROVIDE 2' DEPTH AT TREES.

METAL OR PLASTIC EDGING IS NOT TO BE USED IN PLANTING AREAS.

WEED BARRIER IS NOT TO BE USED IN PLANTING AREAS.

GENERAL GRADING/EARTHWORK NOTES

MAXIMUM SLOPES IN LANDSCAPE AREAS SHALL NOT EXCEED 3:1 AND MINIMUM CROSS SLOPES IN LANDSCAPE AREAS SHALL BE 2% UNLESS OTHERWISE NOTED ON THE DRAWINGS.

MAXIMUM CROSS SLOPE ON ALL CONCRETE WALKS SHALL NOT EXCEED 2%; MAXIMUM SLOPE.

PROVIDE SMOOTH, CONTINUOUS TRANSITIONS BETWEEN SLOPES UNLESS OTHERWISE NOTED OR INDICATED ON THE DRAWINGS.

FINAL GRADING TO BE FIELD REVIEWED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO SEEDING/SODDING OR PLANTING.

CONTRACTOR TO GRADE AND REPAIR ALL DISTURBED AREAS IN ORDER TO CREATE A SMOOTH TRANSITION FROM NEW GRADE TO EXISTING GRADE, INCLUDING HARDSCAPE AND SOFTSCAPE AREAS. NOTIFY ARCHITECT OF ANY CONFLICTS.

KEYNOTES

			DTL./SHT. #
0.0	RIGHT OF WAY		
— " — " —	0.1	EXISTING R.O.W.	-
——— " ———	0.2	PROPOSED R.O.W.	-
	0.3	NOT USED	
1.0	PAVING		
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
2.0	JOINTING		
	2.1	CONTROL JOINT	RE: SPECS, REVISION OF SECTION 608
	2.2	SEALED EXPANSION JOINT	RE: SPECS, REVISION OF SECTION 608
3.0	CURBS, WALLS, RAILING, FENCE		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
~~	3.2	MODULAR BLOCK WALL	RE: CIVIL
———	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
— · — · —	3.4	FENCE	RE: CIVIL
5.0	UTILITIES AND ELECTRICAL		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL

6.0	PLANTING		
	6.1	TREE PLANTING	3/L4.3
	6.2	SHRUB PLANTING	2/L4.3
	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

TREES 6.1

					L2.1	L2.2	L2.3	L2.4	L2.5	L2.6	L2.7	L2.8	TOTAL
SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
	ACC	Acer campestre 'Panacek'	Metro Gold Hedge Maple	2" CAL.	0	0	0	3	8	9	0	0	20
	CEO	Celtis occidentalis	Hackberry	2" CAL.	2	2	2	3	3	3	1	0	16
	EXC	-	Existing Coniferous Tree to Remain	--	0	11	2	5	2	2	0	0	22
	EXD	-	Existing Deciduous Tree to Remain	--	0	0	3	2	3	0	0	0	8
	GLT	Gleditsia triacanthos 'Impcol'	Imperial Honey Locust	2" CAL.	1	0	4	5	3	2	1	0	16
	GYD	Gymnocladus dioicus 'Espresso JFS'	Espresso Kentucky Coffee	2" CAL.	1	2	3	2	3	3	1	0	15
	QUB	Quercus bicolor	Swamp White Oak	2" CAL.	1	10	8	5	5	4	2	0	35
	QUI	Quercus imbricaria	Shingle Oak	2" CAL.	0	0	1	3	3	3	0	0	10
	QUM	Quercus x macdanielli 'Clemons'	Heritage Oak	2" CAL.	1	0	3	3	2	3	1	0	13
	QUS	Quercus shumardii	Shumard Oak	2" CAL.	2	2	2	2	2	3	1	0	14
	STJ	Styphnolobium japonicum 'Halka'	Millstone Japanese Pagoda	2" CAL.	1	0	2	3	2	3	1	0	12

SHRUBS 6.2

					L2.1	L2.2	L2.3	L2.4	L2.5	L2.6	L2.7	L2.8	TOTAL
SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
	ARC	Arctostaphylos x coloradensis 'Panchito'	Panchito Manzanita	5 gal	0	0	0	36	93	110	0	0	239
	ASA	Astilbe x arendsii 'Fanal'	False Spirea	5 gal	0	32	21	0	0	37	0	21	111
	BET	Berberis thunbergii f. atropurpurea 'Helmond Pillar'	Purpleleaf Japanese Barberry	5 gal	20	7	45	32	23	15	27	0	169
	CAC	Caryopteris clandonensis	Blue Mist Spirea	5 gal	12	7	15	0	22	0	0	0	56
	EUF	Euonymus fortunei	Wintercreeper Euonymus	5 gal	0	0	0	0	12	0	0	0	12
	PHO	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark	5 gal	26	66	59	17	0	43	0	0	211
	SPB	Spiraea betulifolia var. aemiliana	White Spirea	5 gal	0	0	0	0	26	20	0	17	63
	SYP	Syringa Pubescens 'Miss Kim'	Miss Kim Lilac	5 gal	10	13	26	0	15	17	0	0	81

PERENNIALS 6.3

					L2.1	L2.2	L2.3	L2.4	L2.5	L2.6	L2.7	L2.8	TOTAL
SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	QTY.	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
	ACM	Achillea millefolium 'Paprika'	Paprika Yarrow	1 gal	0	13	0	0	27	0	0	0	40
	HES	Hemerocallis Stella D'Oro	Stella Daylily	1 gal	16	77	56	0	0	0	0	0	149

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
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STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022

PENTBLS
PLTDRVS
PLOT_INFO
DATE

Print Date: DATE
Drawing File Name: FILES
Horiz. Scale: SCALESHORT Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LANDSCAPE NOTES AND LEGENDS

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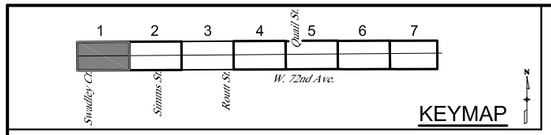
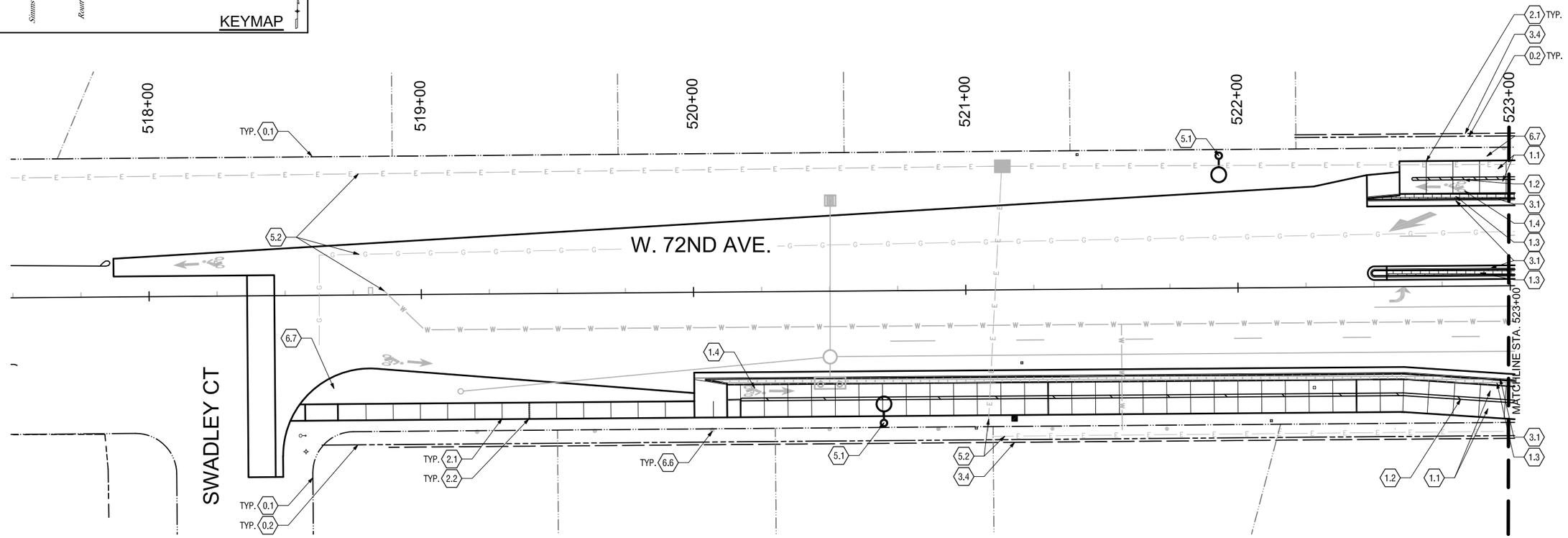
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L0.0

Project No./Code

Sheet Number 274





KEYNOTES			DTL./SHT.#
0.0	**RIGHT OF WAY**		
	0.1	EXISTING R.O.W.	-
	0.2	PROPOSED R.O.W.	-
	0.3	NOT USED	
1.0	**PAVING**		
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
2.0	**JOINTING**		
	2.1	CONTROL JOINT	RE: SPECS, REVISION OF SECTION 608
	2.2	SEALED EXPANSION JOINT	RE: SPECS, REVISION OF SECTION 608
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL

5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

ANTHONY RICHARD MAZZEO, JR
605
07/01/2010
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022

N
0' 20' 40' 80'

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$PLOT_INFO$
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Print Date: $DATE$
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Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials
HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

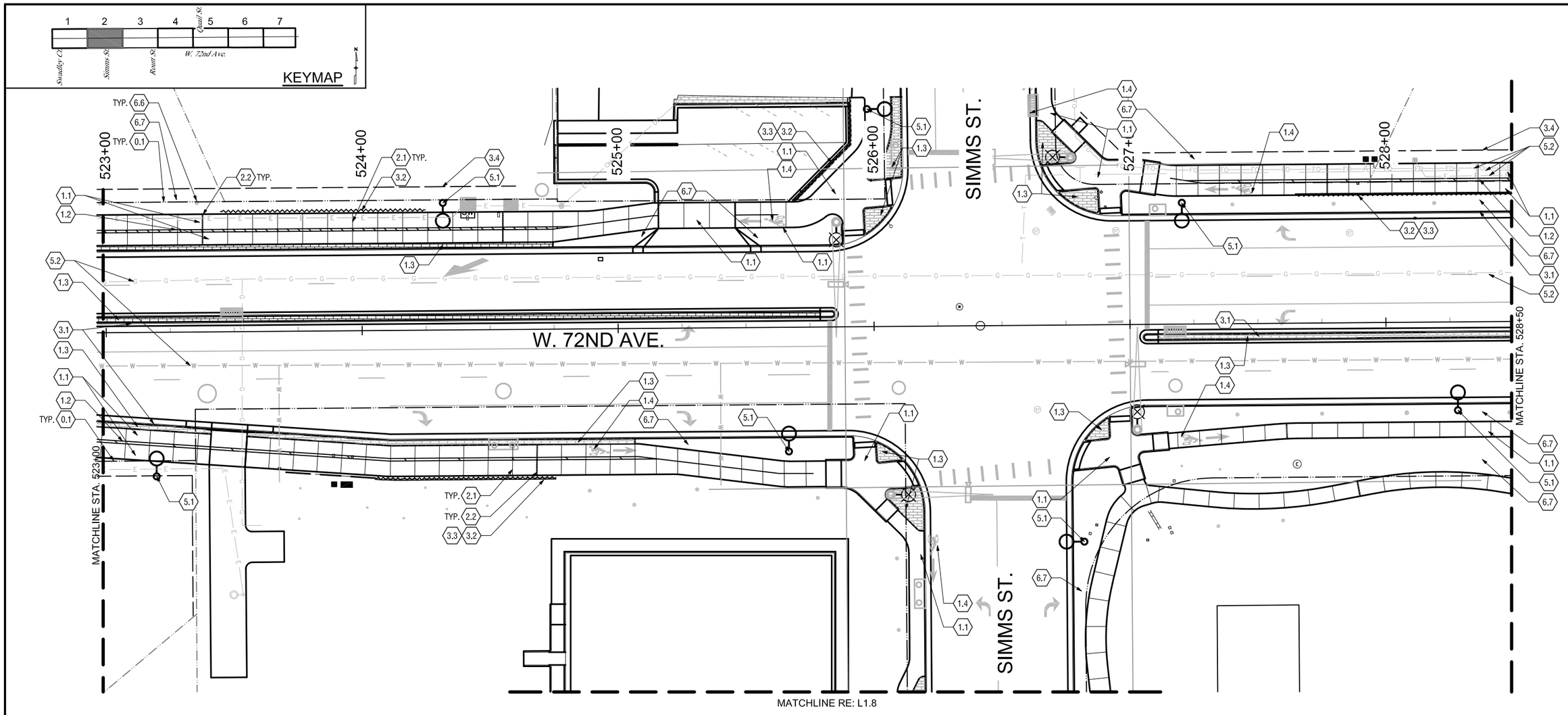
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LANDSCAPE LAYOUT PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.1

Project No./Code

Sheet Number 275



KEYNOTES			DTL./SHT.#
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	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
Original Date of Licensure
REGISTERED
STATE OF COLORADO
LICENSED
LANDSCAPE ARCHITECT
02/14/2022

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Print Date: $DATE$		Sheet Revisions	
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Horiz. Scale: $SCALESHORT$	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
HDR			

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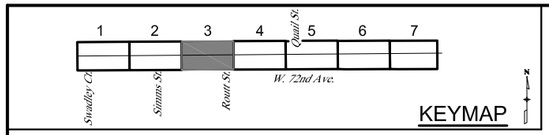
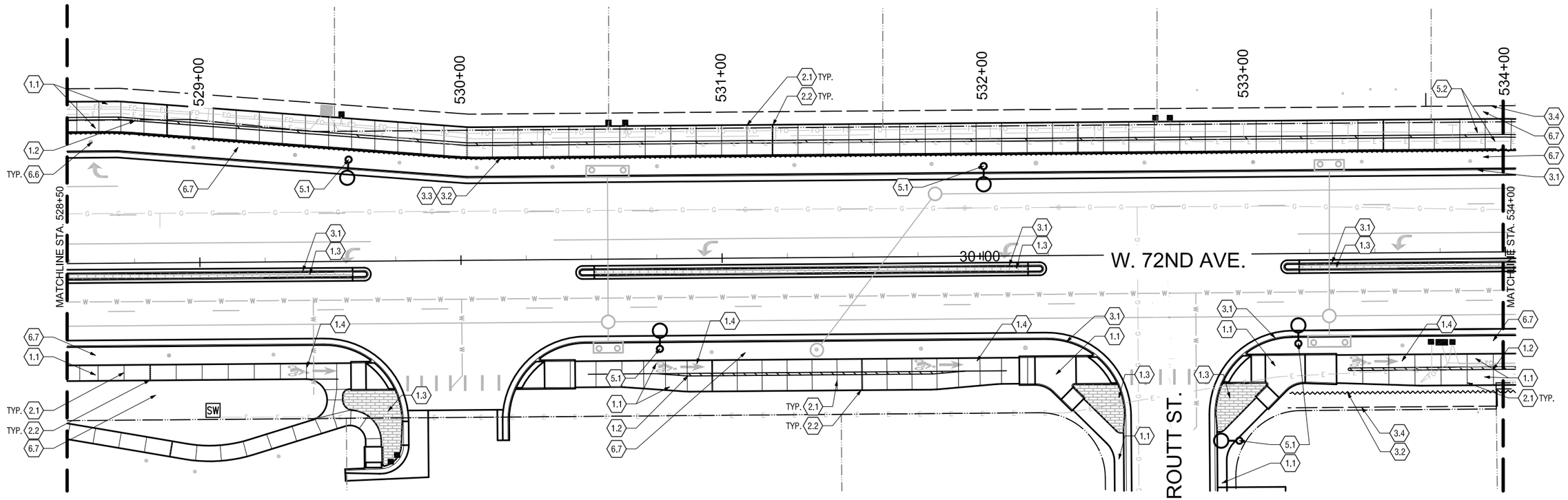
CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	LANDSCAPE LAYOUT PLAN		
Revised:	Designer:	Structure Numbers	
Void:	Detailer:		
	Sheet Subset:	Subset Sheets: L1.2	Sheet Number 276





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5.0		**UTILITIES AND ELECTRICAL**	
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
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6.0		**PLANTING**	
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022

0' 20' 40' 80'

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Print Date: $DATE$
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Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

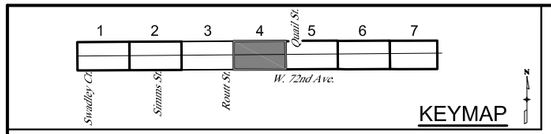
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

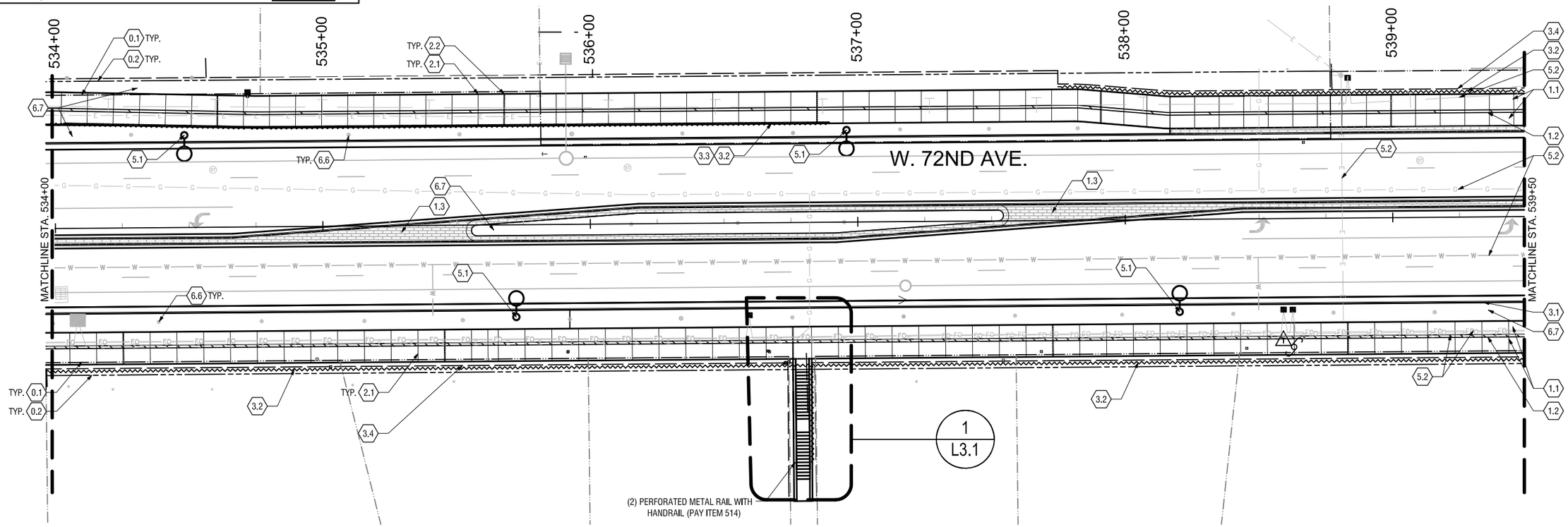
LANDSCAPE LAYOUT PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.3

Project No./Code

Sheet Number 277





KEYNOTES			DTL./SHT.#
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	0.1	EXISTING R.O.W.	-
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	3.4	FENCE	RE: CIVIL
5.0		**UTILITIES AND ELECTRICAL**	
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL

6.0		**PLANTING**	
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
(Date of Licensure)
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022

0' 20' 40' 80'

$PENTBL$$

$PLTDRV$$

$PLOT_INFO$
$DATE$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials
HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

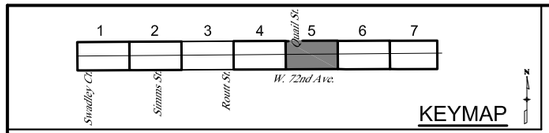
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LANDSCAPE LAYOUT PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.4

Project No./Code

Sheet Number 278



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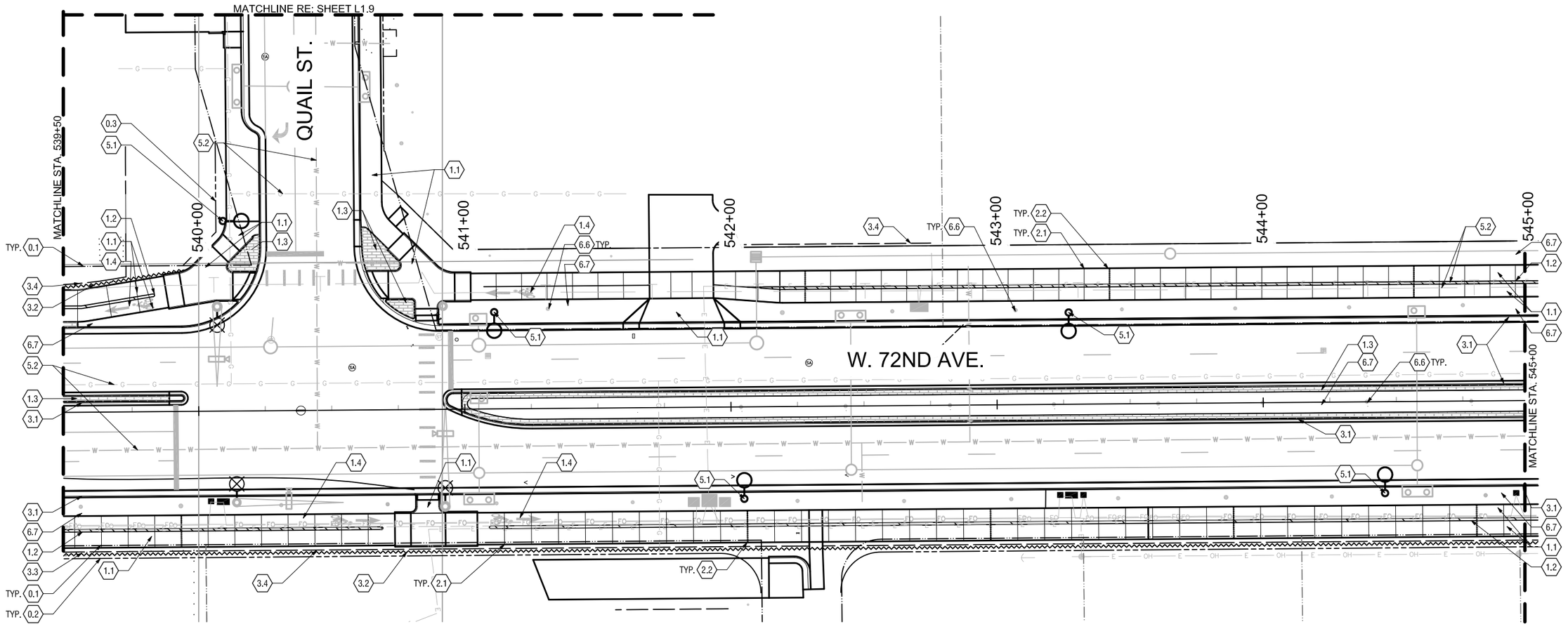
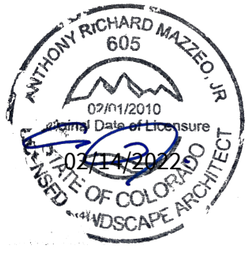
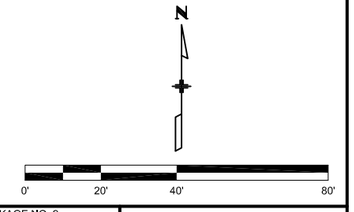


KEYNOTES			DTL./SHT.#
0.0		RIGHT OF WAY	
	0.1	EXISTING R.O.W.	-
	0.2	PROPOSED R.O.W.	-
	0.3	NOT USED	
1.0		PAVING	
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
2.0		JOINTING	
	2.1	CONTROL JOINT	RE: SPECS, REVISION OF SECTION 608
	2.2	SEALED EXPANSION JOINT	RE: SPECS, REVISION OF SECTION 608

3.0		CURBS, WALLS, RAILING, FENCE	
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0		UTILITIES AND ELECTRICAL	
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0		PLANTING	
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS





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$PLTDRVSS$

$PLOT_INFOS$
$DATES$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

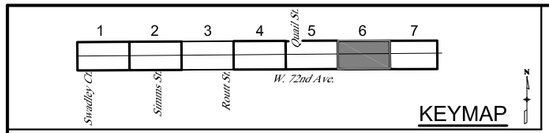
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

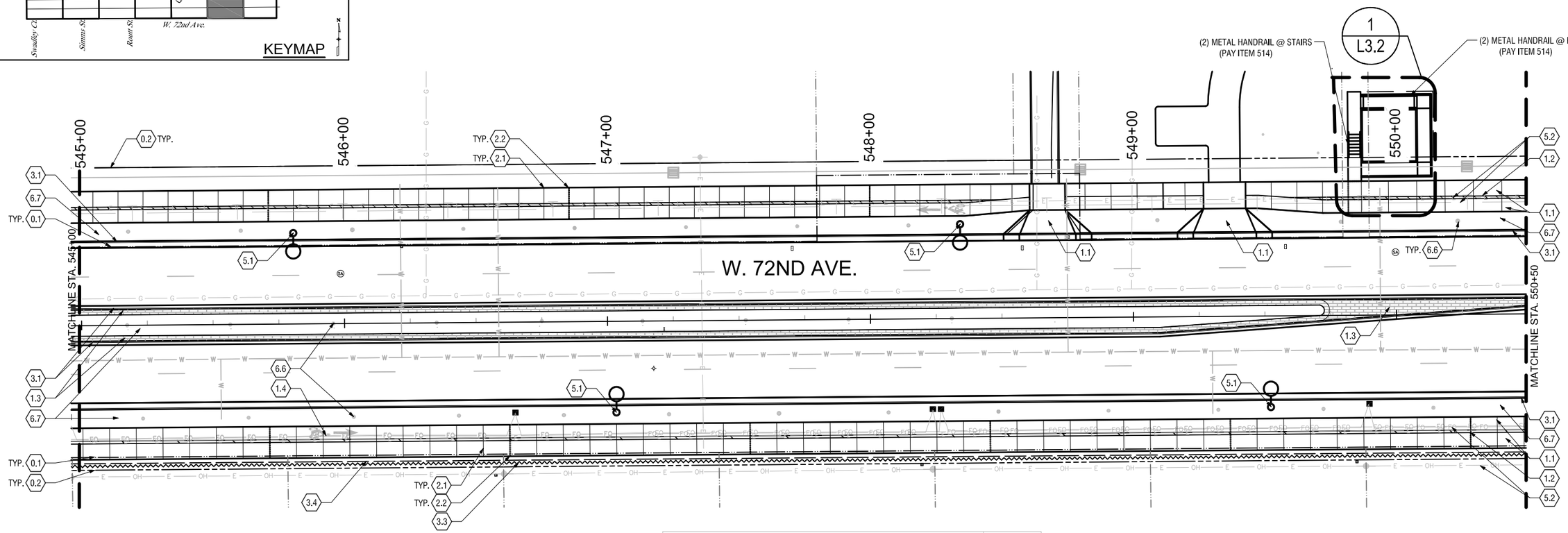
LANDSCAPE LAYOUT PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.5

Project No./Code

Sheet Number 279

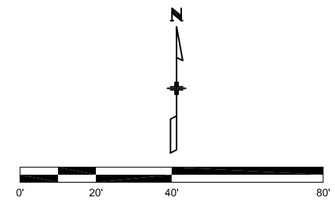




KEYNOTES			DTL./SHT.#
0.0		**RIGHT OF WAY**	
	0.1	EXISTING R.O.W.	-
	0.2	PROPOSED R.O.W.	-
	0.3	NOT USED	
1.0		**PAVING**	
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
2.0		**JOINTING**	
	2.1	CONTROL JOINT	RE: SPECS, REVISION OF SECTION 608
	2.2	SEALED EXPANSION JOINT	RE: SPECS, REVISION OF SECTION 608
3.0		**CURBS, WALLS, RAILING, FENCE**	
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0		**UTILITIES AND ELECTRICAL**	
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL

6.0		**PLANTING**	
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022



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$DATE$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

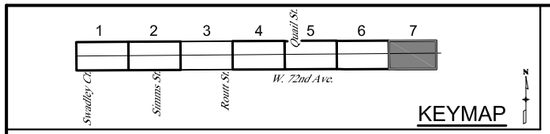
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

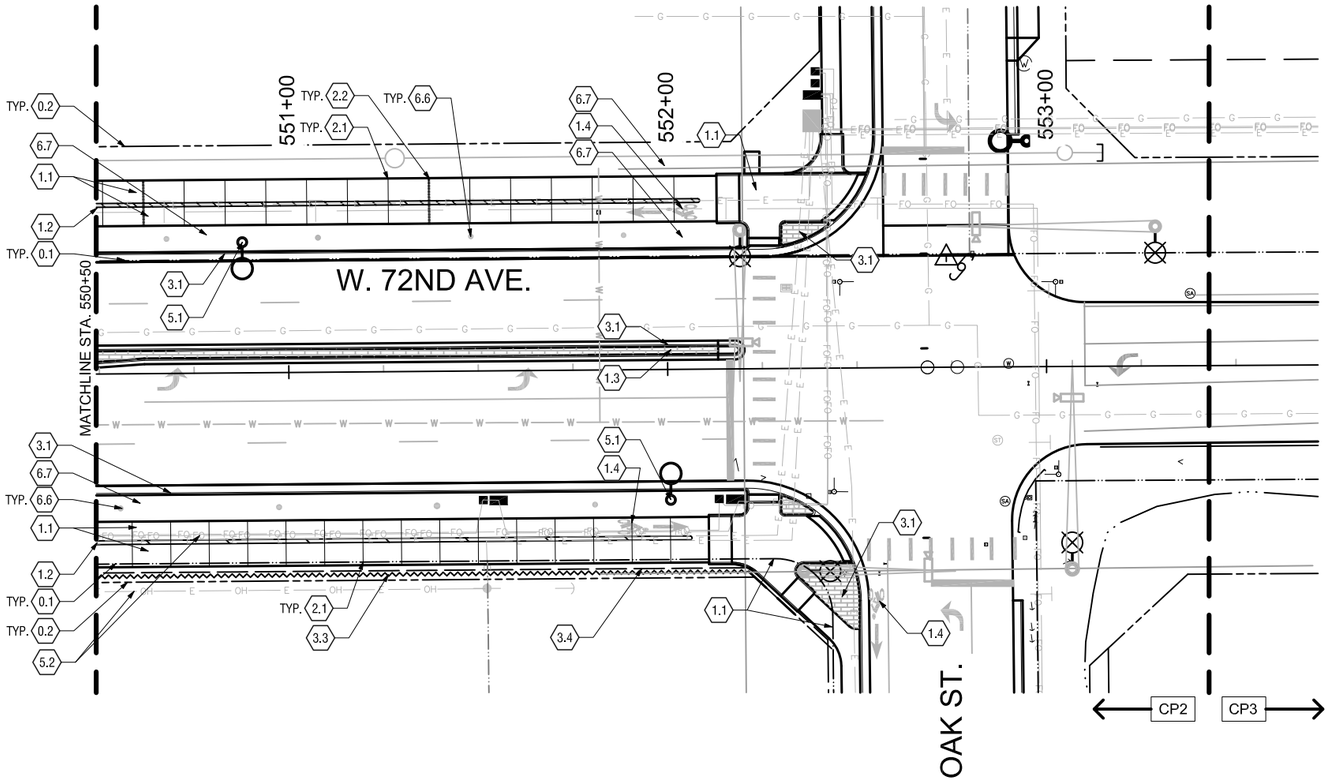
LANDSCAPE LAYOUT PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.6

Project No./Code

Sheet Number 280





KEYNOTES			DTL./SHT.#
0.0	**RIGHT OF WAY**		
	0.1	EXISTING R.O.W.	-
	0.2	PROPOSED R.O.W.	-
	0.3	NOT USED	
1.0	**PAVING**		
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
2.0	**JOINTING**		
	2.1	CONTROL JOINT	RE: SPECS, REVISION OF SECTION 608
	2.2	SEALED EXPANSION JOINT	RE: SPECS, REVISION OF SECTION 608
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
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STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022

N
0' 20' 40' 80'

$PENTBLS$
$PLTDRVS$
$PLOT_INFO$
$DATE$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials
HDR

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Sheet Revisions		
Date:	Comments	Init.

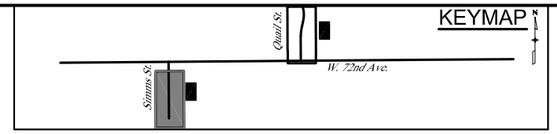
CITY OF ARVADA

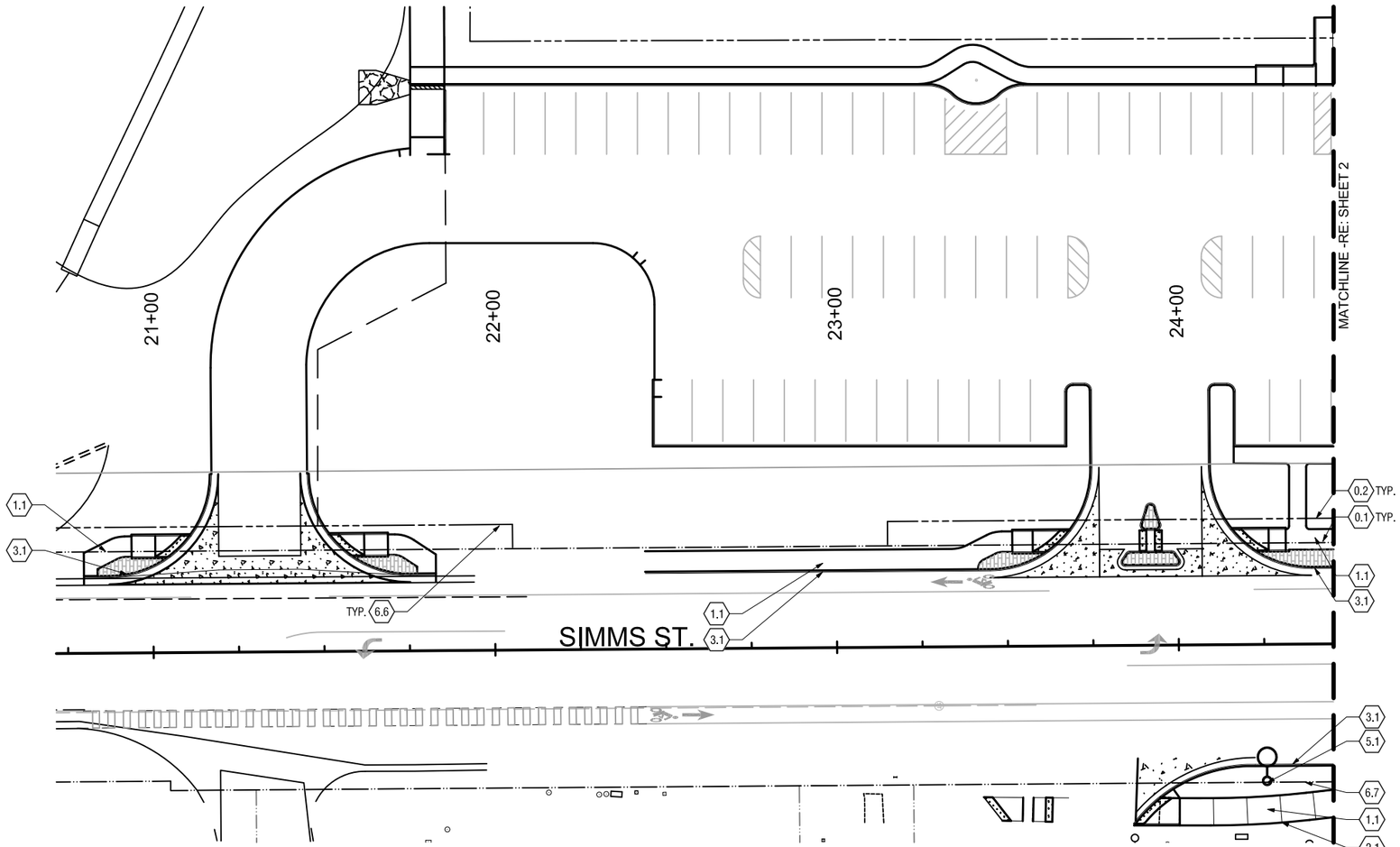
As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
LANDSCAPE LAYOUT PLAN
Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.7

Project No./Code

Sheet Number 281





KEYNOTES			DTL./SHT.#
0.0	**RIGHT OF WAY**		
	0.1	EXISTING R.O.W.	-
	0.2	PROPOSED R.O.W.	-
	0.3	NOT USED	
1.0	**PAVING**		
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
2.0	**JOINTING**		
	2.1	CONTROL JOINT	RE: SPECS, REVISION OF SECTION 608
	2.2	SEALED EXPANSION JOINT	RE: SPECS, REVISION OF SECTION 608
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

NOTE: CITY IS ONLY RESPONSIBLE FOR IRRIGATION IN ROW. PRIVATE PROPERTY OWNER IS RESPONSIBLE FOR MAINTENANCE OF PLANT MATERIALS OUTSIDE OF ROW

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
Original Date of Licensure
02/14/2022
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT

N

0' 20' 40' 80'

$PENTBLS$
$PLTDRVS$
$PLOT_INFO$
$DATE$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials
HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

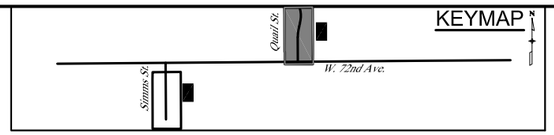
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

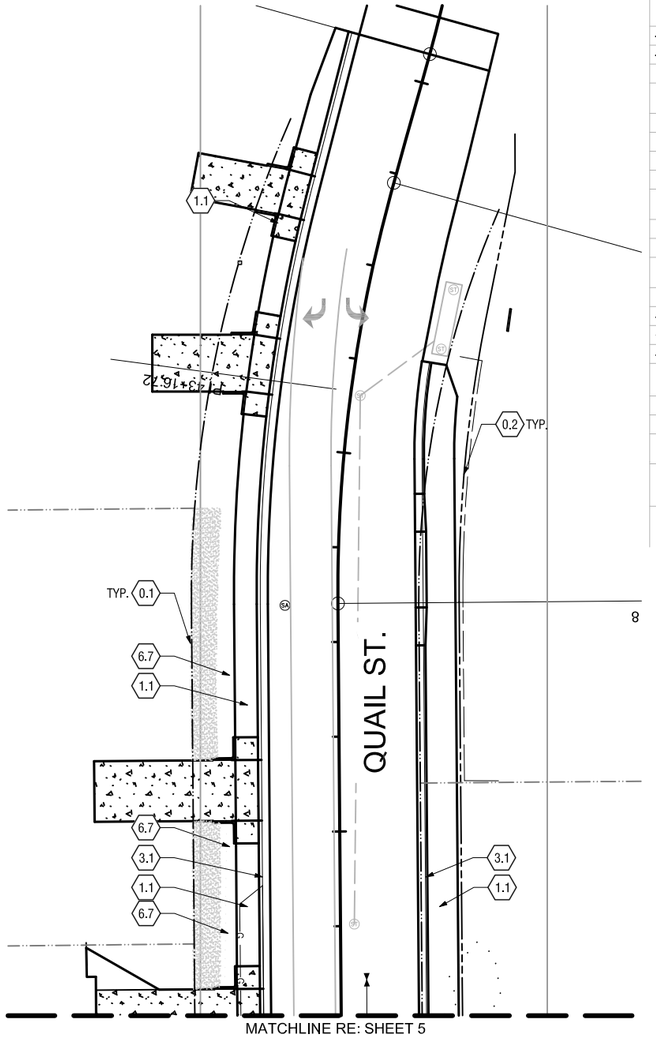
LANDSCAPE LAYOUT PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.8

Project No./Code

Sheet Number 282





KEYNOTES			DTL./SHT.#
0.0	**RIGHT OF WAY**		
	0.1	EXISTING R.O.W.	-
	0.2	PROPOSED R.O.W.	-
	0.3	NOT USED	
1.0	**PAVING**		
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
2.0	**JOINTING**		
	2.1	CONTROL JOINT	RE: SPECS, REVISION OF SECTION 608
	2.2	SEALED EXPANSION JOINT	RE: SPECS, REVISION OF SECTION 608
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
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STATE OF COLORADO
LICENSED
LANDSCAPE ARCHITECT
02/14/2022

N
0' 20' 40' 80'

$PENTBLS$
$PLTDRVS$
$PLOT_INFO$
$DATES$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

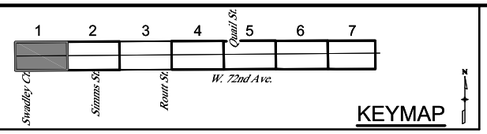
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

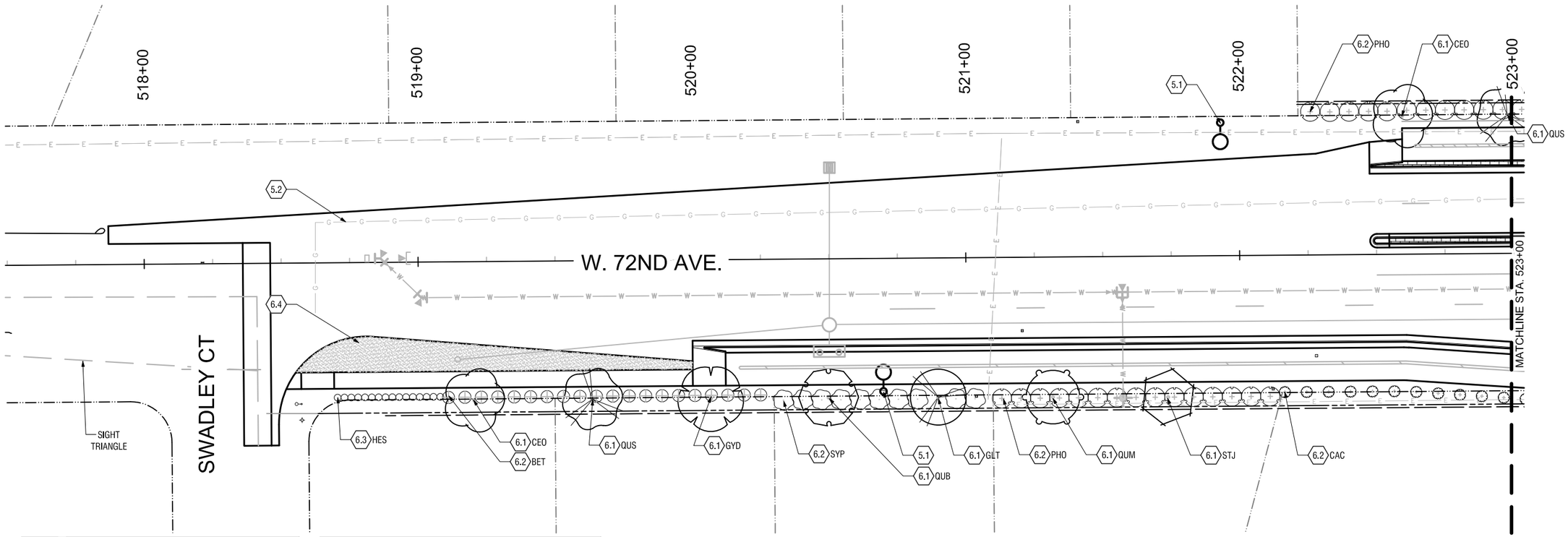
LANDSCAPE LAYOUT PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L1.9

Project No./Code

Sheet Number 283





TREES (6.1)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACC	Acer campestre 'Panacek'	Metro Gold Hedge Maple
	CEO	Celtis occidentalis	Hackberry
	EXC	-	Existing Coniferous Tree to Remain
	EXD	-	Existing Deciduous Tree to Remain
	GLT	Gleditsia triacanthos 'Impcol'	Imperial Honey Locust
	GYD	Gymnocladus dioicus 'Espresso JFS'	Espresso Kentucky Coffee
	QUB	Quercus bicolor	Swamp White Oak
	QUI	Quercus imbricaria	Shingle Oak
	QUM	Quercus x macdanielll 'Clemons'	Heritage Oak
	QUS	Quercus shumardll	Shumard Oak
	STJ	Styphnolobium japonicum 'Halka'	Millstone Japanese Pagoda

SHRUBS (6.2)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ARC	Arctostaphylos x coloradensis 'Panchito'	Panchito Manzanita
	ASA	Astilbe x arendsii 'Fanal'	False Spirea
	BET	Berberis thunbergii f. atropurpurea 'Helmond Pillar'	Purpleleaf Japanese Barberry
	CAC	Caryopteris clandonensis	Blue Mist Spirea
	EUF	Euonymus fortunei	Wintercreeper Euonymus
	PHO	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark
	SPB	Spiraea betulifolia var. aemiliana	White Spirea
	SYP	Syringa Pubescens 'Miss Kim'	Miss Kim Lilac

PERENNIALS (6.3)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACM	Achillea millefollum 'Paprika'	Paprika Yarrow
	HES	Hemerocallis Stella D'Oro	Stella Daylily

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KEYNOTES

			DTL./SHT.#
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.1	TREE PLANTING	3/L4.3
	6.2	SHRUB PLANTING	2/L4.3
	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS

NOTES:
1. RE: SHEET L0.0 FOR PLANTING SCHEDULE AND QUANTITIES
2 TREES WITHIN SIGHT TRIANGLES MUST BE LIMBED UP 8 FEET.

N

0' 20' 40' 80'

$PENTBL$$

$PLTDRV$$
Print Date: $DATE$
Drawing File Name: $FILE$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

$PLOT_INFO$
$DATE$

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

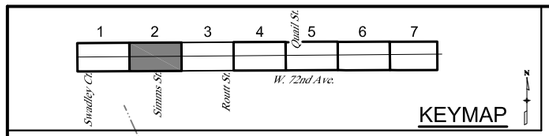
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LANDSCAPE PLANTING PLAN

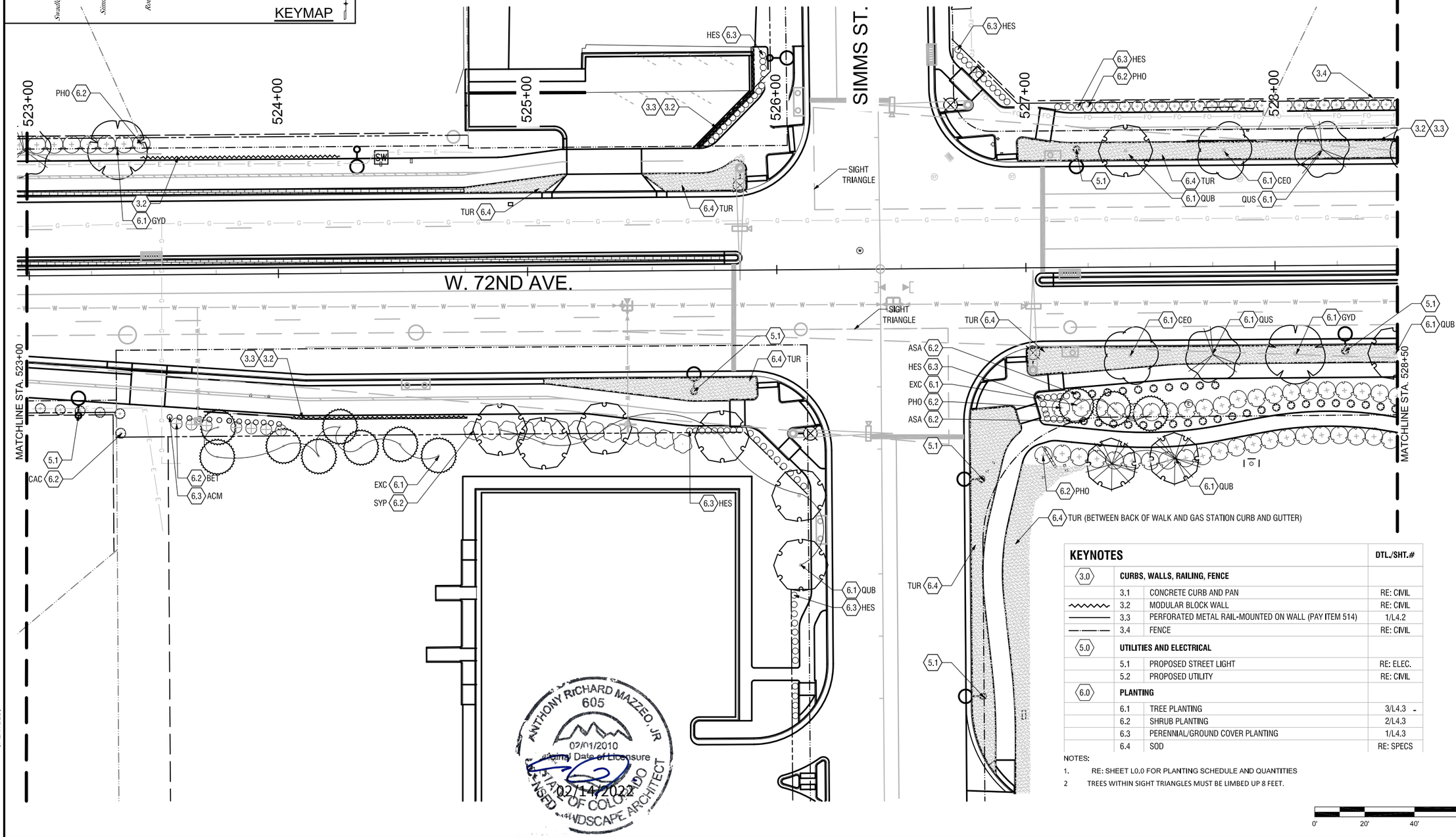
Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.1

Project No./Code

Sheet Number 284



KEYMAP



KEYNOTES			DTL./SHT.#
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.1	TREE PLANTING	3/L4.3
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	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS

NOTES:

1. RE: SHEET L0.0 FOR PLANTING SCHEDULE AND QUANTITIES
2 TREES WITHIN SIGHT TRIANGLES MUST BE LIMBED UP 8 FEET.

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LICENSED LANDSCAPE ARCHITECT
02/14/2022

$PENTBLS$

$PLTDRVS$

$PLOT_INFO$

$DATE$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

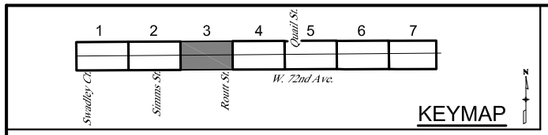
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

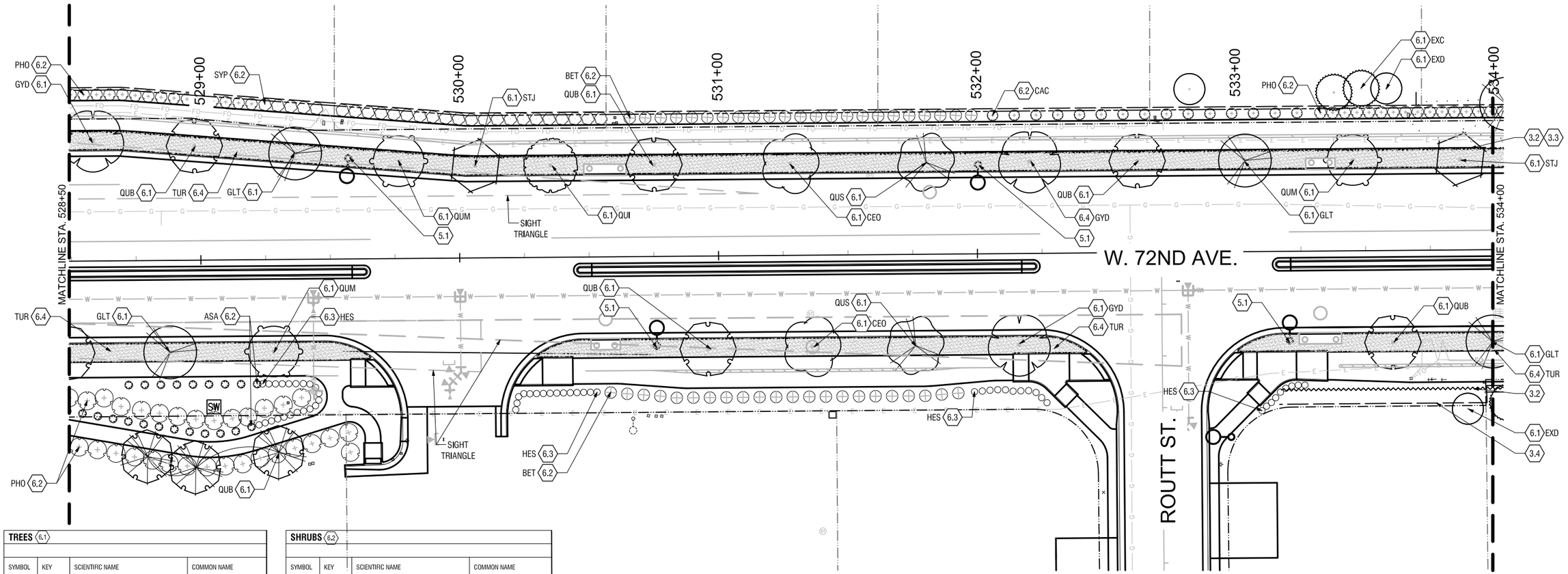
LANDSCAPE PLANTING PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.2

Project No./Code

Sheet Number 285





TREES 6.1

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACC	Acer campestre 'Panacek'	Metro Gold Hedge Maple
	CEO	Celtis occidentalis	Hackberry
	EXC	-	Existing Coniferous Tree to Remain
	EXD	-	Existing Deciduous Tree to Remain
	GLT	Gleditsia triacanthos 'Impcol'	Imperial Honey Locust
	GYD	Gymnocladus dioicus 'Espresso JFS'	Espresso Kentucky Coffee
	QUB	Quercus bicolor	Swamp White Oak
	QUI	Quercus imbricaria	Shingle Oak
	QUM	Quercus x macdanielii 'Clemons'	Heritage Oak
	QUS	Quercus shumardii	Shumard Oak
	STJ	Styphnolobium japonicum 'Halka'	Millstone Japanese Pagoda

SHRUBS 6.2

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ARC	Arctostaphylos x coloradensis 'Panchito'	Panchito Manzanita
	ASA	Astilbe x arendsii 'Fanal'	False Spirea
	BET	Berberis thunbergii f. atropurpurea 'Helmond Pillar'	Purpleleaf Japanese Barberry
	CAC	Caryopteris clandonensis	Blue Mist Spirea
	EUF	Euonymus fortunei	Wintercreeper Euonymus
	PHO	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark
	SPB	Spiraea betulifolia var. aemiliana	White Spirea
	SYP	Syringa Pubescens 'Miss Kim'	Miss Kim Lilac

PERENNIALS 6.3

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACM	Achillea millefolium 'Paprika'	Paprika Yarrow
	HES	Hemerocallis Stella D'Oro	Stella Daylily

ANTHONY RICHARD MAZZEO, JR
605
07/01/2010
Original Date of Licensure
STATE OF COLORADO
LICENSED
LANDSCAPE ARCHITECT
02/14/2022

KEYNOTES

			DTL./SHT.#
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.1	TREE PLANTING	3/L4.3
	6.2	SHRUB PLANTING	2/L4.3
	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS

NOTES:
1. RE: SHEET L0.0 FOR PLANTING SCHEDULE AND QUANTITIES
2 TREES WITHIN SIGHT TRIANGLES MUST BE LIMBED UP 8 FEET.

N
0' 20' 40' 80'

$PENTBLS$
$PLTDRVSS
$PLOT_INFO$
$DATES

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials
HDR

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

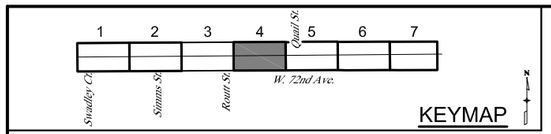
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

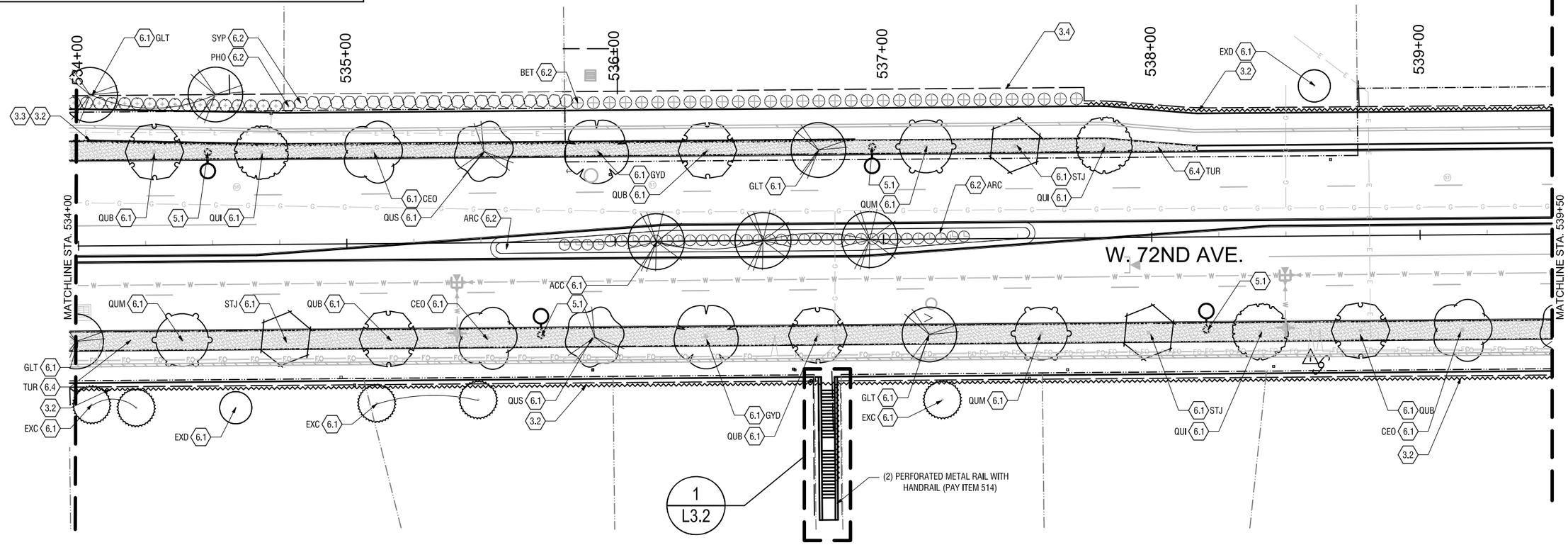
LANDSCAPE PLANTING PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.3

Project No./Code

Sheet Number 286





TREES 6.1

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACC	Acer campestre 'Panacek'	Metro Gold Hedge Maple
	CEO	Celtis occidentalis	Hackberry
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	QUB	Quercus bicolor	Swamp White Oak
	QUI	Quercus imbricaria	Shingle Oak
	QUM	Quercus x macdanielll 'Clemons'	Heritage Oak
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	STJ	Styphnolobium japonicum 'Halka'	Millstone Japanese Pagoda

SHRUBS 6.2

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ARC	Arctostaphylos x coloradensis 'Panchito'	Panchito Manzanita
	ASA	Astilbe x arendsll 'Fanal'	False Spirea
	BET	Berberis thunbergii f. atropurpurea 'Helmond Pillar'	Purpleleaf Japanese Barberry
	CAC	Caryopteris clandonensis	Blue Mist Spirea
	EUF	Euonymus fortunei	Wintercreeper Euonymus
	PHO	Physocarpus opulifollus 'Monlo'	Diabolo Ninebark
	SPB	Spiraea betulifolia var. aemiliana	White Spirea
	SYP	Syringa Pubescens 'Miss Kim'	Miss Kim Lilac

PERENNIALS 6.3

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACM	Achillea millefolium 'Paprika'	Paprika Yarrow
	HES	Hemerocallis Stella D'Oro	Stella Daylily

KEYNOTES

			DTL./SHT.#
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0	**PLANTING**		
	6.1	TREE PLANTING	3/L4.3
	6.2	SHRUB PLANTING	2/L4.3
	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS

NOTES:

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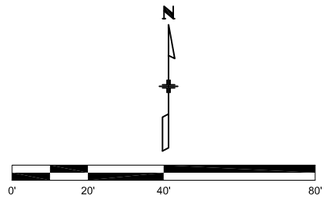
2 TREES WITHIN SIGHT TRIANGLES MUST BE LIMBED UP 8 FEET.



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Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

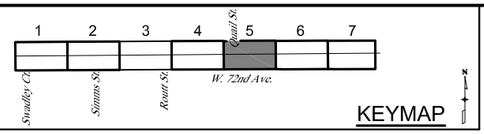
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

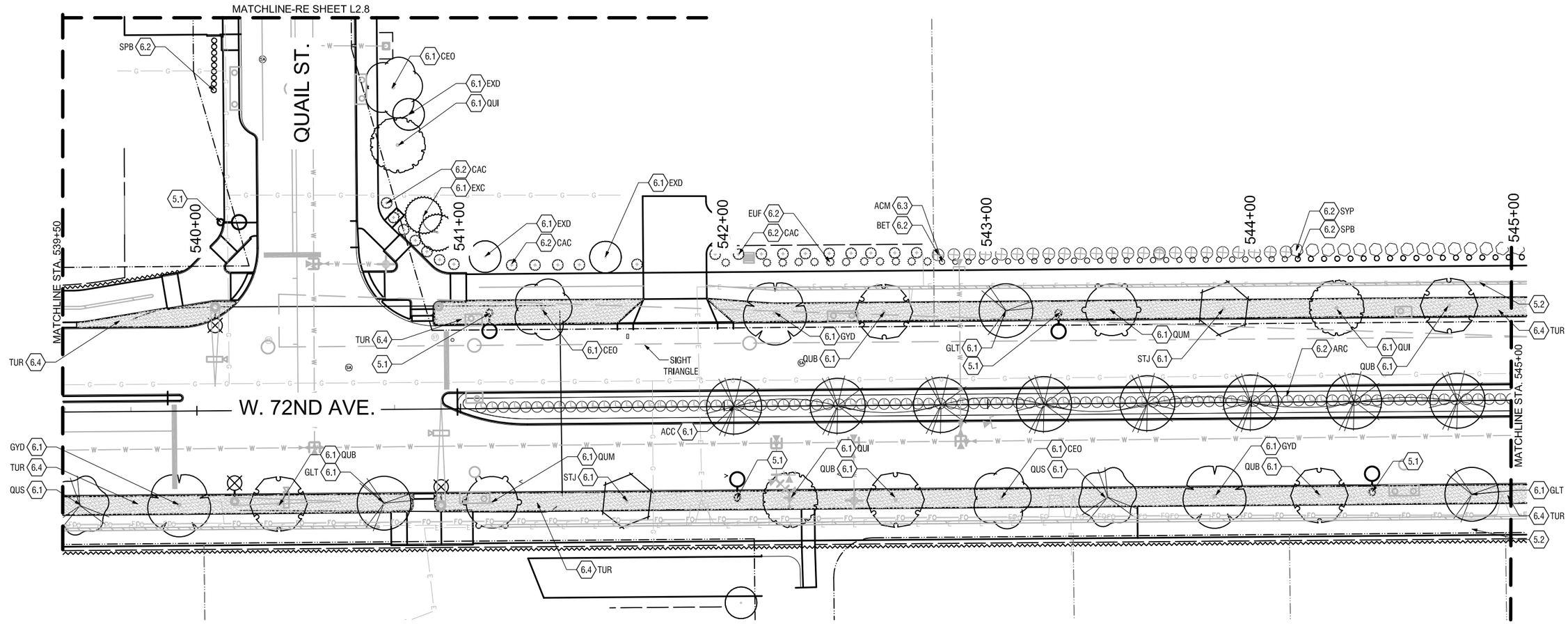
LANDSCAPE PLANTING PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.4

Project No./Code

Sheet Number 287





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Original Date of Licensure
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KEYNOTES			DTL./SHT.#
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	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0		UTILITIES AND ELECTRICAL	
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL

6.0		PLANTING	
	6.1	TREE PLANTING	3/L4.3
	6.2	SHRUB PLANTING	2/L4.3
	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS

NOTES:
1. RE: SHEET L0.0 FOR PLANTING SCHEDULE AND QUANTITIES
2 TREES WITHIN SIGHT TRIANGLES MUST BE LIMBED UP 8 FEET.

NOTES:
RE: SHEET L0.0 FOR PLANTING SCHEDULE AND QUANTITIES

N

0' 20' 40' 80'

$PENTBLS$

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$PLOT_INFO$

$DATE$

Print Date: $DATE$
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Unit Information Unit Leader Initials

HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

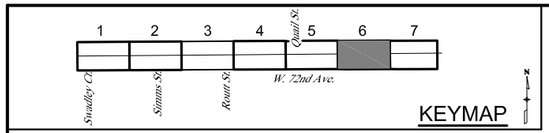
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

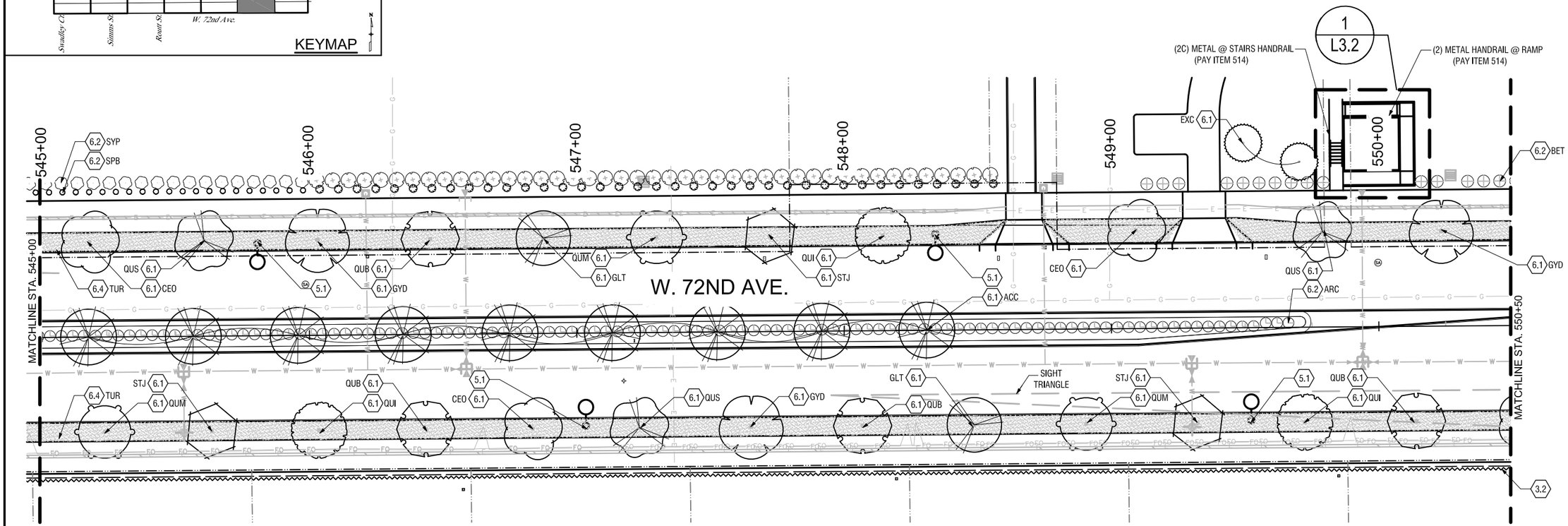
LANDSCAPE PLANTING PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.5

Project No./Code

Sheet Number 288





TREES 6.1			
SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACC	Acer campestre 'Panacek'	Metro Gold Hedge Maple
	CEO	Celtis occidentalis	Hackberry
	EXC	-	Existing Coniferous Tree to Remain
	EXD	-	Existing Deciduous Tree to Remain
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	GYD	Gymnocladus dioicus 'Espresso JFS'	Espresso Kentucky Coffee
	QUB	Quercus bicolor	Swamp White Oak
	QUI	Quercus imbricaria	Shingle Oak
	QUM	Quercus x macdanielli 'Clemons'	Heritage Oak
	QUS	Quercus shumardii	Shumard Oak
	STJ	Styphnolobium japonicum 'Halka'	Millstone Japanese Pagoda

SHRUBS 6.2			
SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ARC	Arctostaphylos x coloradensis 'Panchito'	Panchito Manzanita
	ASA	Astilbe x arendsii 'Fanal'	False Spirea
	BET	Berberis thunbergii f. atropurpurea 'Helmond Pillar'	Purpleleaf Japanese Barberry
	CAC	Caryopteris clandonensis	Blue Mist Spirea
	EUF	Euonymus fortunei	Wintercreeper Euonymus
	PHO	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark
	SPB	Spiraea betulifolia var. aemiliana	White Spirea
	SYP	Syringa Pubescens 'Miss Kim'	Miss Kim Lilac

PERENNIALS 6.3			
SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACM	Achillea millefolium 'Paprika'	Paprika Yarrow
	HES	Hemerocallis Stella D'Oro	Stella Daylily

KEYNOTES			DTL./SHT.#
3.0		**CURBS, WALLS, RAILING, FENCE**	
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
	3.3	PERFORATED METAL RAIL-MOUNTED ON WALL (PAY ITEM 514)	1/L4.2
	3.4	FENCE	RE: CIVIL
5.0		**UTILITIES AND ELECTRICAL**	
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
	5.2	PROPOSED UTILITY	RE: CIVIL
6.0		**PLANTING**	
	6.1	TREE PLANTING	3/L4.3
	6.2	SHRUB PLANTING	2/L4.3
	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS

NOTES:

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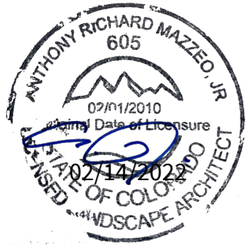
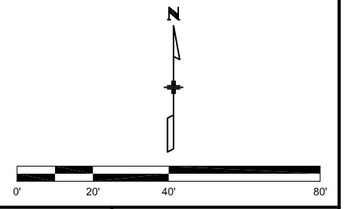
2 TREES WITHIN SIGHT TRIANGLES MUST BE LIMBED UP 8 FEET.





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Unit Information Unit Leader Initials

HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

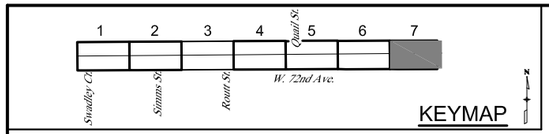
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

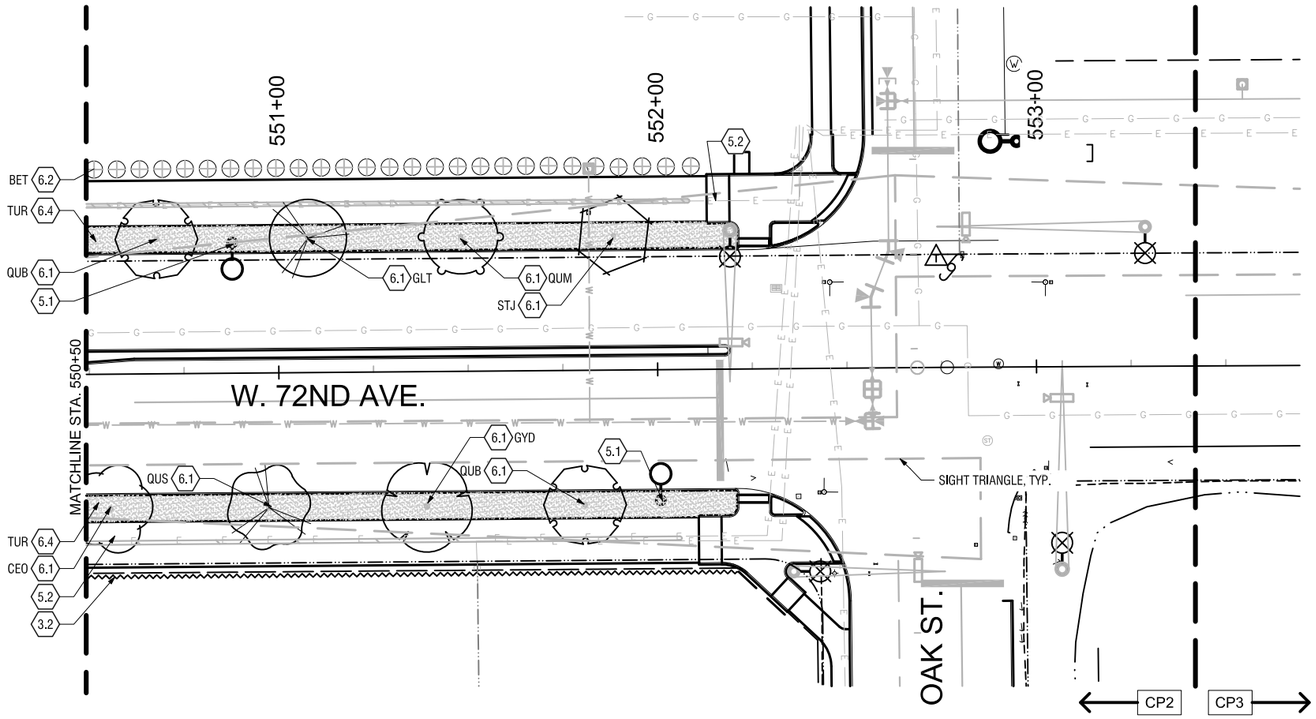
LANDSCAPE PLANTING PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.6

Project No./Code

Sheet Number 289





TREES (6.1)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACC	Acer campestre 'Panacek'	Metro Gold Hedge Maple
	CEO	Celtis occidentalis	Hackberry
	EXC	-	Existing Coniferous Tree to Remain
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	GYD	Gymnocladus dioicus 'Espresso JFS'	Espresso Kentucky Coffee
	QUB	Quercus bicolor	Swamp White Oak
	QUI	Quercus imbricaria	Shingle Oak
	QUM	Quercus x macdanielli 'Clemons'	Heritage Oak
	QUS	Quercus shumardii	Shumard Oak
	STJ	Styphnolobium japonicum 'Halka'	Millstone Japanese Pagoda

SHRUBS (6.2)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ARC	Arctostaphylos x coloradensis 'Panchito'	Panchito Manzanita
	ASA	Astilbe x arendsii 'Fanal'	False Spirea
	BET	Berberis thunbergii f. atropurpurea 'Helmond Pillar'	Purpleleaf Japanese Barberry
	CAC	Caryopteris clandonensis	Blue Mist Spirea
	EUF	Euonymus fortunei	Wintercreeper Euonymus
	PHO	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark
	SPB	Spiraea betulifolia var. aemiliana	White Spirea
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PERENNIALS (6.3)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
	ACM	Achillea millefolium 'Paprika'	Paprika Yarrow
	HES	Hemerocallis Stella D'Oro	Stella Daylily

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KEYNOTES

			DTL./SHT.#
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
	3.2	MODULAR BLOCK WALL	RE: CIVIL
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5.0	**UTILITIES AND ELECTRICAL**		
	5.1	PROPOSED STREET LIGHT	RE: ELEC.
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6.0	**PLANTING**		
	6.1	TREE PLANTING	3/L4.3
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NOTES:
1. RE: SHEET L0.0 FOR PLANTING SCHEDULE AND QUANTITIES
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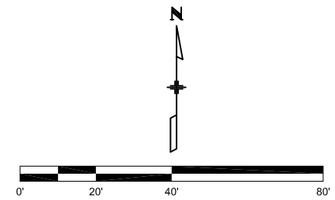

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Unit Information Unit Leader Initials

HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

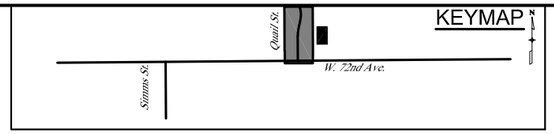
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LANDSCAPE PLANTING PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.7

Project No./Code

Sheet Number 290



TREES (6.1)

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SHRUBS (6.2)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
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	CAC	Caryopteris clandonensis	Blue Mist Spirea
	EUF	Euonymus fortunei	Wintercreeper Euonymus
	PHO	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark
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PERENNIALS (6.3)

SYMBOL	KEY	SCIENTIFIC NAME	COMMON NAME
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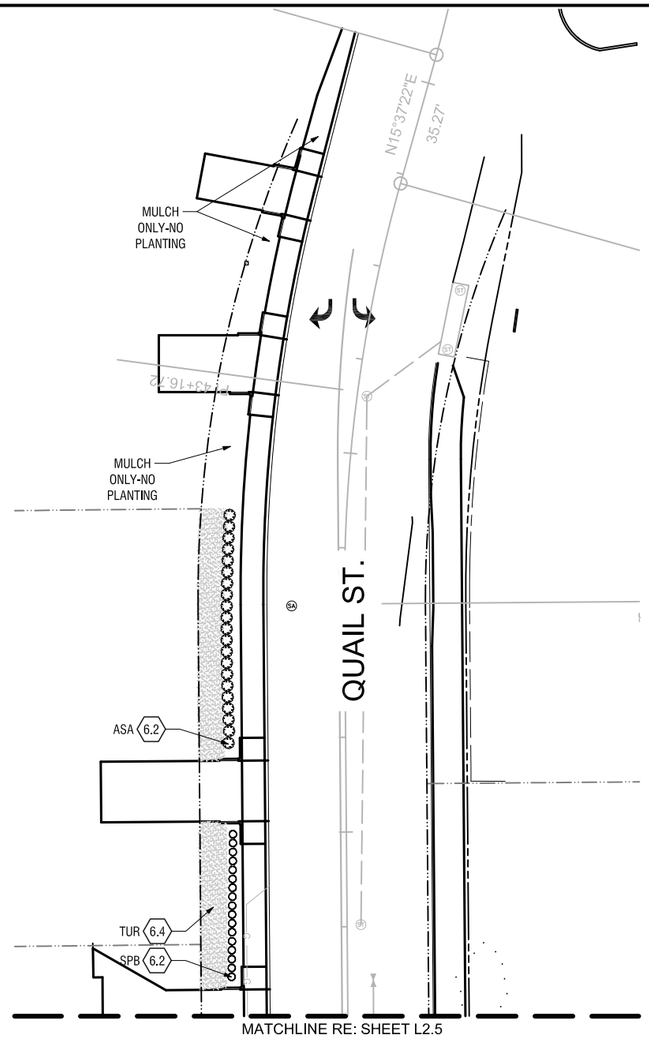

KEYNOTES			DTL./SHT.#
3.0	**CURBS, WALLS, RAILING, FENCE**		
	3.1	CONCRETE CURB AND PAN	RE: CIVIL
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Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022

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0' 20' 40' 80'

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Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

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$DATE$

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

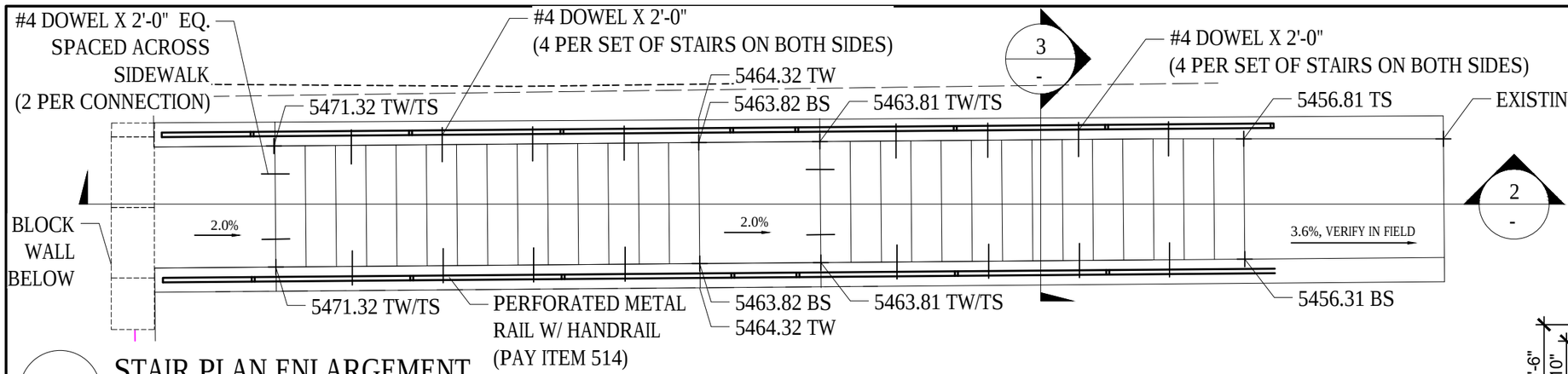
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LANDSCAPE PLANTING PLAN

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L2.8

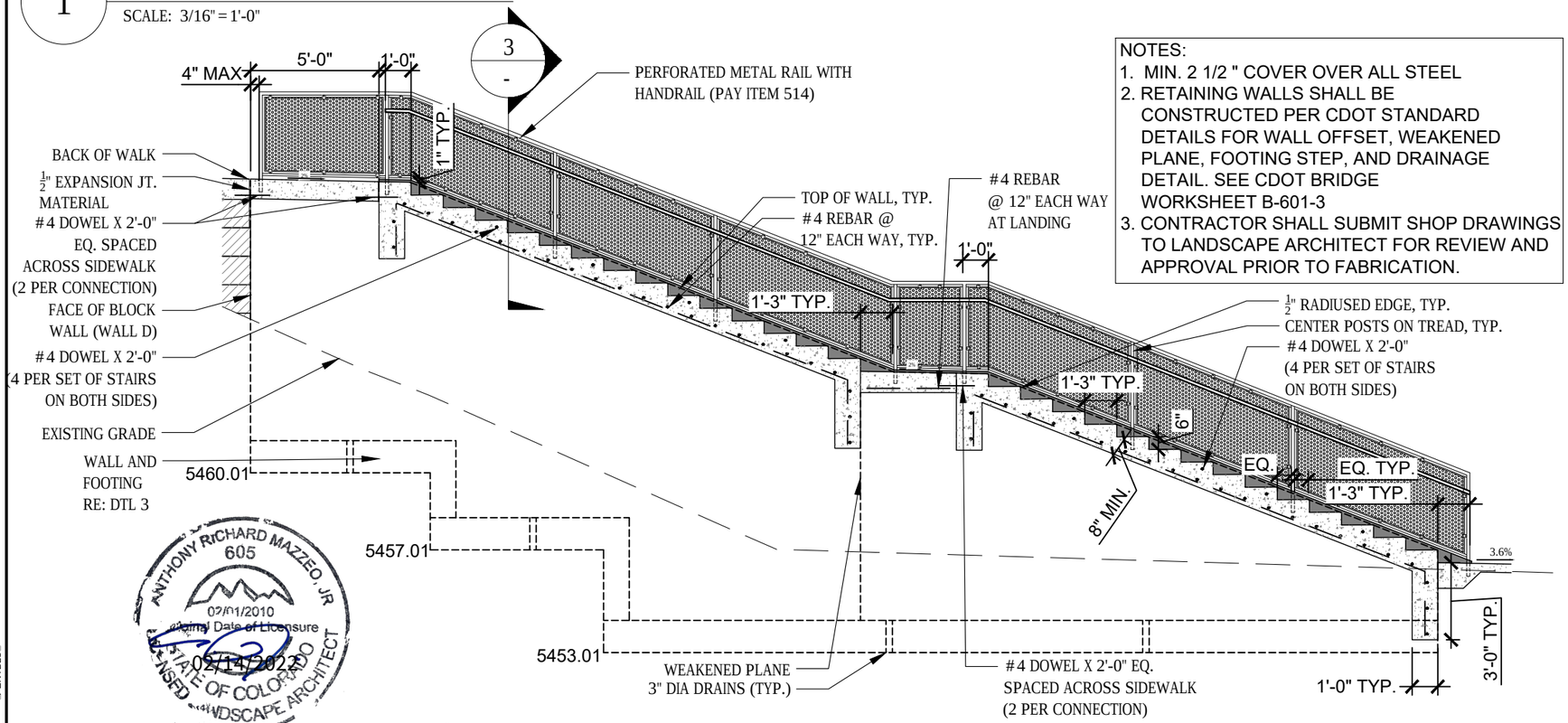
Project No./Code

Sheet Number 291



1 STAIR PLAN ENLARGEMENT

SCALE: 3/16" = 1'-0"



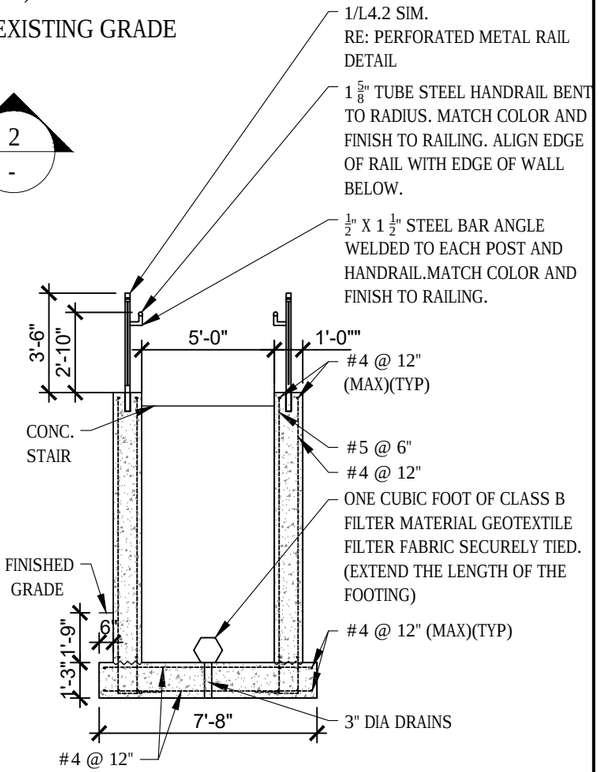
ANTHONY RICHARD MAZZEO, JR 605 02/01/2010 Original Date of Licensure STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT 02/14/2022

2 CONCRETE STAIR SECTION

SCALE: 3/16" = 1'-0"

NOTES:
1. MIN. 2 1/2 " COVER OVER ALL STEEL
2. RETAINING WALLS SHALL BE CONSTRUCTED PER CDOT STANDARD DETAILS FOR WALL OFFSET, WEAKENED PLANE, FOOTING STEP, AND DRAINAGE DETAIL. SEE CDOT BRIDGE WORKSHEET B-601-3
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

NOTE: THE STAIRS WILL BE PAID FOR AS COMPLETE-IN-PLACE BY THE LINEAR FOOT. THIS WILL INCLUDE ALL WORK ASSOCIATED WITH BUILDING THE STAIRS.



NOTES:
1. MIN. 2 1/2 " COVER OVER ALL STEEL
2. CONTRACTOR SHALL SUBMIT RAIL SHOP DRAWINGS TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
3. ALL POSTS PANELS AND HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE TO ASTM A123. GRAY DUPLEX COATING SHALL BE APPLIED TO ALL POSTS, PANELS AND HARDWARE. SUBMIT PAINT SAMPLES FOR APPROVAL.
3. PERFORATED METAL RAIL WITH HANDRAIL IS PAY ITEM 514

3 WALL FOOTING W/ PERFORATED METAL RAIL W/ HANDRAIL - SECTION

SCALE: 3/16" = 1'-0"

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[PLTDRVS]
[PLOT_INFO]
[DATE]

Print Date: [DATE]		Sheet Revisions	
Drawing File Name: [FILES]		Date:	Comments / Init.
Horiz. Scale: [SCALESHORT]	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
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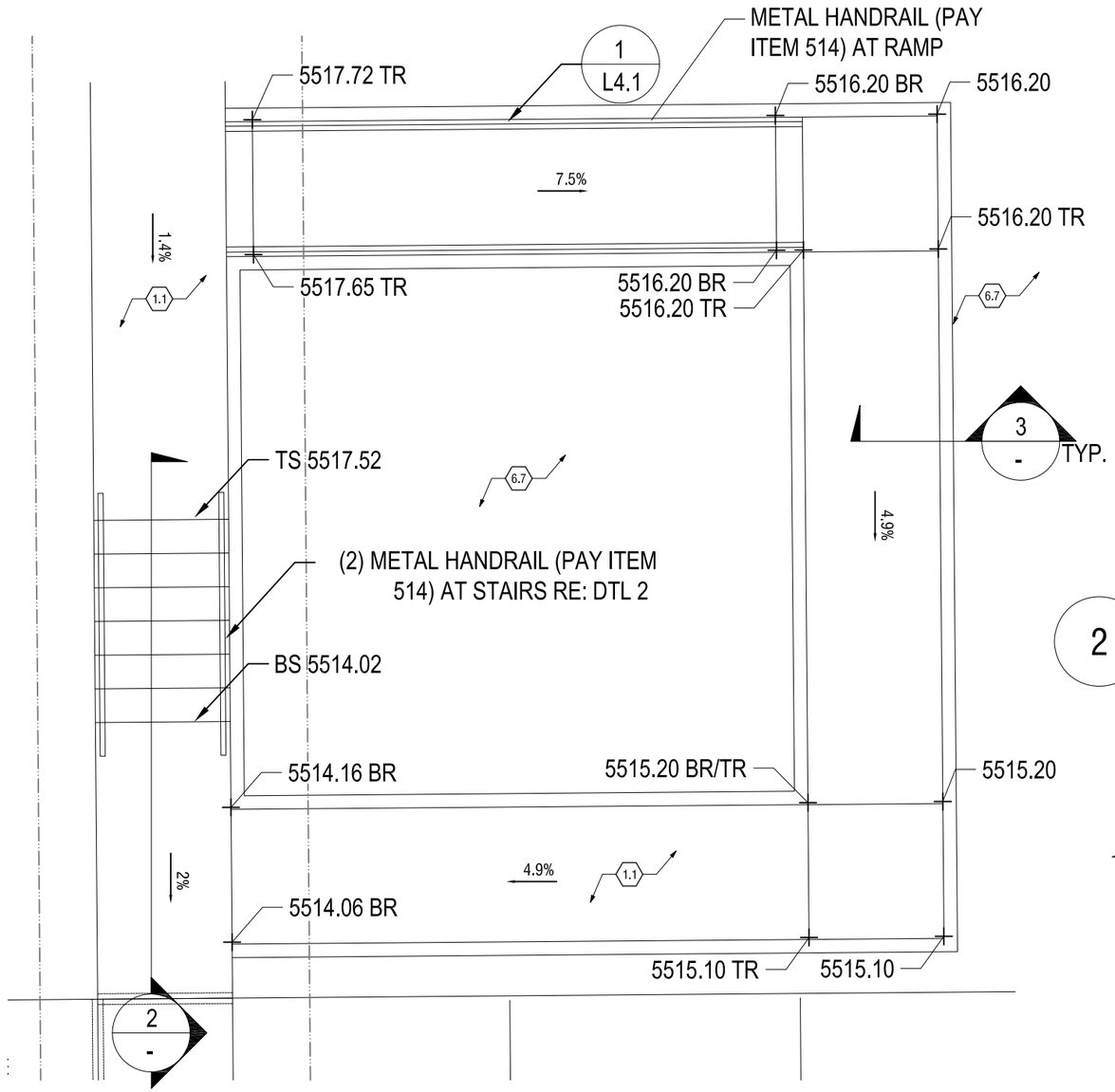
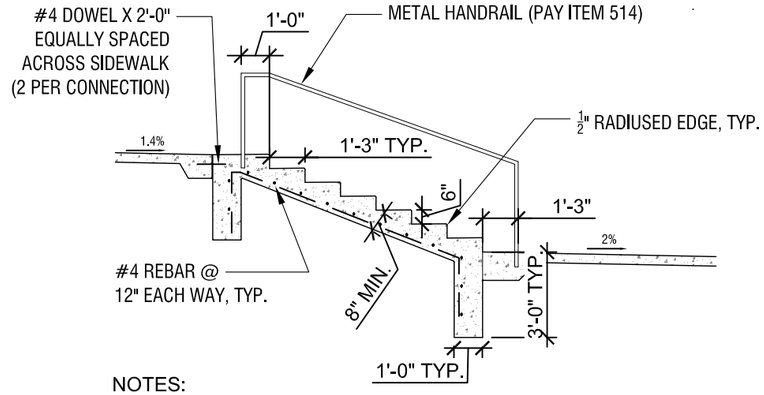
CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	LANDSCAPE ENLARGEMENT- STAIRS		
Revised:	Designer:	Structure Numbers	
Void:	Detailer:		Sheet Number 292
	Sheet Subset:	Subset Sheets: L3.1	



1 STAIR WITH RAMP ENLARGEMENT PLAN

SCALE: 3/16"=1'-0"



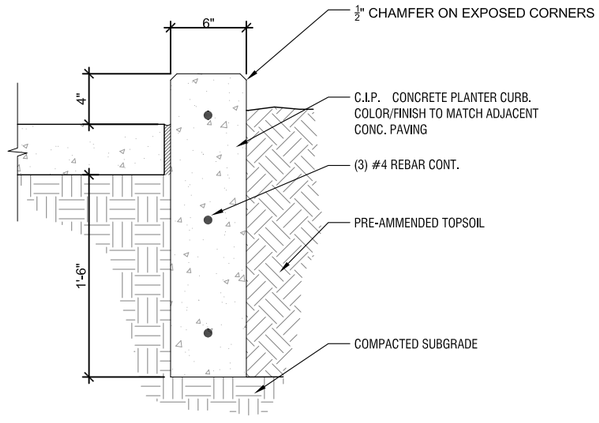
NOTES:
1. MIN. 2 1/2 " COVER OVER ALL STEEL
2. ALL POSTS AND HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE TO ASTM A123. GRAY DUPLEX COATING SHALL BE APPLIED TO ALL POSTS AND HARDWARE. SUBMIT PAINT SAMPLES AND SHOP DRAWINGS FOR APPROVAL.

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
Initial Date of Licensure
02/14/2022
REGISTERED STATE OF COLORADO LANDSCAPE ARCHITECT

2 CONCRETE STAIR AT RAMP-SECTION

SCALE: 3/16"=1'-0"

NOTE: THE STAIRS WILL BE PAID FOR AS COMPLETE-IN-PLACE BY THE LINEAR FOOT. THIS WILL INCLUDE ALL WORK ASSOCIATED WITH BUILDING THE STAIRS.



3 EDGE OF RAMP-SECTION

SCALE: 1"=1'-0"

KEYNOTES			DTL./SHT.#
1.0	**PAVING**		
	1.1	CONCRETE PAVING-BROOM FINISH	RE: CIVIL
	1.2	BUFFER ZONE-COLORED MICROTOPPING	RE: CIVIL
	1.3	STAMPED CONCRETE	RE: SPECS
	1.4	USE DILINEATION GRAPHIC-PAINT	RE: SPECS
6.0	**PLANTING**		
	6.1	TREE PLANTING	3/L4.3
	6.2	SHRUB PLANTING	2/L4.3
	6.3	PERENNIAL/GROUND COVER PLANTING	1/L4.3
	6.4	SOD	RE: SPECS
	6.6	TREE TRUNK	RE: PLANTING PLANS
	6.7	PLANTING AREA	RE: PLANTING PLANS

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$PLOT_INFO$
$DATES$

Print Date: $DATE$
Drawing File Name: $FILES$
Horiz. Scale: $SCALESHORT$ Vert. Scale: As Noted
Unit Information Unit Leader Initials
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Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
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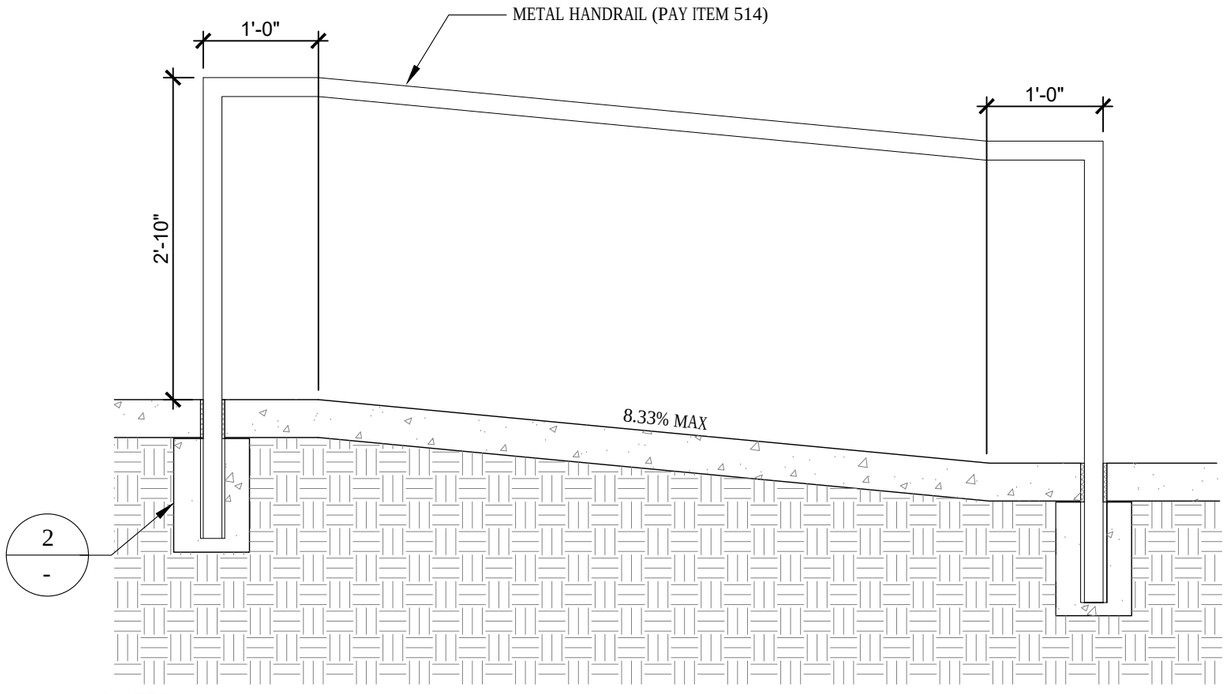
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
LANDSCAPE ENLARGEMENT-STAIRS AND RAMP

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L3.2

Project No./Code

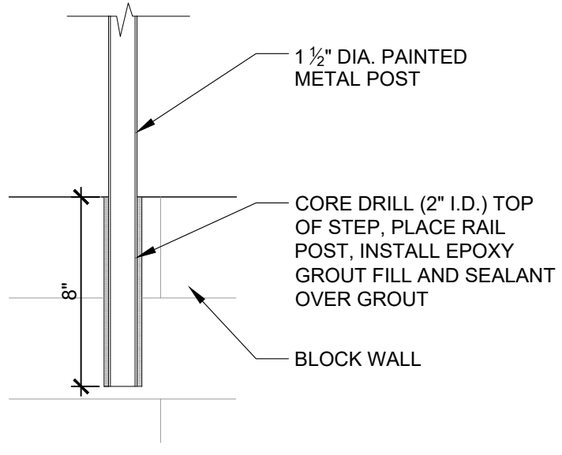
Sheet Number 293



NOTES:
1. MIN. 2 1/2 " COVER OVER ALL STEEL
2. ALL POSTS AND HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE TO ASTM A123. GRAY DUPLEX COATING SHALL BE APPLIED TO ALL POSTS AND HARDWARE. SUBMIT PAINT SAMPLES AND SHOP DRAWINGS FOR APPROVAL.

1 METAL HANDRAIL AT RAMP

SCALE: 3/4" = 1'-0"



2 EMBEDDED RAIL POST

SCALE: 1 1/2" = 1'-0"

ANTHONY RICHARD MAZZEO, JR
605
07/01/2010
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LICENSED LANDSCAPE ARCHITECT
02/14/2022

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Print Date: [DATE]
Drawing File Name: [FILES]
Horiz. Scale: [SCALESHORT] Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

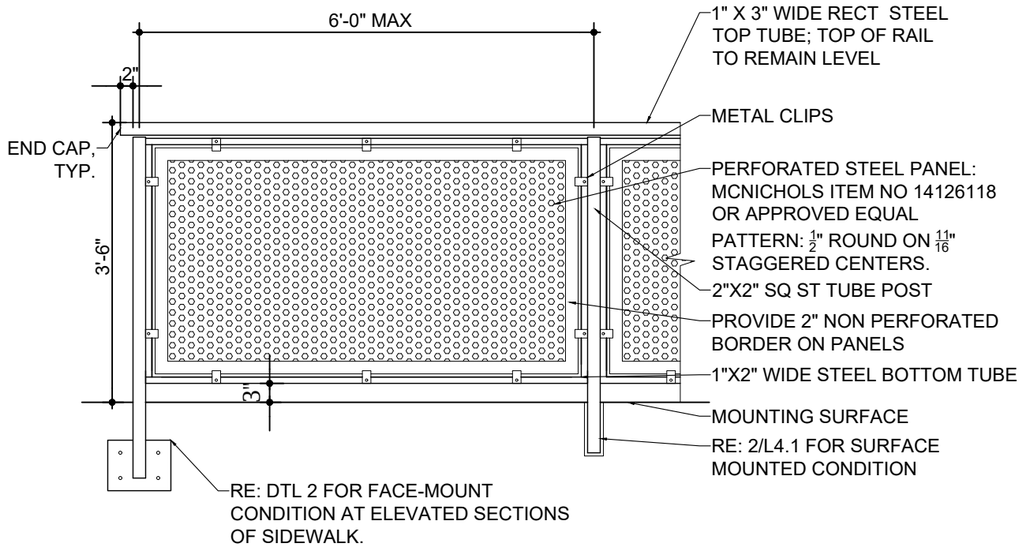
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LANDSCAPE DETAILS-RAILINGS

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L4.1

Project No./Code

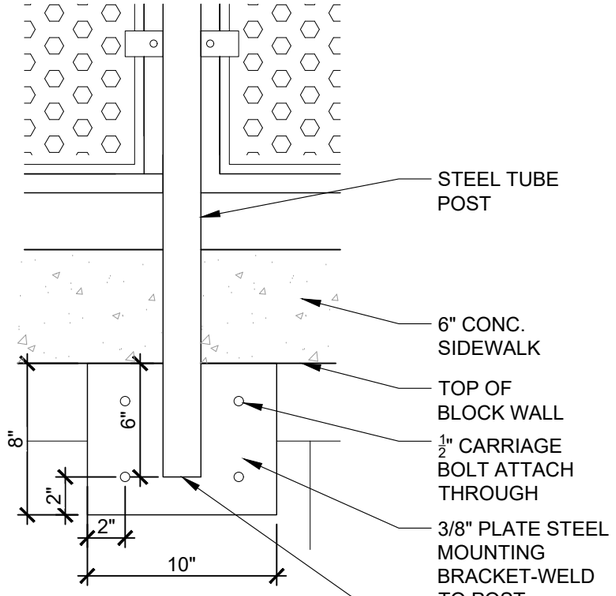
Sheet Number 294



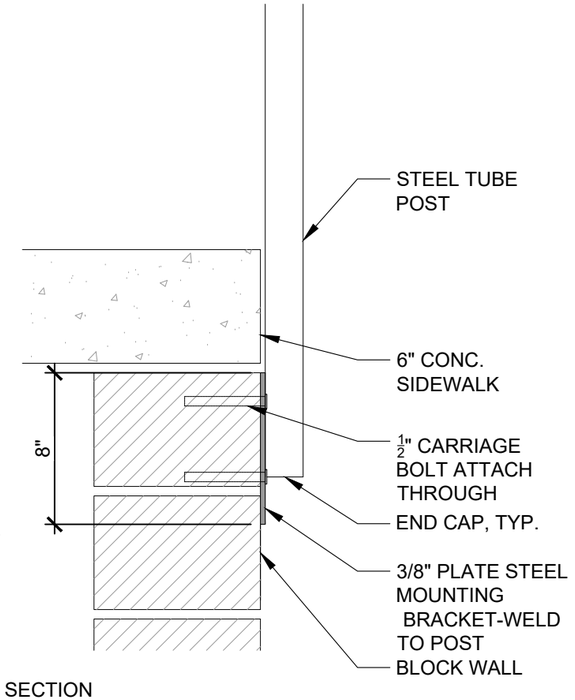
NOTES:
1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
2. ALL POSTS, PANELS, AND HARDWARE SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE TO ASTM A123. CHARCOAL GRAY DUPLEX COATING SHALL BE APPLIED TO ALL POSTS, PANELS, AND HARDWARE. SUBMIT PAINT SAMPLE FOR APPROVAL.
3. INSTALL PER MANUFACTURER'S INSTRUCTIONS
4. EQ. SPACE POSTS ALONG LENGTH OF RAIL
5. GRIND ALL WELDS SMOOTH
6. PAY ITEM NUMBER: 514-PERFORATED METAL RAIL WHEN USED ALONG 72ND AVE.

1 PERFORATED METAL RAIL

SCALE: 1/2" = 1'-0"



ELEVATION



SECTION

NOTES:
1. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.
2. UTILIZE HOT DIPPED GALVANIZED FASTENERS FOR ASSEMBLY.
3. ALL STEEL POSTS, MOUNTING PLATES, AND STEEL COMPONENTS SHALL BE HOT DIPPED GALVANIZED AND PAINTED PER ASTM A 123.

2 FACE MOUNTED RAIL POST

SCALE: 1/2" = 1'-0"

ANTHONY RICHARD MAZZEO, JR
605
02/01/2010
Original Date of Licensure
STATE OF COLORADO
LICENSED LANDSCAPE ARCHITECT
02/14/2022

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Print Date: [DATE]
Drawing File Name: [FILES]
Horiz. Scale: [SCALESHORT] Vert. Scale: As Noted
Unit Information Unit Leader Initials
HDR

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

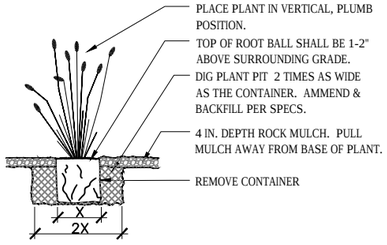
As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
LANDSCAPE DETAILS-RAILINGS

Designer:
Detailer:
Sheet Subset:
Structure Numbers
Subset Sheets: L4.2

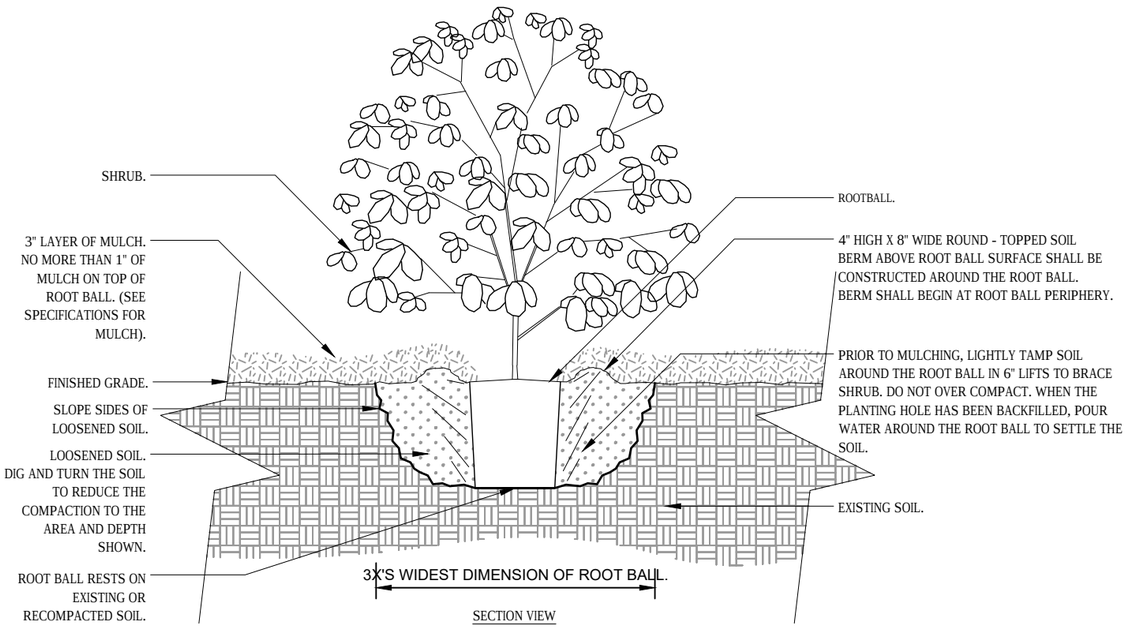
Project No./Code

Sheet Number 295



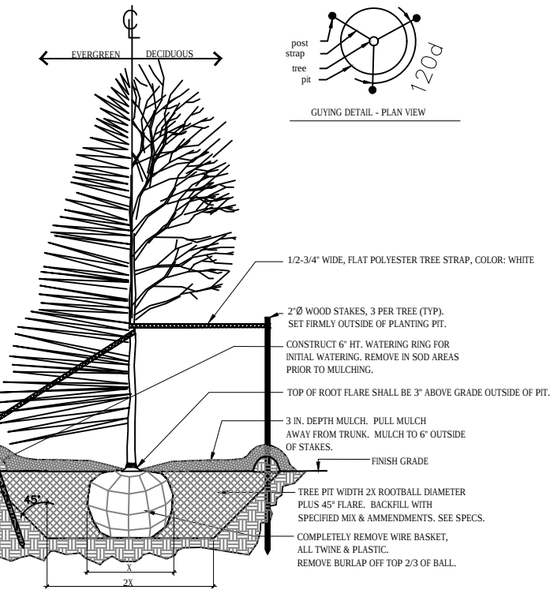
NOTES:
1. ANY BROKEN OR CRUMBLING ROOTBALLS WILL BE REJECTED. CONTAINER REMOVAL WILL NOT BE EXCUSE FOR DAMAGED ROOTBALLS.
2. KEEP TOP OF MULCH 1" BELOW TOP OF ADJOINING WALKWAY, CURB, EDGING OR OTHER SURFACES.
3. PRUNE OUT ALL DAMAGED OR DEAD BLADES.
4. SUBMIT SAMPLE OF PROPOSED MULCH FOR CITY APPROVAL.
5. ALL PLANT MATERIAL SHALL BE INSPECTED UPON DELIVERY TO SITE. REJECTED MATERIALS SHALL BE IMMEDIATELY RETURNED TO SOURCE.

1 PERENNIAL PLANTING
SCALE: NTS



SECTION VIEW

2 SHRUB PLANTING
SCALE: NTS



GUYING DETAIL - PLAN VIEW

NOTES:
1. HANDLE TREES WITH EXTREME CARE TO AVOID DAMAGE. ANY BROKEN OR CRUMBLING ROOTBALLS WILL BE REJECTED. BASKET OR BURLAP REMOVAL WILL NOT BE EXCUSE FOR DAMAGED ROOTBALLS. ANY FRESHLY DAMAGED BARK WILL BE CAUSE FOR REJECTION.
2. PRUNE OUT ALL DAMAGED OR DEAD WOOD. DO NOT CUT LEADER(S).
3. SUBMIT SAMPLE OF PROPOSED MULCH FOR CITY APPROVAL.
4. ALL PLANT MATERIAL SHALL BE INSPECTED UPON DELIVERY TO SITE. REJECTED MATERIALS SHALL BE IMMEDIATELY RETURNED TO SOURCE.

3 TREE PLANTING
SCALE: NTS

ANTHONY RICHARD MAZZEO, JR
605
STATE OF COLORADO
REGISTERED LANDSCAPE ARCHITECT
02/01/2010
Original Date of Licensure
02/14/2022

Print Date: DATE	Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: FILES	Date:	Comments	Init.		No Revisions:	LANDSCAPE DETAILS-PLANTING
Horiz. Scale: SCALESHORT Vert. Scale: As Noted					Revised:	Designer: / Detailer: / Sheet Subset: / Structure Numbers / Subset Sheets: L4.3
Unit Information Unit Leader Initials					Void:	Project No./Code / Sheet Number 296

PENTBLS PLTDRVS PLOT_INFO DATE

INSTALLATION GENERAL NOTES

1. THE SYSTEM DESIGN ASSUMES A MINIMUM DYNAMIC PRESSURE FOR THE IRRIGATION SYSTEM OF 120 PSI (PER CITY ENGINEER), AT A MAXIMUM DISCHARGE OF 25 GPM AT THE 1–INCH IRRIGATION POINT–OF–CONNECTION (POC). TAP, METER, BACKFLOW PREVENTER, AND MASTER VALVE SHALL ALL BE THE SAME SIZE. VERIFY PRESSURE AND FLOW ON SITE PRIOR TO CONSTRUCTION.

2. READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND INSTALLATION DETAILS FOR THIS AND RELATED WORK PRIOR TO CONSTRUCTION.

3. COORDINATE UTILITY LOCATES (”CALL BEFORE YOU DIG”) OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

4. DO NOT PROCEED WITH THE INSTALLATION OF THE IRRIGATION SYSTEM WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. IF DISCREPANCIES IN CONSTRUCTION DETAILS, LEGEND, NOTES, OR SPECIFICATIONS ARE DISCOVERED, BRING ALL SUCH OBSTRUCTIONS OR DISCREPANCIES TO THE ATTENTION OF THE OWNER’S REPRESENTATIVE.

5. THE DRAWINGS ARE DIAGRAMMATIC. THEREFORE, THE FOLLOWING SHOULD BE NOTED:

   A. ALTHOUGH IRRIGATION COMPONENTS MAY BE SHOWN OUTSIDE PLANTING AREAS FOR CLARITY, INSTALL IRRIGATION PIPE AND WIRING IN LANDSCAPED AREAS WHENEVER POSSIBLE.

   B. TREE AND SHRUB LOCATIONS AS SHOWN ON LANDSCAPE PLANS TAKE PRECEDENCE OVER IRRIGATION EQUIPMENT LOCATIONS. AVOID CONFLICTS BETWEEN THE IRRIGATION SYSTEM, PLANTING MATERIALS, AND ARCHITECTURAL FEATURES.

   C. USE ONLY STANDARD TEES AND ELBOW FITTINGS. USE OF TEES IN THE BULLNOSE CONFIGURATION, OR USE OF CROSS TYPE FITTINGS IS NOT ALLOWED.

6. SELECT NOZZLES FOR SPRAY SPRINKLERS WITH ARCS WHICH PROVIDE COMPLETE AND ADEQUATE COVERAGE WITH MINIMUM OVERSPRAY FOR THE SITE CONDITIONS. CAREFULLY ADJUST THE RADIUS OF THROW AND ARC OF COVERAGE OF EACH ROTARY SPRINKLER TO PROVIDE THE BEST PERFORMANCE.

7. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF IRRIGATION SLEEVING. SLEEVES ARE REQUIRED FOR BOTH PIPING AND ELECTRICAL WIRING AT EACH HARDSCAPE CROSSING. COORDINATE INSTALLATION OF SLEEVING WITH OTHER TRADES. ANY PIPE OR WIRE WHICH PASSES BENEATH EXISTING HARDSCAPE WHERE SLEEVING WAS NOT INSTALLED WILL REQUIRE HORIZONTAL BORING BY THE IRRIGATION CONTRACTOR. PIPE SLEEVES SHALL BE SIZED TWICE THE NOMINAL SIZE OF THE PIPE PASSING THROUGH.

8. INSTALL ALL ELECTRICAL POWER TO THE IRRIGATION CONTROL SYSTEM IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL APPLICABLE LOCAL ELECTRIC UTILITY CODES.

9. THE FOLLOWING SHOULD BE NOTED REGARDING PIPE SIZING: IF A SECTION OF UNSIZED PIPE IS LOCATED BETWEEN TWO IDENTICALLY SIZED SECTIONS, THE UNSIZED PIPE IS THE SAME NOMINAL SIZE AS THE TWO SIZED SECTIONS. THE UNSIZED PIPE SHOULD NOT BE CONFUSED WITH THE DEFAULT PIPE SIZE NOTED IN THE LEGEND.

10. INSTALL SEVEN (7) #14 AWG CONTROL WIRES ON STANDARD WIRE SYSTEMS, FOR USE AS SPARES (3–COMMON, 4–CONTROL). INSTALL SPARE WIRES FROM CONTROLLER LOCATION TO EACH DEAD–END OF MAINLINE. COIL 3 FEET OF WIRE IN VALVE BOX.

11. INSTALL #14 GREEN TRACER WIRE ALONG ALL MAINLINE AND LATERAL LINES.

12. THE PARKS DEPARTMENT REQUIRES CONTRACTORS TO FURNISH IRRIGATION CONTROLLERS (MANUFACTURER AND MODEL OF CONTRACTOR’S CHOICE) THROUGH THE TWO YEAR WARRANTY/MAINTENANCE PERIOD. AT THE CONCLUSION OF THAT PERIOD,AS A CONDITION OF THE FINAL ACCEPTANCE OF THE PROPERTY, THE CONTRACTOR WILL REMOVE THEIR CONTROLLERS AND INSTALL THE CITY PROVIDED MOTOROLA CENTRAL CONTROL UNITS.

CONSTRUCTION NOTES

(1) THE IRRIGATION SYSTEM POINTS–OF–CONNECTION (POC) SHALL BE DOWNSTREAM OF THE IRRIGATION WATER TAPS AND METERS INSTALLED BY OTHERS AT THE APPROXIMATE LOCA ALL BACKFLOW PREVENTION UNITS AND HYDROMETER ASSEMBLIES AS INDICATED, SAME SIZE AS POC. VERIFY EXACT LOCATION OF POC WITH OWNER’S REPRESENTATIVE.

(2) PEDESTAL MOUNT THE IRRIGATION CONTROLLERS AT THE APPROXIMATE LOCATIONS SHOWN. COORDINATE ELECTRICAL POWER TO THE CONTROLLERS WITH THE OWNER’S REPRESEN D BE TAKEN TO INSTALL THE IRRIGATION CONTROLLER IN A LOCATION THAT IS ACCESSIBLE FOR MAINTENANCE, AND SCREENED FROM VIEW EITHER BEHIND ENTRY WALLS, NEXT TO E PLANT MATERIAL. FINAL LOCATION TO BE APPROVED BY OWNER’S REPRESENTATIVE.

(3) IRRIGATION SHOWN OUT OF LANDSCAPED AREA FOR CLARITY ONLY. INSTALL IRRIGATION COMPONENTS WITHIN LANDSCAPED AREA.

JEFF ZAPF
COLORADO
00219
06/14/2022
PROFESSIONAL ENGINEER
COMMERCIAL

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Unit Information	Unit Leader Initials			
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CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	IRRIGATION PLANS		XXXX-XXXX
Revised:	W. 72ND AVENUE	Designer: Z / Detailer: TN	Structure Numbers: XXXXX
Void:		Sheet Subset:	Subset Sheets: 1 of 4	Sheet Number IR-100

IRRIGATION LEGEND

SLEEVES: CLASS 200 PVC

MAINLINE PIPE: CLASS 200 PVC
1 1/2–INCH SIZE UNLESS OTHERWISE INDICATED

LATERAL PIPE TO SPRINKLERS: CLASS 200 PVC
1–INCH SIZE UNLESS OTHERWISE INDICATED

UNCONNECTED PIPE CROSSING

REMOTE CONTROL VALVE ASSEMBLY FOR SPRINKLER LATERALS:
RAIN BIRD EFB–CP (SIZED PER PLAN)

QUICK COUPLING VALVE ASSEMBLY: RAIN BIRD 5RC

ISOLATION GATE VALVE ASSEMBLY: FORD OR MULLER SLOTTED BALL VALVE

BACKFLOW PREVENTION ASSEMBLY: FEBCO 825YA

M WATER METER AND CURB STOP ASSEMBLY: BY OTHERS

HYDROMETER ASSEMBLY: ARAD BMU SERIES

PRV PRESSURE REDUCING VALVE ASSEMBLY

A AIR/VACUUM RELIEF VALVE: 1-INCH CRISPIN MODEL AL

A1 — INDICATES CONTROLLER AND STATION NUMBER
14 — INDICATES LATERAL DISCHARGE (GPM)
1" — INDICATES VALVE SIZE (INCHES)
Turf — INDICATES LANDSCAPE APPLICATION

C FINAL IRRIGATION CONTROLLER UNITS: PROVIDED BY CITY OF ARVADA

CONTROLLER A: MOTOROLLA ACE – 48 STATIONS
CONTROLLER B: IRRINET M – 36 STATIONS
CONTROLLER C: IRRINET M – 36 STATIONS

(FINAL IRRIGATION CONTROLLERS TO BE PROVIDED BY CITY. TEMP COTROLLERS TO BE FURNISHED BY CONTRACTOR THROUGH THE WARRANTY/MAINTENANCE PERIOD.)
REFER TO INSTALLATION GENERAL NOTE #12/IR-1.00 FOR WARRANTY/MAINTENANCE PERIOD CONTROLLERS.

POP-UP SPRAY SPRINKLER: RAIN BIRD RD1806–S–P30 W/U–SERIES 8 NOZZLE
PRESSURE: 30 PSI RADIUS: 8 FEET
FLOW (GPM): Q–0.26 H–0.52 F–1.05

POP-UP SPRAY SPRINKLER: RAIN BIRD RD1806–S–P30 W/U–SERIES 10 NOZZLE
PRESSURE: 30 PSI RADIUS: 10 FEET
FLOW (GPM): Q–0.41 H–0.82 F–1.64

POP-UP SPRAY SPRINKLER: RAIN BIRD RD1806–S–P30 W/U–SERIES 12 NOZZLE
PRESSURE: 30 PSI RADIUS: 12 FEET
FLOW (GPM): Q–0.65 H–1.30 F–2.60

POP-UP SPRAY SPRINKLER: RAIN BIRD RD1806–S–P30 W/U–SERIES 15 NOZZLE
PRESSURE: 30 PSI RADIUS: 15 FEET
FLOW (GPM): Q–0.92 H–1.85 F–3.70

POP-UP SPRAY SPRINKLER: RAIN BIRD RD1806–S–P30 W/MPR SERIES NOZZLE
PRESSURE: 30 PSI RADIUS: 4 FEET X 15 FEET
FLOW (GPM): EST–0.61 SST–1.21

POP-UP SPRAY SPRINKLER: RAIN BIRD RD1806–S–P30 W/MPR SERIES NOZZLE
PRESSURE: 30 PSI RADIUS: 4 FEET X 15 FEET
FLOW (GPM): EST–0.61 SST–1.21

JEFF ZAPF — COLORADO — LANDSCAPE ARCHITECT — 00319 — 03/14/2022 — COMMERCIAL

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Print Date: □DATE□	R-X	Sheet Revisions	
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Horiz. Scale: □SCALESHORT□ Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
Hines Inc			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2	Project No./Code
No Revisions:	IRRIGATION PLANS	XXXX-XXXX
Revised:	W. 72ND AVENUE	XXXXX
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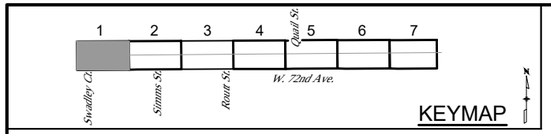

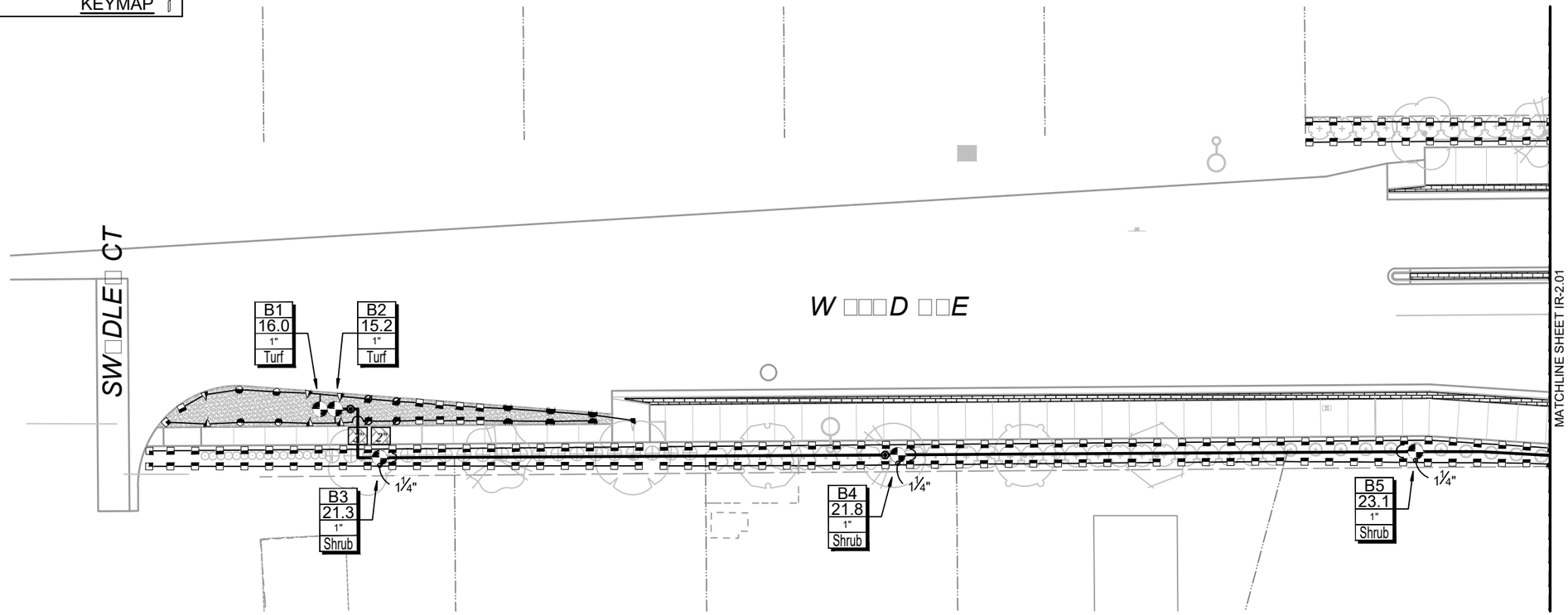

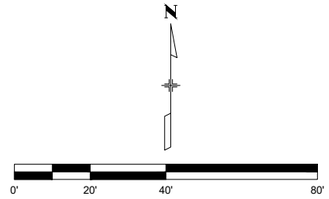

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Unit Information	Unit Leader Initials				
Hines Inc	R-X				

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	IRRIGATION PLANS W. 72ND AVENUE		XXXX-XXXX
Revised:	Designer: □Z	Structure Numbers	XXXXX
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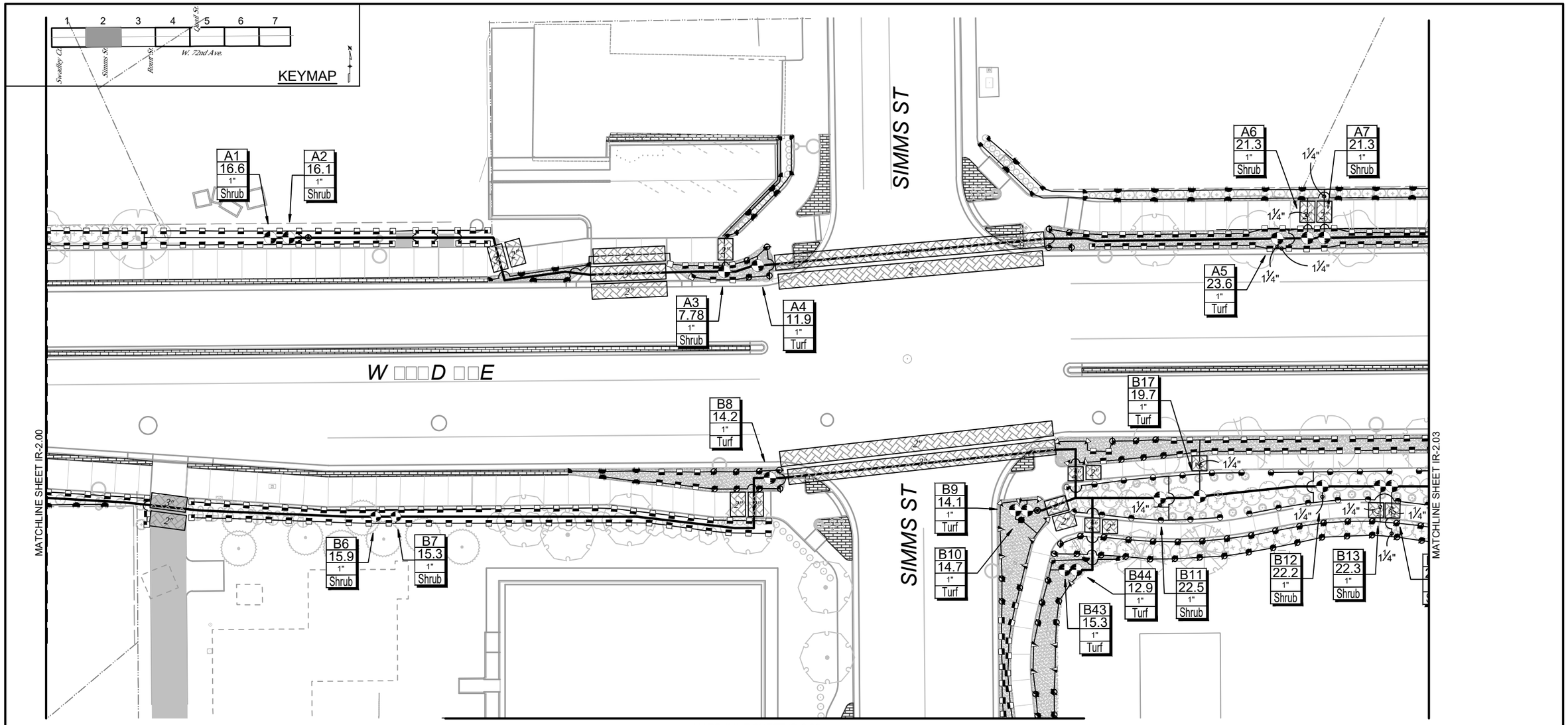

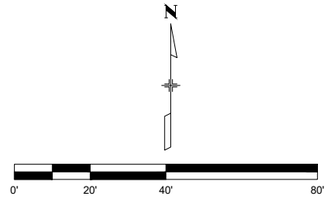

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Horiz. Scale: SCALESHORT	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
Hines Inc			

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	IRRIGATION PLANS W. 72ND AVENUE		XXXX-XXXX
Revised:	Designer: Z	Structure Numbers	XXXXX
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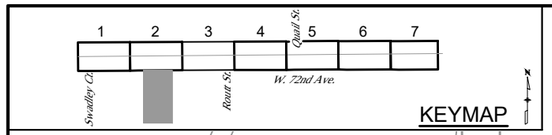

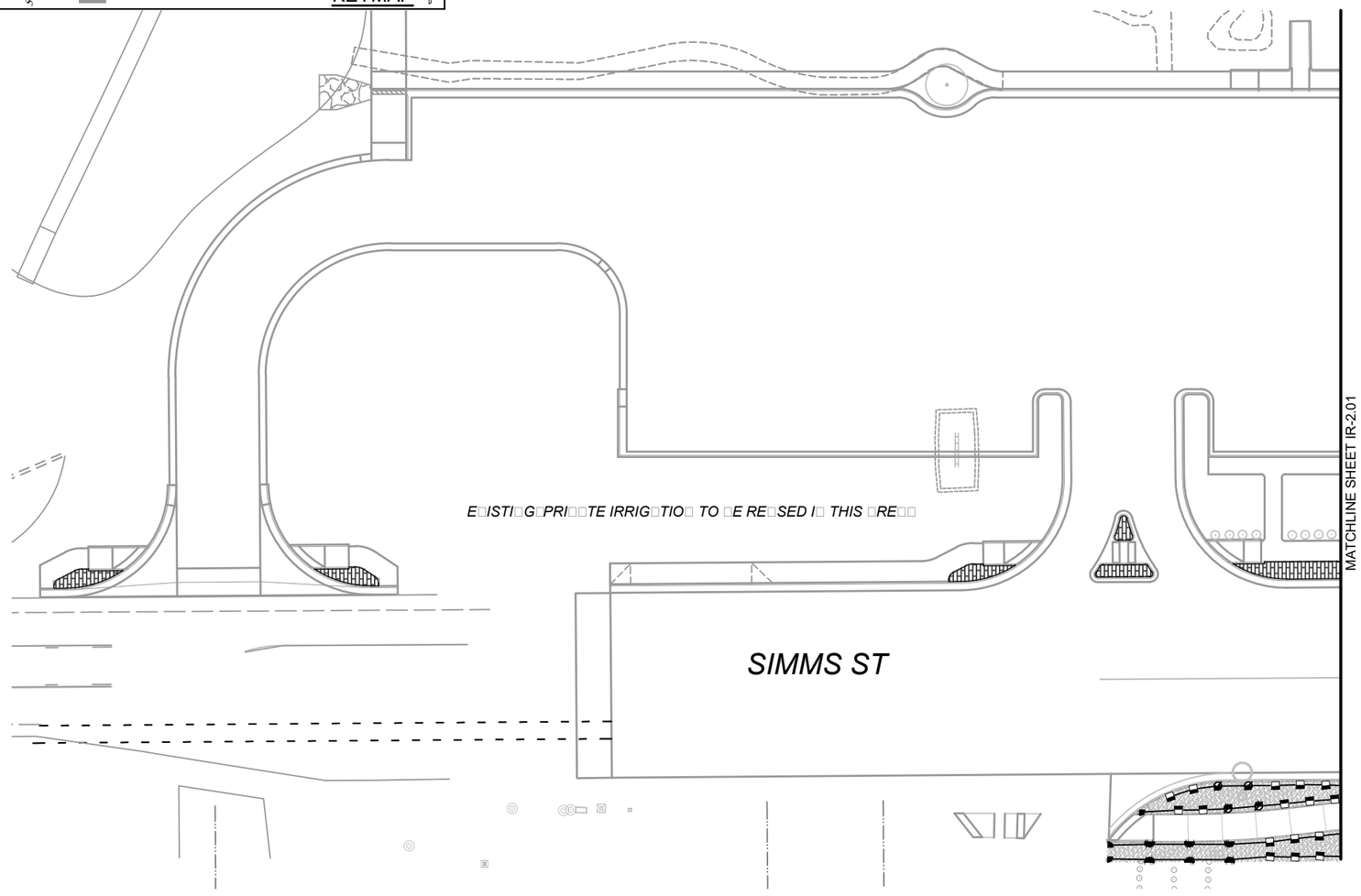

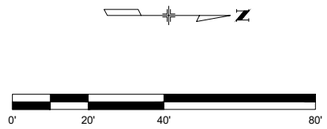

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Unit Information	Unit Leader Initials				
Hines Inc	R-X				

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Pro□ect No./Code
No Revisions:	IRRIGATION PLANS W. 72ND AVENUE		XXXX-XXXX
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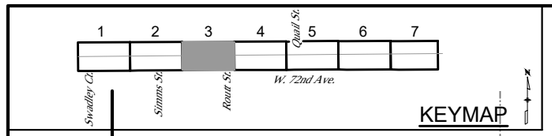

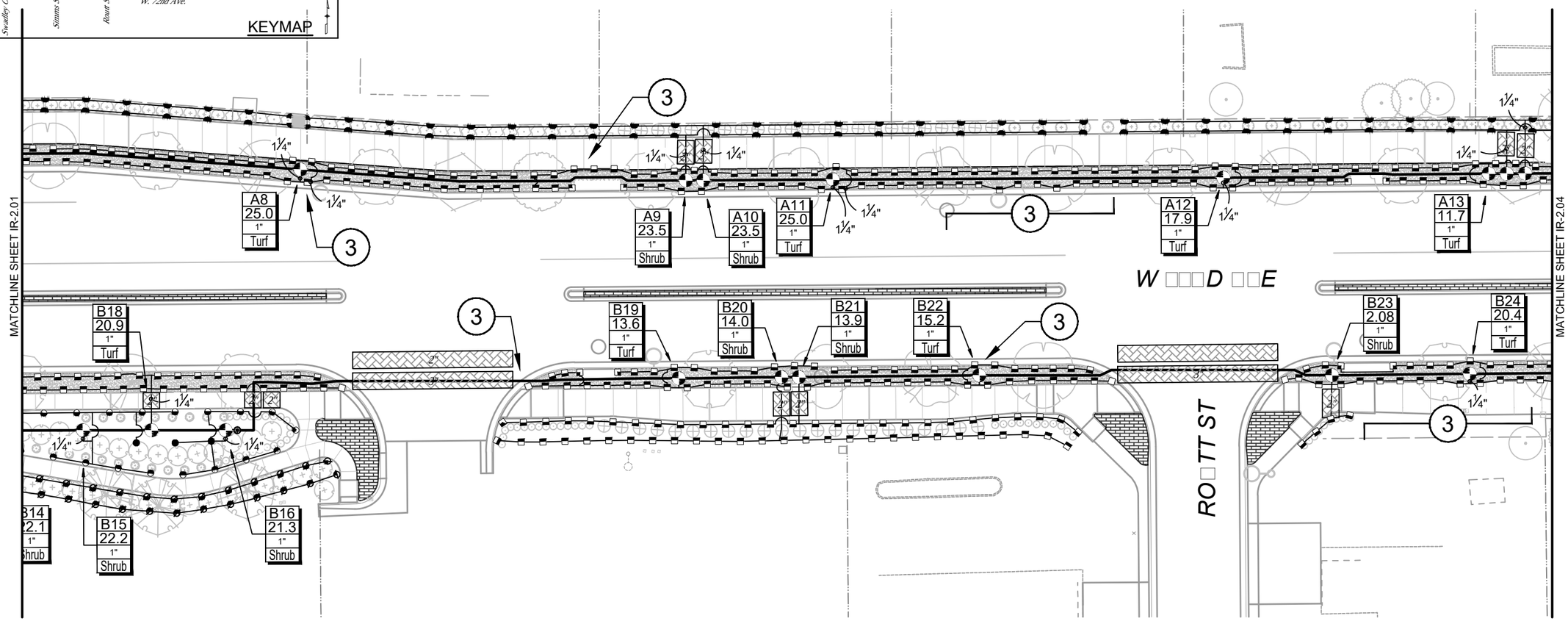

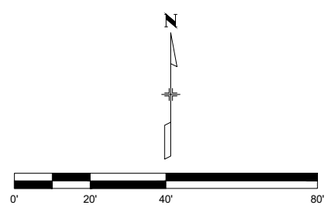

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Unit Information	Unit Leader Initials				
Hines Inc	R-X				

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
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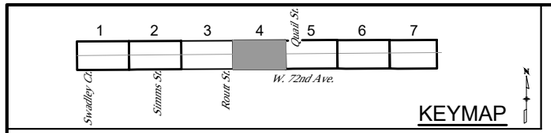

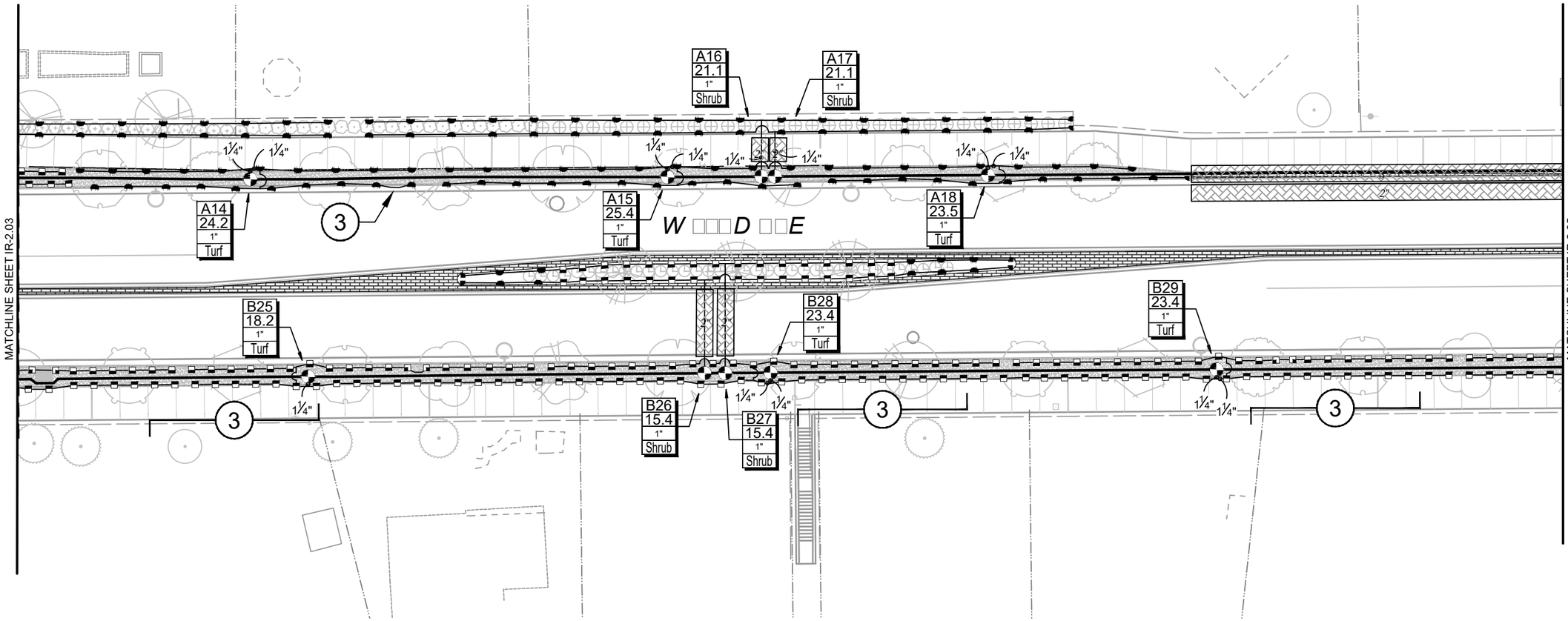

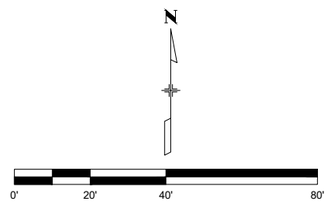

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Horiz. Scale: □SCALESHORT□ Vert. Scale: As Noted	R-X					Revised:	W. 72ND AVENUE
Unit Information Unit Leader Initials						Void:	Designer: □Z / Detailer: TN / Sheet Subset:
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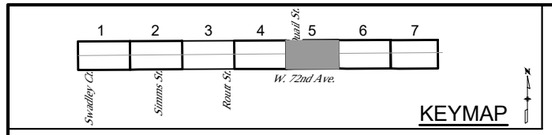

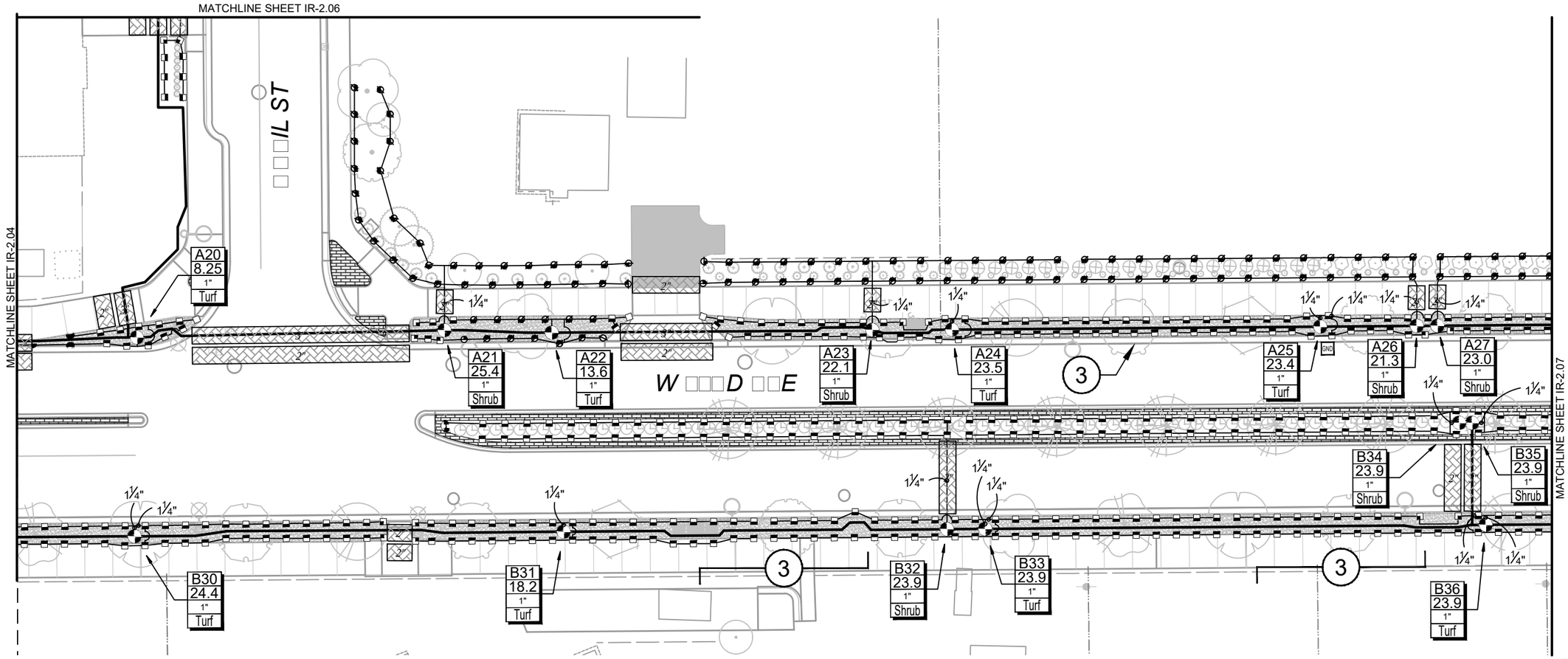

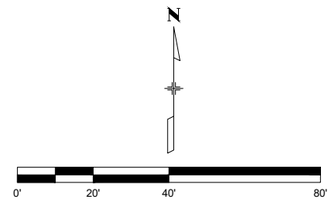

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Unit Information	Unit Leader Initials				Void:	Designer: Z / Detailer: TN / Sheet Subset:
Hines Inc	R-X				CITY OF ARVADA	Structure Numbers / Subset Sheets: 1 of 4
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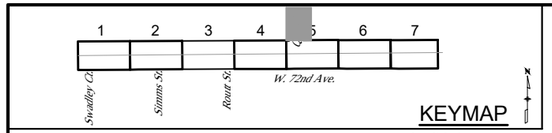
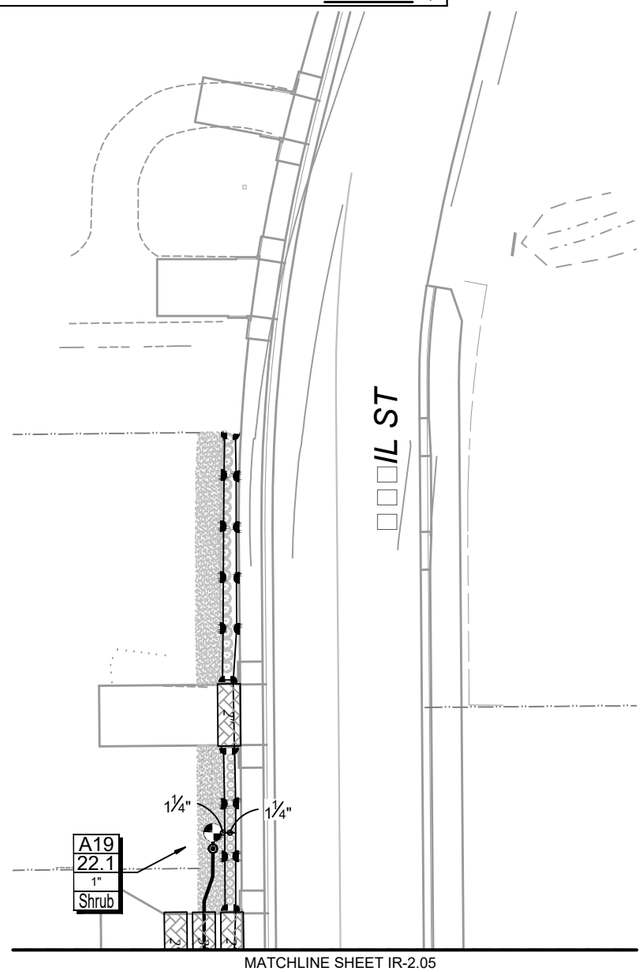
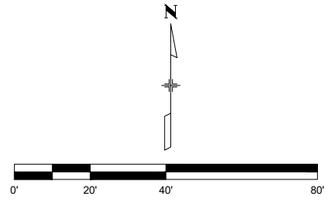




MATCHLINE SHEET IR-2.05



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Unit Information	Unit Leader Initials				
Hines Inc	R-X				

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	IRRIGATION PLANS W. 72ND AVENUE		XXXX-XXXX
Revised:	Designer: □Z	Structure Numbers	XXXXX
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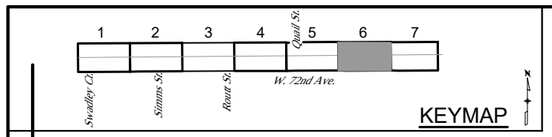

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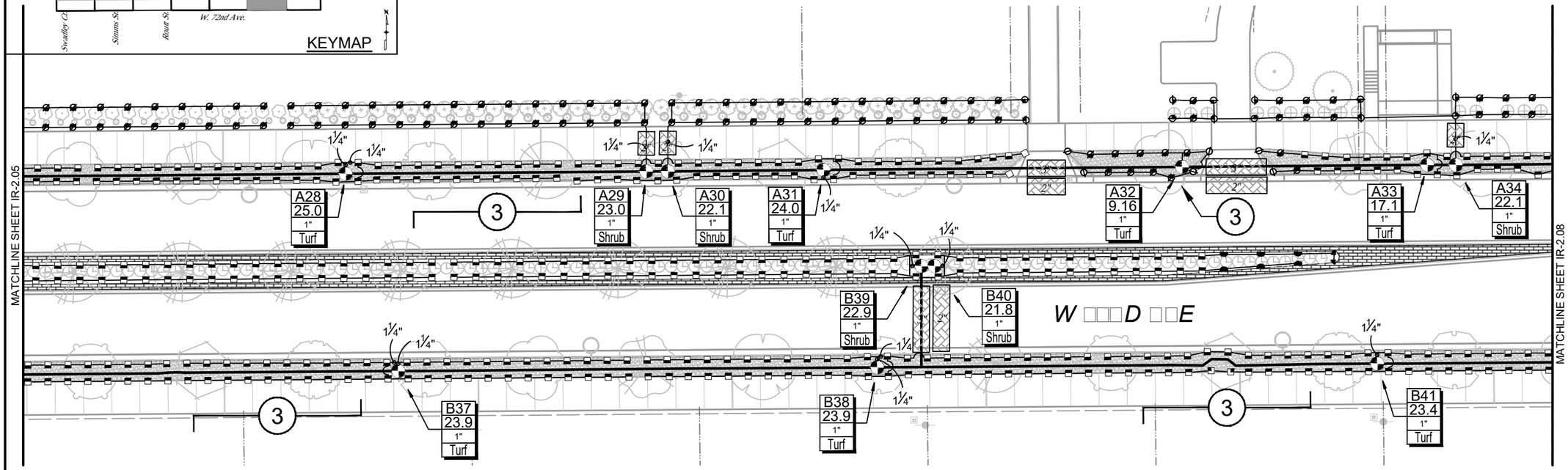

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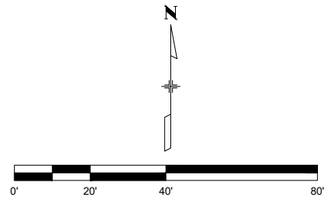

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Drawing File Name: □FILES□		Date:	Comments	Init.		No Revisions:	IRRIGATION PLANS	XXXX-XXXX
Horiz. Scale: □SCALESHORT□	Vert. Scale: As Noted					Revised:	W. 72ND AVENUE	
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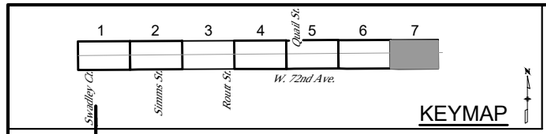

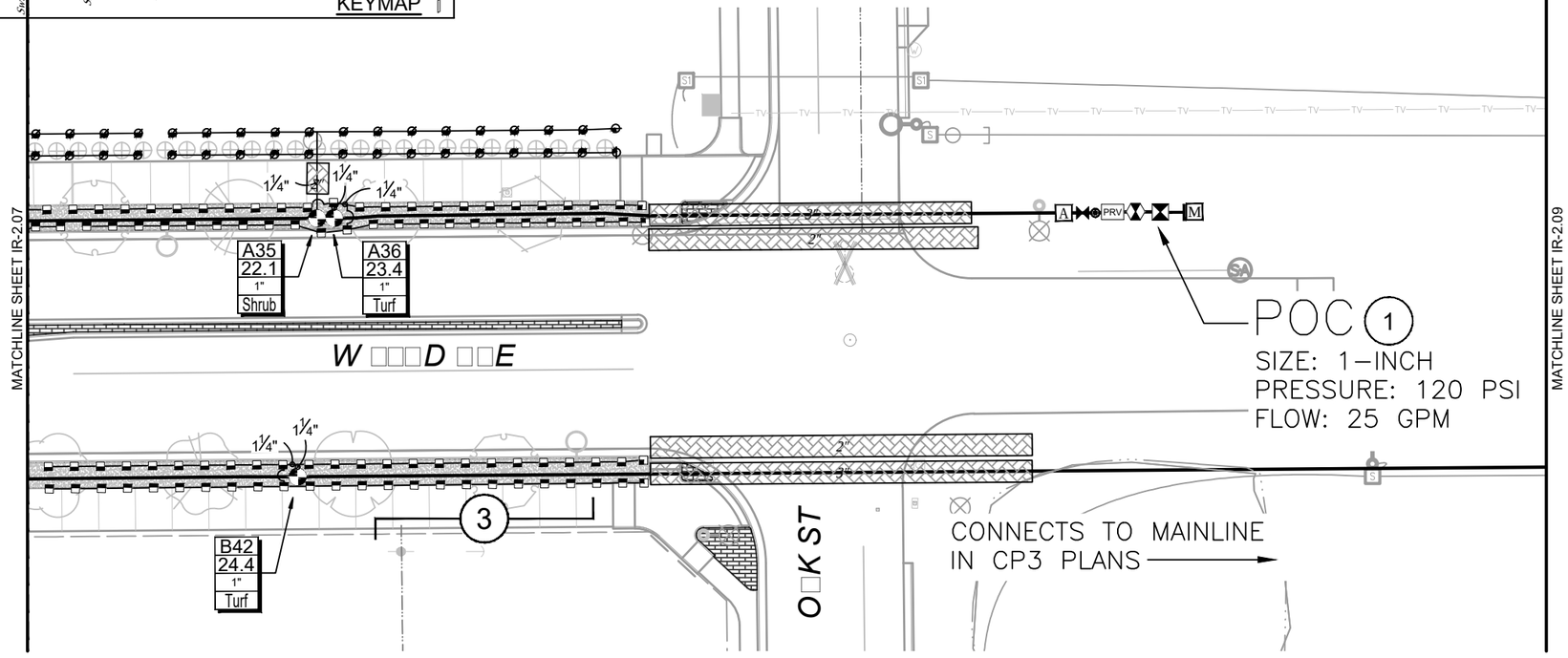

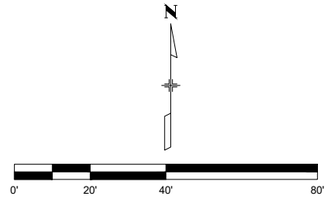

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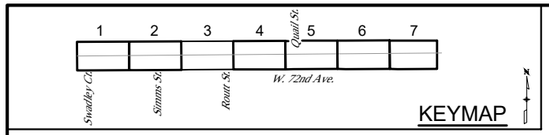
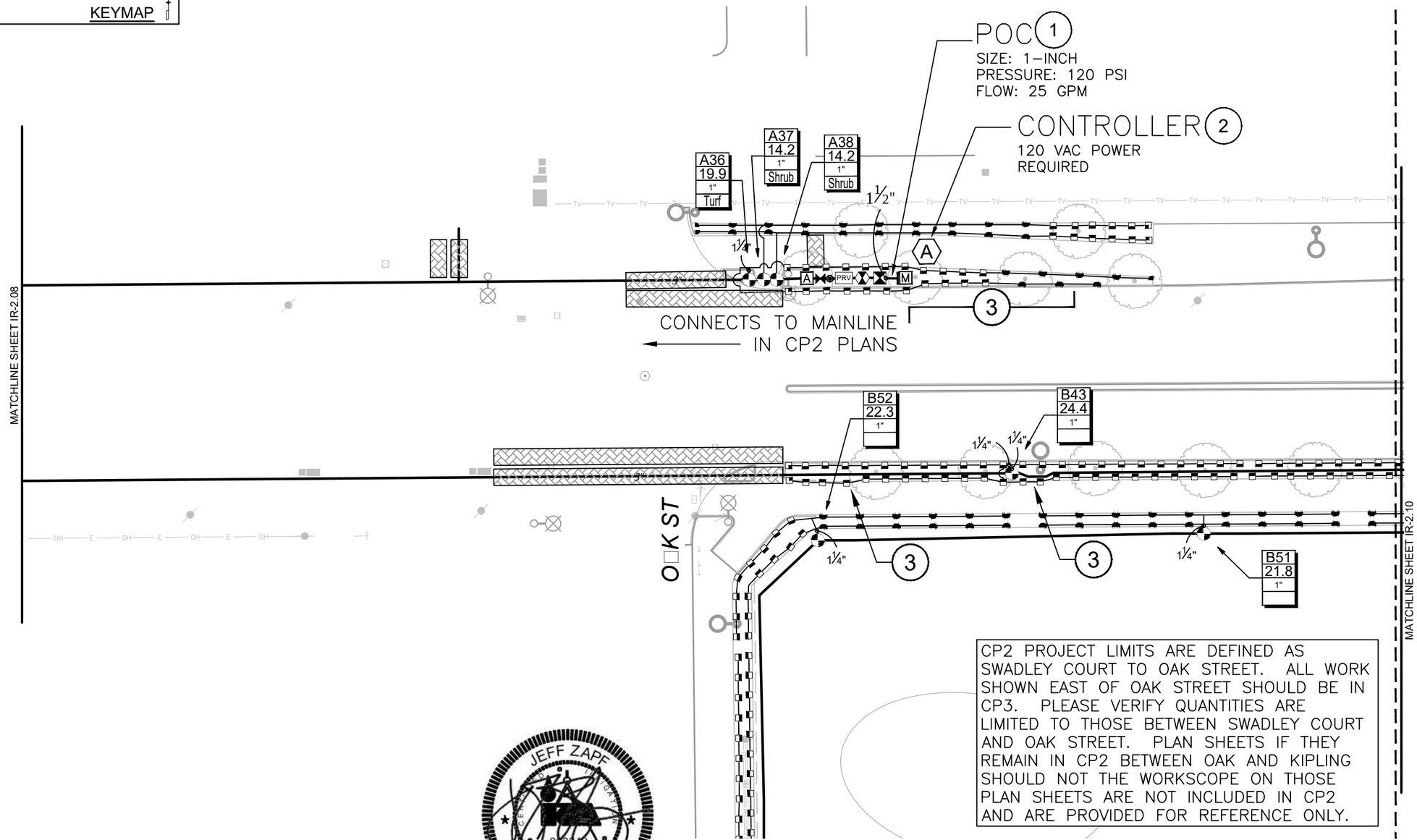
Horiz. Scale: □SCALESHORT□	Vert. Scale: As Noted					Revised:	W. 72ND AVENUE
Unit Information	Unit Leader Initials					Void:	Designer: □Z / Detailer: TN / Sheet Subset: / Structure Numbers / Subset Sheets: 1 of 4
Hines Inc	R-X						Project No./Code: XXXX-XXXX / XXXXX / Sheet Number IR-2.08





CP2 PROJECT LIMITS ARE DEFINED AS SWADLEY COURT TO OAK STREET. ALL WORK SHOWN EAST OF OAK STREET SHOULD BE IN CP3. PLEASE VERIFY QUANTITIES ARE LIMITED TO THOSE BETWEEN SWADLEY COURT AND OAK STREET. PLAN SHEETS IF THEY REMAIN IN CP2 BETWEEN OAK AND KIPLING SHOULD NOT THE WORKSCOPE ON THOSE PLAN SHEETS ARE NOT INCLUDED IN CP2 AND ARE PROVIDED FOR REFERENCE ONLY.

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[PLTDRVS]

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[DATE]

Print Date: DATE	R-X	Sheet Revisions			CITY OF ARVADA
Drawing File Name: FILES		Date:	Comments	Init.	
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Unit Information Unit Leader Initials					
Hines Inc					

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	IRRIGATION PLANS W. 72ND AVENUE		XXXX-XXXX
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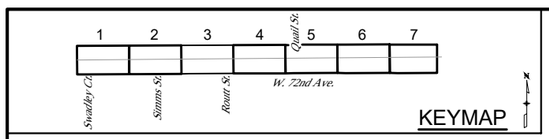

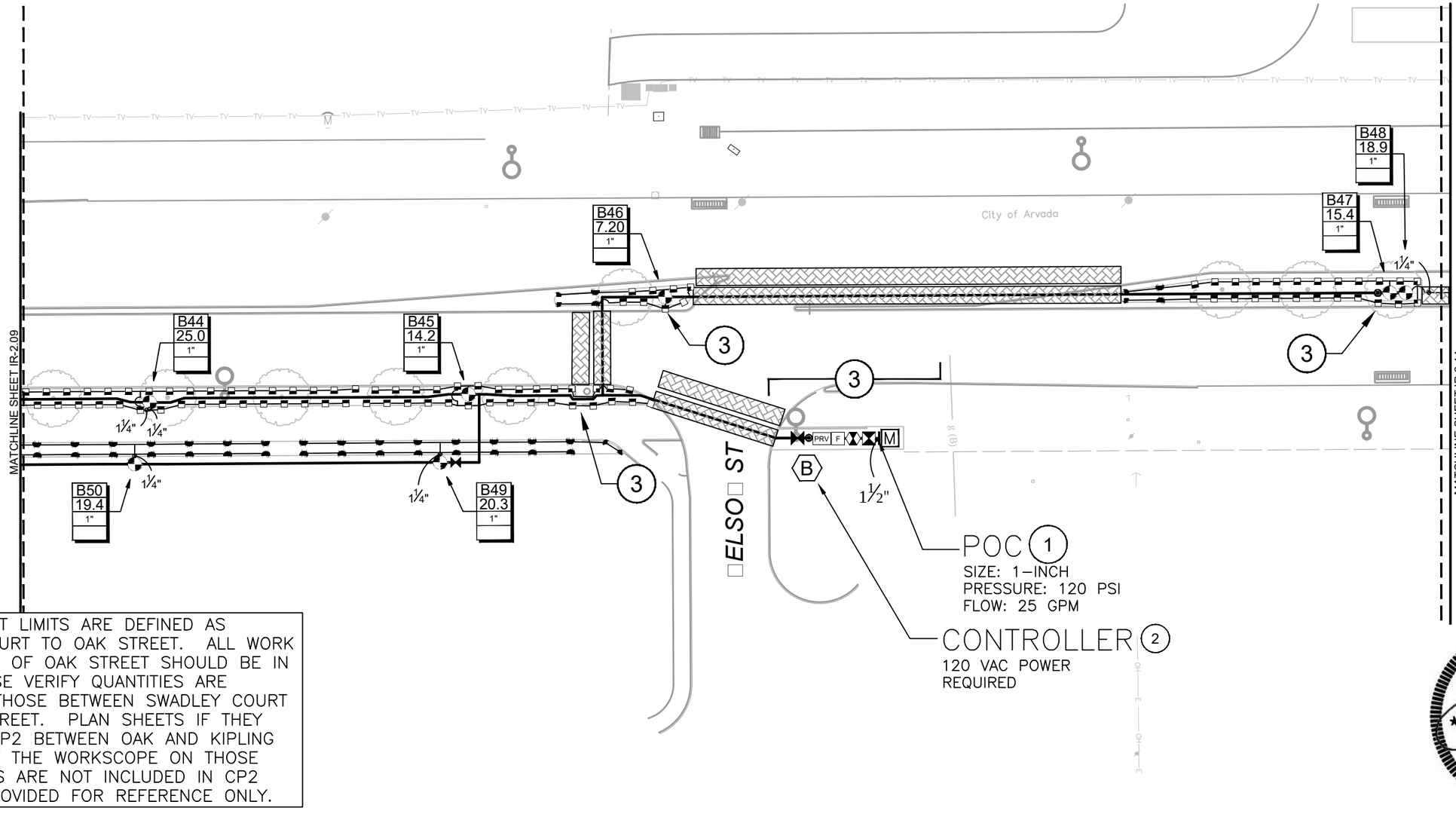

CP2 PROJECT LIMITS ARE DEFINED AS SWADLEY COURT TO OAK STREET. ALL WORK SHOWN EAST OF OAK STREET SHOULD BE IN CP3. PLEASE VERIFY QUANTITIES ARE LIMITED TO THOSE BETWEEN SWADLEY COURT AND OAK STREET. PLAN SHEETS IF THEY REMAIN IN CP2 BETWEEN OAK AND KIPLING SHOULD NOT THE WORKSCOPE ON THOSE PLAN SHEETS ARE NOT INCLUDED IN CP2 AND ARE PROVIDED FOR REFERENCE ONLY.

JEFF ZAPF
COLORADO
COMMERCIAL
00219
06/14/2022

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Unit Information Unit Leader Initials					Void:	Sheet Subset:	Subset Sheets: 1 of 4	Sheet Number IR-2.10
Hines Inc						CITY OF ARVADA		

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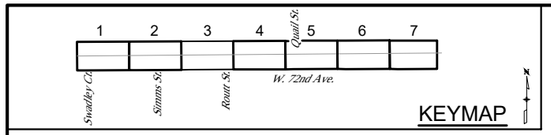

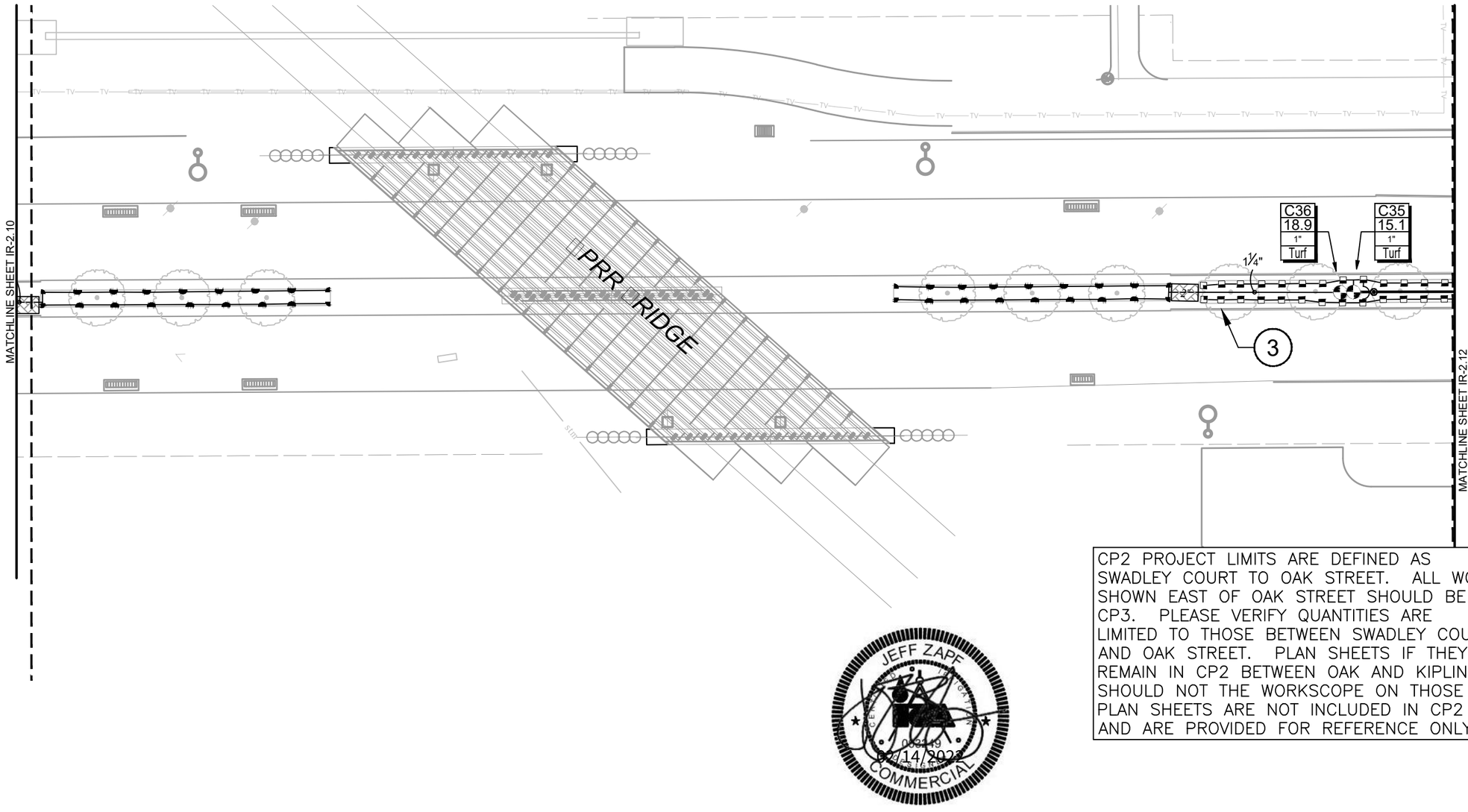

CP2 PROJECT LIMITS ARE DEFINED AS SWADLEY COURT TO OAK STREET. ALL WORK SHOWN EAST OF OAK STREET SHOULD BE IN CP3. PLEASE VERIFY QUANTITIES ARE LIMITED TO THOSE BETWEEN SWADLEY COURT AND OAK STREET. PLAN SHEETS IF THEY REMAIN IN CP2 BETWEEN OAK AND KIPLING SHOULD NOT THE WORKSCOPE ON THOSE PLAN SHEETS ARE NOT INCLUDED IN CP2 AND ARE PROVIDED FOR REFERENCE ONLY.

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Unit Information Unit Leader Initials
Hines Inc

R-X

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
IRRIGATION PLANS
W. 72ND AVENUE

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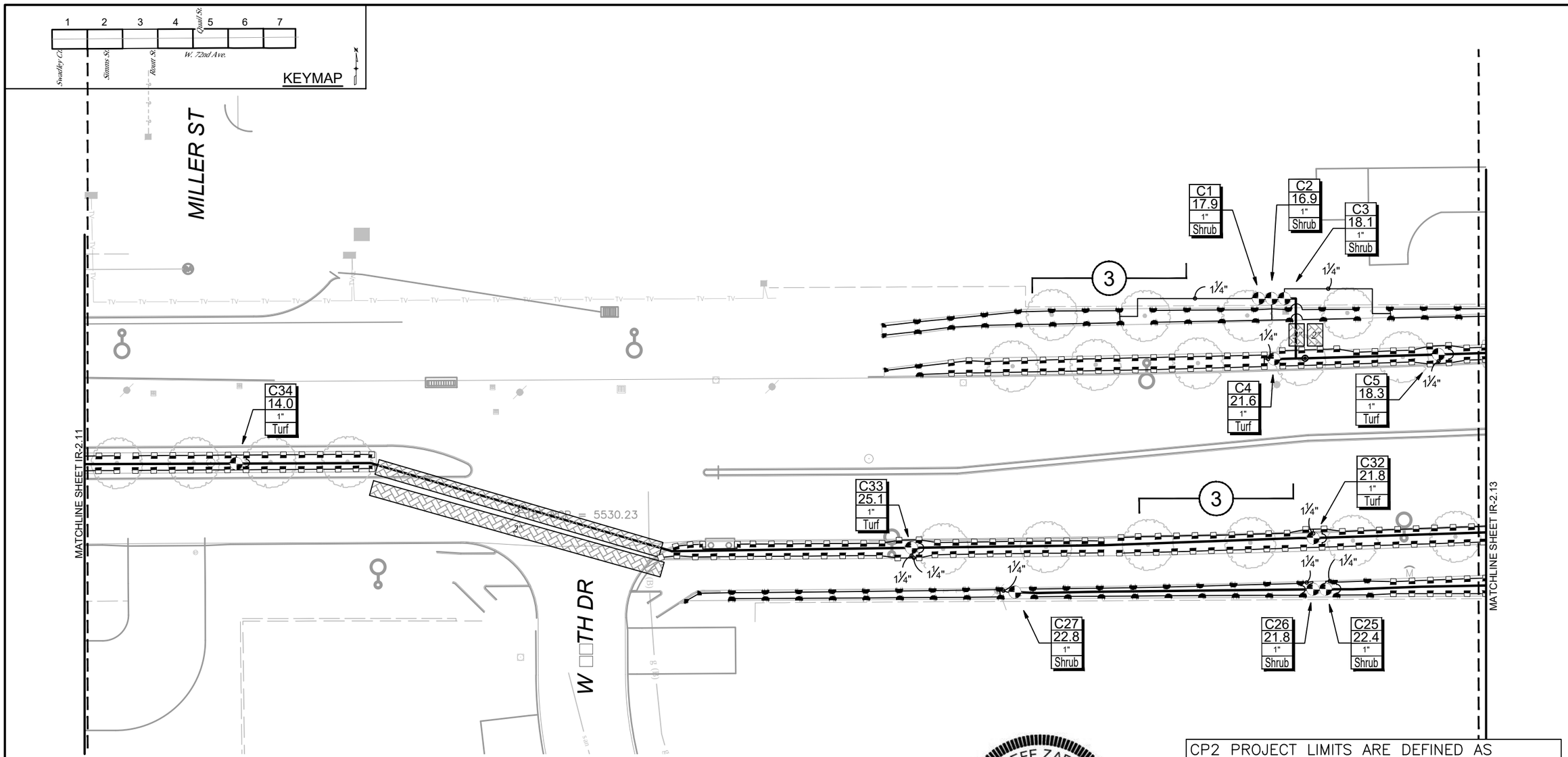

JEFF ZAPF
CERTIFIED
083149
07/14/2023
REGISTERED
COMMERCIAL

CP2 PROJECT LIMITS ARE DEFINED AS SWADLEY COURT TO OAK STREET. ALL WORK SHOWN EAST OF OAK STREET SHOULD BE IN CP3. PLEASE VERIFY QUANTITIES ARE LIMITED TO THOSE BETWEEN SWADLEY COURT AND OAK STREET. PLAN SHEETS IF THEY REMAIN IN CP2 BETWEEN OAK AND KIPLING SHOULD NOT THE WORKSCOPE ON THOSE PLAN SHEETS ARE NOT INCLUDED IN CP2 AND ARE PROVIDED FOR REFERENCE ONLY.

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Unit Information Unit Leader Initials
Hines Inc

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
IRRIGATION PLANS
W. 72ND AVENUE

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Detailer: TN
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Project No./Code: XXXX-XXXX
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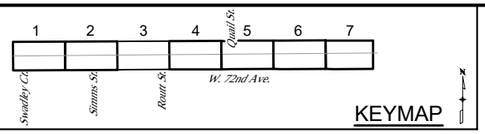

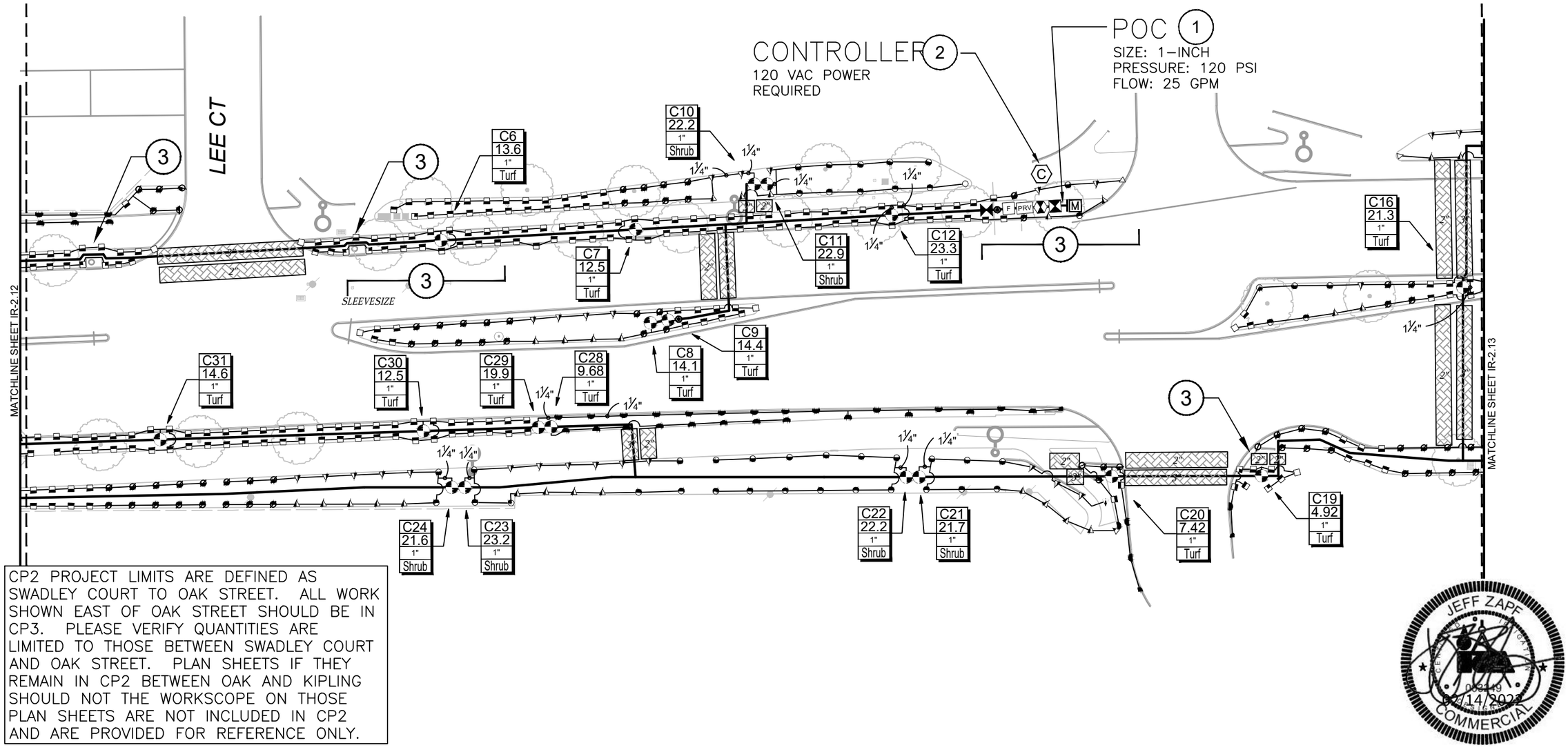

CP2 PROJECT LIMITS ARE DEFINED AS SWADLEY COURT TO OAK STREET. ALL WORK SHOWN EAST OF OAK STREET SHOULD BE IN CP3. PLEASE VERIFY QUANTITIES ARE LIMITED TO THOSE BETWEEN SWADLEY COURT AND OAK STREET. PLAN SHEETS IF THEY REMAIN IN CP2 BETWEEN OAK AND KIPLING SHOULD NOT THE WORKSCOPE ON THOSE PLAN SHEETS ARE NOT INCLUDED IN CP2 AND ARE PROVIDED FOR REFERENCE ONLY.

JEFF ZAPF
03149
07/14/2022
COMMERCIAL

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W. 72ND AVENUE

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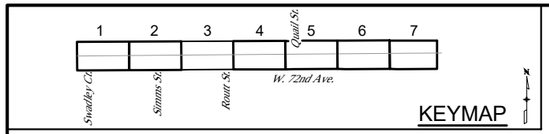

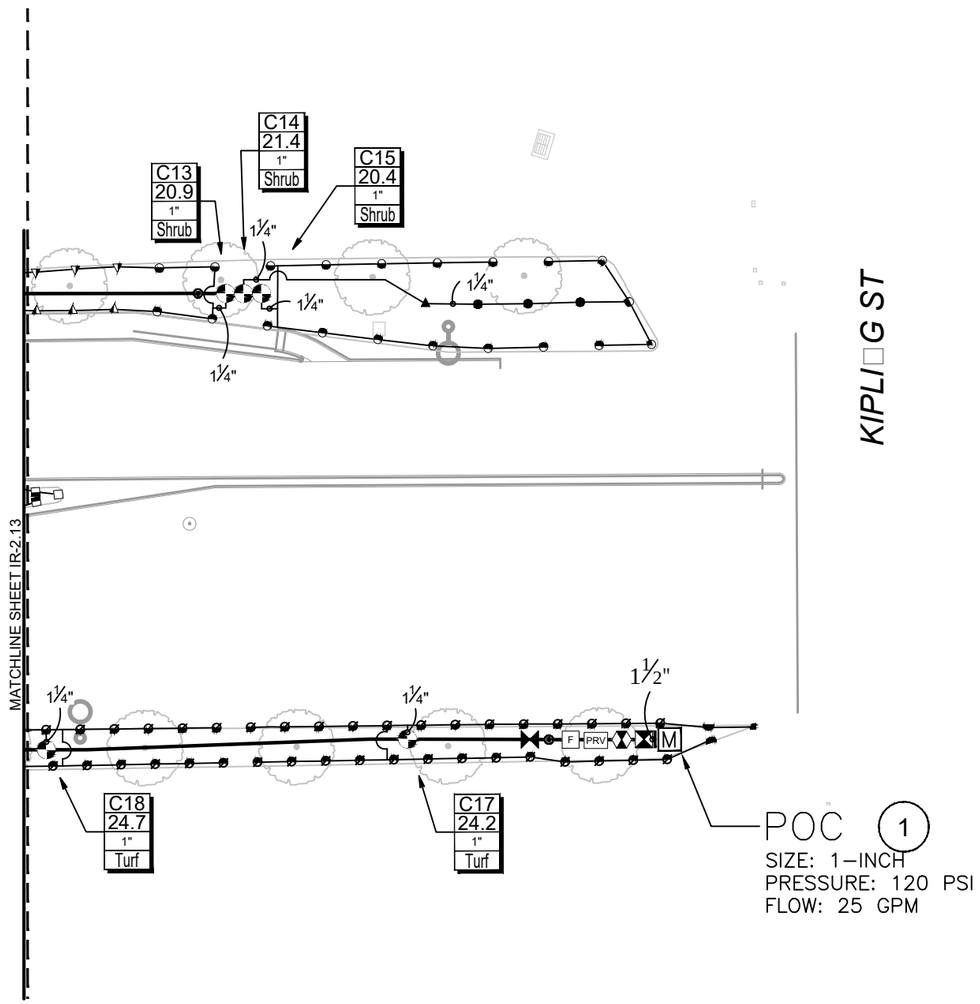

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REGISTERED
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ENGINEER
COMMERCIAL

CP2 PROJECT LIMITS ARE DEFINED AS SWADLEY COURT TO OAK STREET. ALL WORK SHOWN EAST OF OAK STREET SHOULD BE IN CP3. PLEASE VERIFY QUANTITIES ARE LIMITED TO THOSE BETWEEN SWADLEY COURT AND OAK STREET. PLAN SHEETS IF THEY REMAIN IN CP2 BETWEEN OAK AND KIPLING SHOULD NOT THE WORKSCOPE ON THOSE PLAN SHEETS ARE NOT INCLUDED IN CP2 AND ARE PROVIDED FOR REFERENCE ONLY.

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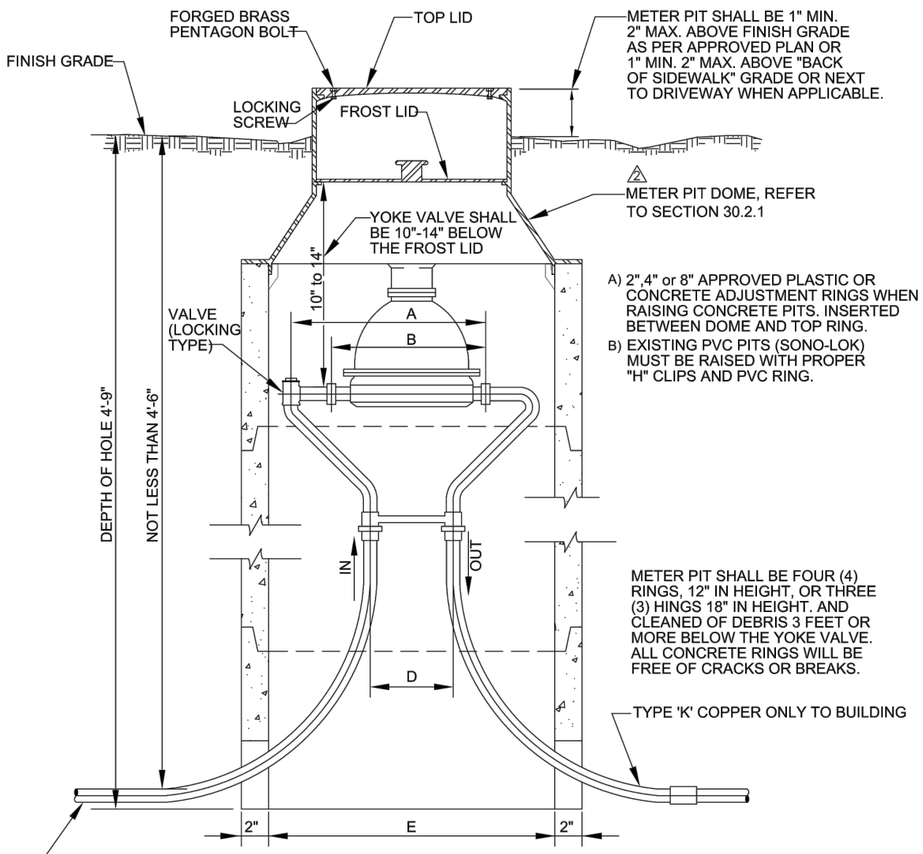
Hines Inc	R-X				CITY OF ARVADA		



METER SIZE	A	B	C	D	E
5/8" x 3/4"	12–5/8"	7–7/8"	7–13/16"	4"	24"
3/4"	14–1/4"	9–3/8"	8–15/16"	5"	24"
1"	17–1/4"	11–1/8"	11–1/4"	6"	24"

NOTES:

1.) Location of meter pit shall be established by the Project Engineer.
2.) All meter pits must be inspected by the municipal inspector before backfilling.
2 1 3.) Meter pits shall not be installed in driveways, sidewalks or parking lots unless approved by City Engineer and Utilities Director and an extra heavy dome and cover with recessed lid is used.
4.) A multi–family dwelling, serviced by a 3/4" water line will use a 3/4" meter.
5.) When approved for installation in asphalt, top of meter pit shall be flush with finish grade and recessed lid.
6.) No concrete floor allowed in meter pit.
7.) Lawn sprinker connections shall be a minimum of five feet from the meter pit wall. on the out let side.
2 8.) Meter resetters are not allowed.

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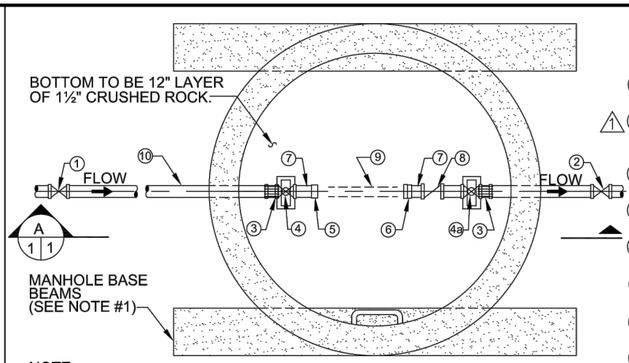
NO	DWN	DATE	REVISION
2	KBC	3/27/15	REVISE NOTES
1	DDV	3/30/05	ADD NOTES

ARVADA

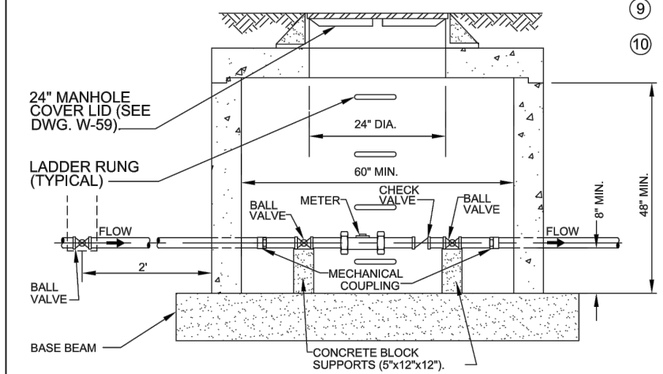
OUTSIDE METER SETTING
1" & SMALLER

APPROVED: [signature]
DATE: 6–2015 | SCALE: NTS | DWN: D.D.V.
PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION



NOTE:
SECTION CUT SHOWN THROUGH M.H. LID FOR CLARITY.

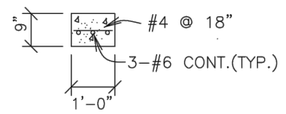
WATER METER VAULT PLAN



WATER METER VAULT SECTION A 1 1

NOTES

1. CURB STOP VALVE AND SERVICE BOX. (FORD B-44 OR APPROVED EQUAL).
2 2. CURB STOP VALVE AND SERVICE BOX. (STOP-N-WASTE) (Mueller H-15214 OR APPROVED EQUAL).
3. MUELLER (H-15428) COMPRESSION x M.I.P. CONNECTOR OR APPROVED EQUAL.
4. BALL VALVE (FULL PORT) FORD B-11 OR APPROVED EQUAL.
4a. DOWNSTREAM BALL VALVE SHALL BE STOP-N-WASTE.
5. FORD (CF31) 2-BOLT (FLANGE x F.I.P.) OR APPROVED EQUAL.
6. FORD (CF35) 2-BOLT (FLANGE x PACK JOINT) OR APPROVED EQUAL.
7. BRASS NIPPLE.
8. ALL BRONZE SWING CHECK VALVE.
9. METER GAP 13¼" (FOR 1½" SERVICE) OR 17¼" (FOR 2" SERVICE).
10. TYPE K COPPER TUBING



BASE BEAM DETAIL

NOTES:

1) MANHOLE BASE BEAMS (9"x12"x60") REQUIRED FOR INSTALLATIONS IN DRIVEWAYS AND PARKING AREAS
2) A 60" INSIDE DIAMETER MANHOLE IS REQUIRED FOR 1½" AND 2" SERVICES.
3) JOINTS INSIDE VAULT SHALL BE I.P. THREADED, FLARED OR COMPRESSION. (MUELLER 110 OR EQUAL).
4) WATER TIGHT SEAL ALL PIPE OUTLETS THROUGH WALL.
5) BOTTOM OF VAULT TO BE BEDDED WITH 12" LAYER OF 1½" CRUSHED ROCK.
6) NO CHANGE IN PIPE DIAMETER SHALL BE MADE IN THE METER VAULT.
7) 24" MANHOLE COVER TO BE CENTERED OVER LADDER RUNGS.
8) ALSO GENERAL NOTES 1 THRU 7 APPLY OF SHEET W-29.
9) CONCRETE BLOCKS OR BRICKS TO BE USED TO SUPPORT PLUMBING AT VALVES INSIDE VAULT. (5"x12"x12").
10) DISTANCE BETWEEN LADDER RUNGS 12" ALIGNED UNDER LID.
11) METER GAP 13-1/4" (FOR 1-1/2" SERVICE) OR 17-¼" (FOR 2" SERVICE).
12) BALL VALVES SHALL BE ALL BRASS FULL PORT
13) CHECK VALVE NOT REQUIRED WHERE BACKFLOW PREVENTION DEVICE INSTALLED.

Item selection only.

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NO	DWN	DATE	REVISION
1	DDV	3/30/05	MODIFY NOTE

ARVADA

OUTSIDE SETTING FOR 1½" AND 2"
IRRIGATION (ONLY)
WATER METER IN MANHOLE

APPROVED: [signature]
DATE: 6–2015 | SCALE: NTS | DWN: D.D.V.
PUBLIC WORKS DEPARTMENT, ENGINEERING DIVISION

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Subset Sheets: 1 of 4

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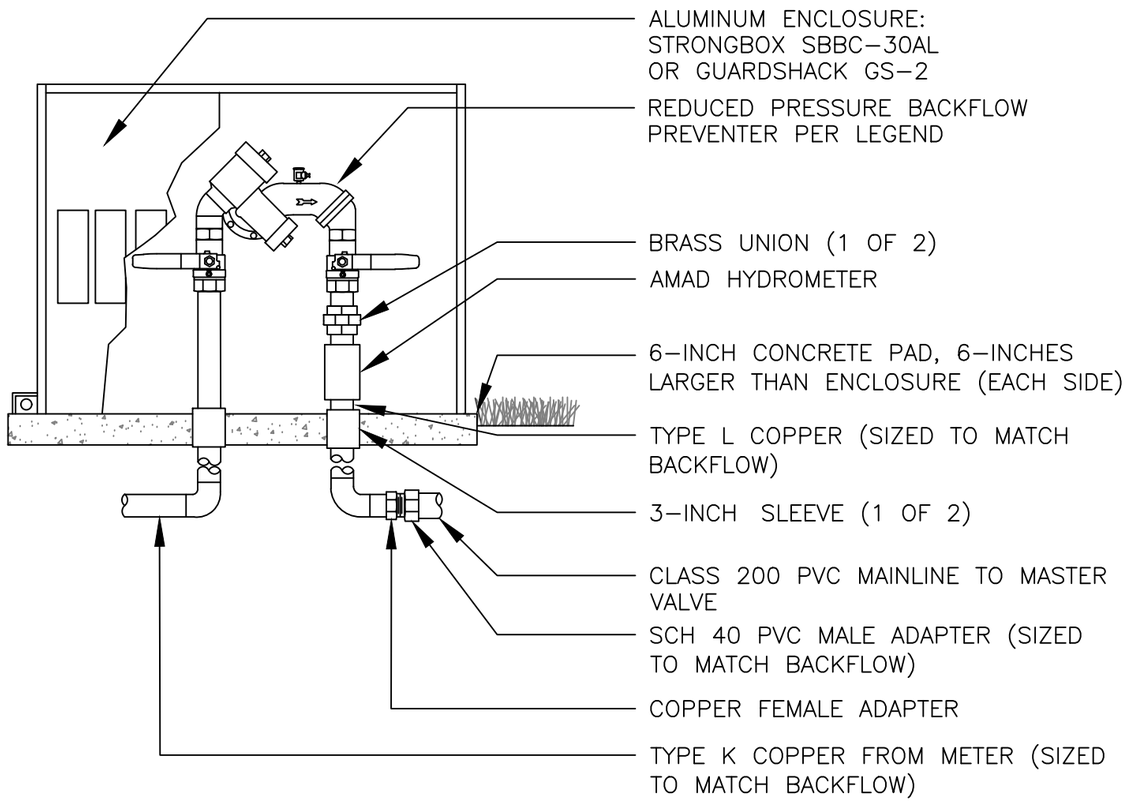
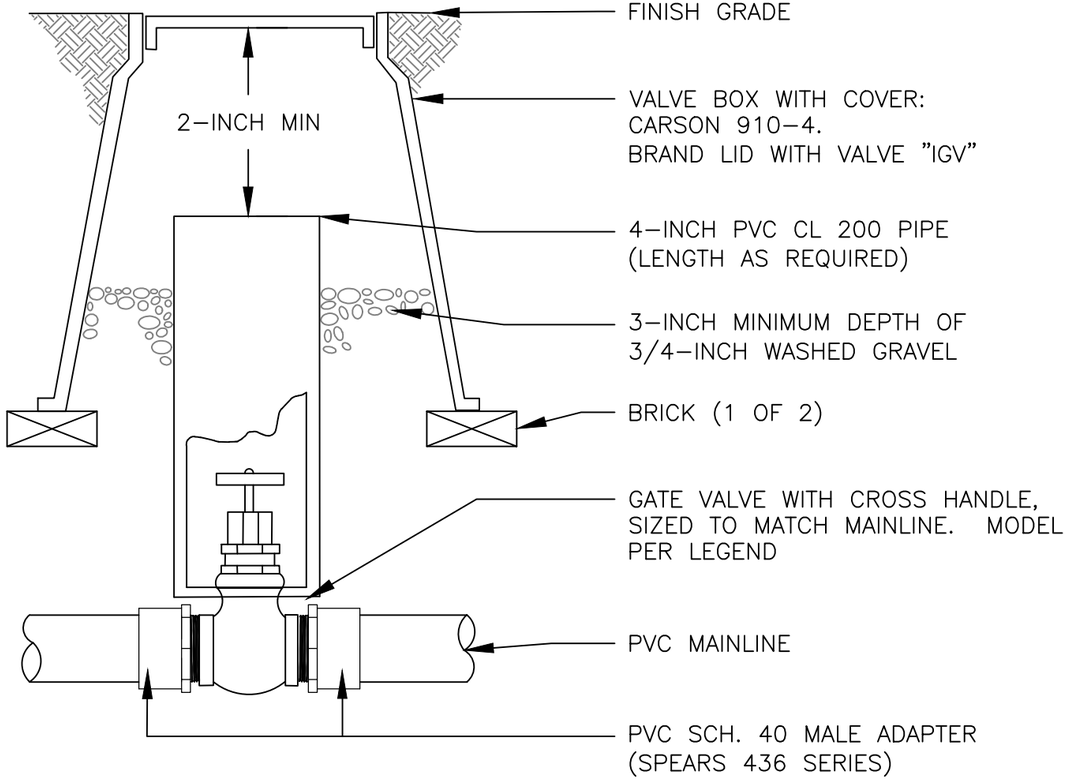


NOTES:
1. INSTALL BACKFLOW DEVICE IN ACCORDANCE WITH ALL STATE AND LOCAL CODE REQUIREMENTS.
2. SLOPE TOP SURFACE OF PAD AT 0.5 % WITH BROOM FINISH.
3. MAKE PIPE SLEEVES WITH 1–1/2 INCH LARGER DIAMETER PIPE THAN PENETRATING PIPE SIZE.
4. ALL HINGED CONNECTION LOCATIONS AND HARDWARE TO BE TAMPER PROOF.
5. ALL WELD JOINTS SHALL BE CONTINUOUS AND GROUND SMOOTH.

1 BACKFLOW PREVENTION UNIT ASSEMBLY



NOTES:
1. NOMINAL SIZE OF GATE VALVE TO MATCH NOMINAL MAINLINE SIZE.

2 ISOLATION GATE VALVE ASSEMBLY 2.5-INCH MAINLINE AND SMALLER

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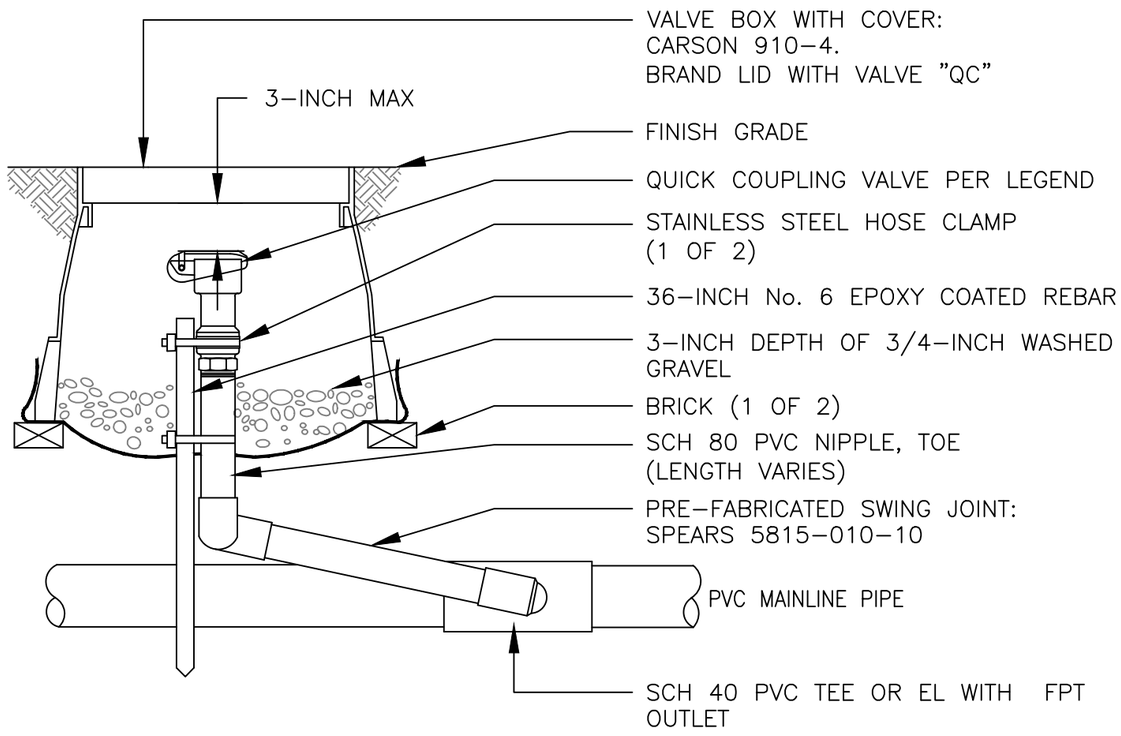
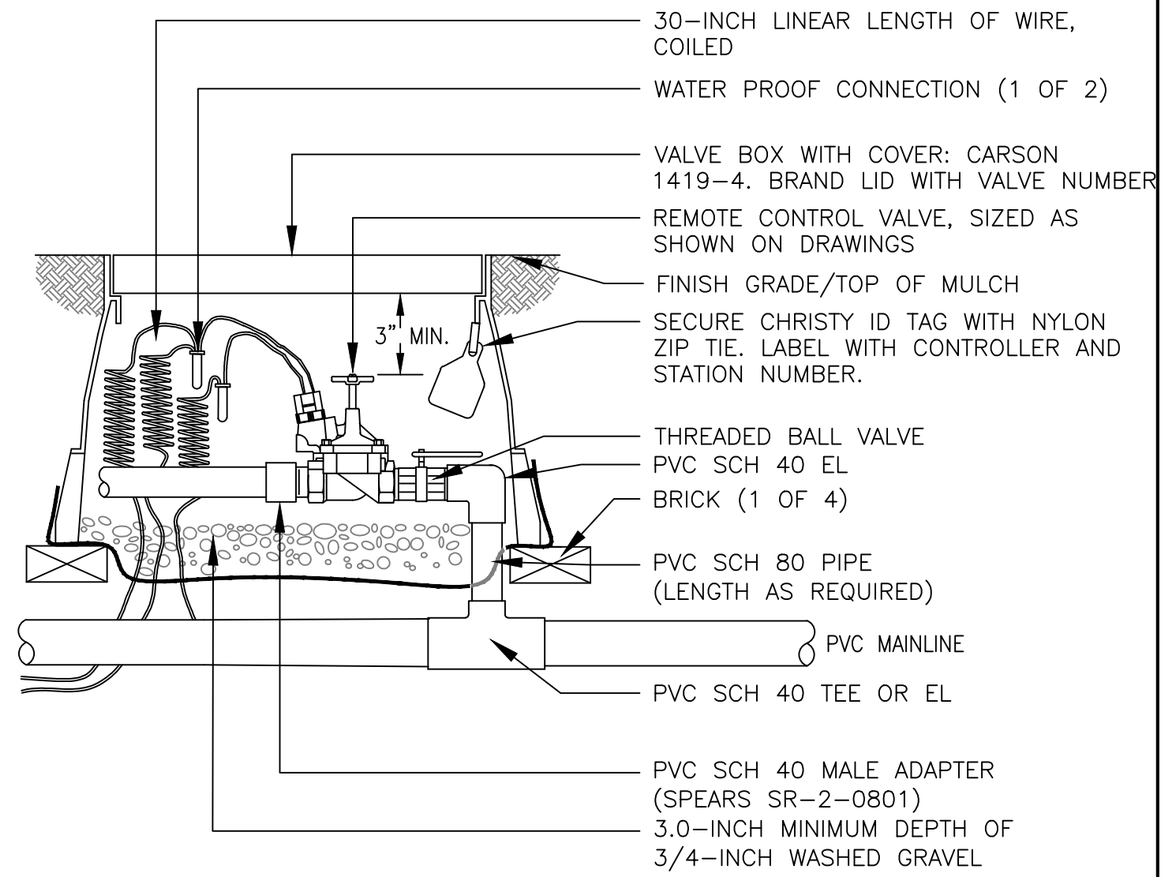


3 QUICK COUPLING VALVE ASSEMBLY



4 REMOTE CONTROL TURF VALVE ASSEMBLY

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07/14/2022

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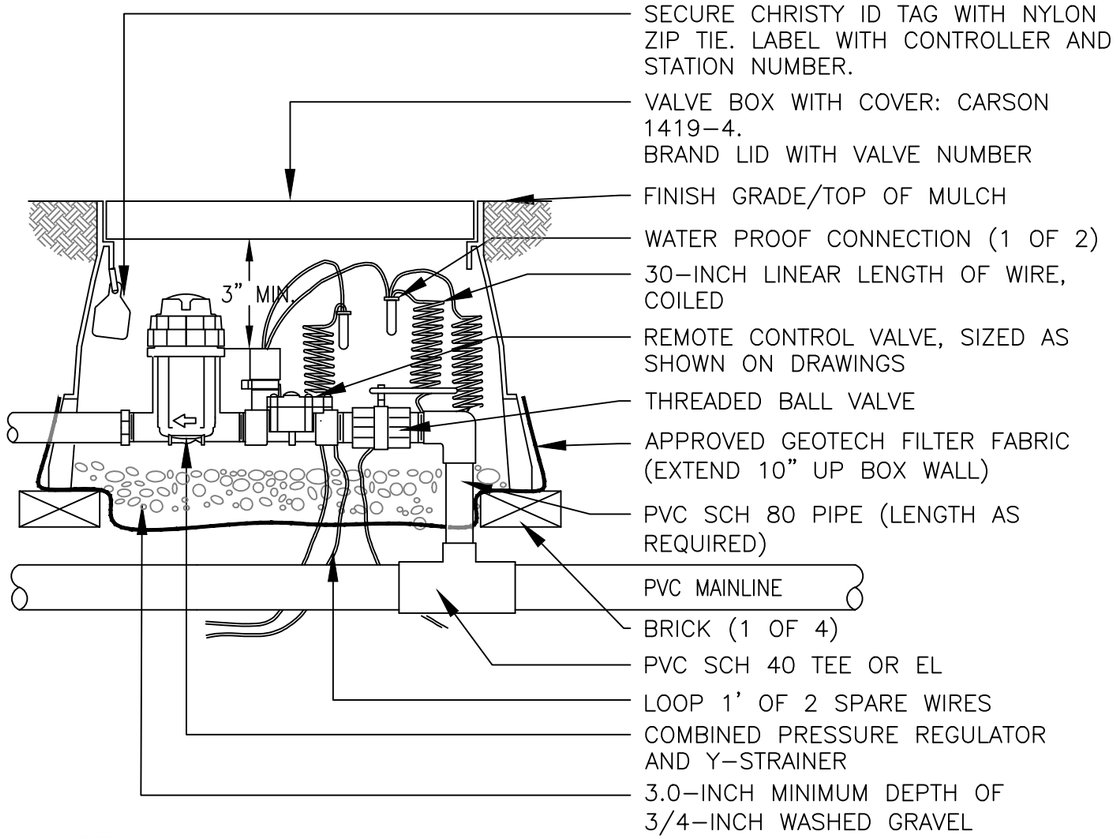
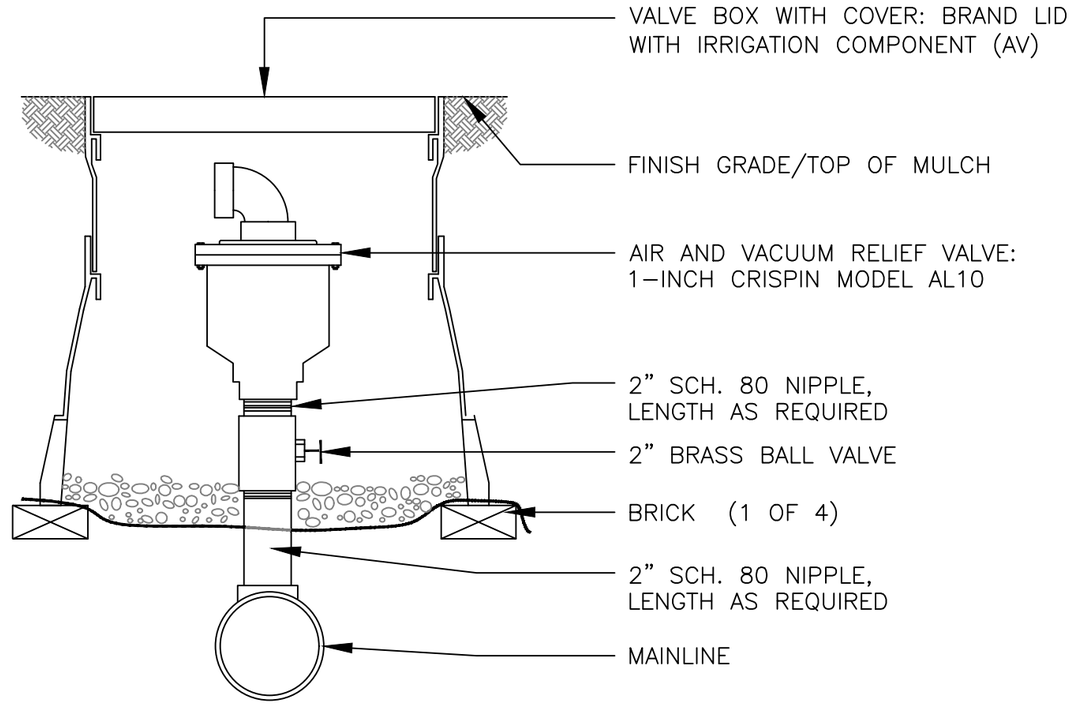


NOTE:
1. USE BARBED INSERT FITTINGS ON DRIP LATERAL PIPE WITH STAINLESS STEEL HOSE CLAMPS. PLACE CLAMPS ON DRIP TUBING DIRECTLY OVER BARBED AREA OF FITTING. PINCH CLAMPS ARE NOT ACCEPTABLE.

5 REMOTE CONTROL DRIP VALVE ASSEMBLY



6 AIR RELIEF VALVE ASSEMBLY

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02/14/2022
COMMERCIAL

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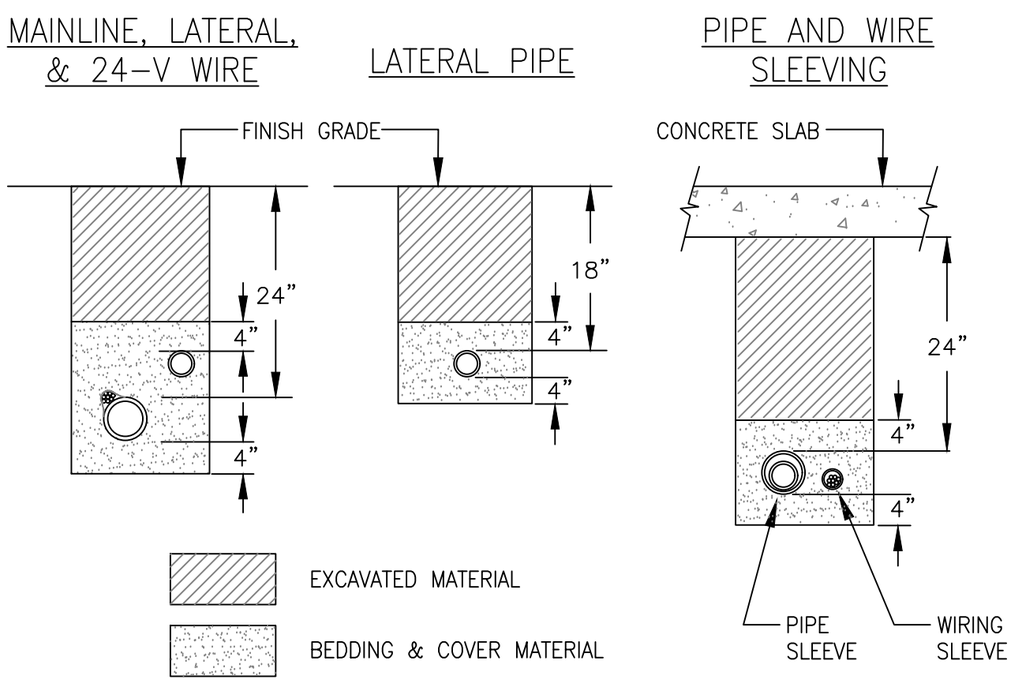
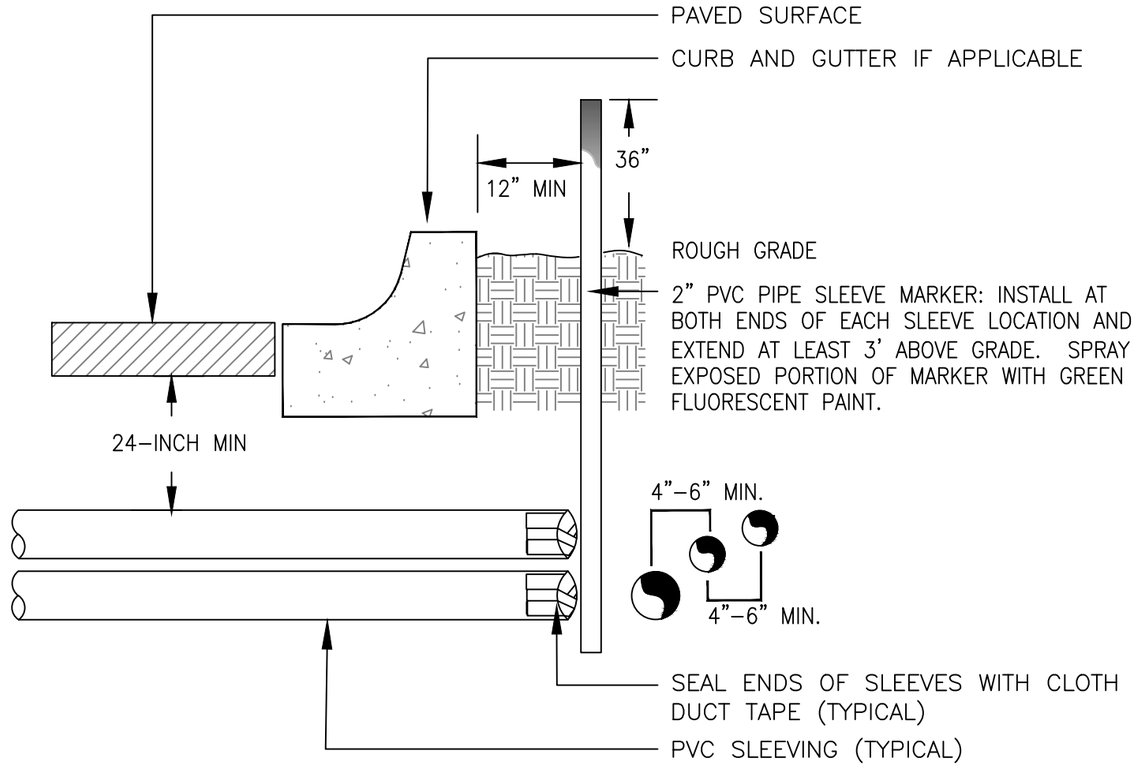


NOTES:
1. SLEEVE ALL PIPE AND WIRE SEPARATELY.
2. ALL PIPE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS."SNAKE" UNSLEEVED PLASTIC PIPE IN TRENCH. PROVIDE A MINIMUM OF 2" CLEARANCE TO SIDE OF TRENCH AND BETWEEN PIPES.
3. ALL 120–V WIRING SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS. TAPE AND BUNDLE 24–V WIRE EVERY 10' AND PROVIDE LOOSE 20" LOOP AT ALL CHANGES OF DIRECTION OVER 30 DEGREES.

7 TYPICAL TRENCHING DETAIL



NOTE:
1) ALL SLEEVING TO BE CLASS 200 BE PVC, SIZED AS NOTED.
2) INSTALL SLEEVES IN SIDE–BY–SIDE CONFIGURATION WHERE MULTIPLE SLEEVES ARE TO BE INSTALLED. SPACE SLEEVES 4" TO 6" APART. DO NOT STACK SLEEVES VERTICALLY.

8 TYPICAL SLEEVING DETAIL

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02/14/2022

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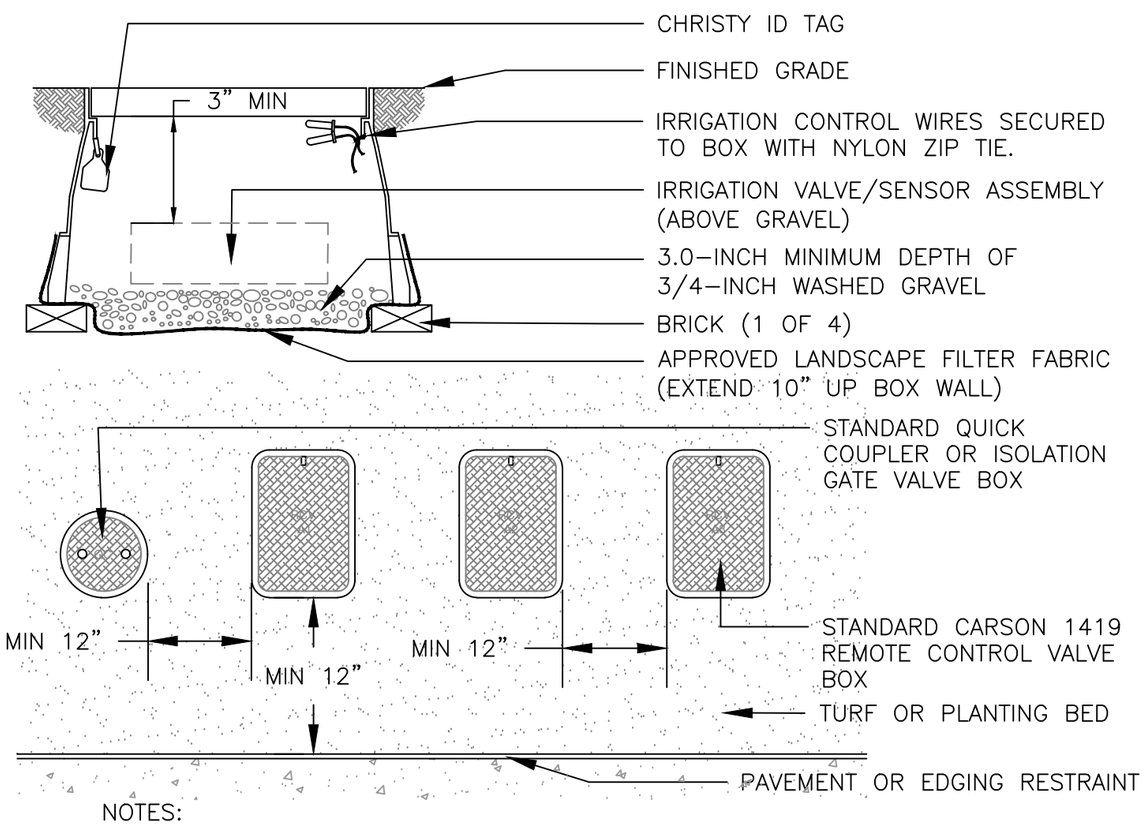
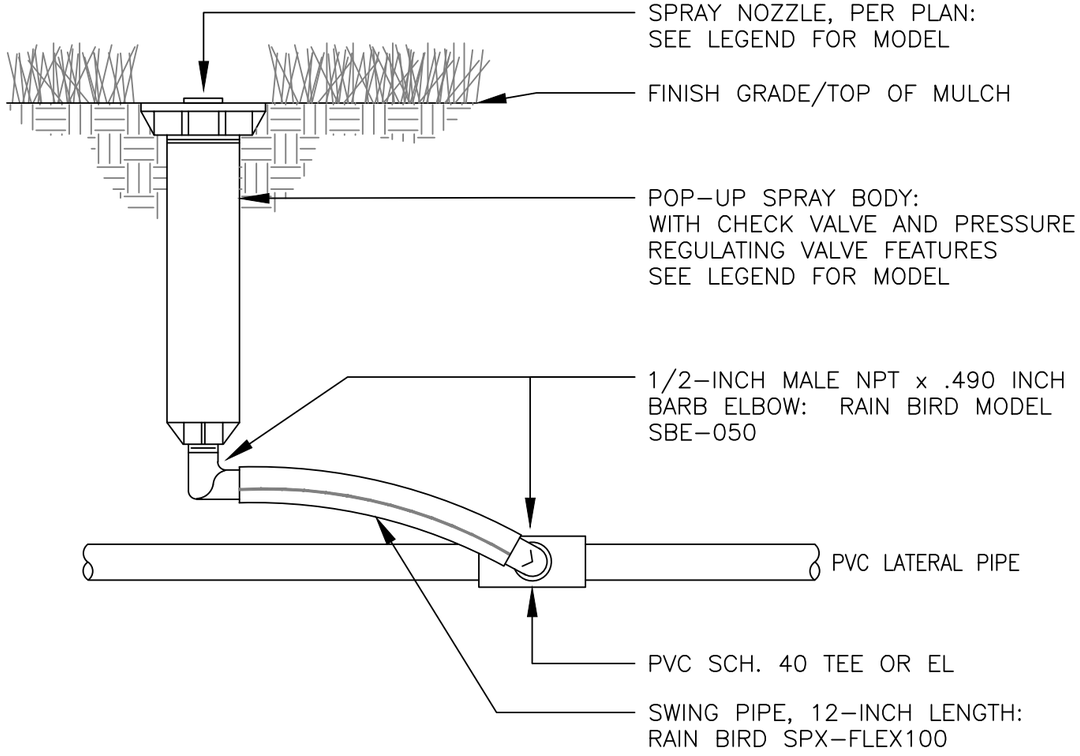


NOTES:

1. INSTALL ONLY ONE RCV TO VALVE BOX. LOCATE AT LEAST 12–INCHES FROM AND ALIGN WITH NEARBY WALLS OR EDGES OF PAVED AREAS. GROUP RCV ASSEMBLIES TOGETHER WHERE PRACTICAL.
4. GROUP RCV ASSEMBLIES TOGETHER WHERE PRACTICAL, BUT AVOID GROUPING MORE THAN THREE (3) STANDARD VALVE BOXES TOGETHER IN A SERIES.
5. ARRANGE GROUPED VALVE BOXES IN RECTANGULAR PATTERNS.

9 TYPICAL VALVE BOX INSTALLATION



10 6-INCH POP UP SPRAY SPRINKLER ASSEMBLY

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03/21/19
07/14/2022
COMMERCIAL

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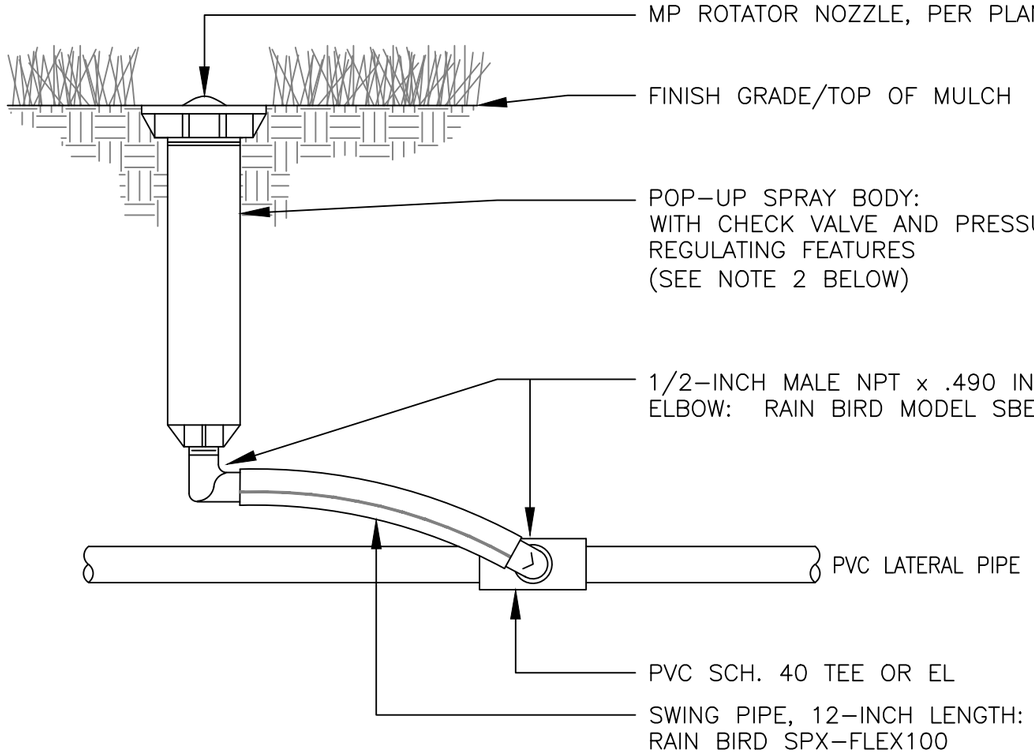
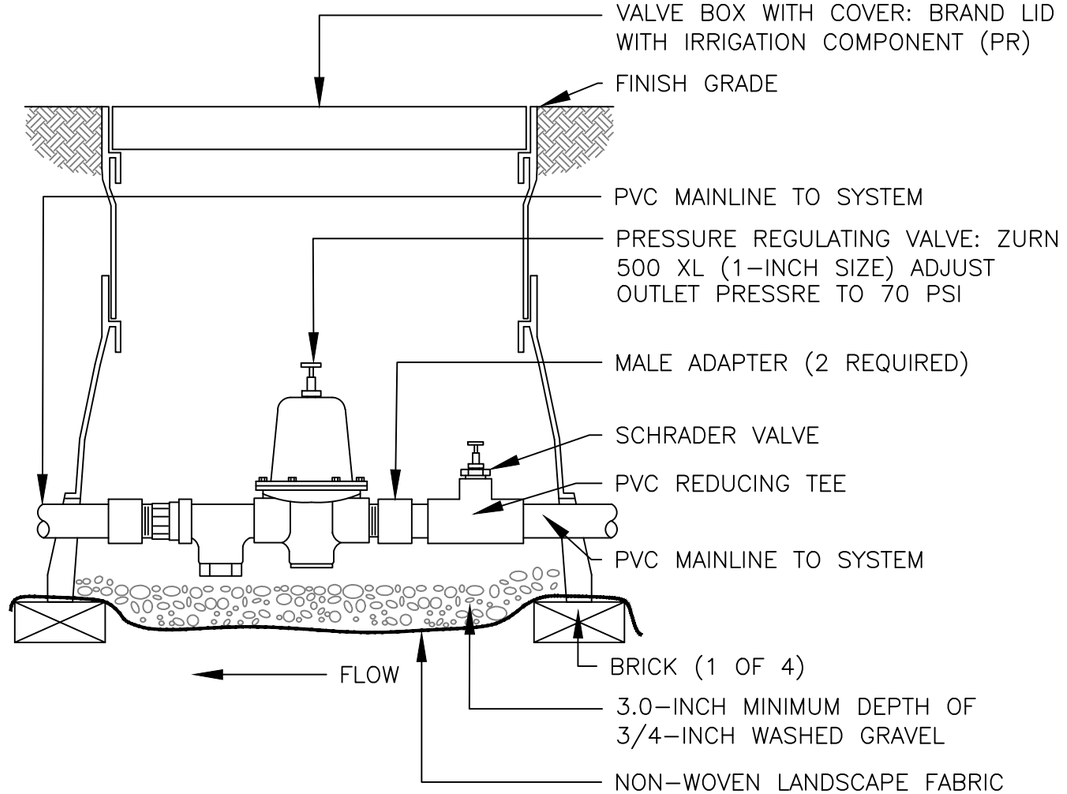


NOTES:
1. IF POLYETHYLENE PIPE IS USED FOR LATERAL PIPE, SUBSTITUTE INSERT TEE OR EL WITH STAINLESS STEEL CLAMPS FOR PVC SLIP TEE OR EL SHOWN ABOVE.
2. TO ACHIEVE MINIMUM RADIUS WITH ANY MP ROTATOR MODEL, USE HUNTER PRS30 BODY

11 6-INCH POP UP MP-ROTATOR ASSEMBLY



12 PRESSURE REDUCING VALVE ASSEMBLY

JEFF ZAPF
03149
07/14/2022
COMMERCIAL

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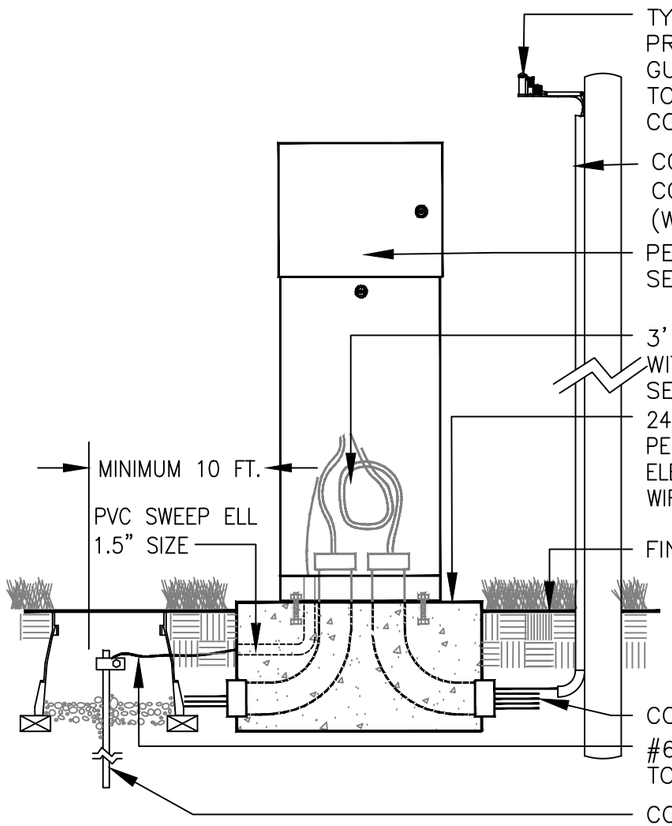


TYPICAL RAIN/FREEZE/WIND SENSOR; PROPERLY MOUNTED ON POST OR GUTTER TO RECEIVE FULL SUN, OPEN TO RAINFALL AND OUT OF SPRINKLER COVERAGE.

COMMUNICATION WIRE INSTALLED IN CONDUIT; MAX WIRE DISTANCE: 200'. (WIRELESS OPTIONAL: REFER TO LEGEND)

PEDESTAL MOUNT CONTROLLER: SEE LEGEND FOR MODEL

3' COIL OF ALL SPARE WIRES STORED WITHIN PEDESTAL, USE WIRE TIES TO SECURE COILS

24" X 18" X 18" CONCRETE FOOTING FOR PEDESTAL ASSEMBLY, ROUTE 120V AC ELECTRICAL POWER, COMMON AND CONTROL WIRES THROUGH CONDUIT AS SHOWN

FINISH GRADE

CONTROL WIRES TO ELECTRICAL VALVES

#6 BARE COPPER GROUNDING WIRE TO BRONZE CLAMP

COPPER CLAD GROUNDING ROD (5/8" X 8') PAIGE ELECTRIC PART NUMBER 182007.

NOTES:
1. INSTALL RAIN SENSOR ON TREATED 4X4 POST IF CONTROLLER IS IN TURF AREA. POST TO BE MOUNTED IN SHRUB BED TO AVOID BEING IRRIGATED BY OVERHEAD SPRINKLERS.

13 PEDESTAL MOUNTED CONTROLLER ASSEMBLY

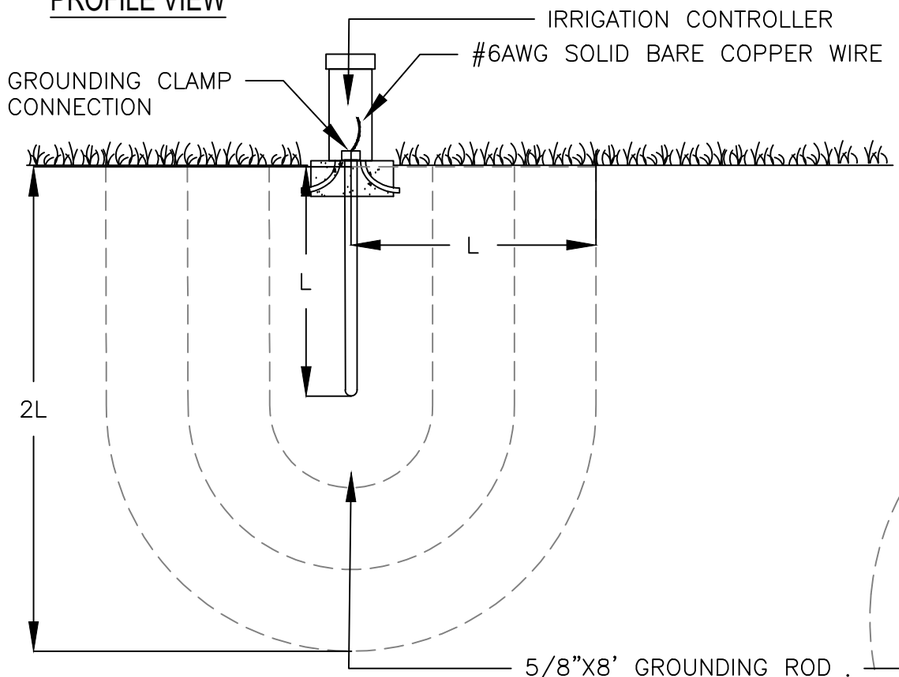
JEFF ZAPF
03219
02/14/2022
COMMERCIAL

PENTBLS
PLTDRVS
PLOT_INFO
DATE

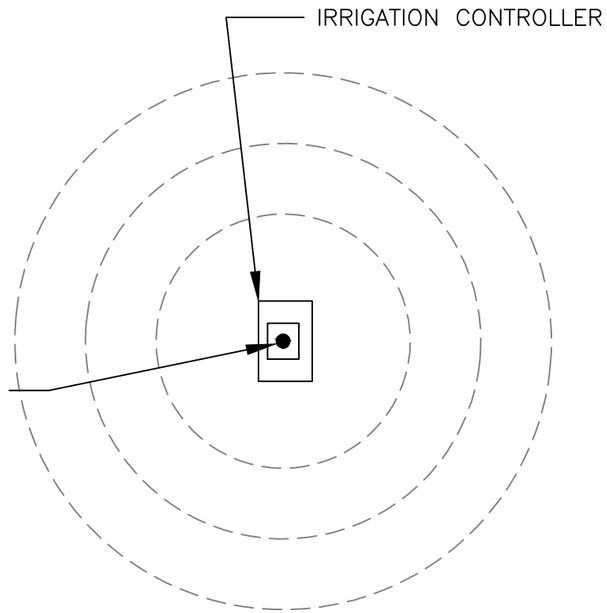
Print Date: DATE	R-X	Sheet Revisions			CITY OF ARVADA
Drawing File Name: FILES		Date:	Comments	Init.	
Horiz. Scale: SCALESHORT Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
Hines Inc					

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	IRRIGATION PLANS W. 72ND AVENUE		XXXX-XXXX
Revised:	Designer: Z	Structure Numbers	XXXXX
Void:	Detailer: TN		
	Sheet Subset:	Subset Sheets: 1 of 4	Sheet Number IR-3.07

PROFILE VIEW



PLAN VIEW



#6AWG SOLID COPPER BARE WIRE

ELECTRODE SPHERE OF INFLUENCE

NOTES:

1. "GROUNDING" SHALL BE, 5/8" DIAMETER X 8' LONG, COPPER CLAD STEEL GROUND ROD(S) DRIVEN INTO GROUND BELOW EACH IRRIGATION CONTROLLER PAD, EXTENDING 3 INCHES ABOVE TOP OF PADS.

14 TYPICAL IRRIGATION CONTROLLER GROUNDING PER CITY OF ARVADA

JEFF ZAPF
04319
07/14/2022
COMMERCIAL

Print Date: □DATE□	R-X	Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2	Project No./Code
Drawing File Name: □FILES□		Date:	Comments	Init.		No Revisions:	IRRIGATION PLANS	XXXX-XXXX
Horiz. Scale: □SCALESHORT□ Vert. Scale: As Noted						Revised:	W. 72ND AVENUE	
Unit Information Unit Leader Initials							Designer: □Z	Structure Numbers: XXXXX
Hines Inc						Void:	Detailer: TN	
							Sheet Subset:	Subset Sheets: 1 of 4
								Sheet Number IR-3.08

□PENTBL□ □PLTDRVR□ □PLOT_INFO□ □DATE□

LIGHTING AND ELECTRICAL LEGEND

EXISTING LIGHT STANDARD TO REMAIN. CONTRACTOR SHALL MAINTAIN ELECTRICAL FEEDS TO EXISTING LIGHT STANDARDS TO REMAIN. UNLESS OTHERWISE NOTED.

EXISTING LIGHT STANDARD TO BE REMOVED.
LR01 — LIGHT STANDARD IDENTIFICATION NUMBER

NEW (1) LED COBRA-HEAD STYLE (TYPE II) ROADWAY LED LUMINAIRE (9,600 LUMENS) ON NEW 30-FOOT ROUND TAPERED STEEL POLE, 6' MAST ARM AND NEW CONCRETE FOUNDATION. 3000K COLOR TEMPERATURE, B2-U0-G2, 120-277V DRIVER.
LS01 — LIGHT STANDARD IDENTIFICATION NUMBER

NEW DUAL HEAD LED COBRA-HEAD STYLE (TYPE II) ROADWAY LED LUMINAIRE (9,600 LUMENS) ON NEW 30-FOOT ROUND TAPERED STEEL POLE, 6' MAST ARMS AND NEW CONCRETE FOUNDATION. 3000K COLOR TEMPERATURE, B2-U0-G2, 120-277V DRIVER.
LD01 — LIGHT STANDARD IDENTIFICATION NUMBER

NEW (1) LED COBRA-HEAD STYLE (TYPE II) ROADWAY LED LUMINAIRE (9,600 LUMENS) INSTALLED ON SIGNAL POLE ASSEMBLY WITH 10' ARM.
LT01 — LIGHT STANDARD IDENTIFICATION NUMBER

LW01 — NEW LED UNDERDECK LUMINAIRE (2,000 LUMENS) WALL MOUNTED TO ABUTMENT WALL PER DETAIL1/LE21. PROVIDE KENALL MR13EL-PP-MB-20L35K-DV-BPC-SA, 3500K, 120-277V DRIVER,

S S1 — NEW HEAVY DUTY FLUSH INGRADE SPLICE BOX WITH ANSI TIER 22 HEAVY DUTY INCIDENTAL TRAFFIC RATED COVER.
S = 11" x 18" x 12" DP. BOTTOMLESS S1 = 13" x 24" x 12" DP. BOTTOMLESS

S1 — S1 — NEW 3" SCHEDULE 80 PVC SLEEVE UNDER ROADWAY TERMINATING IN SPLICE BOXES (13" x 24" x 12" DP.) AT EACH END UNLESS NOTED OTHERWISE ON THE PLANS.

LIGHTING ELECTRICAL RACEWAY IN 2" SCHEDULE 80 PVC CONDUIT UNLESS OTHERWISE NOTED ON PLANS. ROUTE IN 24" DEEP TRENCH, BURY AND COMPACTION BACKFILL.

CIRCUIT HOMERUN. NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS.

M — NEW LIGHTING CONTROL CENTER (SPECIAL) SHALL BE A METER/POWER PEDESTAL INSTALLED ON NEW CONCRETE FOUNDATION.

T — NEW PAD MOUNTED TRANSFORMER BY XCEL ENERGY FORCES.

SW — EXISTING SWITCH. COORDINATE WITH XCEL ENERGY FOR EXACT LOCATION.

EXISTING POLE MOUNTED TRANSFORMER. COORDINATE WITH XCEL ENERGY FOR EXACT LOCATION.

T — EXISTING PAD MOUNTED TRANSFORMER. COORDINATE WITH XCEL ENERGY FOR EXACT LOCATION.

LCC1-A — FEEDER TAG, SEE FEEDER SCHEDULE FOR SIZE AND QUANTITY FO CONDUIT AND CONDUCTORS.

TRAFFIC CONTROL CABINET.

TP — TRAFFIC PULL BOX FURNISHED AND INSTALLED BY SIGNAL CONTRACTOR. SEE SIGNAL PLAN FOR EXACT LOCATION.

- - - - TRAFFIC CONDUIT FURNISHED AND INSTALLED BY SIGNAL CONTRACTOR. SEE SIGNAL PLAN FOR EXACT LOCATION.

SCOPE OF WORK

1. LIGHTING SHALL BE OWNED AND MAINTAINED BY CITY OF ARVADA.

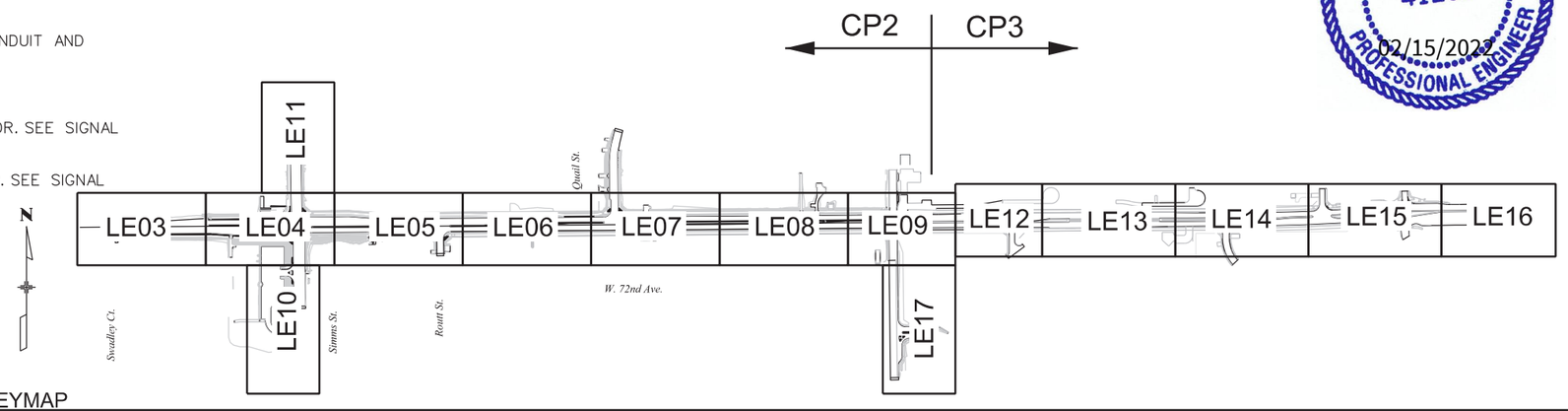
TABULATION OF APPROXIMATE QUANTITIES

ITEM #	DESCRIPTION	UNIT	CP2 QTY	CP3 QTY	NOTES
202-00705	REMOVAL OF LIGHT STANDARD FOUNDATION	EA	14	6	
613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	5230	5390	
613-01300	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	1055	66	
613-10000	WIRING	LS	1	1	1
613-13000	LUMINAIRE (LED) (9,600 LUMENS) LTXX	EA	7	0	
613-40000	CONCRETE FOUNDATION PAD	EA	2	2	2
613-50100	LIGHTING CONTROL CENTER (SPECIAL)	EA	2	2	3
613-13000	LUMINAIRE (LED) (9,600 LUMENS) LSXX	EA	30	33	
613-13002	LUMINAIRE (LED) (2,000 LUMENS) LWXX	EA	0	4	
613-32300	LIGHT STANDARD STEEL (30 FOOT)	EA	30	23	
613-32302	LIGHT STANDARD STEEL (30 FOOT)(2-ARM)	EA	0	5	
613-40010	LIGHT STANDARD FOUNDATION	EA	30	28	

NOTES:

1. THIS WIRING PAY ITEM SHALL INCLUDE SERVICE LATERAL CONDUCTORS FROM 'MPP1' TO SIGNAL CABINET AND FEEDER CONDUCTORS FROM 'MPP#' TO THE LIGHT STANDARDS ON SIGNAL POLES (INSTALLED IN SIGNAL CONDUITS). SEE SIGNAL SUBSET SHEETS FOR ALL OTHER WIRING ON THIS PROJECT.
2. THIS PAY ITEM IS FOR THE LIGHTING CONTROL CENTER 'MPP#' FOUNDATION.
3. THIS PAY ITEM IS FOR THE LIGHTING CONTROL CENTER 'MPP#' (COMBINATION ALL-IN-ONE).

COLORADO LICENSED
DANIEL R. SANDERS
41269
PROFESSIONAL ENGINEER
02/15/2022



KEYMAP
NOT TO SCALE

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Unit Information	Unit Leader Initials				Void:
CLANTON & ASSOCIATES	LIGHTING DESIGN AND ENGINEERING 4699 NAUTILUS COURT SOUTH STE. 102 BOULDER, CO 80301 303-530-7229				

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LIGHTING PLANS
COVER SHEET

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE01 of 23

Project No./Code

Sheet Number 323

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SCHEDULE OF LIGHTING DEVICES

LONG DESCRIPTION

UNITS

SHEET No.	I.D. No.	BASELINE	STATION	OFFSET
	LR01	NOT USED		
LE04	LR02	W 72nd Ave	524+59.25	L=29.32
LE04	LR03	W 72nd Ave	526+00.70	R=44.18
LE04	LR04	W 72nd Ave	526+80.95	R=39.02
LE04	LR05	W 72nd Ave	526+78.76	L=45.83
LE04	LR06	W 72nd Ave	526+05.75	L=40.58
	LR07	NOT USED		
	LR08	NOT USED		
LE05	LR09	W 72nd Ave	528+64.75	R=51.08
LE10	LR10	Simms St.	24+20.46	R=46.84
LE05	LR11	W 72nd Ave	530+24.66	R=63.83
LE05	LR12	Routt St.	30+58.74	L=34.34
LE05	LR13	W 72nd Ave	532+70.49	L=20.90
LE07	LR14	W 72nd Ave	540+21.9	L=41.59
LE07	LR15	W 72nd Ave	542+10.86	R=30.78
LE07	LR16	W 72nd Ave	542+79.56	L=30.00
LE09	LR17	W 72nd Ave	552+75.18	L=26.37
LE13	LR18	W 72nd Ave	559+36.75	L=30.47
LE13	LR19	W 72nd Ave	561+25.05	L=25.82
LE13	LR20	W 72nd Ave	563+38.30	L=27.38
LE14	LR21	W 72nd Ave	566+17.95	L=28.54
LE17	LR22	W 72nd Ave	552+94.27	R=224.69
LE04	LT01	W 72nd Ave	NA	NA
LE04	LT02	W 72nd Ave	NA	NA
LE04	LT03	W 72nd Ave	NA	NA
LE04	LT04	W 72nd Ave	NA	NA
LE07	LT05	W 72nd Ave	NA	NA
LE07	LT06	W 72nd Ave	NA	NA
LE07	LT07	W 72nd Ave	NA	NA
LE09	LT08	W 72nd Ave	NA	NA
LE09	LT09	W 72nd Ave	NA	NA
LE09	LT10	W 72nd Ave	NA	NA
LE09	LT11	W 72nd Ave	NA	NA
	LS01	NOT USED		
LE03	LS02	W 72nd Ave	521+93.31	L=48.57
LE03	LS03	W 72nd Ave	520+69.55	R=48.50
LE04	LS04	W 72nd Ave	524+31.90	L=49.66
LE04	LS05	W 72nd Ave	523+19.24	R=56.22

SCHEDULE OF LIGHTING DEVICES (CONT)

LONG DESCRIPTION

UNITS

SHEET No.	I.D. No.	BASELINE	STATION	OFFSET
	LS06	NOT USED		
LE04	LS07	W 72nd Ave	525+66.38	R=48.48
LE04	LS08	Simms St.	25+12.64	R=40.00
LE04	LS09	W 72nd Ave	527+20.64	L=47.40
LE05	LS10	W 72nd Ave	529+57.25	L=38.97
LE04	LS11	W 72nd Ave	528+27.87	R=34.51
LE05	LS12	W 72nd Ave	532+00.45	L=34.50
LE05	LS13	W 72nd Ave	530+75.88	R=34.50
LE05	LS14	Routt St.	30+71.53	R=26.40
LE06	LS15	W 72nd Ave	534+48.45	L=34.50
LE05	LS16	W 72nd Ave	533+20.42	R=34.47
LE06	LS17	W 72nd Ave	536+96.05	L=34.42
LE06	LS18	W 72nd Ave	535+72.05	R=34.50
LE06	LS19	W 72nd Ave	538+20.07	R=34.58
LE07	LS20	W 72nd Ave	540+09.65	L=71.47
LE07	LS21	W 72nd Ave	541+11.31	L=36.40
LE07	LS22	W 72nd Ave	543+27.16	L=34.49
LE07	LS23	W 72nd Ave	542+04.73	R=34.54
LE08	LS24	W 72nd Ave	545+80.77	L=34.59
LE07	LS25	W 72nd Ave	544+45.50	R=34.37
LE08	LS26	W 72nd Ave	548+34.37	L=35.86
LE08	LS27	W 72nd Ave	547+03.12	R=34.63
LE09	LS28	W 72nd Ave	550+87.97	L=34.48
LE08	LS29	W 72nd Ave	549+52.00	R=34.63
LE09	LS30	W 72nd Ave	552+00.56	R=34.41
LE10	LS31	W 72nd Ave	552+51.67	L=78.00
	LS32	NOT USED		
LE09	LS33	W 72nd Ave	554+20.50	R=35.02
LE09	LS34	W 72nd Ave	554.37.61	L=33.85
LE12	LS35	W 72nd Ave	556+20.48	R=35.01
	LS36	NOT USED		
	LS37	NOT USED		
	LS38	NOT USED		
	LS39	NOT USED		
	LS40	NOT USED		
	LS41	NOT USED		
	LS42	NOT USED		
	LS43	NOT USED		
	LS44	NOT USED		
LE14	LS45	W 72nd Ave	567+63.53	L=49.86
LE14	LS46	W 72nd Ave	568+63.49	R=37.56
LE14	LS47	W 72nd Ave	569+63.90	L=36.07
LE14	LS48	W 72nd Ave	570+62.78	R=34.56

SCHEDULE OF LIGHTING DEVICES (CONT)

LONG DESCRIPTION

UNITS

SHEET No.	I.D. No.	BASELINE	STATION	OFFSET
LE15	LS49	W 72nd Ave	572+12.54	L=63.05
LE15	LS50	W 72nd Ave	572+61.06	R=51.06
LE15	LS51	W 72nd Ave	573+66.06	L=63.59
LE15	LS52	W 72nd Ave	574+61.79	R=57.82
LE15	LS53	W 72nd Ave	575+72.52	L=76.79
LE15	LS54	W 72nd Ave	576+63.38	R=56.30
LE16	LS55	W 72nd Ave	577+61.37	L=51.69
LE17	LS56	Oak St.	65+76.44	R=50.42
LE17	LS57	Oak St.	64+23.70	R=49.95
LE17	LS58	Oak St.	63+60.06	R=63.00
LE17	LS59	Oak St.	62+92.77	L=22.41
LE17	LS60	Oak St.	62+81.77	R=50.70
LE17	LS61	Oak St.	62+06.08	R=37.50
LE09	LS62	Oak St.	67+29.19	R=50.35
LE13	LW01	W 72nd Ave	N/A	N/A
LE13	LW02	W 72nd Ave	N/A	N/A
LE13	LW03	W 72nd Ave	N/A	N/A
LE13	LW04	W 72nd Ave	N/A	N/A
LE12	LD01	W 72nd Ave	557+38.28	R=1.98
LE13	LD02	W 72nd Ave	559+43.06	R=1.58
LE13	LD03	W 72nd Ave	561+12.50	0
LE13	LD04	W 72nd Ave	564+4.93	0
LE14	LD05	W 72nd Ave	565+63.72	0
LE04	MPP1	W 72nd Ave	524+72.22	R=48.83
LE07	MPP2	W 72nd Ave	541+79.76	R=34.97
LE12	MPP3	W 72nd Ave	556+57.16	L=61.39
LE14	MPP4	W 72nd Ave	570+64.48	R=48.31

TOTALS

COLORADO LICENSED
DAVID A. SANDERS
41269
PROFESSIONAL ENGINEER
02/15/2022

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Unit Information	Unit Leader Initials		

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80301
303-530-7229

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	LIGHTING PLANS SCHEDULE OF LIGHTING DEVICES			
Revised:	Designer: BN	Structure Numbers		
Void:	Detailer: MC			
	Sheet Subset: LIGHTING	Subset Sheets:	LE02 of 23	Sheet Number 324

0' 20' 40' 80'

N

518+00 519+00 520+00 521+00 522+00

EXISTING EASEMENT (UTIL.)
EXISTING ROW
PROPOSED ROW
PROPOSED EASEMENT (TEMP.)

MPP1-C
MPP1-G
MPP1-N
MPP1-K
LS03

W 72ND AVENUE
N89°32'27"E
1141.56'

MATCHLINE STA. 523+00

SWADLEY CT.

EXISTING ROW
EXISTING EASEMENT (UTIL.)
PROPOSED ROW
PROPOSED EASEMENT (TEMP.)

Know what's below. Call before you dig.

COLORADO LICENSED
DAVID R. SANDERS
41269
PROFESSIONAL ENGINEER
02/15/2022

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CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LIGHTING PLANS

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE03 of 23

Project No./Code

Sheet Number 325

0' 20' 40' 80'

N

MATCHLINE SHEET LE11

PROPOSED EASEMENT (UTIL.)
PROPOSED EASEMENT (TEMP)
PROPOSED ROW
EXISTING ROW

EXISTING XCEL ENERGY PAD MOUNTED SWITCH AND TRANSFORMER

27+00
524+00
525+00
526+00
527+00
528+00

SIMMS ST.

W 72ND AVENUE

LIGHTING CONTROL CENTER 'MPP1'
120/240V-1PH-3W

TRAFFIC CONTROL CABINET

MPP1-A
MPP1-B
MPP1-C
MPP1-D
MPP1-F
MPP1-H
MPP1-I
MPP1-J
MPP1-K
MPP1-L
MPP1-N
MPP1-O
MPP1-P
MPP1-Q
MPP1-R
MPP1-S
MPP1-T

LS04 2
LS05 3
LS07 1
LS08 1
LS09 2
LS11 3

LT01 7
LT02 5
LT03 7
LT04 5

LR02
LR03
LR04
LR05
LR06

S
SW
T
M
S1

EXISTING ROW

PROPOSED ROW
PROPOSED EASEMENT (TEMP.)
PROPOSED EASEMENT (UTIL.)

25+00

MATCHLINE STA. 523+00

MATCHLINE STA. 528+50

MATCHLINE SHEET LE10

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COLORADO LICENSED
DANIEL R. SANDERS
41269
PROFESSIONAL ENGINEER
02/15/2022

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CLANTON & ASSOCIATES	LIGHTING DESIGN AND ENGINEERING 4699 NAUTILUS COURT SOUTH STE. 102 BOULDER, CO 80301 303-530-7229				CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LIGHTING PLANS

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0' 20' 40' 80'

N

EXISTING UTILITY TRANSFORMER TO BE RESET. COORDINATE WITH XCEL ENERGY FOR NEW LOCATION OF EXISTING TRANSFORMER

PROPOSED EASEMENT (TEMP.)
PROPOSED ROW
EXISTING ROW

529+00 530+00 531+00 532+00 533+00

MPP1-B
MPP1-G
LS10 4
MPP1-E
MPP1-F
LS12 2
LR13

W 72ND AVENUE

MATCHLINE STA. 528+50

MPP1-K
LR09
MPP1-M
LS13 1
MPP1-N
LR11
LR12
31+00

MATCHLINE STA. 534+00

MPP2-C
LS16 2
MPP2-Q
MPP2-D
LS14 4
MPP2-R

ROUTT ST.

EXISTING ROW
EXISTING EASEMENT (UTIL.)
PROPOSED EASEMENT (TEMP.)

COLORADO LICENSED
DANIEL R. SANDERS
41269
PROFESSIONAL ENGINEER
02/15/2022

811 Know what's below. Call before you dig.

Print Date: 2/3/2022	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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Unit Information Unit Leader Initials				Void:	Project No./Code
CLANTON & ASSOCIATES LIGHTING DESIGN AND ENGINEERING 4699 NAUTILUS COURT SOUTH STE. 102 BOULDER, CO 80301 303-439-7229				CITY OF ARVADA	Sheet Number 327

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0' 20' 40' 80'

N

MATCHLINE STA. 534+00

535+00

536+00

537+00

538+00

539+00

MATCHLINE STA. 539+50

PROPOSED EASEMENT (UTIL.)

PROPOSED EASEMENT (TEMP.)

PROPOSED ROW

EXISTING ROW

MPP2-S

LS15
5

MPP2-H

MPP2-T

LS17
7

MPP2-G

W 72ND AVENUE

MPP2-C

MPP2-R

LS18
4

MPP2-C

MPP2-Q

LS19
2

MPP2-C

EXISTING XCEL ENERGY
POLE MOUNTED TRANSFORMER

EXISTING ROW

PROPOSED ROW

PROPOSED EASEMENT (TEMP.)

Know what's below. Call before you dig.

COLORADO LICENSED
DAVID R. SANGER
41269
PROFESSIONAL ENGINEER
02/15/2022

Travis 1:14:11 PM pw:\mullerengv-pw.bentley.com:mullerengv-pw-01\Documents\2018 Projects\18-061.01 West 72nd Ave - Swadley to Kipling\18061CP2\Utilities\Clanton\Drawings\18061_Lighting_Plan LE06.dgn
2/3/2022 CDOT-PDFHighQuality_V8i.pltcfg CDOT-ColorPenTable.tbl

Print Date: 2/3/2022			
Drawing File Name: 18061_Lighting_Plan LE06.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80301
303-530-7229

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:

Revised:

Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LIGHTING PLANS

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE06 of 23

Project No./Code

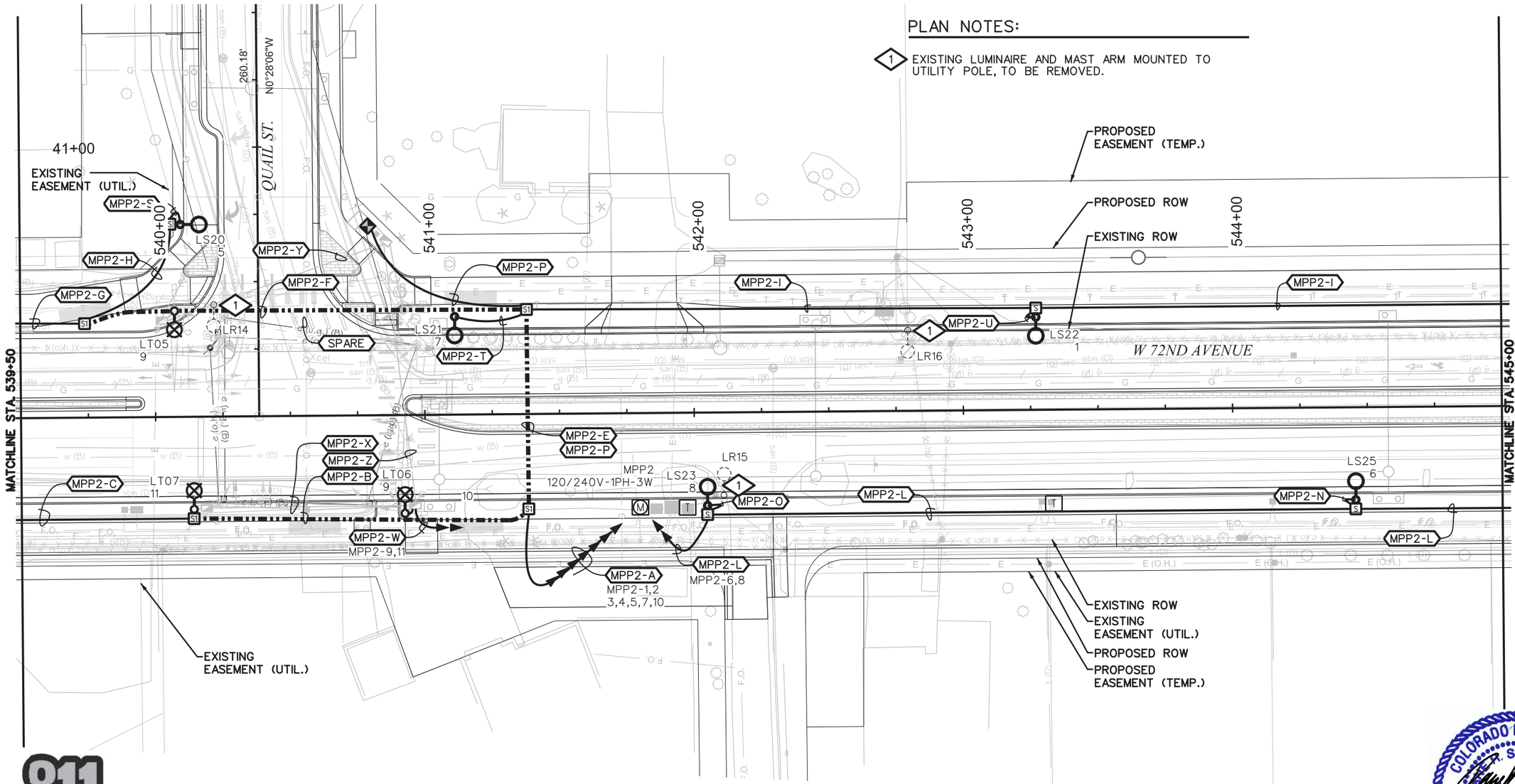
Sheet Number 328

0' 20' 40' 80'

N

PLAN NOTES:

1. EXISTING LUMINAIRE AND MAST ARM MOUNTED TO UTILITY POLE, TO BE REMOVED.



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Print Date: 2/3/2022	Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_Lighting_Plan LE07.dgn	Date:	Comments	Init.		No Revisions:	LIGHTING PLANS
Horiz. Scale: 1:40 Vert. Scale: As Noted					Revised:	Designer: BN / Detailer: MC / Sheet Subset: LIGHTING
Unit Information Unit Leader Initials					Void:	Structure Numbers / Subset Sheets: LE07 of 23
CLANTON & ASSOCIATES LIGHTING DESIGN AND ENGINEERING 4699 NAUTILUS COURT SOUTH STE. 102 BOULDER, CO 80301 303-530-7229						Project No./Code / Sheet Number 329

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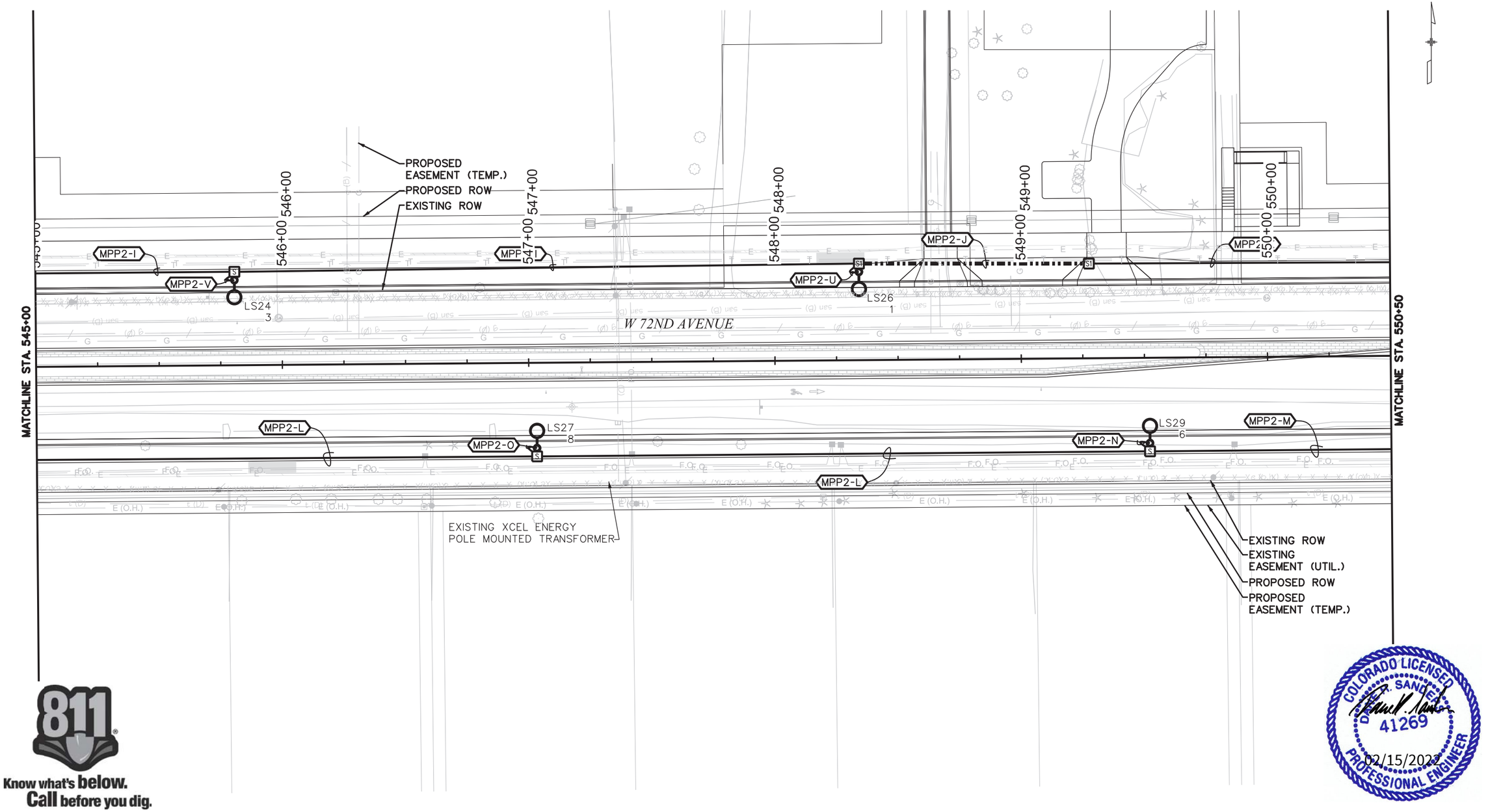

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Print Date: 2/3/2022	Sheet Revisions		
Drawing File Name: 18061_Lighting_Plan LE08.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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No Revisions:	LIGHTING PLANS			
Revised:	Designer: BN	Structure Numbers		
Void:	Detailer: MC			
	Sheet Subset: LIGHTING	Subset Sheets: LE08 of 23		Sheet Number 330

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2/3/2022 CDOT-PDFHighQuality_V6.pltcfg CDOT-ColorPenTable.tbl

0' 20' 40' 80'

N

PROPOSED EASEMENT (TEMP.)
PROPOSED ROW
EXISTING ROW
PROPOSED EASEMENT (TEMP.)
CP2
CP3
MATCHLINE STA 550+50
MATCHLINE STA 556+00
551+00
552+00
553+00
554+00
555+00
W 72ND AVENUE
OAK ST.
MPP2-K
MPP2-V
LS28 3
MPP2-O
LS30 8
MPP2-M
MPP3-E
MPP3-C
LS31 1
MPP3-D
MPP3-F
MPP3-G
LT08 2
MPP3-F
LR17
MPP3-P6,1,2 3,4,5,6,7,8,9,11
MPP3-A
MPP3-J
MPP3 120/240V-1PH-3W
MPP3-H
LT10 4
MPP3-N
LS34 3
LS33 6
MPP3-T
MPP3-T
LT11 2
PI 552+76.43
LT09 4
MPP3-G
MPP3-T
LS62 8
MPP3-U
CP2
CP3
00+89
67+00
EXISTING ROW
EXISTING EASEMENT (UTIL.)
MATCHLINE 65+47.70, SHEET 17

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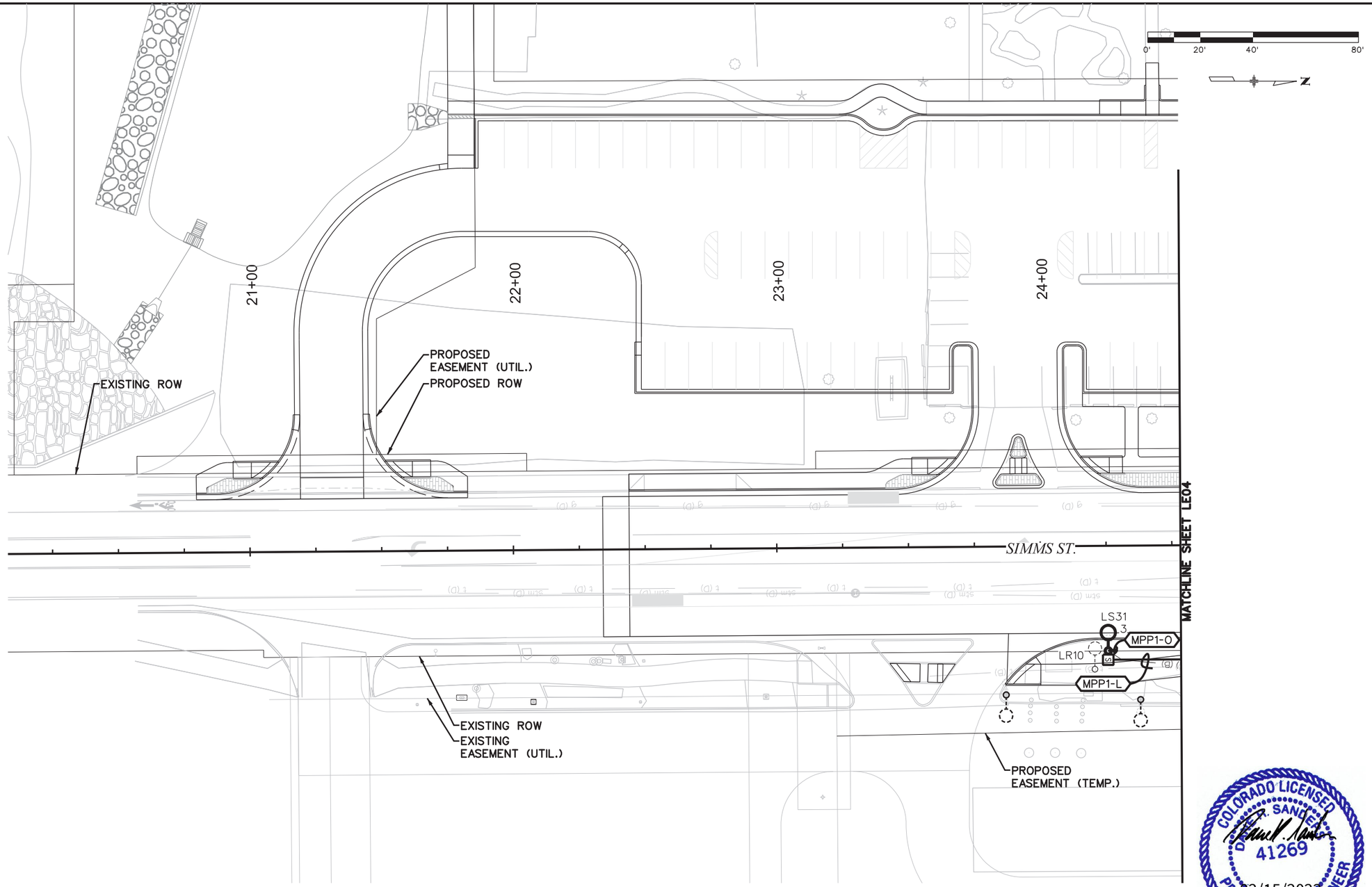
Print Date: 2/3/2022		Sheet Revisions			CITY OF ARVADA
Drawing File Name: 18061_Lighting_Plan LE09.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:40	Vert. Scale: As Noted				
Unit Information	Unit Leader Initials				
CLANTON & ASSOCIATES	LIGHTING DESIGN AND ENGINEERING 4699 NAUTILUS COURT SOUTH STE. 102 BOULDER, CO 80301 303-530-7229				

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	LIGHTING PLANS			
Revised:	Designer: BN	Structure Numbers		
Void:	Detailer: MC			
	Sheet Subset: LIGHTING	Subset Sheets: LE09 of 23		Sheet Number 331



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Print Date: 2/3/2022			
Drawing File Name: 18061_Lighting_Plan LE10.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions

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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
LIGHTING PLANS
SIMMS STREET (SOUTH LEG)

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE10 of 23

Project No./Code

Sheet Number 332

0' 20' 40' 80'

N

28+00

29+00

PROPOSED EASEMENT (TEMP.)
PROPOSED ROW
EXISTING EASEMENT (UTIL.)
EXISTING ROW

SIMMS ST.

MATCHLINE SHEET LE04

e (u.g.) (B)

e (o.h.)

EXISTING ROW
EXISTING EASEMENT (UTIL.)
PROPOSED EASEMENT (TEMP.)

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2/3/2022 CDOT-PDFHighQuality_V6Lptcfg CDOT-ColorPenTable.tbl

Print Date: 2/3/2022		Sheet Revisions	
Drawing File Name: 18061_Lighting_Plan LE11.dgn		Date:	Comments / Init.
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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CITY OF ARVADA

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No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
LIGHTING PLANS
SIMMS STREET (NORTH LEG)

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE11 of 23

Project No./Code

Sheet Number 333

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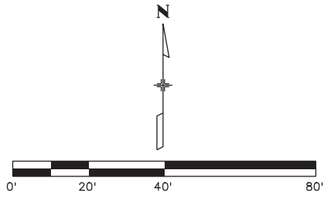

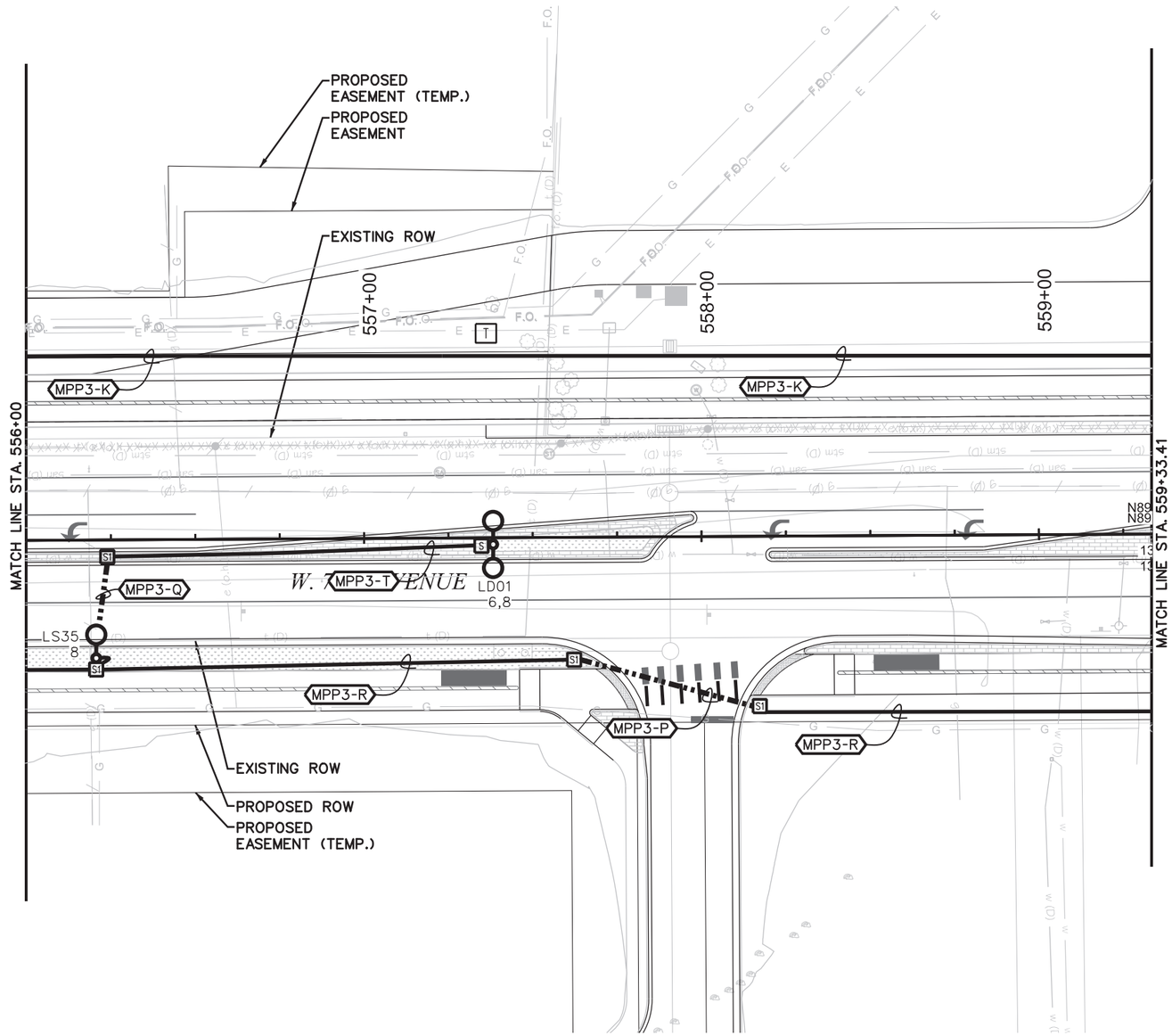

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Print Date: 2/3/2022	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 3
Drawing File Name: 13046 UPRR DES_LightingPlanI12.dgn	Date:	Comments	Init.	No Revisions:	LIGHTING PLANS
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	Designer: BN / Detailer: TB / Sheet Subset: LIGHTING / Structure Numbers / Subset Sheets: LE12 of 23
Unit Information Unit Leader Initials				Void:	Project No./Code
CLANTON & ASSOCIATES — LIGHTING DESIGN AND ENGINEERING, 4696 NAUTILUS COURT SOUTH STE. 102, BOULDER, CO 80301, 303-530-7229				CITY OF ARVADA	Sheet Number 334

Travis 1:14:42 PM pw:\\mullereng-pw.bentley.com:mullereng-pw-01\Documents\2018 Projects\18-061.01 West 72nd Ave - Swadley to Kipling\18061CP3\Utilities\Clanton\Drawings\13046 UPRR DES_LightingPlanI12.dgn
2/3/2022
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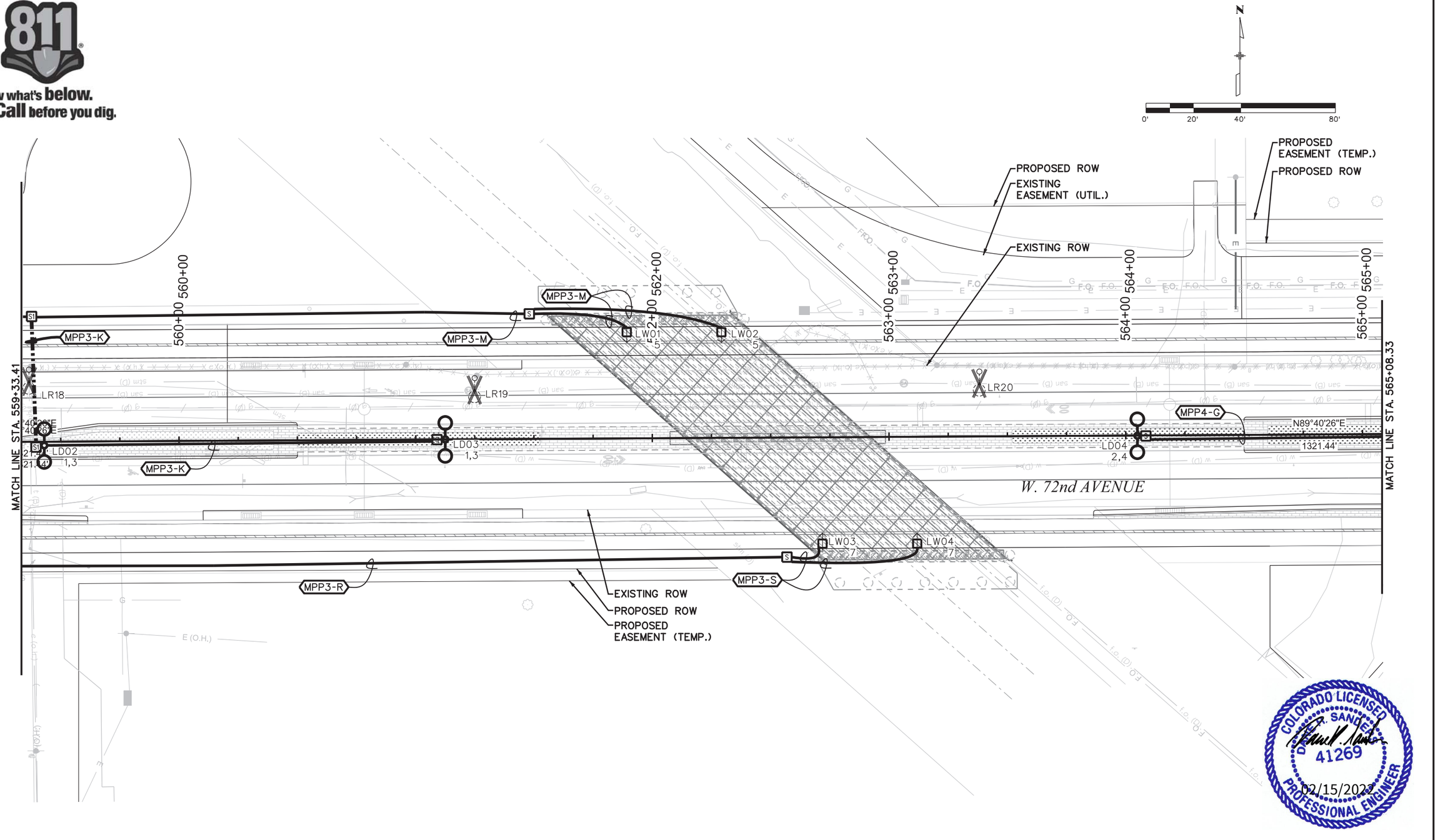

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Print Date: 2/3/2022
Drawing File Name: 13046 UPRR DES_LightingPlan113.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

CLANTON & ASSOCIATES
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BOULDER, CO 80301
303-530-7229

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void;

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 3
LIGHTING PLANS

Designer:	BN	Structure Numbers	
Detailer:	TB		
Sheet Subset:	LIGHTING	Subset Sheets:	LE13 of 23

Project No./Code

Sheet Number 335

Travis 1:14:52 PM pw:\\mullereng-pw.bentley.com:mullereng-pw-01\Documents\2018 Projects\18-061.01 West 72nd Ave - Swadley to Kipling\180611\CP3\Utilities\Clanton\Drawings\13046 UPRR DES_LightingPlan113.dgn
2/3/2022
CDOT-PDFHighQuality_V8i.pltcfg CDOT-ColorPenTable.tbl

Know what's **below.**
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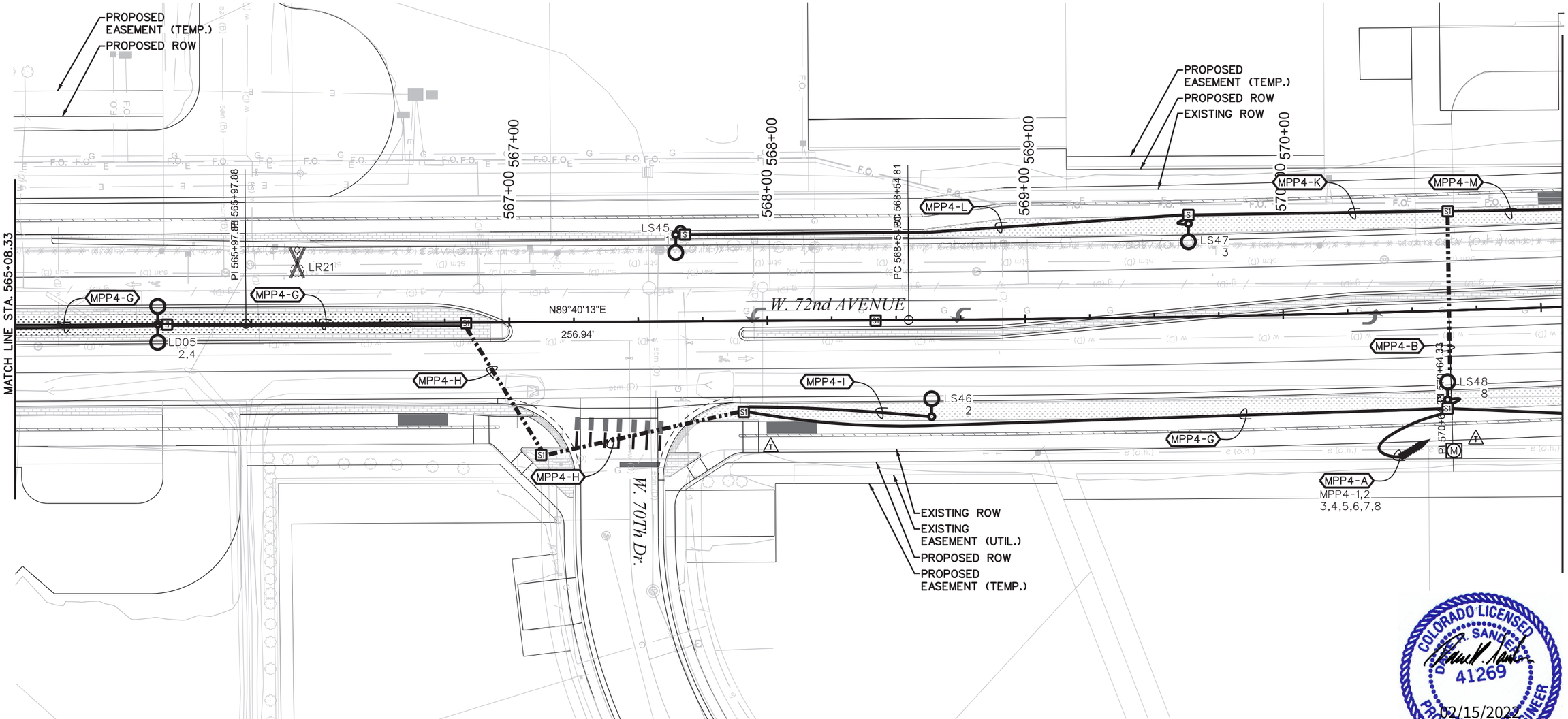

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PROFESSIONAL ENGINEER
02/15/2022

Print Date: 2/3/2022	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 3
Drawing File Name: 13046 UPRR DES_LightingPlanI14.dgn	Date:	Comments	Init.	No Revisions:	LIGHTING PLANS
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	Designer: BN / Detailer: TB / Sheet Subset: LIGHTING / Structure Numbers / Subset Sheets: LE14 of 23
Unit Information Unit Leader Initials				Void:	Project No./Code
CLANTON & ASSOCIATES — LIGHTING DESIGN AND ENGINEERING, 4696 NAUTILUS COURT SOUTH STE. 102, BOULDER, CO 80301, 303-530-7229				CITY OF ARVADA	Sheet Number 336

Travis 1:14:59 PM pw:\\mullereng-pw.bentley.com:mullereng-pw-01\Documents\2018 Projects\18-061.01 West 72nd Ave - Swadley to Kipling\18061\CP3\Utilities\Clanton\Drawings\13046 UPRR DES_LightingPlanI14.dgn
2/3/2022
CDOT-PDFHighQuality_V8i.pltcfg
CDOT-ColorPenTable.tbl

Know what's **below.**
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N

0' 20' 40' 80'

EXISTING EASEMENT (UTIL.)
EXISTING ROW
PROPOSED EASEMENT (TEMP.)

Lee Court

W. 72nd AVENUE

MATCH LINE STA. 571+08.36

MATCH LINE STA. 576+83.28

MPP4-M
MPP4-N
MPP4-O
MPP4-P
MPP4-C
MPP4-D
MPP4-E
MPP4-F

572+00
573+00
574+00
575+00

PRC 572+78.78
PI 574+83.39

LS49 5
LS50 6
LS51 7
LS52 8
LS53 5
LS54 6

EXISTING ROW
EXISTING EASEMENT (UTIL.)
PROPOSED EASEMENT (TEMP.)

COLORADO LICENSED
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41269
PROFESSIONAL ENGINEER
02/15/2022

Print Date: 2/3/2022			
Drawing File Name: 13046 UPRR DES_LightingPlanI15.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 3

LIGHTING PLANS

Designer:	BN	Structure Numbers	
Detailer:	TB		
Sheet Subset:	LIGHTING	Subset Sheets:	LE15 of 23

Project No./Code	
Sheet Number	337

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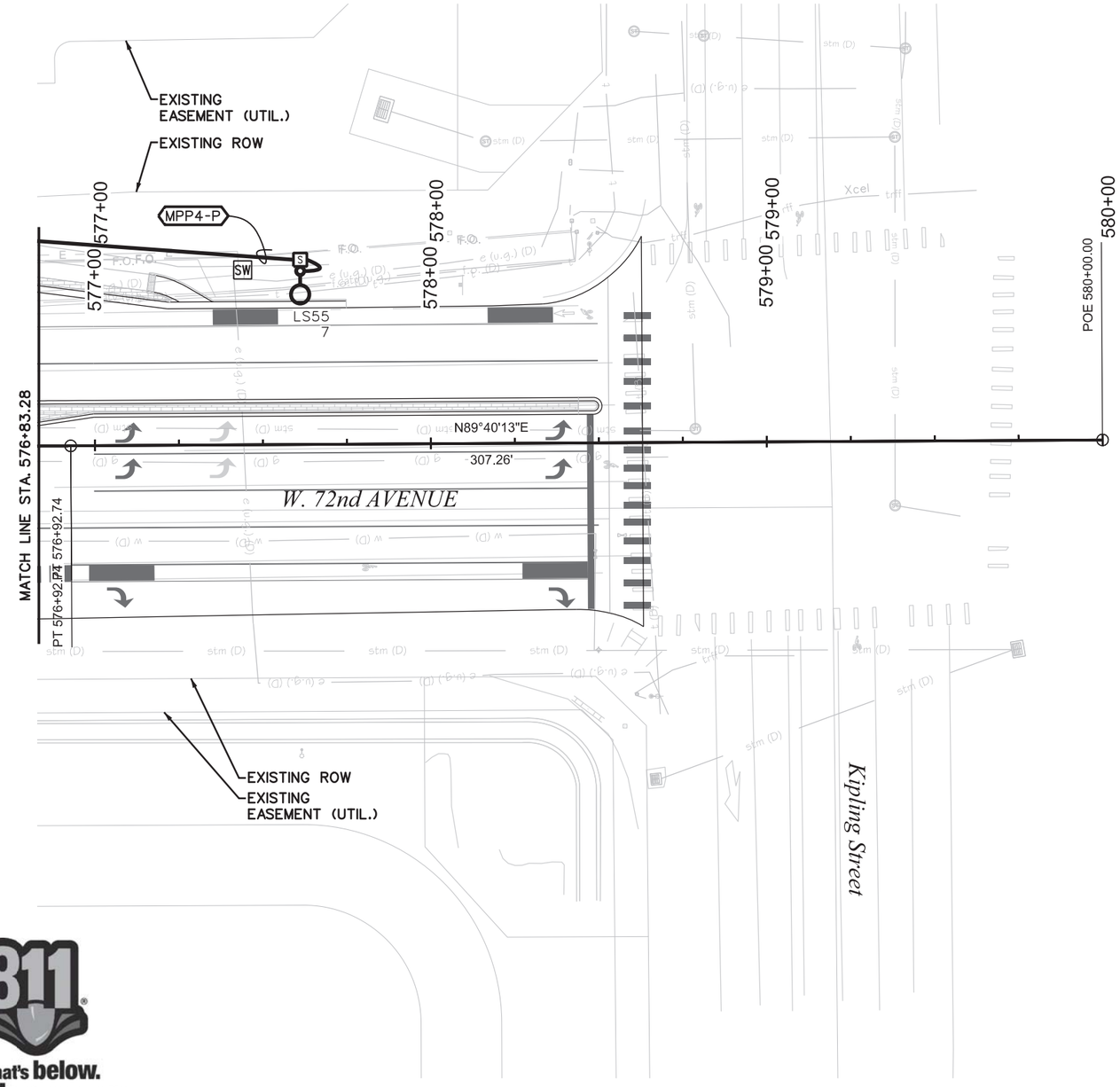

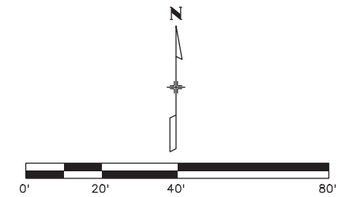

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DANIEL A. SANDERS
41269
PROFESSIONAL ENGINEER
02/15/2022

Print Date: 2/3/2022		Sheet Revisions			As Constructed
Drawing File Name: 13046 UPRR DES_LightingPlanl16.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:40	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
CLANTON & ASSOCIATES	LIGHTING DESIGN AND ENGINEERING 4699 NAUTILUS COURT SOUTH STE. 102 BOULDER, CO 80301 303.530.7229		CITY OF ARVADA		W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 3 LIGHTING PLANS

				Project No./Code
Designer:	BN	Structure Numbers		
Detailer:	TB			
Sheet Subset:	LIGHTING	Subset Sheets:	LE16 of 23	Sheet Number 338

Travis 1:15:16 PM pw:\\mullereng-pw.bentley.com:mullereng-pw-01\Documents\2018 Projects\18-061.01 West 72nd Ave - Swadley to Kipling\18061CP3\Utilities\Clanton\Drawings\13046 UPRR DES_LightingPlanl16.dgn
2/3/2022 CDOT-PDFHighQuality_V8i.pltcfg CDOT-ColorPenTable.tbl

Know what's below.
Call before you dig.

62+00
63+00
64+00
65+00
66+00

EXISTING ROW

LS59
11

MPP3-Y
MPP3-W
MPP3-X

LS61
11

LS60
9

MPP3-W

LS58
11

MPP3-V
LS57
9

MPP3-V

LR22
LS56
6

Oak Street
980.89'
N0 40'03"W

MATCHLINE 65+47.70, SHEET 9

EXISTING ROW
PROPOSED ROW
PROPOSED EASEMENT (TEMP.)
PROPOSED EASEMENT (UTIL.)

PC 0+81.61
1+00
PT 1+36.56
PI 1+11.10
2+00
E 2+00.00

0' 20' 40' 80'

COLORADO LICENSED
DAVID R. SANDELL
41269
02/15/2022
PROFESSIONAL ENGINEER

Print Date: 2/3/2022
Drawing File Name: 13046 UPRR DES_LightingPlanl17.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 3
LIGHTING PLANS

Designer: BN
Detailer: TB
Sheet Subset: LIGHTING
Structure Numbers
Subset Sheets: LE17 of 23

Project No./Code

Sheet Number 339

Travis 1:15:25 PM pw:\\mullerengr-pw.bentley.com:mullerengr-pw-01\Documents\2018 Projects\18-061.01 West 72nd Ave - Swadley to Kipling\18061\CP3\Utilities\Clanton\Drawings\
2/3/2022
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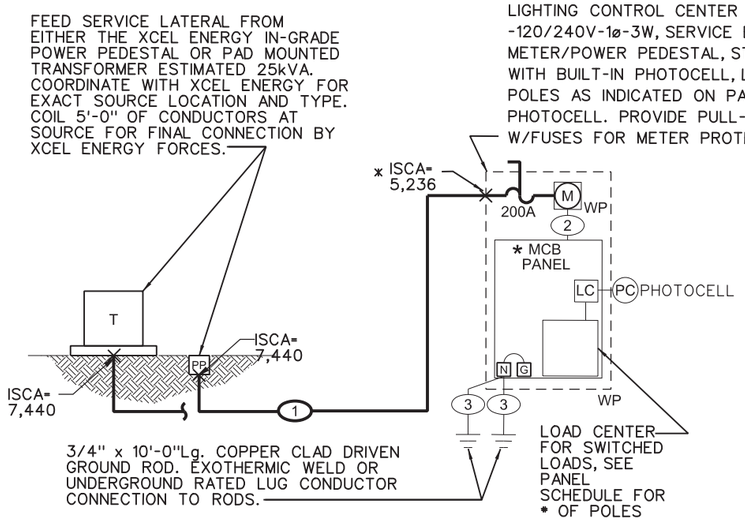
CDOT-ColorPenTable.tbl



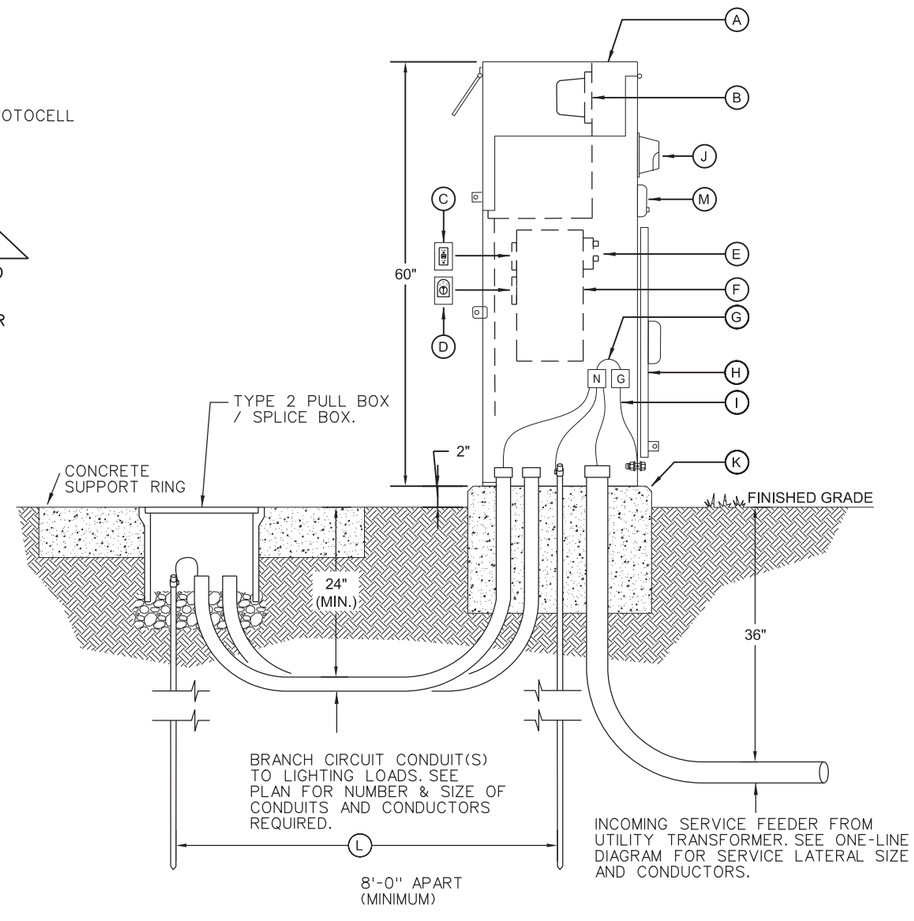
* FAULT CURRENT AFTER A MINIMUM OF 50'-0" OF #1 AWG COPPER CONDUCTORS. IF SERVICE LATERAL EXCEEDS 195 FEET THEN CONDUCTORS SHOULD BE CHANGED TO NEXT LARGER SIZE FOR VOLTAGE DROP PURPOSES.

FEEDER SCHEDULE

(1) (3#1 XHHW CU) 2" PVC CONDUIT.
(2) INTERNAL CONDUCTORS BY PANEL MANUFACTURER
(3) (1 #6 S.D.B.C.) 1/2"C

(1) ONE-LINE DIAGRAM

NOT TO SCALE



(2) MPP* PANEL DETAIL

NOT TO SCALE

CABINET COMPONENT LIST

(A) FULLY HINGED METER/TEST SECTION LOCKABLE COVER WITH HOLD OPEN ARM TO KEEP COVER FROM BLOWING SHUT PER XCEL ENERGY SPECIFICATION. COMBINATION ALL-IN-ONE COMMERCIAL METER POWER PEDESTAL IN A NEMA 3R STAINLESS STEEL ENCLOSURE.

(B) UTILITY METER INSIDE NEMA 3R ENCLOSURE. METER SHALL HAVE LEVER BYPASS AND INTERNAL LOCKING TAB ON METER COVER.

(C) GFCI MAINTENANCE RECEPTACLE FLUSH MOUNTED IN PANEL DEAD FRONT INSIDE OF THE NEMA 3R ENCLOSURE.

(D) HAND-OFF-AUTO SWITCH - 15A-2P, HOA SWITCH WITH LEGEND FLUSH MOUNTED IN PANEL DEAD FRONT INSIDE OF THE NEMA 3R ENCLOSURE.

(E) UTILITY TERMINATION LANDING LUGS.

(F) LOAD CENTERS WITH SERVICE MAIN AND BRANCH BREAKERS. SEE PROVIDE PANEL SCHEDULE FOR BREAKERS REQUIRED.

(G) PROVIDE NEUTRAL TO GROUND BONDING JUMPER.

(H) LIFT OFF SERVICE COVER WITH PAD LOCK HASP.

(I) CABINET GROUND BOND #6 BARE COPPER CONDUCTOR.

(J) NEMA 3R 120V PHOTOELECTRIC CONTROL WITH 3-PRONG TWIST-LOCK RECEPTACLE BASE WIRED THROUGH THE H.O.A. SWITCH. THE PHOTOELECTRIC CONTROL SHALL BE MOUNTED ON THE NORTH SIDE ON ENCLOSURE TO MINIMIZE THE SUN'S INTERFERENCE.

(K) REINFORCED CONCRETE (CLASS B) FOUNDATION PER STRUCTURAL ENGINEER LICENSED IN THE STATE OF COLORADO. MINIMUM 6" ABOVE GRADE, 3/4" CHAMFER ALL EXPOSED EDGES, 3" MINIMUM (6" MAXIMUM) OVERLAP ON ALL SIDES.

(L) 3/4" X 8'-0" Lg. COPPER CLAD DRIVEN GROUND ROD. EXOTHERMIC WELD OR UNDERGROUND RATED LUG CONNECT CONDUCTOR TO GROUND ROD. (2) REQUIRED - 8'-0" APART (MIN.).

(M) T-HANDLE, PULL-OUT FUSE HOLDER WITH FRN-R FUSES, METER DISCONNECT FOR METER PROTECTION PER XCEL ENERGY STANDARDS, COLD SEQUENCE METER, WEATHERPROOF COVER WITH TAB LOCKABLE.

TYPICAL CABINET REQUIREMENTS:

100AMP MCB,120/240V-1ø-3W STAINLESS STEEL, NEMA 3R, METER/ POWER PEDESTAL WITH SEPARATE SEALABLE AND LOCKABLE CUSTOMER SECTION WITH:

1. LOAD CENTER FOR ALWAYS ON LOADS THAT INCLUDE:
   - SERVICE ENTRANCE M.C.B. SIZE AS SHOWN ON THE PANEL SCHEDULE.
   - CONTROL POWER CIRCUIT BREAKER SIZE AS SHOWN ON THE PANEL SCHEDULE.
   - SWITCHED LOAD CENTER MAIN BREAKER SIZE AND QUANTITY AS SHOWN ON THE PANEL SCHEDULE.
   - BRANCH BREAKERS SIZE AND QUANTITY AS SHOWN ON THE PANEL SCHEDULE.
   - CIRCUIT DIRECTORY TO DOCUMENT CONFIGURATION IN POCKET ON HINGED DOOR.
   - MAINTENANCE RECEPTACLE FLUSH MOUNTED IN DEAD FRONT INSIDE ENCLOSURE.
2. CONTROL CIRCUIT INCLUDING:
   - PHOTOCELL RECEPTACLE, MOUNTED EXTERNALLY ON NEMA-3R ENCLOSURE.
   - ONE HAND-OFF-AUTO (HOA) SWITCH FLUSH MOUNTED IN DEAD FRONT.
   - ONE LIGHTING CONTACTOR CONTROLLING ONE LOAD CENTER IN THIS SECTION.
   - ONE 12-CIRCUIT LOAD CENTER PHOTOCELL ON/OFF CONTROLLED.
   - A CIRCUIT DIRECTORY TO DOCUMENT CONFIGURATION IN POCKET ON HINGED DOOR.

COLORADO LICENSED D. R. SANGER 41269 PROFESSIONAL ENGINEER
02/15/2022

Print Date: 2/3/2022	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_Lighting_Detail LE18.dgn	Date:	Comments	Init.	No Revisions:	LIGHTING PLANS ROADWAY LIGHTING DETAILS
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	Designer: BN / Detailer: MC / Structure Numbers
Unit Information Unit Leader Initials				Void:	Sheet Subset: LIGHTING / Subset Sheets: LE18 of 23
CLANTON & ASSOCIATES — LIGHTING DESIGN AND ENGINEERING, 4699 NAUTILUS COURT SOUTH STE. 102, BOULDER, CO 80301, 303-530-7229				CITY OF ARVADA	Project No./Code / Sheet Number 340

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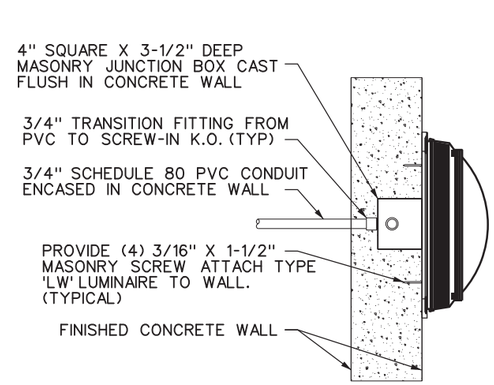
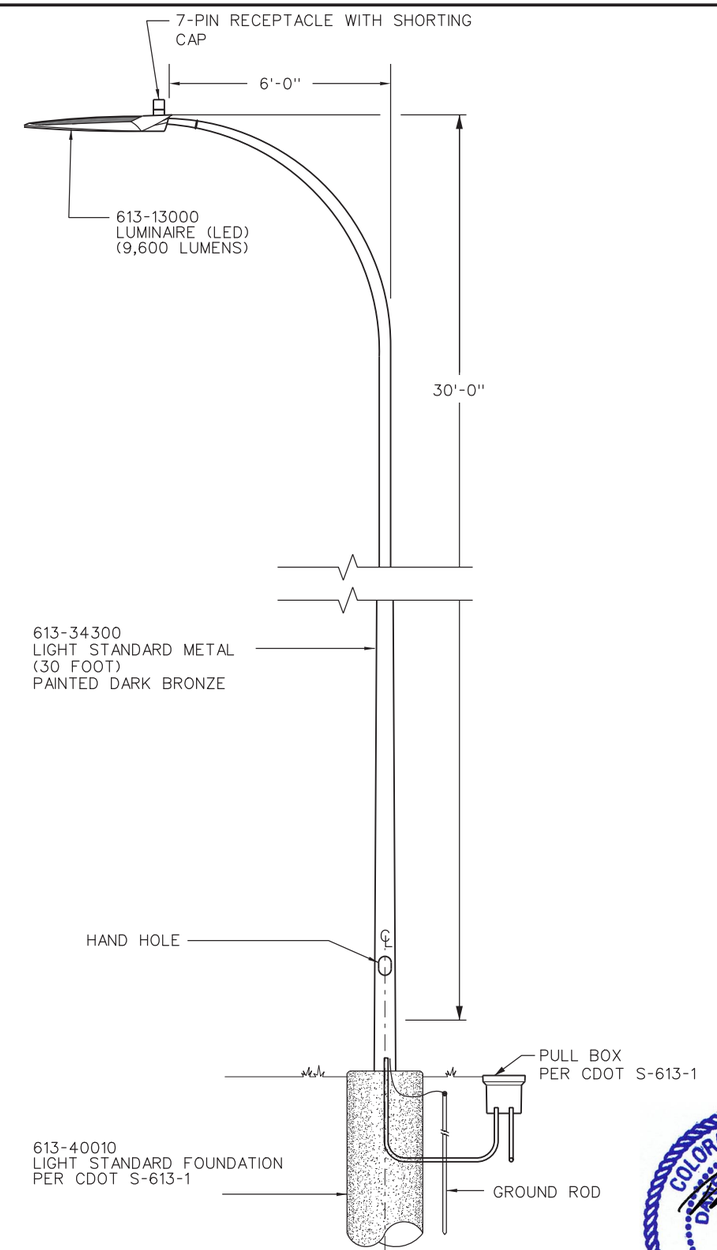


1 LE21 TYPICAL WALL MOUNT LUMINAIRE 'LW**'
NOT TO SCALE PLAN SYMBOL-



2 LE21 ROADWAY LIGHT STANDARD DETAIL
NOT TO SCALE CITY OF ARVADA LIGHT STANDARD

COLORADO LICENSED
DANIEL R. SANDERS
41269
PROFESSIONAL ENGINEER
02/15/2022

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2/3/2022 CDOT-PDFHighQuality_V8i.pltcfg CDOT-ColorPenTable.tbl

Print Date:	2/3/2022
Drawing File Name:	18061_Lighting_Detail LE19.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80301
303-530-7229

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
LIGHTING PLANS
ROADWAY LIGHTING DETAILS

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE19 of 23

Project No./Code

Sheet Number 341

MOUNTING: SURFACE

PANEL "MPP1"

120/240V-1PH-3W

NEMA 3R STAINLESS STEEL ENCLOSURE, SERVICE ENTRANCE RATED

FEEDER: BOTTOM — Minimum A.I.C.= 10,000 AMPS — 100 AMPS MAIN BREAKER CKT#P1,P3

BRANCH BREAKER

				LEFT PHASE LOAD			RIGHT PHASE LOAD					
DESCRIPTION	Size	P	Ckt#	L1	L2		L1	L2	Ckt#	Size	P	DESCRIPTION
SERVICE ENTRANCE	100	/	P1	5995			1015		P2	60	/	BOTTOM SECTION MCB
MAIN CIRCUIT BREAKER	/	2	P3		870			870	P4	/	2	PC ON / TS OFF
MPP1 MAINTENANCE RECEPT.	15	1	P5	180			4800		P6	50	1	TRAFFIC SIGNAL CABINET
SPACE ONLY			P7						P8	20	1	SPARE
SPACE ONLY			P9						P10			SPACE ONLY
[BOTTOM SECTION IS ON/OFF CONTROL WITH BUILT-IN 60A 2-POLE CONTACTOR, FED FROM THE TOP SECTION BREAKER CKT#P2,P4] [CONTACTOR COIL IS OPERATED BY BUILT-IN PHOTOCELL (ON/OFF CONTROL) W/HOA SWITCH]												
(4) LTS SOUTH SIDE	20	1	1	580			435		2	20	1	(3) LTS NORTH SIDE
(3) LTS SOUTH SIDE	20	1	3		435			435	4	20	1	(3) LTS NORTH SIDE
SPARE	20	1	5						6	20	1	SPARE
SPARE	20	1	7						8	20	1	SPARE
SPARE	20	1	9						10	20	1	SPARE
SPACE ONLY			11						12			SPACE ONLY
SPACE ONLY			13						14			SPACE ONLY
SPACE ONLY			15						16			SPACE ONLY
SPACE ONLY			17						18			SPACE ONLY
				760	435		5235	435				
				5995	870	Total Connected V.A.						
					6865	=Total Connected VA Both Phases						

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS	
LIGHTING	1885 VA	1.25	2.36		
RECEPTACLES (1ST 10000)	180 VA	1.00	0.18		180 VA=Total Receptacle Load
RECEPTACLES (REMAINING)	VA	0.50	0.00		
MOTOR (LARGEST)	0 VA	1.25	0.00		
MOTORS (REMAINING)	0 VA	1.00	0.00		
ELECTRICAL HEATING	0 VA	1.25	0.00		
ELECTRICAL MISC.	0 VA	1.00	0.00		
TOTAL ESTIMATED LOAD	2065 VA		2.54	11	

MOUNTING: SURFACE

PANEL "MPP2"

120/240V-1PH-3W

NEMA 3R STAINLESS STEEL ENCLOSURE, SERVICE ENTRANCE RATED

FEEDER: BOTTOM — Minimum A.I.C.= 10,000 AMPS — 100 AMPS MAIN BREAKER CKT#P1,P3

BRANCH BREAKER

				LEFT PHASE LOAD			RIGHT PHASE LOAD					
DESCRIPTION	Size	P	Ckt#	L1	L2		L1	L2	Ckt#	Size	P	DESCRIPTION
SERVICE ENTRANCE	100	/	P1	6140			1160		P2	60	/	BOTTOM SECTION MCB
MAIN CIRCUIT BREAKER	/	2	P3		1305			1305	P4	/	2	PC ON / TS OFF
MPP2 MAINTENANCE RECEPT.	15	1	P5	180			4800		P6	50	1	TRAFFIC SIGNAL CABINET
SPACE ONLY			P7						P8	20	1	SPARE
SPACE ONLY			P9						P10			SPACE ONLY
[BOTTOM SECTION IS ON/OFF CONTROL WITH BUILT-IN 60A 2-POLE CONTACTOR, FED FROM THE TOP SECTION BREAKER CKT#P2,P4] [CONTACTOR COIL IS OPERATED BY BUILT-IN PHOTOCELL (ON/OFF CONTROL) W/HOA SWITCH]												
(2) LTS NORTH EAST	20	1	1	290			290		2	20	1	(2) LTS SOUTH WEST
(2) LTS NORTH EAST	20	1	3		290			290	4	20	1	(2) LTS SOUTH WEST
(2) LTS NORTH WEST	20	1	5	290			290		6	20	1	(2) LTS SOUTH EAST
(2) LTS NORTH WEST	20	1	7		290			435	8	20	1	(3) LTS SOUTH EAST
SPARE	20	1	9						10	20	1	SPARE
SPACE ONLY			11						12			SPACE ONLY
SPACE ONLY			13						14			SPACE ONLY
SPACE ONLY			15						16			SPACE ONLY
SPACE ONLY			17						18			SPACE ONLY
				760	580		5380	725				
				6140	1305	Total Connected V.A.						
					7445	=Total Connected VA Both Phases						

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS	
LIGHTING	2465 VA	1.25	3.08		
RECEPTACLES (1ST 10000)	180 VA	1.00	0.18		180 VA=Total Receptacle Load
RECEPTACLES (REMAINING)	VA	0.50	0.00		
MOTOR (LARGEST)	0 VA	1.25	0.00		
MOTORS (REMAINING)	0 VA	1.00	0.00		
ELECTRICAL HEATING	0 VA	1.25	0.00		
ELECTRICAL MISC.	0 VA	1.00	0.00		
TOTAL ESTIMATED LOAD	2645 VA		3.26	14	

MOUNTING. SURFACE

PANEL "MPP3"

120/240V-1PH-3W

NEMA 3R STAINLESS STEEL ENCLOSURE, SERVICE ENTRANCE RATED

FEEDER: BOTTOM — Minimum A.I.C.= 10,000 AMPS — 100 AMPS MAIN BREAKER CKT#P1,P3

BRANCH BREAKER

				LEFT PHASE LOAD			RIGHT PHASE LOAD					
DESCRIPTION	Size	P	Ckt#	L1	L2		L1	L2	Ckt#	Size	P	DESCRIPTION
SERVICE ENTRANCE	100	/	P1	6550			1570		P2	60	/	BOTTOM SECTION MCB
MAIN CIRCUIT BREAKER	/	2	P3		1570			1570	P4	/	2	PC ON / TS OFF
MPP3 MAINTENANCE RECEPT.	15	1	P5	180			4800		P6	50	1	TRAFFIC SIGNAL CABINET
SPACE ONLY			P7						P8	20	1	SPARE
SPACE ONLY			P9						P10			SPACE ONLY
[BOTTOM SECTION IS ON/OFF CONTROL WITH BUILT-IN 60A 2-POLE CONTACTOR, FED FROM THE TOP SECTION BREAKER CKT#P2,P4] [CONTACTOR COIL IS OPERATED BY BUILT-IN PHOTOCELL (ON/OFF CONTROL) W/HOA SWITCH]												
NORTH 72ND STREET LIGHTS (3)	20	1	1	435			290		2	20	1	TRAFFIC SIGNAL LIGHTS (2)
NORTH 72ND STREET LIGHTS (2)	20	1	3		290			290	4	20	1	TRAFFIC SIGNAL LIGHTS (2)
N RR UNDERDECK LIGHTS (2)	20	1	5	120			435		6	20	1	SOUTH 72ND STREET LIGHTS (3)
S RR UNDERDECK LIGHTS (2)	20	1	7		120			435	8	20	1	SOUTH 72ND STREET LIGHTS (3)
OAK ST LIGHTING (2)	20	1	9	290					10	20	1	SPARE
OAK ST LIGHTING (3)	20	1	11		435				12	20	1	SPARE
SPACE ONLY			13						14			SPACE ONLY
SPACE ONLY			15						16			SPACE ONLY
SPACE ONLY			17						18			SPACE ONLY
				1025	845		5525	725				
				6550	1570	Total Connected V.A.						
					8120	=Total Connected VA Both Phases						

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS	
LIGHTING	3140 VA	1.25	3.93		
RECEPTACLES (1ST 10000)	180 VA	1.00	0.18		180 VA=Total Receptacle Load
RECEPTACLES (REMAINING)	VA	0.50	0.00		
MOTOR (LARGEST)	0 VA	1.25	0.00		
MOTORS (REMAINING)	0 VA	1.00	0.00		
ELECTRICAL HEATING	0 VA	1.25	0.00		
ELECTRICAL MISC.	0 VA	1.00	0.00		
TOTAL ESTIMATED LOAD	3320 VA		4.11	17	

MOUNTING. SURFACE

PANEL "MPP4"

120/240V-1PH-3W

NEMA 3R STAINLESS STEEL ENCLOSURE, SERVICE ENTRANCE RATED

FEEDER: BOTTOM — Minimum A.I.C.= 10,000 AMPS — 100 AMPS MAIN BREAKER CKT#P1,P3

BRANCH BREAKER

				LEFT PHASE LOAD			RIGHT PHASE LOAD					
DESCRIPTION	Size	P	Ckt#	L1	L2		L1	L2	Ckt#	Size	P	DESCRIPTION
SERVICE ENTRANCE	100	/	P1	1340			1160		P2	60	/	BOTTOM SECTION MCB
MAIN CIRCUIT BREAKER	/	2	P3		1015			1015	P4	/	2	PC ON / TS OFF
MPP4 MAINTENANCE RECEPT.	15	1	P5	180					P6	20	1	SPARE
SPACE ONLY			P7						P8	20	1	SPARE
SPACE ONLY			P9						P10			SPACE ONLY
[BOTTOM SECTION IS ON/OFF CONTROL WITH BUILT-IN 60A 2-POLE CONTACTOR, FED FROM THE TOP SECTION BREAKER CKT#P2,P4] [CONTACTOR COIL IS OPERATED BY BUILT-IN PHOTOCELL (ON/OFF CONTROL) W/HOA SWITCH]												
NORTH 72ND STREET LIGHTS (2)	20	1	1	290			290		2	20	1	SOUTH 72ND STREET LIGHTS (2)
NORTH 72ND STREET LIGHTS (2)	20	1	3		290			145	4	20	1	SOUTH 72ND STREET LIGHTS (1)
NORTH 72ND STREET LIGHTS (2)	20	1	5	290			290		6	20	1	SOUTH 72ND STREET LIGHTS (2)
NORTH 72ND STREET LIGHTS (2)	20	1	7		290			290	8	20	1	SOUTH 72ND STREET LIGHTS (2)
SPARE	20	1	9						10	20	1	SPARE
SPARE	20	1	11						12	20	1	SPARE
SPACE ONLY			13						14			SPACE ONLY
SPACE ONLY			15						16			SPACE ONLY
SPACE ONLY			17						18			SPACE ONLY
				760	580		580	435				
				1340	1015	Total Connected V.A.						
					2355	=Total Connected VA Both Phases						

LOAD	CONNECTED	D.FACT.	Est. KVA	AMPS	
LIGHTING	2175 VA	1.25	2.72		
RECEPTACLES (1ST 10000)	180 VA	1.00	0.18		180 VA=Total Receptacle Lead
RECEPTACLES (REMAINING)	VA	0.50	0.00		
MOTOR (LARGEST)	0 VA	1.25	0.00		
MOTORS (REMAINING)	0 VA	1.00	0.00		
ELECTRICAL HEATING	0 VA	1.25	0.00		
ELECTRICAL MISC.	0 VA	1.00	0.00		
TOTAL ESTIMATED LOAD	2355 VA		2.90	12	

COLORADO LICENSED — DAVID A. SANDEL — 41269 — PROFESSIONAL ENGINEER — 02/15/2022

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Print Date:	2/3/2022
Drawing File Name:	18061_Lighting_Detail LE20.dgn
Horiz. Scale:	1:40
Vert. Scale:	As Noted
Unit Information	Unit Leader Initials

CLANTON & ASSOCIATES

LIGHTING DESIGN AND ENGINEERING
4699 NAUTILUS COURT SOUTH STE. 102
BOULDER, CO 80301
303-530-7229

Sheet Revisions

Date:	Comments	Init.

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As Constructed

No Revisions:

Revised:

Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LIGHTING PLANS
ROADWAY LIGHTING SCHEDULES

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE20 of 23

Project No./Code

Sheet Number 342

MPP1 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
MPP1-A	MPP1-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP1-2	120-HOT,NEU	2#6-THWN CU	BLK,WHT	
	MPP1-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP1-4	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP1-6	120-HOT,NEU	2#3-THWN CU	BLK,WHT	
	GROUND	120/240V-GND	1#3-THWN CU	GREEN	
MPP1-B	MPP1-2	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP1-4	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-C	MPP1-4	120-HOT,NEU	2#6-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-D	MPP1-2	120-HOT,NEU	2#6-THWN CU	BLK,WHT	3" HDPE BORE 48" BELOW GRADE
	MPP1-4	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP1-6	120-HOT,NEU	2#3-THWN CU	BLK,WHT	
	GROUND	120/240V-GND	1#3-THWN CU	GREEN	
MPP1-E	MPP1-2	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-F	MPP1-2	120-HOT,NEU	2#6-THWN CU	BLK,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-G	MPP1-4	120-HOT,NEU	2#6-THWN CU	RED,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-H	MPP1-6	120-HOT,NEU	2#3-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#3-THWN CU	GREEN	
MPP1-I	MPP1-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	3" HDPE BORE 48" BELOW GRADE
	MPP1-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-J	MPP1-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP1-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-K	MPP1-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-L	MPP1-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-M	MPP1-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	3" HDPE BORE 48" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-N	MPP1-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-O	MPP1-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP1-P	EMPTY CONDUIT				3" HDPE BORE 48" BELOW GRADE
MPP1-Q	MPP1-5	120-HOT,NEU	2#10-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP1-7	120-HOT,NEU	2#10-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP1-R	MPP1-5	120-HOT,NEU	2#10-THWN CU	BLK,WHT	IN 2" PVC TRAFFIC SIGNAL CONDUIT
	MPP1-7	120-HOT,NEU	2#10-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP1-S	MPP1-5	120-HOT,NEU	2#10-THWN CU	BLK,WHT	IN 2" PVC TRAFFIC SIGNAL CONDUIT
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP1-T	MPP1-7	120-HOT,NEU	2#10-THWN CU	RED,WHT	IN 2" PVC TRAFFIC SIGNAL CONDUIT
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	

MPP2 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
MPP2-A	MPP2-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	3" PVC 24" BELOW GRADE
	MPP2-2	120-HOT,NEU	2#4-THWN CU	BLK,WHT	
	MPP2-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP2-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP2-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP2-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP2-10	120-HOT,NEU	2#4-THWN CU	BLK,WHT	
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	

MPP2 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
MPP2-B	MPP2-2	120-HOT,NEU	2#4-THWN CU	BLK,WHT	3" HDPE BORE 48" BELOW GRADE
	MPP2-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	
MPP2-C	MPP2-2	120-HOT,NEU	2#4-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP2-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	
MPP2-D	MPP2-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP2-E	MPP2-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	3" HDPE BORE 48" BELOW GRADE
	MPP2-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP2-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP2-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP2-F	MPP2-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	3" HDPE BORE 48" BELOW GRADE
	MPP2-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP2-G	MPP2-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP2-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP2-H	MPP2-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP2-I	MPP2-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP2-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP2-J	MPP2-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	3" HDPE BORE 48" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP2-K	MPP2-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP2-L	MPP2-6	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP2-8	120-HOT,NEU	2#4-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	
MPP2-M	MPP2-8	120-HOT,NEU	2#4-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	
MPP2-N	MPP2-6	120-HOT,NEU	2#6-THWN CU	BLK,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP2-O	MPP2-8	120-HOT,NEU	2#4-THWN CU	RED,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	
MPP2-P	MPP2-10	120-HOT,NEU	2#4-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	
MPP2-Q	MPP2-2	120-HOT,NEU	2#4-THWN CU	BLK,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#4-THWN CU	GREEN	
MPP2-R	MPP2-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP2-S	MPP2-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP2-T	MPP2-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP2-U	MPP2-1	120-HOT,NEU	2#6-THWN CU	BLK,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP2-V	MPP2-3	120-HOT,NEU	2#6-THWN CU	RED,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP2-W	MPP2-9	120-HOT,NEU	2#10-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP2-11	120-HOT,NEU	2#10-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP2-X	MPP2-9	120-HOT,NEU	2#10-THWN CU	BLK,WHT	IN 2" PVC TRAFFIC SIGNAL CONDUIT
	MPP2-11	120-HOT,NEU	2#10-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP2-Y	MPP2-9	120-HOT,NEU	2#10-THWN CU	BLK,WHT	IN 2" PVC TRAFFIC SIGNAL CONDUIT
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP2-Z	MPP2-11	120-HOT,NEU	2#10-THWN CU	RED,WHT	IN 2" PVC TRAFFIC SIGNAL CONDUIT
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	

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2/3/2022
CDOT-ColorPenTable.tbl
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Print Date:	2/3/2022		
Drawing File Name:	18061_Lighting_Detail LE21.dgn		
Horiz. Scale:	1:40	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

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LIGHTING DESIGN AND ENGINEERING
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Sheet Revisions		
Date:	Comments	Init.

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

LIGHTING PLANS
ROADWAY LIGHTING SCHEDULES

Designer:	BN	Structure Numbers	
Detailer:	MC		
Sheet Subset:	LIGHTING	Subset Sheets:	LE21 of 23

Project No./Code

Sheet Number 343

MPP3 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
MPP3-A	MPP3-P6	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-3	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP3-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP3-5	120-HOT,NEU	2#6-THWN CU	BLK,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
	MPP3-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-7	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP3-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP3-9	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP3-B	MPP3-P6	120-HOT,NEU	2#2/0-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#1-THWN CU	GREEN	
MPP3-C	MPP3-P6	120-HOT,NEU	2#2/0-THWN CU	BLK,WHT	3" HDPE 48" BELOW ROADWAY
	MPP3-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#1-THWN CU	GREEN	
MPP3-D	MPP3-P6	120-HOT,NEU	2#6-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP3-E	MPP3-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-F	MPP3-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	TRAFFIC SIGNAL CONDUIT
	MPP3-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-G	MPP3-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	TRAFFIC SIGNAL CONDUIT
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-H	MPP3-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	TRAFFIC SIGNAL CONDUIT
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-I	MPP3-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-3	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-J	MPP3-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-K	MPP3-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-3	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP3-5	120-HOT,NEU	2#6-THWN CU	BLK,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP3-L	MPP3-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	3" HDPE 48" BELOW GRADE
	MPP3-3	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-M	MPP3-5	120-HOT,NEU	2#10-THWN CU	BLK,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP3-N	MPP3-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-7	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP3-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP3-9	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	

MPP3 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
MPP3-O	MPP3-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-7	120-HOT,NEU	2#6-THWN CU	RED,WHT	
	MPP3-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP3-P	MPP3-7	120-HOT,NEU	2#6-THWN CU	RED,WHT	3" HDPE 48" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP3-Q	MPP3-6	120-HOT,NEU	2#6-THWN CU	RED,WHT	3" HDPE 48" BELOW GRADE
	MPP3-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP3-R	MPP3-7	120-HOT,NEU	2#6-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#6-THWN CU	GREEN	
MPP3-S	MPP3-7	120-HOT,NEU	2#10-THWN CU	RED,WHT	1" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#10-THWN CU	GREEN	
MPP3-T	MPP3-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP3-9	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-U	MPP3-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-9	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-V	MPP3-9	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-W	MPP3-9	120-HOT,NEU	2#8-THWN CU	BLK,WHT	3" HDPE 48" BELOW ROADWAY
	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-X	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP3-Y	MPP3-11	120-HOT,NEU	2#8-THWN CU	RED,WHT	3" HDPE 48" BELOW ROADWAY
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	

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Print Date: 2/3/2022
Drawing File Name: 18061_Lighting_Detail LE22.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

CLANTON & ASSOCIATES
LIGHTING DESIGN AND ENGINEERING
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Sheet Revisions		
Date:	Comments	Init.

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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
LIGHTING PLANS
ROADWAY LIGHTING SCHEDULES

Designer: BN
Detailer: MC
Sheet Subset: LIGHTING
Structure Numbers:
Subset Sheets: LE22 of 23

Project No./Code:

Sheet Number 344

MPP4 FEEDER SCHEDULE

KEY	CIRCUIT NUMBERS	VOLTAGE	WIRE SIZE	COLOR	CONDUIT SIZE & TYPE
MPP4-A	MPP4-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP4-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP4-3	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP4-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP4-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP4-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP4-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP4-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-B	MPP4-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	3" HDPE 48" BELOW ROADWAY
	MPP4-3	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	MPP4-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	
	MPP4-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-C	MPP4-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP4-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-D	MPP4-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-E	MPP4-8	120-HOT,NEU	2#8-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-F	MPP4-6	120-HOT,NEU	2#8-THWN CU	BLK,WHT	3" HDPE 48" BELOW ROADWAY
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-G	MPP4-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP4-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-H	MPP4-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	3" HDPE 48" BELOW ROADWAY
	MPP4-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-I	MPP4-2	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-J	MPP4-4	120-HOT,NEU	2#8-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-K	MPP4-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP4-3	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-L	MPP4-1	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-M	MPP4-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	MPP4-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-N	MPP4-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	3" HDPE 48" BELOW ROADWAY
	MPP4-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-O	MPP4-5	120-HOT,NEU	2#8-THWN CU	BLK,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	
MPP4-P	MPP4-7	120-HOT,NEU	2#8-THWN CU	RED,WHT	2" PVC 24" BELOW GRADE
	GROUND	120/240V-GND	1#8-THWN CU	GREEN	

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2/3/2022 CDOT-PDFHighQuality_V6i.pltcfg CDOT-ColorPenTable.tbl

Print Date: 2/3/2022	Sheet Revisions		
Drawing File Name: 18061_Lighting_Detail LE23.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	LIGHTING PLANS ROADWAY LIGHTING SCHEDULES			
Revised:	Designer: BN	Structure Numbers		
Void:	Detailer: MC			Sheet Number 345
	Sheet Subset: LIGHTING	Subset Sheets: LE23 of 23		

TABULATION OF PAVEMENT MARKINGS

LOCATION	STATION TO STATION	PAVEMENT TYPE	1110 SERIES HIGH BUILD WATERBORNE ACRYLIC TRAFFIC PAINT				PREFORMED THERMOPLASTIC BURN DOWN (SF)		PREFORMED THERMOPLASTIC BURN DOWN (SF)			
			EDGE	CENTERLINE		CHANNELIZING	LANE	DOTTED				
			WHITE SOLID	DOUBLE YELLOW SOLID	YELLOW SOLID BROKEN	WHITE SOLID	WHITE BROKEN	LANE DROP	WORD - SYMBOL	XWALK - STOPLINE	BIKE SYMBOL /XWALK - (GREEN)	WHEELCHAIR SYMBOL (BLUE)
			4 INCH	4 INCH	4 INCH	6 INCH	4 INCH	6 INCH				
72nd Ave	517+66 TO 525+92	New Asphalt	640	827		505	832		230		488	
Simms Intersection	525+92 TO 527+00	New Asphalt								548	102	
Simms St	20+50 TO 25+35	New Asphalt	2226	379	100	488		330	88		246	28
Simms St	26+60 TO 29+25	New Asphalt	515	266		300			95		164	7
72nd Ave	527+00 TO 540+00	New Asphalt				903	2564		215	78	652	
Quail Intersection	540+00 TO 541+00	New Asphalt								254	42	
Quail Street	40+55 TO 43+50	New Asphalt	250	413		295			62			
72nd Ave	541+00 TO 552+20	New Asphalt				155	2250		91		574	
Oak Intersection	552+20 TO 553+26	New Asphalt								296	90	
Oak St	60+00 TO 66+67	New Asphalt	968	776		489		67	146	163	658	
Oak St	67+75 TO 69+75	New Asphalt		175		170			16			
		TOTAL (LF)	4599	2836	100	3305	5646	397				
		TOTAL (SF)					470.50	39.70	943.00	1339.00	3016.00	35.00
		TOTAL (GAL)	18.04	22.24	0.49	19.44						

NOTES: FOR DETAILS OF PAVEMENT MARKING LINES AND LINE PLACEMENT, SEE STANDARD S-627-1.
CONSULT WITH PROJECT ENGINEER FOR APPROVAL OF STRIPE TYPE PRIOR TO PLACING FINAL PAVEMENT MARKINGS.
IT IS ESTIMATED THAT THE REMOVAL OF PAVEMENT MARKING QUANTITY IS 9,000 SF.

SUMMARY OF PAVEMENT MARKING QUANTITIES

	1110 SERIES HIGH BUILD WATERBORNE ACRYLIC TRAFFIC PAINT (GAL)		PREFORMED THERMOPLASTIC BURN DOWN (SF)	PREFORMED THERMOPLASTIC BURN DOWN (SF)			
	YELLOW	WHITE		WORD - SYMBOL	XWALK - STOPLINE	BIKE XWALK - GREEN	WHEELCHAIR SYMBOL - BLUE
PROJECT TOTALS	22.73	37.48	511.00	943.00	1339.00	3016.00	35.00
	61.00						

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
TABULATION OF PAVEMENT MARKINGS

Designer: AJL
Detailer: SAD
Sheet Subset: SIGNING
Structure Numbers
Subset Sheets: 1 of 1

Project No./Code

Sheet Number 346

TABULATION OF SIGNS

SIGN NO.	STATION	LOCATION	SIDE	DIRECTION	SIGN CODE	SIGN PANEL SIZE	BACKGROUND COLOR	LEGEND	REMOVAL OF GROUND SIGN	REMOVAL OF SIGN PANEL	SIGN PANEL	STEEL SIGN POST (1.75 X 1.75 TUBING)	SIGN SUPPORT	
											CLASS I		2" x 2" STEEL SLEEVE	3" PVC SLEEVE
						W" x H"			EA	EA	SF	LF	LF	EA
1	20+79	Simms St	LT	NB	R4-4	36 x 30	WHITE	BEGIN RIGHT TURN LANE YIELD TO BIKES			7.50	11	3.0	
2 A	21+70	Simms St	RT	NB				BIKES MERGE WITH TRAFFIC	1					
2 B	21+70	Simms St	RT	NB				BIKE LANE (SPECIAL)						
3	22+46	Simms St	RT	NB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	
4	24+09	Simms St	RT	NB				RIGHT LANE MUST TURN RIGHT	1					
5	24+36	Church	LT	N/A	R7-8	12 x 18	WHITE	RESERVED PARKING				10	3.0	1.0
6	24+51	Church	LT	N/A	R7-8	12 x 18	WHITE	RESERVED PARKING				10	3.0	1.0
7	24+60	Church	LT	N/A	R7-8	12 x 18	WHITE	RESERVED PARKING				10	3.0	1.0
8 A	24+73	Simms St	LT	SB	R2-1(35)	30 x 36	WHITE	SPEED LIMIT 35			7.50	11	3.0	
8 B	24+73	Simms St	LT	SB	R3-17	24 x 18	WHITE	BIKE LANE			3.00			
8 C	24+73	Simms St	LT	SB				AHEAD		1				
9	24+77	Church	LT	N/A	R7-8	12 x 18	WHITE	RESERVED PARKING				10	3.0	1.0
10	25+18	Simms St	RT	NB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	
11	25+26	Simms St	RT	NB				YIELD	1					
12	26+81	Simms St	LT	SB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	1.0
13	28+13	Simms St	LT	SB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	1.0
14 A	28+42	Simms St	LT	SB				BIKES MERGE WITH TRAFFIC	1					
14 B	28+42	Simms St	LT	SB				BIKE LANE (SPECIAL)						
15 A	29+36	Simms St	LT	SB				BICYCLE/PEDESTRIAN	1					
15 B	29+36	Simms St	LT	SB				AHEAD						
16	29+36	Simms St	LT	NB	R4-1	24 x 30	WHITE	BIKES USE TRAIL			5.00	11	3.0	1.0
17	40+32	Quail Street	LT	SB				STOP HERE ON RED		1				
18	40+75	Quail Street	LT	SB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	1.0
19	40+94	Quail Street	RT	NB	R2-1(30)	30 x 36	WHITE	SPEED LIMIT 30	1		7.50	11	3.0	
20	41+47	Quail Street	RT	NB	R8-3A	24 x 30	WHITE	NO PARKING	1		5.00	11	3.0	
21	42+16	Quail Street	RT	NB	R8-3A	24 x 30	WHITE	NO PARKING	1		5.00	11	3.0	
22 A	43+06	Quail Street	RT	NB	S1-1	36 x 36	FL YELLOW	SCHOOL	1		9.00	10	3.0	
22 B	43+06	Quail Street	RT	NB	R3-17A	24 x 8	FL YELLOW	AHEAD			1.33			
22 C	43+06	Quail Street	RT	NB	R8-3A	24 x 30	WHITE	NO PARKING			5.00			
23	43+31	Quail Street	LT	SB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	
24 A	61+54	Oak Street	RT	NB	W11-2	30 x 30	FL YELLOW	PEDESTRIAN			10.00	10	3.0	
24 B	61+54	Oak Street	RT	NB	W16-9p	24 x 12	YELLOW	AHEAD			11.00			
25	61+88	Oak Street	RT	NB	R4-4	36 x 30	WHITE	BEGIN RIGHT TURN LANE YIELD TO BIKES			7.50	11	3.0	
26 A	62+94	Oak Street	LT	SB	W11-2	36 x 36	FL YELLOW	PEDESTRIAN			9.00	10	3.0	
26 B	62+94	Oak Street	LT	SB	W11-2	36 x 36	FL YELLOW	PEDESTRIAN			9.00			
26 C	62+94	Oak Street	LT	SB	W16-7PL	24 x 12	YELLOW	DOWNWARD DIAGONAL ARROW LEFT			2.00			
26 D	62+94	Oak Street	LT	SB	W16-7PR	24 x 12	YELLOW	DOWNWARD DIAGONAL ARROW RIGHT			2.00			
27 A	63+00	Oak Street	RT	NB				SCHOOL	1					
27 B	63+00	Oak Street	RT	NB				DOWNWARD DIAGONAL ARROW LEFT						
28 A	63+11	Oak Street	RT	NB	W11-2	36 x 36	FL YELLOW	PEDESTRIAN			9.00	10	3.0	1.0
28 B	63+11	Oak Street	RT	NB	W11-2	36 x 36	FL YELLOW	PEDESTRIAN			9.00			
28 C	63+11	Oak Street	RT	NB	W16-7PL	24 x 12	YELLOW	DOWNWARD DIAGONAL ARROW LEFT			2.00			
28 D	63+11	Oak Street	RT	NB	W16-7PR	24 x 12	YELLOW	DOWNWARD DIAGONAL ARROW RIGHT			2.00			
29	63+62	Oak Street	RT	WB	R1-1	30 x 30	RED	STOP			6.25	11	3.0	
30 A	63+65	Oak Street	LT	SB				SCHOOL	1					
30 B	63+65	Oak Street	LT	SB				DOWNWARD DIAGONAL ARROW LEFT						
31	62+67	Oak Street	RT	NB				BIKE LANE ENDS (SPECIAL)	1					
32 A	64+37	Oak Street	RT	WB				STOP	1					
32 B	64+37	Oak Street	RT	WB				LEFT TURN ONLY						
32 C	64+37	Oak Street	RT	EB				DO NOT ENTER						
33 A	64+59	Oak Street	LT	SB	W11-2	30 x 30	FL YELLOW	PEDESTRIAN			6.25	11	3.0	
33 B	64+59	Oak Street	LT	SB	W16-9p	24 x 12	YELLOW	AHEAD			2.00			
34 A	64+69	Oak Street	RT	WB				STOP	1					
34 B	64+69	Oak Street	RT	WB				RIGHT TURN ONLY						

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Date:	Comments	Init.

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
TABULATION OF SIGNS

Designer: AJL
Detailer: SAD
Sheet Subset: SIGNING
Structure Numbers:
Subset Sheets: 1 of 3

Project No./Code

Sheet Number 347

TABULATION OF SIGNS

SIGN NO.	STATION	LOCATION	SIDE	DIRECTION	SIGN CODE	SIGN PANEL SIZE	BACKGROUND COLOR	LEGEND	REMOVAL OF GROUND SIGN	REMOVAL OF SIGN PANEL	SIGN PANEL	STEEL SIGN POST (1.75 X 1.75 TUBING)	SIGN SUPPORT	
											CLASS I		2" x 2" STEEL SLEEVE	3" PVC SLEEVE
						W" x H"			EA	EA	SF	LF	LF	EA
34 C	64+69	Oak Street	RT	EB				DO NOT ENTER						
35	64+72	Oak Street	RT	NB				CAUTION BLIND PEDESTRIAN IN AREA		1				
36 A	518+55	W 72nd Ave	LT	EB	W14-2A	36 x 8	YELLOW	NO OUTLET WITH ARROW	1		2.00	11	3.0	
36 B	518+55	W 72nd Ave	LT	WB	W14-2A	36 x 8	YELLOW	NO OUTLET WITH ARROW			2.00			
36 C	518+55	W 72nd Ave	LT	EB	D3-1	42 x 12	BLUE	SWADLEY CT			3.50			
36 D	518+55	W 72nd Ave	LT	WB	D3-1	42 x 12	BLUE	SWADLEY CT			3.50			
36 E	518+55	W 72nd Ave	LT	NB	D3-1	42 x 12	BLUE	W 72ND AVE			3.50			
36 F	518+55	W 72nd Ave	LT	SB	D3-1	42 x 12	BLUE	W 72ND AVE			3.50			
36 G	518+55	W 72nd Ave	LT	NB	R1-1	30 x 30	RED	STOP			6.25			
37 A	519+36	W 72nd Ave	RT	WB	W11-15	30 x 30	YELLOW	BICYCLE/PEDESTRIAN	1		6.25	11	3.0	
37 B	519+36	W 72nd Ave	RT	WB	R3-17AP	24 x 8	WHITE	AHEAD			1.33			
38	519+88	W 72nd Ave	RT	EB	R9-7	12 x 18	WHITE	SHARED-USE PATH RESTRICTION			1.50	10	3.0	1.0
39	521+58	W 72nd Ave	LT	WB				RIGHT LANE BIKES ONLY	1					
40	523+10	W 72nd Ave	RT	WB	R2-1(40)	30 x 36	WHITE	SPEED LIMIT 40	1		7.50	11	3.0	
41 A	523+34	W 72nd Ave	RT	EB				BICYCLE/PEDESTRIAN	1					
41 B	523+34	W 72nd Ave	RT	EB				AHEAD						
42	524+26	W 72nd Ave	LT	EB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	
43	524+44	W 72nd Ave	LT	WB	W4-2	36 x 36	YELLOW	RIGHT LANE ENDS			9.00	10	3.0	
44	524+74	W 72nd Ave	LT	WB	R9-7	12 x 18	WHITE	SHARED-USE PATH RESTRICTION			1.50	10	3.0	
45	524+76	The Grange	LT	N/A	R7-8	12 x 18	WHITE	RESERVED PARKING				10	3.0	1.0
46	525+27	W 72nd Ave	LT	EB				NO THRU TRAFFIC	1					
47	525+56	W 72nd Ave	LT	EB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	
48	525+59	W 72nd Ave	LT	EB				RECTANGLE OM LEFT	1					
49	525+81	W 72nd Ave	LT	EB				RIGHT TURNING VEHICLES YIELD TO BIKES	1					
50 A	525+83	W 72nd Ave	LT	WB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
50 B	525+83	W 72nd Ave	LT	WB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
51	526+10	W 72nd Ave	LT	EB				BICYCLE/PEDESTRIAN		1				
52	527+04	W 72nd Ave	RT	EB	R9-7	12 x 18	WHITE	SHARED-USE PATH RESTRICTION			1.50	10	3.0	
53 A	527+05	W 72nd Ave	RT	EB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
53 B	527+05	W 72nd Ave	RT	EB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
54	527+24	W 72nd Ave	RT	WB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	
55	528+07	W 72nd Ave	RT	WB				RIGHT LANE MUST TURN RIGHT	1					
56	528+52	W 72nd Ave	RT	WB	R3-7R	36 x 36	WHITE	RIGHT LANE MUST TURN RIGHT			9.00	10	3.0	
57 A	529+41	W 72nd Ave	LT	WB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
57 B	529+41	W 72nd Ave	LT	WB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
58 A	529+52	W 72nd Ave	RT	WB				BEGIN RIGHT TURN LANE YIELD TO BIKES	1					
58 B	529+52	W 72nd Ave	RT	WB				DELINEATOR OM NO RETROREFLECTIVE DEVICES						
59	530+19	W 72nd Ave	RT	NB	R1-1	30 x 30	RED	STOP	1		6.25	11	3.0	
60	530+35	W 72nd Ave	RT	EB				RIGHT LANE MUST TURN RIGHT		1				
61	530+35	W 72nd Ave	LT	WB				BIKE LANE/ENDS	1					
62 A	530+47	W 72nd Ave	RT	EB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
62 B	530+47	W 72nd Ave	RT	EB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
63	530+75	W 72nd Ave	LT	EB	R9-7	12 x 18	WHITE	SHARED-USE PATH RESTRICTION			1.50	10	3.0	
64	530+88	W 72nd Ave	RT	WB				DELINEATOR OM NO RETROREFLECTIVE DEVICES	1					
65 A	532+12	W 72nd Ave	RT	EB				RIGHT LANE MUST TURN RIGHT	1					
65 B	532+12	W 72nd Ave	RT	EB				NO PARKING						
66 A	532+20	W 72nd Ave	RT	WB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
66 B	532+20	W 72nd Ave	RT	WB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
67 A	532+94	W 72nd Ave	RT	EB	D3-1	42 x 12	BLUE	ROUTT ST	1		3.50	11	3.0	
67 B	532+94	W 72nd Ave	RT	WB	D3-1	42 x 12	BLUE	ROUTT ST			3.50			
67 C	532+94	W 72nd Ave	RT	NB	D3-1	42 x 12	BLUE	W 72ND AVE			3.50			
67 D	532+94	W 72nd Ave	RT	SB	D3-1	42 x 12	BLUE	W 72ND AVE			3.50			
67 E	532+94	W 72nd Ave	RT	NB	R1-1	30 x 30	RED	STOP			6.25			
68 A	532+96	W 72nd Ave	LT	WB				BICYCLE/PEDESTRIAN	1					

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

TABULATION OF SIGNS

Designer: AJL
Detailer: SAD
Sheet Subset: SIGNING
Structure Numbers
Subset Sheets: 2 of 3

Project No./Code

Sheet Number 348

TABULATION OF SIGNS

SIGN NO.	STATION	LOCATION	SIDE	DIRECTION	SIGN CODE	SIGN PANEL SIZE	BACKGROUND COLOR	LEGEND	REMOVAL OF GROUND SIGN	REMOVAL OF SIGN PANEL	SIGN PANEL	STEEL SIGN POST (1.75 X 1.75 TUBING)	SIGN SUPPORT	
											CLASS I		2" x 2" STEEL SLEEVE	3" PVC SLEEVE
						W" x H"			EA	EA	SF	LF	LF	EA
68 B	532+96	W 72nd Ave	LT	WB				AHEAD						
69 A	533+17	W 72nd Ave	RT	EB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
69 B	533+17	W 72nd Ave	RT	EB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
70	533+29	W 72nd Ave	LT	WB				DELINEATOR OM NO RETROREFLECTIVE DEVICES	1					
71	533+29	W 72nd Ave	RT	EB				NO MOTOR VEHICLES	1					
72	533+38	W 72nd Ave	LT	EB	R9-7	12 x 18	WHITE	SHARED-USE PATH RESTRICTION			1.50	10	3.0	
73	533+38	W 72nd Ave	LT	EB				RECTANGLE OM LEFT	1					
74	533+43	W 72nd Ave	LT	EB				BIKES/SHARED THE ROAD	1					
75	533+66	W 72nd Ave	RT	WB				BIKE LANE	1					
76	534+50	W 72nd Ave	LT	EB	R2-1(40)	30 x 36	WHITE	SPEED LIMIT 40	1		7.50	11	3.0	
77 A	536+84	W 72nd Ave	RT	EB				SCHOOL	1					
77 B	536+84	W 72nd Ave	RT	EB				AHEAD						
78	538+58	W 72nd Ave	LT	WB				BIKE LANE		1				
79	539+81	W 72nd Ave	LT	WB	R9-7	12 x 18	WHITE	SHARED-USE PATH RESTRICTION			1.50	10	3.0	
80 A	539+85	W 72nd Ave	RT	WB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
80 B	539+85	W 72nd Ave	RT	WB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
81	540+28	W 72nd Ave	LT	EB				SCHOOL/AHEAD	1					
82 A	540+95	W 72nd Ave	LT	EB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
82 B	540+95	W 72nd Ave	LT	EB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
83 A	541+03	W 72nd Ave	LT	WB				SCHOOL	1					
83 B	541+03	W 72nd Ave	LT	WB				DOWNWARD DIAGONAL ARROW LEFT						
84	541+97	W 72nd Ave	RT	WB				BIKE LANE/AHEAD	1					
85	542+67	W 72nd Ave	LT	EB				NO MOTOR VEHICLES	1					
86 A	545+17	W 72nd Ave	LT	WB				SCHOOL		1				
86 B	545+17	W 72nd Ave	LT	WB				AHEAD		1				
87	545+72	W 72nd Ave	LT	WB				BIKE LANE	1					
88 A	547+90	W 72nd Ave	RT	EB				SCHOOL	1					
88 B	547+90	W 72nd Ave	RT	EB				AHEAD						
88 C	547+90	W 72nd Ave	RT	EB				BIKE ROUTE (SPECIAL)						
89								(SIGN NUMBER UNUSED, PROPOSED SIGN REMOVED)						
90	551+48	W 72nd Ave	LT	WB	R2-1(40)	30 x 36	WHITE	SPEED LIMIT 40		1	7.50	11	3.0	
91	551+48	W 72nd Ave	LT	WB				BIKE LANE		1				
92	551+48	W 72nd Ave	LT	EB				58 (RIGHT ARROW)		1				
93								(SIGN NUMBER UNUSED, PROPOSED SIGN REMOVED)						
94	552+10	W 72nd Ave	LT	EB	R9-7	12 x 18	WHITE	SHARED-USE PATH RESTRICTION			1.50	11	3.0	
95 A	552+17	W 72nd Ave	LT	WB	R4-7	24 x 30	WHITE	KEEP RIGHT			5.00	11	3.0	1.0
95 B	552+17	W 72nd Ave	LT	WB	OM3-L	12 x 36	BLACK/YELL	RECTANGLE OM LEFT			3.00			
96 A	552+22	W 72nd Ave	RT	EB				SCHOOL	1					
96 B	552+22	W 72nd Ave	RT	EB				DIAGONAL DOWNWARD LEFT ARROW						
								PROJECT TOTALS	44	11	405.17	546	156.0	20.0

NOTES:

1. CONDITIONS OF SIGNS MAY HAVE CHANGED SINCE INVENTORY COMPLETION.
2. LOCATIONS OF SIGNS AND POST LENGTHS ARE APPROXIMATE. SEE M&S STANDARD PLANS S-614-1 AND S-614-8.

TABULATION OF DELINEATORS

STATION	SIDE	DELINEATOR (EACH)	
		TYPE I (CRYSTAL)	
		PLAN	AS CONST
517+66 TO 525+92	LT	15	
10% CONTINGENCIES		2	
PROJECT TOTALS		17	

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Horiz. Scale: 1:1 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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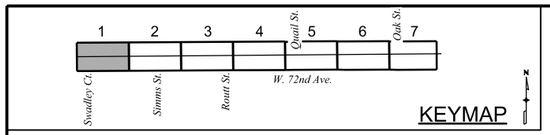
Revised:
Void:

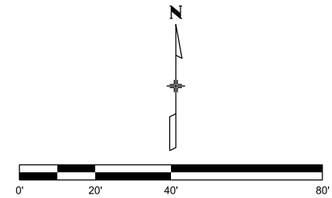
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
TABULATION OF SIGNS

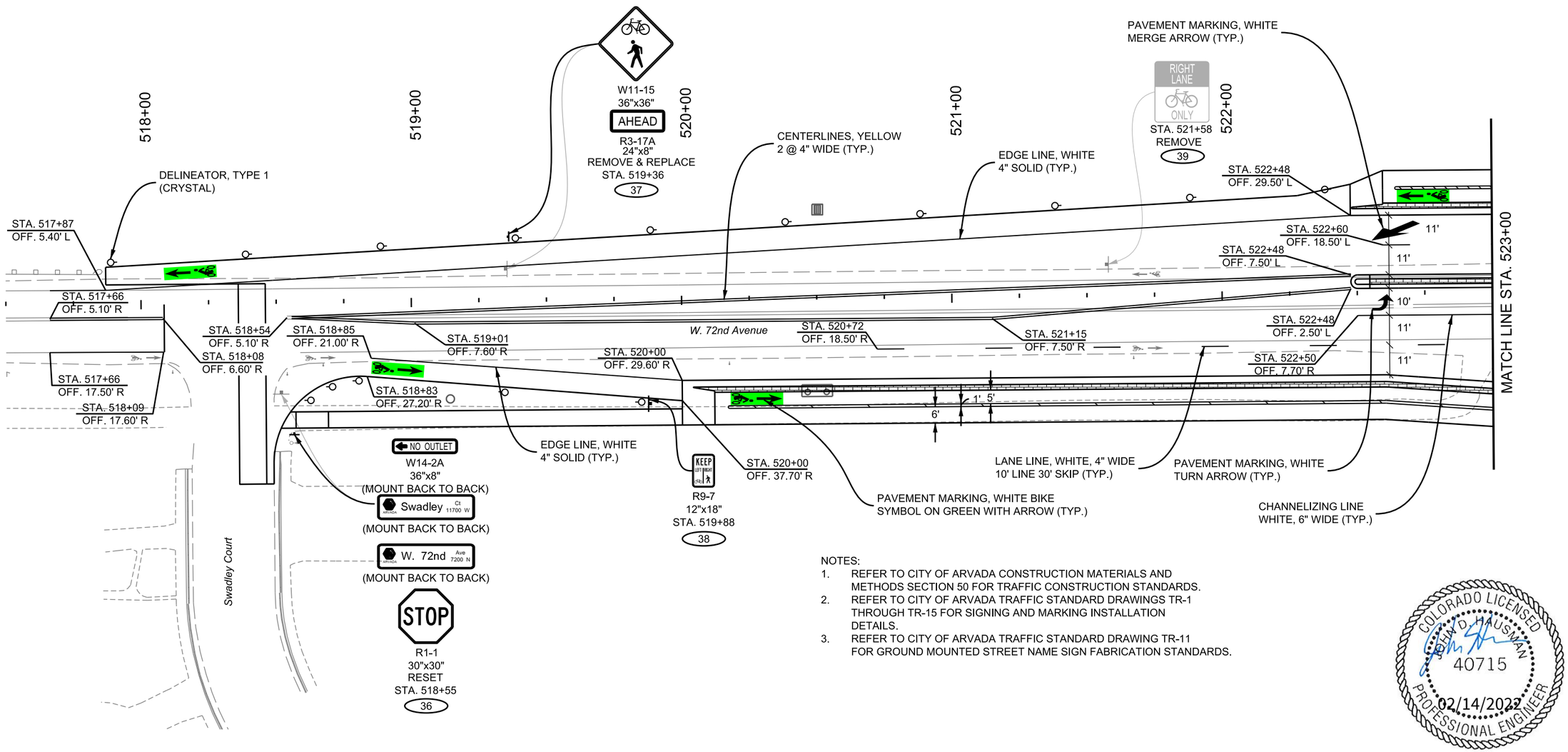
Designer: AJL
Detailer: SAD
Sheet Subset: SIGNING
Structure Numbers
Subset Sheets: 3 of 3

Project No./Code

Sheet Number 349







NOTES:
1. REFER TO CITY OF ARVADA CONSTRUCTION MATERIALS AND METHODS SECTION 50 FOR TRAFFIC CONSTRUCTION STANDARDS.
2. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWINGS TR-1 THROUGH TR-15 FOR SIGNING AND MARKING INSTALLATION DETAILS.
3. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWING TR-11 FOR GROUND MOUNTED STREET NAME SIGN FABRICATION STANDARDS.

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Plan01.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SIGNING AND PAVEMENT MARKING PLAN W. 72ND AVENUE		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: SIGNING	Subset Sheets: 1 of 7	Sheet Number 350

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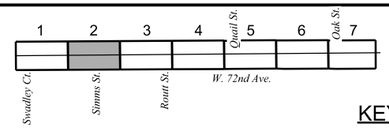

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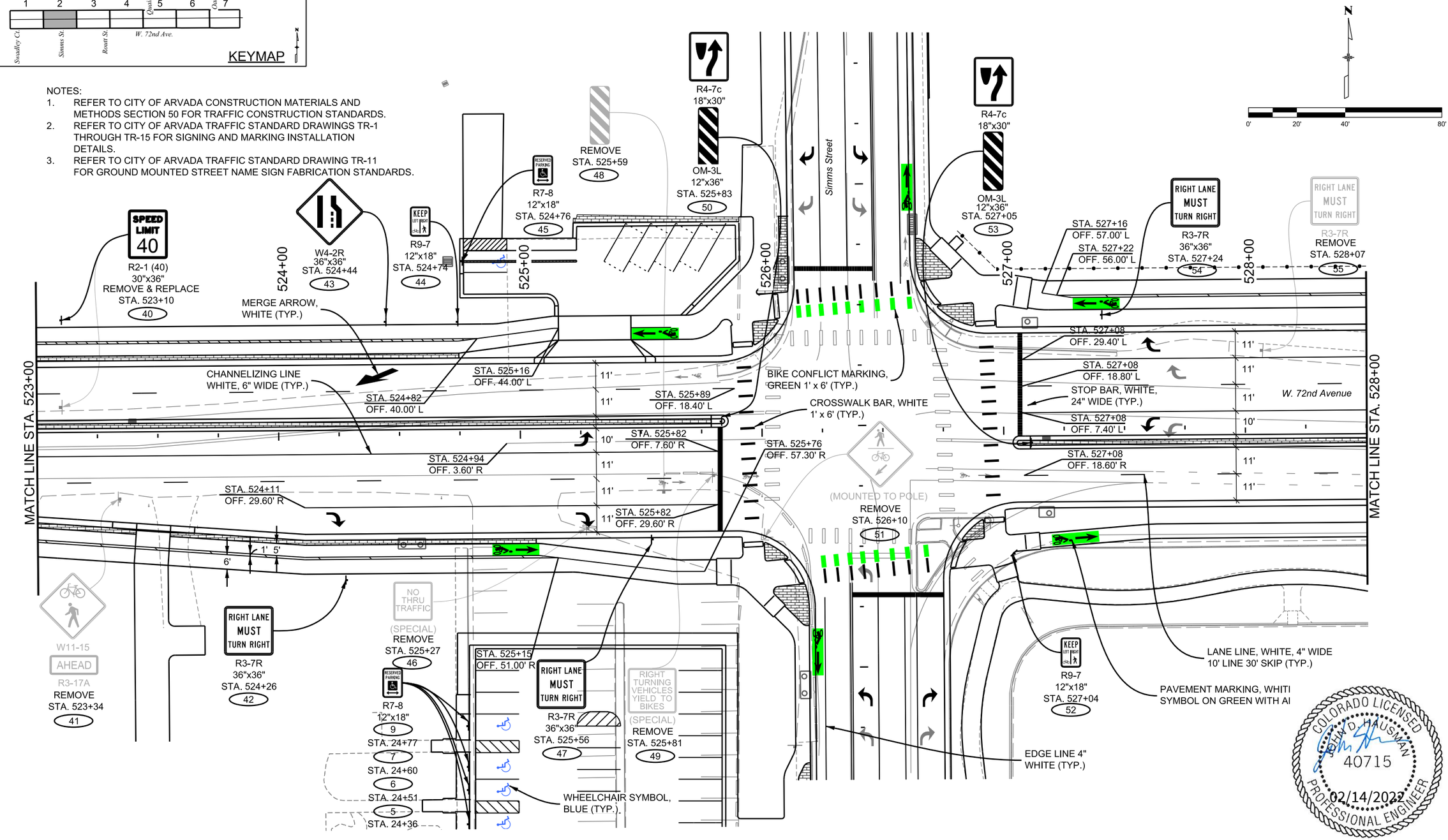

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Print Date: 2/10/2022	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Plan02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SIGNING AND PAVEMENT MARKING PLAN W. 72ND AVENUE			
Revised:	Designer: AJL	Structure Numbers		
Void:	Detailer: SAD			Sheet Number 351
	Sheet Subset: SIGNING	Subset Sheets:	2 of 7	

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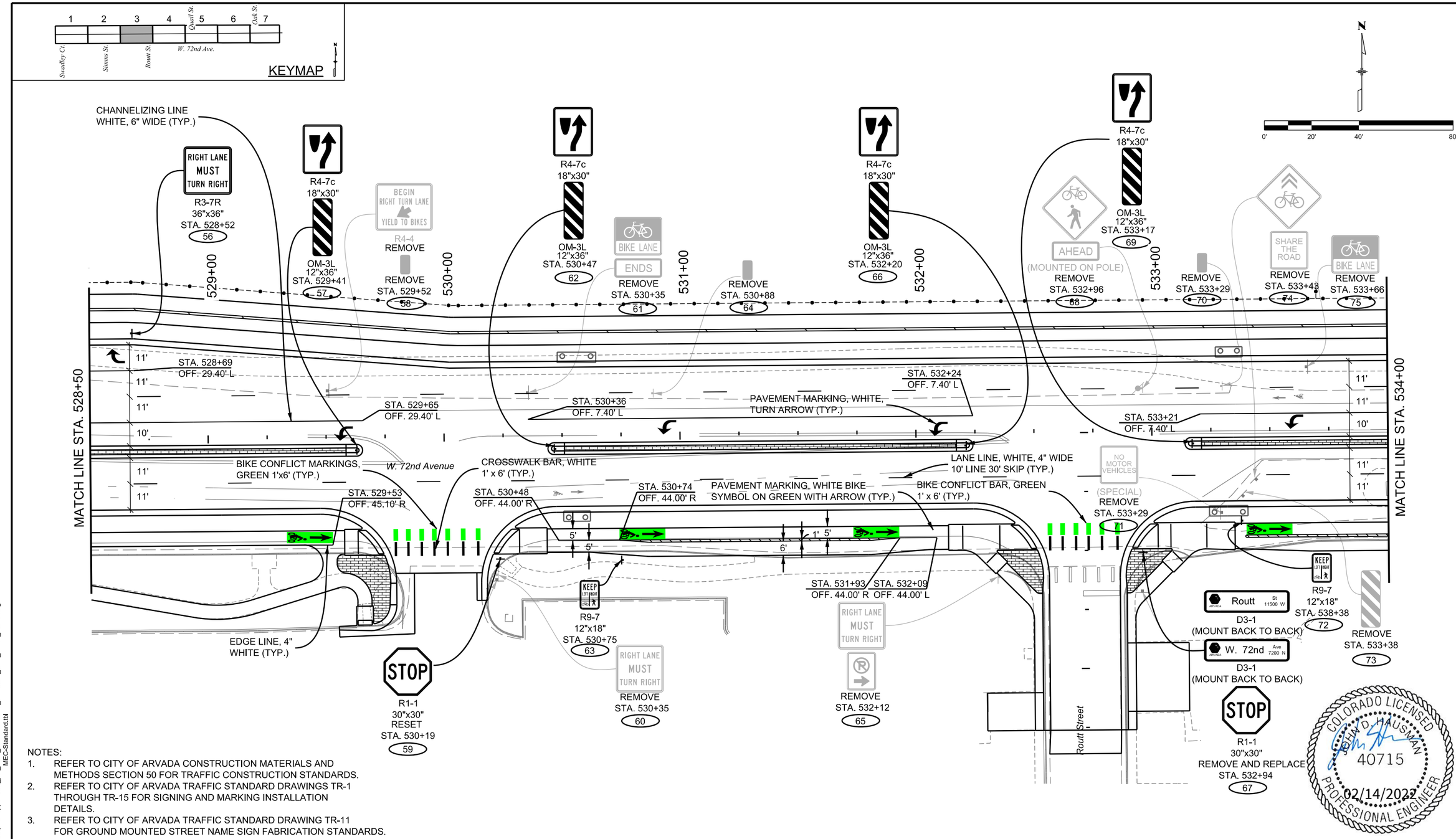

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Print Date: 9/17/2021	Sheet Revisions	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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Horiz. Scale: 1:40 Vert. Scale: As Noted		Revised:	Designer: AJL Structure Numbers
Unit Information Unit Leader Initials		Void:	Detailer: SAD
MULLER ENGINEERING COMPANY	CITY OF ARVADA		Sheet Subset: SIGNING Subset Sheets: 3 of 7
			Project No./Code
			Sheet Number 352

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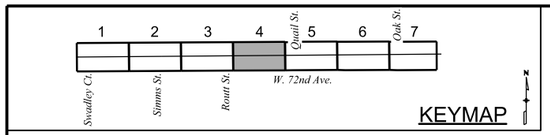

KEYMAP

NOTES:

1. REFER TO CITY OF ARVADA CONSTRUCTION MATERIALS AND METHODS SECTION 50 FOR TRAFFIC CONSTRUCTION STANDARDS.
2. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWINGS TR-1 THROUGH TR-15 FOR SIGNING AND MARKING INSTALLATION DETAILS.
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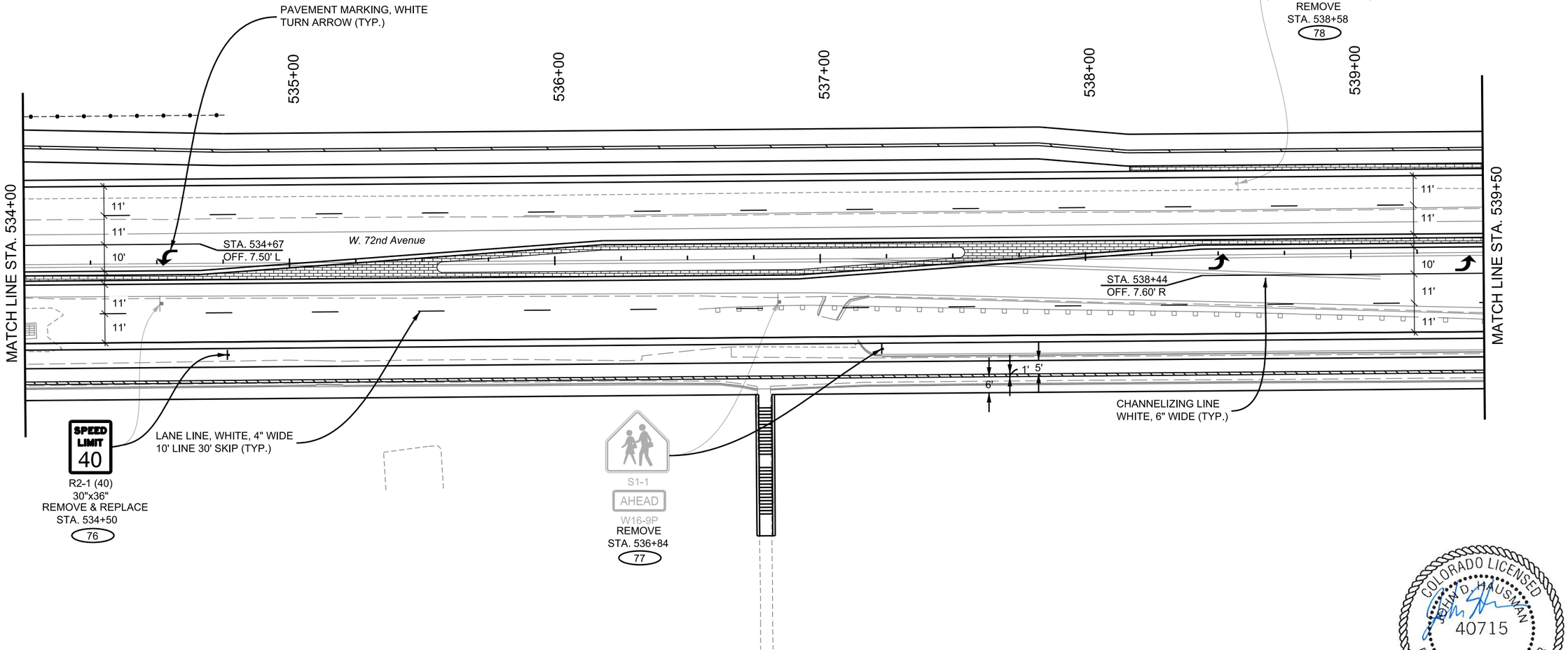

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Print Date: 2/10/2022			
Drawing File Name: 18061_CP2_TRAF_Plan04.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIGNING AND PAVEMENT MARKING PLAN
W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIGNING	Subset Sheets:	4 of 7

Project No./Code

Sheet Number 353

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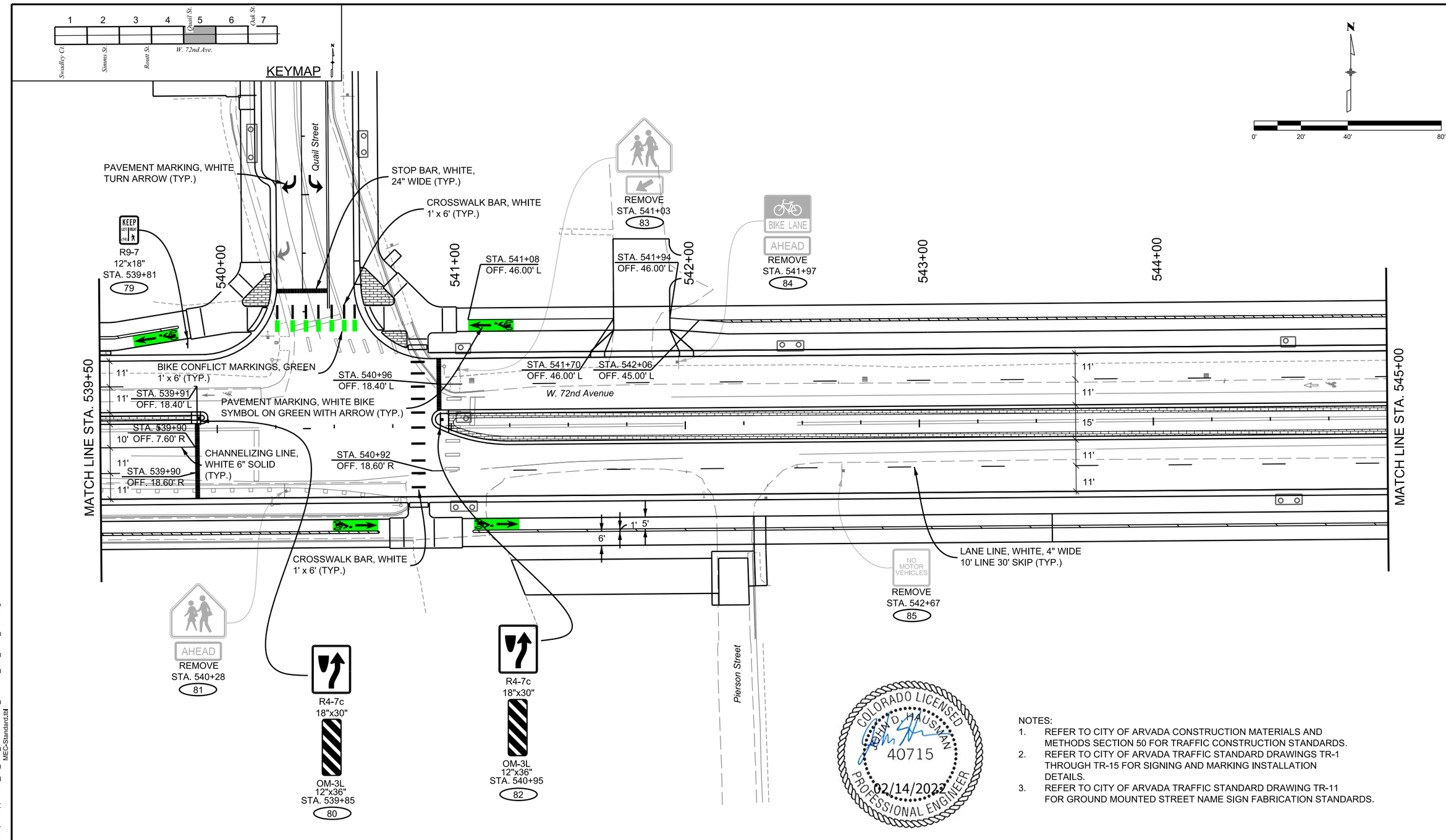

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NOTES:
1. REFER TO CITY OF ARVADA CONSTRUCTION MATERIALS AND METHODS SECTION 50 FOR TRAFFIC CONSTRUCTION STANDARDS.
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Print Date: 12/10/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Plan05.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SIGNING AND PAVEMENT MARKING PLAN W. 72ND AVENUE		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: SIGNING	Subset Sheets: 5 of 7	Sheet Number 354

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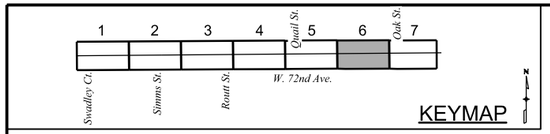

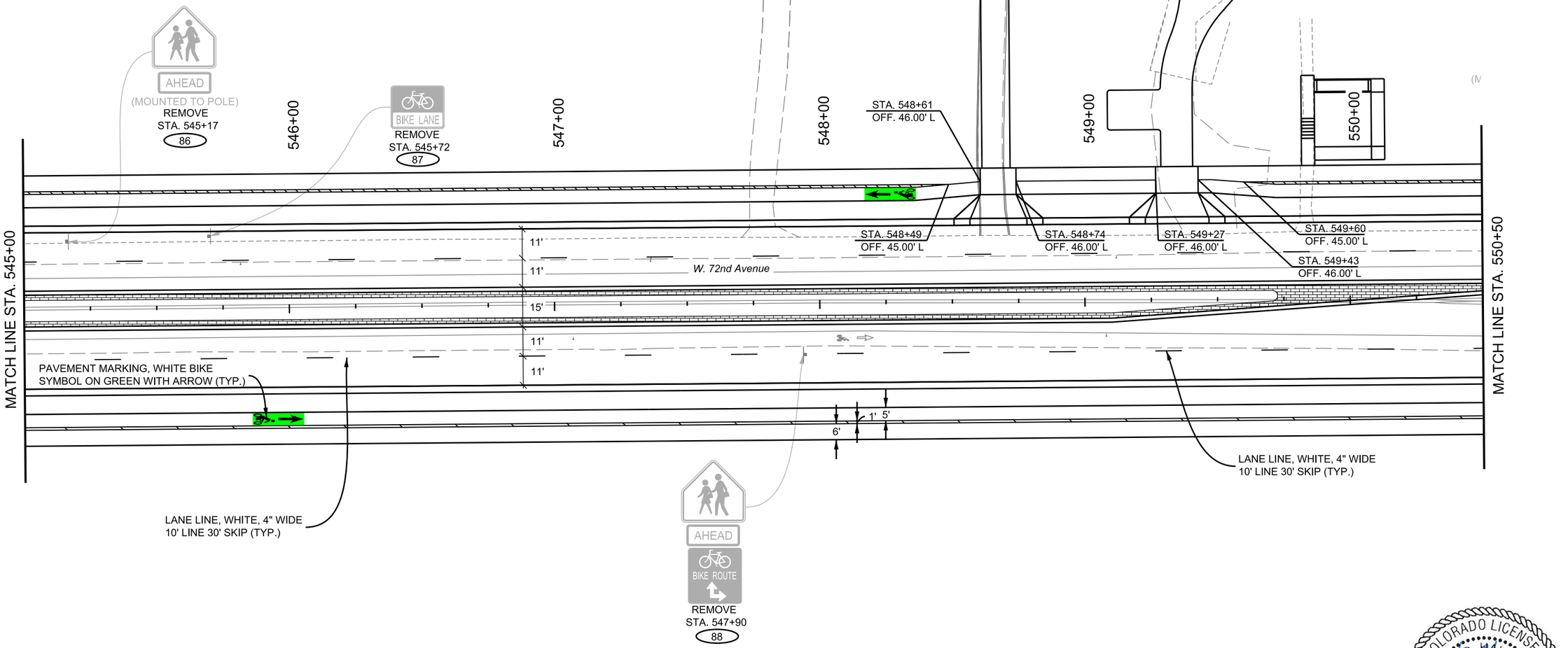

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Print Date: 2/10/2022	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Plan06.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SIGNING AND PAVEMENT MARKING PLAN W. 72ND AVENUE		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: SIGNING	Subset Sheets: 6 of 7	Sheet Number 355

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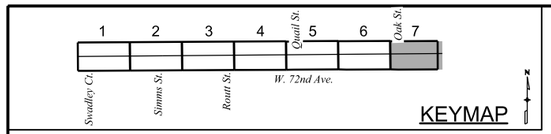

NOTES:
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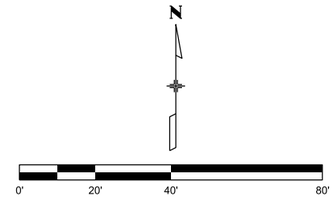

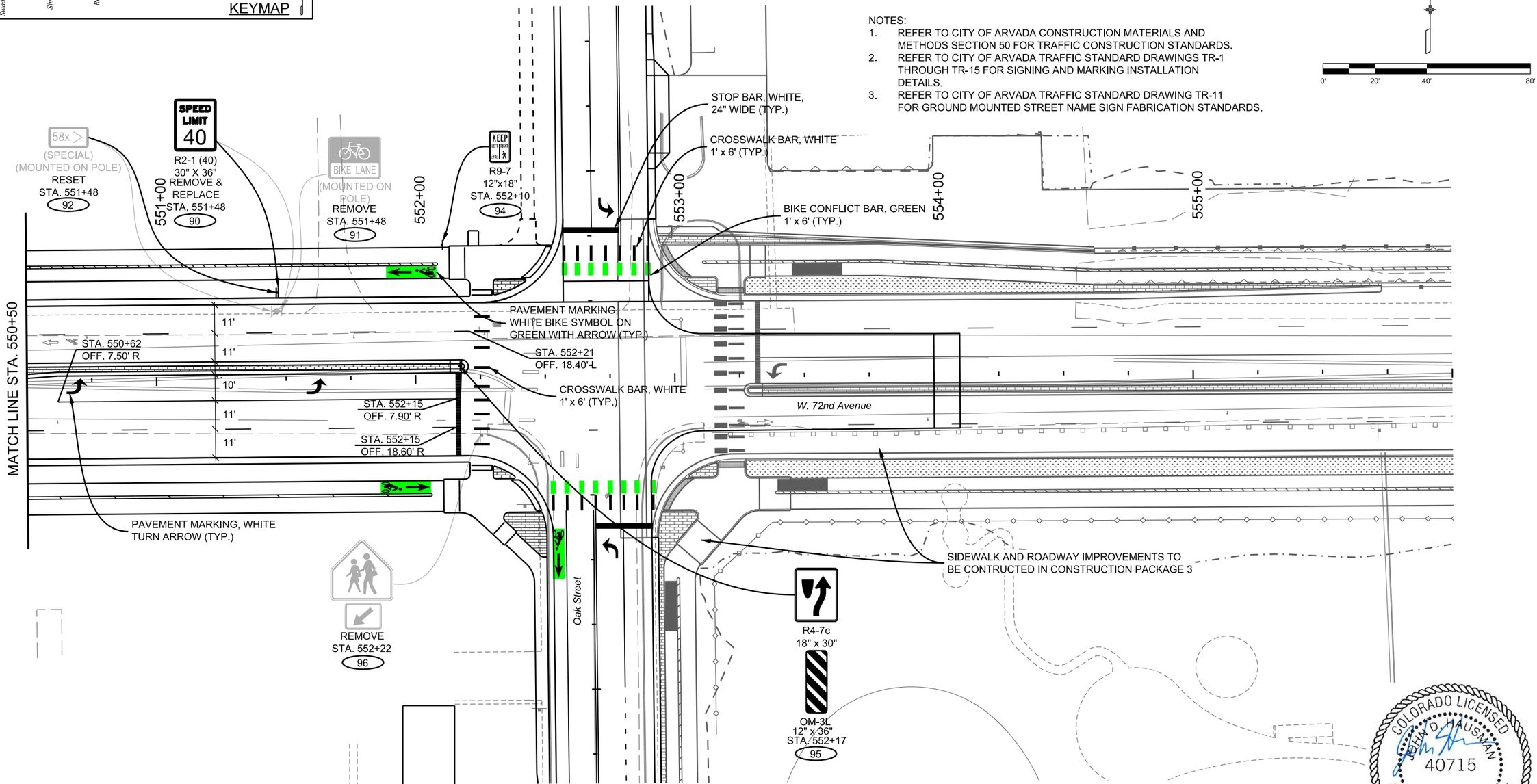

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40715
02/14/2022
PROFESSIONAL ENGINEER

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Print Date: 2/10/2022		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_TRAF_Plan07.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:40	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIGNING AND PAVEMENT MARKING PLAN
W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIGNING	Subset Sheets:	7 of 7

Project No./Code

Sheet Number 356

0' 20' 40' 80'

21+00 22+00 23+00 24+00

EDGE LINE, WHITE
4" WIDE

NO THRU TRAFFIC

(SPECIAL)
(REMAIN)

EDGE LINE, WHITE
4" SOLID

STA. 21+52
OFF. 16.00' L

CHANNELIZING LINE, WHITE,
6" WIDE

PAVEMENT MARKING, WHITE
BIKE SYMBOL ON GREEN
WITH ARROW (TYP.)

SOLID BROKEN CENTERLINES,
YELLOW 4" WIDE (TYP.)

STA. 20+50
OFF. 16.20' L

STA. 21+11
OFF. 16.00' L

STA. 21+39
OFF. 4.00' L

STA. 21+50
OFF. 5.70' L

STA. 23+59
OFF. 5.00' L

STA. 23+62
OFF. 16.00' L

STA. 24+22
OFF. 16.00' L

STA. 20+50
OFF. 6.10' L

STA. 21+00
OFF. 6.50' L

STA. 22+03
OFF. 5.50' L

STA. 20+50
OFF. 17.60' R

STA. 20+50
OFF. 6.00' R

STA. 21+00
OFF. 6.50' R

STA. 21+49
OFF. 5.60' R

STA. 22+39
OFF. 6.00' R

STA. 23+85
OFF. 6.00' R

Simms Street

6'
11'
11'
11'
5'
13'

PAVEMENT MARKING,
WHITE TURN ARROW (TYP.)

STA. 20+77
OFF. 22.00' R

STA. 20+79
OFF. 17.00' R

STA. 22+44
OFF. 17.00' R

STA. 22+44
OFF. 22.00' R

MATCH LINE STA. 25+00

BEGIN
RIGHT TURN LANE
YIELD TO BIKES

R4-4
36"x30"
STA. 20+79
(1)

DOTTED EXTENSION LINE,
WHITE 6", 2FT LINE,
4FT SKIP

STOP

R1-1
(REMAIN)

RIGHT LANE
MUST
TURN RIGHT

R3-7R
36"x36"
STA. 22+46
(3)

CHANNELIZING LINE, WHITE,
6" WIDE

EDGE LINE, WHITE
4" WIDE

DO NOT
ENTER

R5-1
(REMAIN)

ONLY

R3-5R(A)
(REMAIN)

SPEED
LIMIT
35

R2-1 (35)
30"x36"

RIGHT LANE
MUST
TURN RIGHT

R3-7R
STA. 24+09
(REMOVE)
(4)

BIKE LANE

R3-17
24"x18"
RESET

AHEAD

R3-17A
REMOVE
PANEL
STA. 24+73
(8)

CENTERLINES, YELLOW
2 @ 4" WIDE (TYP.)

BIKES MERGE
WITH TRAFFIC

BIKE LANE

(SPECIAL)
D11-1 (SPECIAL)
STA. 21+70
(REMOVE)
(2)

NOTES:
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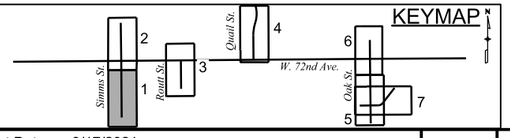
KEYMAP



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40715
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_TRAF_SideSt_Plan01.dgn	Date:	Comments	Init.	No Revisions:	SIDE STREET SIGNING PLAN SIMMS STREET STA. 20+00.00 TO STA. 24+50.00
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	Designer: AJL / Detailer: SAD / Sheet Subset: SIDE STREET / Structure Numbers / Subset Sheets: 1 of 7
Unit Information Unit Leader Initials				Void:	Project No./Code / Sheet Number 357
MULLER ENGINEERING COMPANY				CITY OF ARVADA	

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KEYMAP

Simms St. | Quail St. | Raud St. | Oak St. | W. 72nd Ave.

MATCH LINE STA. 25+00

25+00 | 526+00 | 27+00 | 28+00 | 29+00 | 527+00 | 528+00

Simms Street

W. 72nd Avenue

STA. 23+62 OFF. 16.00' L
STA. 25+21 OFF. 6.10' R
STA. 25+35 OFF. 5.00' L
STA. 25+21 OFF. 16.90' R
STA. 25+21 OFF. 22.00' R

YIELD
R1-2
STA. 25+26
REMOVE
11

RIGHT LANE MUST TURN RIGHT
R3-7R
36"x36"
STA. 25+18
10

CHANNELIZING LINE, WHITE, 6" WIDE

STA. 23+62 OFF. 16.50' L
STA. 26+66 OFF. 5.10' L
STA. 26+60 OFF. 5.60' R
STA. 26+58 OFF. 16.60' R
13'
11'
11'
4'

RIGHT LANE MUST TURN RIGHT
R3-7R
36"x36"
STA. 26+81
12

STA. 27+76 OFF. 5.50' L
STA. 27+71 OFF. 5.50' R
STA. 28+14 OFF. 16.50' L

RIGHT LANE MUST TURN RIGHT
R3-7R
36"x36"
STA. 28+13
13

EDGE LINE, WHITE 4" SOLID

STA. 28+85 OFF. 5.60' R

BIKES MERGE WITH TRAFFIC
BIKE LANE
(SPECIAL)
D11-1 (SPECIAL)
STA. 28+42
(REMOVE)
14

STA. 23+62 OFF. 16.00' L
STA. 29+25 OFF. 15.50' L
STA. 29+25 OFF. 4.50' L
STA. 29+25 OFF. 7.30' R
STA. 29+25 OFF. 17.30' R

CENTERLINES, YELLOW 2 @ 4" WIDE (TYP.)

CHANNELIZING LINE, WHITE, 6" WIDE

PAVEMENT MARKING, WHITE BIKE SYMBOL ON GREEN WITH ARROW (TYP.)

EDGE LINE, WHITE 4" SOLID

PAVEMENT MARKING, WHITE TURN ARROW (TYP.)

BIKE USE TRAIL
(SPECIAL)
24"x30"
STA. 29+36
16

72nd St
D3-1
(MOUNT BACK TO BACK)

Simms St
D3-1
(MOUNT BACK TO BACK)

STOP
R1-1
30"x30"
(REMAIN)

W11-15
AHEAD
R3-17A
STA. 29+36
(REMOVE)
15

0' 20' 40' 80'

NOTES:
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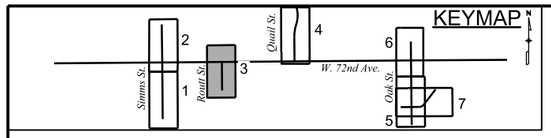
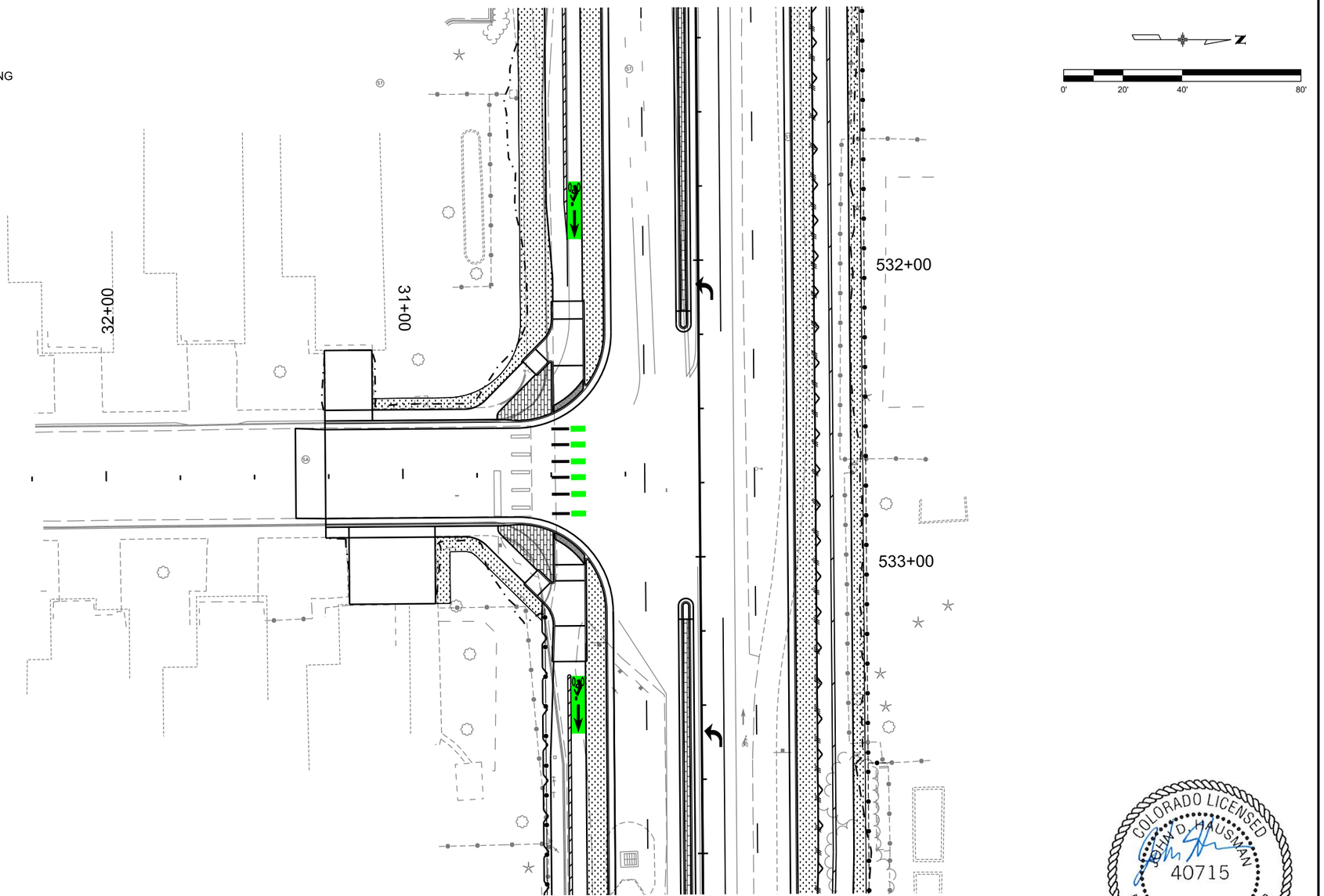
Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_TRAF_SideSt_Plan02.dgn	Date:	Comments	Init.	No Revisions:	SIDE STREET SIGNING PLAN SIMMS STREET STA. 24+50.00TO STA. 30+00.00
Horiz. Scale: 1:40 Vert. Scale: As Noted				Revised:	Designer: AJL / Detailer: SAD / Sheet Subset: SIDE STREET
Unit Information Unit Leader Initials				Void:	Structure Numbers / Subset Sheets: 2 of 7
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code / Sheet Number 358



NOTES:
1. ALL SIGNING AND MARKINGS SHOWN ON THIS SHEET ARE REPRESENTED ON SHEETS 3 AND 4 OF 72ND AVENUE SIGNING AND STRIPING PLANS.



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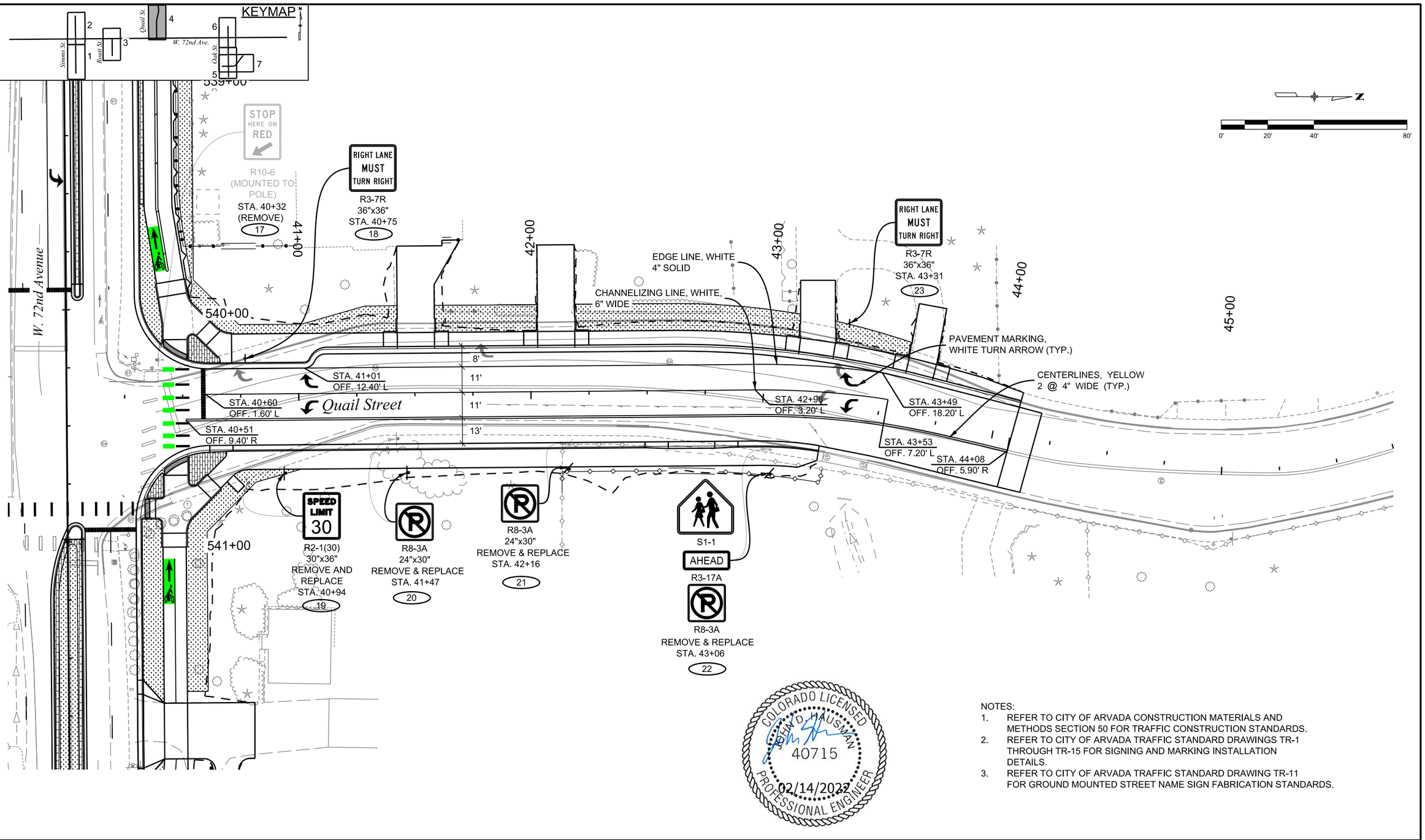
Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_SideSt_Plan03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SIDE STREET SIGNING PLAN ROUTT STREET STA. 30+00.00 TO STA. 33+00.00		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: SIDE STREET	Subset Sheets: 3 of 7	Sheet Number 359

KEYMAP



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SHAWN D. HAUSMAN
40715
02/14/2022
PROFESSIONAL ENGINEER

NOTES:
1. REFER TO CITY OF ARVADA CONSTRUCTION MATERIALS AND METHODS SECTION 50 FOR TRAFFIC CONSTRUCTION STANDARDS.
2. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWINGS TR-1 THROUGH TR-15 FOR SIGNING AND MARKING INSTALLATION DETAILS.
3. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWING TR-11 FOR GROUND MOUNTED STREET NAME SIGN FABRICATION STANDARDS.

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_SideSt_Plan04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
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CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SIDE STREET SIGNING PLAN QUAIL STREET STA. 40+00.00 TO STA. 45+75.00		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: SIDE STREET	Subset Sheets: 4 of 7	Sheet Number 360

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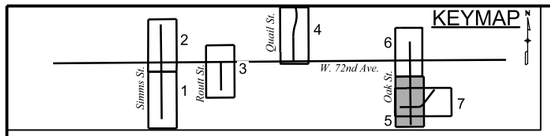
9/17/2021



NOTES:
1. REFER TO CITY OF ARVADA CONSTRUCTION MATERIALS AND METHODS SECTION 50 FOR TRAFFIC CONSTRUCTION STANDARDS.
2. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWINGS TR-1 THROUGH TR-15 FOR SIGNING AND MARKING INSTALLATION DETAILS.
3. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWING TR-11 FOR GROUND MOUNTED STREET NAME SIGN FABRICATION STANDARDS.

0' 20' 40' 80'

61+00 62+00 63+00 64+00 65+00 66+00

STA. 65+50

MATCH LINE STA. 65+50

Oak Street

BIKE CONFLICT MARKINGS, GREEN 1' x 6'

SPEED LIMIT 30
R2-1 (30)
ENDS
R3-17B
(REMAIN)

STA. 60+71
OFF. 10.90' L
CONC DRIVE

STA. 60+98
OFF. 0.00'

STA. 60+98
OFF. 11.30' R

STA. 60+98
OFF. 15.10' R

W11-2
36"x36"
(MOUNT BACK TO BACK)

RRFB LIGHT BAR
(MOUNT BACK TO BACK)
(SOLAR POWERED)

W16-7PL W16-7PR
(MOUNT BACK TO BACK)
STA. 62+94
26

STA. 62+47
OFF. 00.00'
CROSSWALK BAR, WHITE
1' x 8' (TYP.)

STA. 62+24
OFF. 8.60' R

STA. 62+63
OFF. 11.10' R

STA. 62+63
OFF. 22.10' R

STA. 62+63
OFF. 26.10' R

W11-2
36"x36"
AHEAD
W16-9p
24"x12"
STA. 61+54
24

BEGIN RIGHT TURN LANE
YIELD TO BIKES
R4-4
36"x30"
STA. 61+88
25

S1-1
M6-2AL
STA. 63+00
(REMOVE)
27

W11-2
36"x36"
(MOUNT BACK TO BACK)

RRFB LIGHT BAR
(MOUNT BACK TO BACK)
(SOLAR POWERED)

W16-7PL W16-7PR
(MOUNT BACK TO BACK)
STA. 63+11
28

YIELD LINE, WHITE
2' x 3' (TYP.)

STA. 63+55
OFF. 10.90' L

STA. 63+00
OFF. 10.90' L

STA. 63+51
OFF. 00.50' L

STA. 63+00
OFF. 00.00'

STA. 63+55
OFF. 11.10' R

STA. 63+00
OFF. 17.00' R

STA. 63+00
OFF. 22.30' R

Parfet St 7090N
D3-1
(MOUNT BACK TO BACK)

Oak St 10800W
D3-1
(MOUNT BACK TO BACK)

STOP
R1-1
30"x30"
(REMAIN)

STOP
R1-1
30"x30"
STA. 63+62
29

1+00

STOP BAR, WHITE, 24" WIDE
(TYP.)

2+00

CHANNELIZING LINE, WHITE,
6" WIDE

W11-2
36"x36"
AHEAD
W16-9p
24"x12"
STA. 64+59
33

S1-1
M6-2AL
STA. 63+65
(REMOVE)
30

EDGE LINE, WHITE
4" SOLID

LANE ENDS
R3-16A
STA. 62+67
(REMOVE)
31

STOP
R1-1
LEFT TURN ONLY
R6-2A
(BACK TO BACK)
STA. 64+37
(REMOVE)
32

STOP
R1-1
RIGHT TURN ONLY
R6-2A
(BACK TO BACK)
STA. 64+69
(REMOVE)
34

PAVEMENT MARKING,
WHITE TURN ARROW (TYP.)

CAUTION BLIND PEDESTRAIN IN AREA
W11-25
(SPECIAL)
(MOUNTED TO POLE)
STA. 64+72
(REMOVE)
35

STA. 65+30
OFF. 00.00'

STA. 65+01
OFF. 11.10' R

STA. 65+32
OFF. 11.10' R

5'
11'
11'
11'

STA. 65+35
OFF. 00.00'

STA. 65+35
OFF. 11.00' L

STA. 65+97
OFF. 10.90' L

STA. 65+97
OFF. 00.00'

STA. 65+97
OFF. 00.00'

STA. 65+97
OFF. 11.10' R

STA. 65+35
OFF. 11.00' R

DOTTED EXTENSION LINE,
WHITE 6", 2FT LONG,
4FT GAP

CHANNELIZING LINE, WHITE,
6" WIDE

CENTERLINES, YELLOW
2 @ 4" WIDE (TYP.)

SIDEWALK TO BE CONSTRUCTED
IN CONSTRUCTION PACKAGE 3

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Print Date: 2/10/2022	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_SideSt_Plan05.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SIDE STREET SIGNING PLAN OAK STREET STA. 60+00.00 TO STA. 65+50.00

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIDE STREET	Subset Sheets:	5 of 7

Project No./Code

Sheet Number 361

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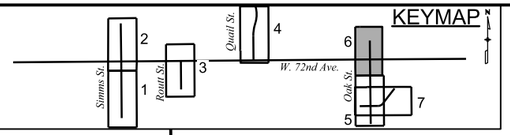
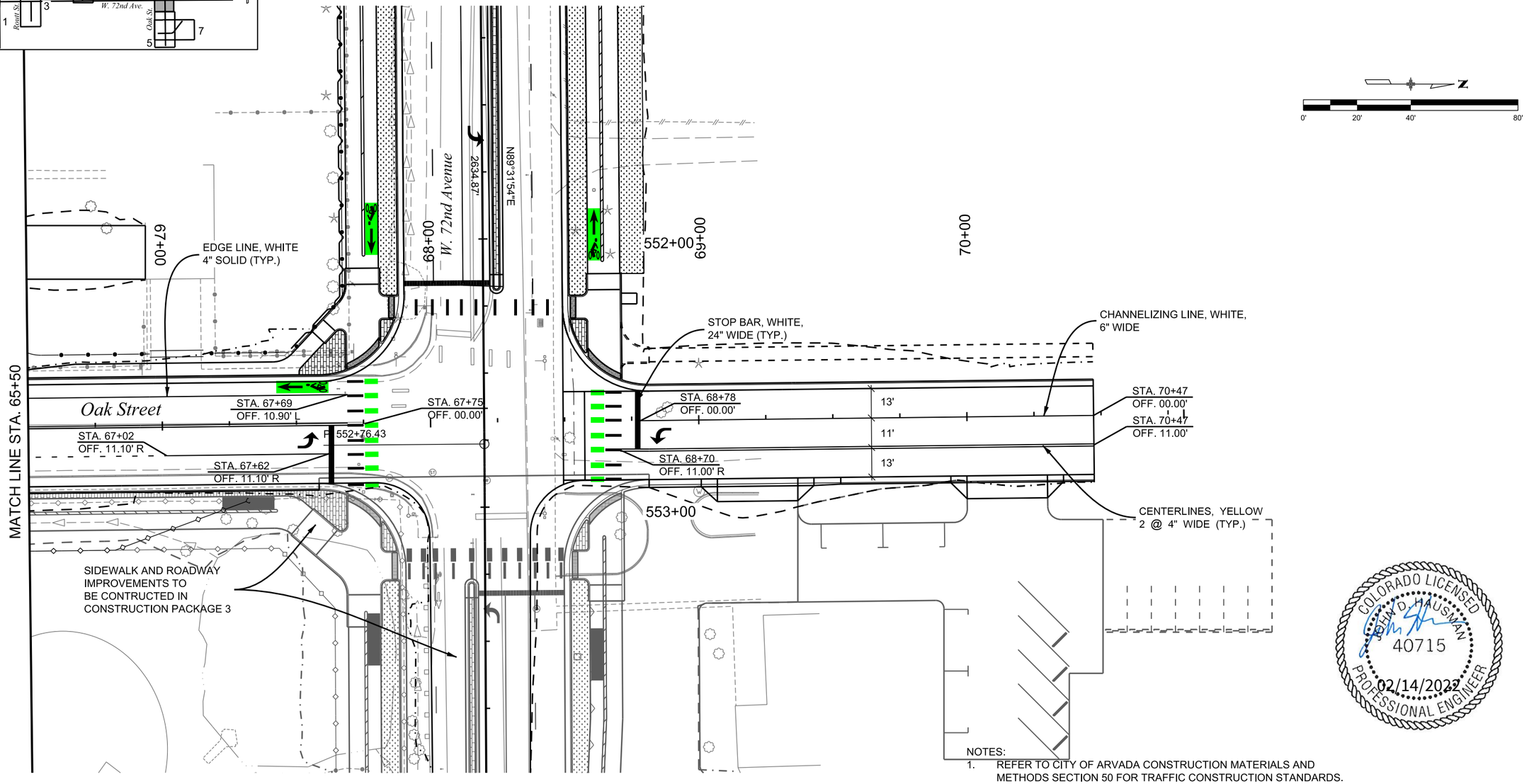
KEYMAP





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JOSHUA D. HAUSMAN
40715
02/14/2022
PROFESSIONAL ENGINEER

NOTES:
1. REFER TO CITY OF ARVADA CONSTRUCTION MATERIALS AND METHODS SECTION 50 FOR TRAFFIC CONSTRUCTION STANDARDS.
2. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWINGS TR-1 THROUGH TR-15 FOR SIGNING AND MARKING INSTALLATION DETAILS.
3. REFER TO CITY OF ARVADA TRAFFIC STANDARD DRAWING TR-11 FOR GROUND MOUNTED STREET NAME SIGN FABRICATION STANDARDS.

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Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_TRAF_SideSt_Plan06.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

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No Revisions:
Revised:
Void:

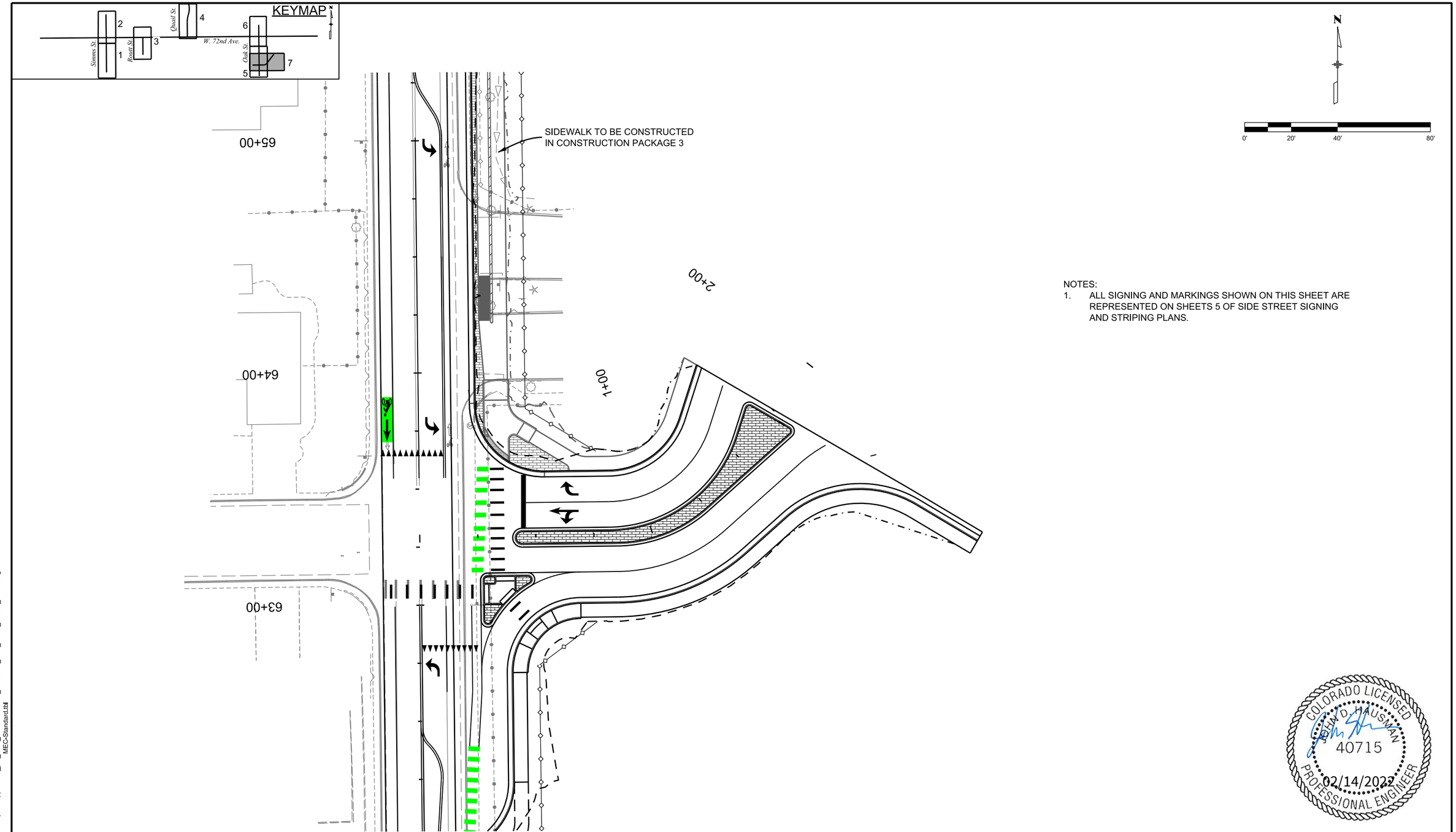
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET SIGNING PLAN OAK STREET STA. 65+50.00 TO STA. 69+20.00

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIDE STREET	Subset Sheets:	6 of 7

Project No./Code

Sheet Number 362



NOTES:
1. ALL SIGNING AND MARKINGS SHOWN ON THIS SHEET ARE REPRESENTED ON SHEETS 5 OF SIDE STREET SIGNING AND STRIPING PLANS.

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40715
02/14/2022
PROFESSIONAL ENGINEER

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Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_SideSt_Plan07.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIDE STREET SIGNING PLAN LINCOLN ACADEMY STA. 0+00 TO STA. 2+00

Designer: AJL
Detailer: SAD
Sheet Subset: SIDE STREET
Structure Numbers
Subset Sheets: 7 of 7

Project No./Code

Sheet Number 363

GENERAL NOTES

1. TRAFFIC SIGNAL MATERIALS AND INSTALLATION SHALL COMPLY WITH THE CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS. ITEMS NOT REFERENCED IN THESE DOCUMENTS SHALL CONFORM TO THE LATEST EDITIONS OF THE STATE OF COLORADO "STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", THE STATE OF COLORADO "STANDARD PLANS", THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "NATIONAL ELECTRIC CODE", AND ALL LOCAL ORDINANCES AND REGULATIONS THAT APPLY, EXCEPT AS NOTED ON THE PLANS, STANDARDS SPECIAL PROVISIONS, OR PROJECT SPECIAL PROVISIONS.

2. CONDUIT, POLE, PULL BOX AND CONTROLLER CABINET LOCATIONS ARE APPROXIMATE. EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE VERIFIED BY THE CITY OF ARVADA IN THE FIELD. TRAFFIC SIGNAL POLES AND MAST ARMS SHALL NOT BE ORDERED UNTIL THE EXACT LOCATION OF THE POLE BASES IS FIELD VERIFIED. THE CONTRACTOR SHALL CONTACT THE CITY (720-898-7740) A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO STARTING TRAFFIC SIGNAL CONSTRUCTION.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES AND THE PROTECTING OF THESE UTILITIES. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND NOT ALL UTILITIES ARE NECESSARILY SHOWN. THE CONTRACTOR SHALL CONTACT ALL THE APPROPRIATE ENTITIES TO LOCATE UNDERGROUND FACILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE EXACT LOCATION OF EACH UTILITY SHALL BE FIELD VERIFIED BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY OCCUR AS A RESULT OF THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

4. THE CONTRACTOR SHALL FURNISH AND INSTALL A METERED ELECTRICAL SERVICE PEDESTAL AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE CITY. SERVICE PEDESTALS SHALL BE INSTALLED PER XCEL ENERGY GUIDELINES. PULL SEPARATE WIRE FOR STREET LIGHTS AND TAG "FOR XCEL ENERGY STREET LIGHT" AT BOTTOM OF MAST ARM POLE. ELECTRICAL POWER EXISTS AT EACH PROJECT INTERSECTION. CONTRACTOR SHALL EXTEND ELECTRICAL POWER FROM THE EXISTING POWER SOURCE TO THE NEW CONTROLLER CABINET.

5. PAYMENT SHALL BE MADE ONLY FOR ITEMS IN THE PAY ITEM LIST. ALL OTHER ITEMS TO PROVIDE A FULLY FUNCTIONAL TRAFFIC SIGNAL INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO THE WORK.

6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR CONSTRUCTION TO THE CITY WITH THE PERMIT APPLICATION 48 HOURS IN ADVANCE OF CONSTRUCTION. A RIGHT OF WAY WORK PERMIT WILL NOT BE ISSUED WITHOUT AN APPROVED TRAFFIC CONTROL PLAN.

7. WORKING HOURS SHALL BE IN COMPLIANCE WITH THE CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS.

8. THE CONTRACTOR SHALL PROVIDE THE CITY WITH AT LEAST TWO SETS EACH OF EQUIPMENT SPECIFICATIONS/DESCRIPTIONS AND OBTAIN APPROVALS BEFORE ORDERING THE EQUIPMENT.

9. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL SUBMIT RECORD DRAWINGS, CORRECTED PLANS AND ANY ADDITIONAL DATA REQUIRED BY THE CITY SHOWING IN DETAIL ALL CONSTRUCTION CHANGES.

10. THE SIGNAL POLES SHALL BE VALMONT POLES-ARVADA STANDARD. THE POLES SHALL BE FACTORY PAINTED ARVADA BRONZE. SIGNAL POLE FOUNDATIONS SHALL BE INSTALLED ACCORDING TO THE LATEST CDOT M&S STANDARDS.

11. THE CONTROLLER SHALL BE AN ECONOLITE ASC/3 COBALT ADVANCED TRANSPORTATION CONTROLLER THAT CAN COMMUNICATE WITH THE CITY'S ECONOLITE CENTRACS SYSTEM. THE CONTROLLER CABINET SHALL BE A TS2 TYPE 1 P CABINET AND SHALL BE NATURAL ALUMINUM. THE CONTROLLER CABINET SHALL BE INSTALLED SUCH THAT WITH THE FRONT DOOR OPEN, A TECHNICIAN VIEWS BOTH THE CONTROLLER AND THE INTERSECTION. THE CONTROLLER CABINET SHALL BE MOUNTED ON A FIBERGLASS BASE. TRAFFIC SIGNAL CONTROLLERS SHALL BE DELIVERED TO THE CITY FOR INSPECTION AND PROGRAMMING AT LEAST 15 DAYS PRIOR TO INSTALLATION. DESIGN CRITERIA SHALL BE 2015 AASHTO "LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS. LUMINAIRES AND TRAFFIC SIGNALS, FIRST EDITION" INCLUDING ALL SUBSEQUENT REVISIONS.

12. ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE. ALL OVERHEAD SIGNAL INDICATIONS SHALL HAVE BACKPLATES. BACKPLATES SHALL BE LOUVERED WITH YELLOW REFLECTIVE BORDER TAPE THAT OUTLINES THE OUTSIDE EDGE OF EACH BACKPLATE. PLACEMENT OF SIGNAL AND PEDESTRIAN HEADS SHALL BE APPROVED BY CITY TRAFFIC PERSONNEL.

13. MAST ARM SIGNAL HEADS SHALL BE MOUNTED APPROXIMATELY LEVEL WITH ONE ANOTHER, WITH A 17 TO 19 FOOT CLEARANCE ABOVE GRADE AT THE HIGHEST PAVEMENT ELEVATION. MAST ARM MOUNTED SIGNAL HEADS SHALL HAVE A MINIMUM 8-FOOT SEPARATION.

14. ALL VEHICLE AND PEDESTRIAN INDICATIONS SHALL BE APPROVED LED, NON-GLARE TYPE. ALL VEHICLE INDICATIONS SHALL BE 12". ALL PEDESTRIAN INDICATIONS SHALL BE 16".

15. PEDESTRIAN SIGNALS SHALL BE COUNTDOWN TYPE AS PER CITY SPECIFICATIONS. PEDESTRIAN PUSH BUTTONS SHALL BE POLERA iNS2 iNAVIGATOR PUSH BUTTON STATION. PEDESTRIAN PUSH BUTTONS SHALL BE ADA COMPATIBLE AND INTEGRAL WITH A PUSH BUTTON/PUSH BUTTON SIGN STATION.

16. ALL SIGNAL HEADS SHALL BE WIRED SEPARATELY FROM SIGNAL HEAD TO HANDHOLE ABOVE GRADE AT THE BASE OF THE SIGNAL POLE WITH NO OVERHEAD SPLICES. A SEPARATE 19-CONDUCTOR CABLE SHALL RUN FROM THE CONTROLLER CABINET TO THE HANDHOLE AT EACH POLE WITH NO SPLICES.

17. TRAFFIC SIGNAL INDICATIONS MOUNTED ON MAST ARMS SHALL BE FURNISHED WITH ASTRO-TYPE MOUNTING BRACKETS.

18. UNINTERRUPTED POWER SUPPLY (UPS) SHALL BE PROVIDED TO RUN EACH TRAFFIC SIGNAL FOR A MINIMUM OF 2 HOURS IN ALL PHASES AND FLASH UP TO AN ADDITIONAL 3 HOURS. THE BATTERY BACKUP SYSTEM SHALL BE INSTALED IN THE SIGNAL CABINET. UPS TYPE SHALL BE PER CITY STANDARDS.

19. ALL CONDUIT SHALL BE DIRECTIONALLY BORED UNDER EXISTING STREETS UNLESS ANOTHER METHOD IS APPROVED BY THE CITY OF ARVADA. ALL CONDUIT SHALL BE SCHEDULE 80 PVC. ALL CONDUIT SHALL INCLUDE A #12 LOCATE WIRE AND A MULE TAPE PULL LINE. ALL PULL BOXES SHALL BE FIBERGLASS REINFORCED POLYMER CONCRETE, INSTALLED FLUSH WITH THE GROUND.

20. LUMINARIES SHALL BE LED WITH LIGHT OUTPUT EQUIVALENT TO A 250 WATT HPS AT A 30 FT. MOUNTING HEIGHT UNLESS OTHERWISE APPROVED.

21. STOP BARS AND CROSSWALKS SHALL BE INSTALLED USING PREFORMED THERMOPLASTIC. STOP BARS SHALL BE 2' WIDE AND CROSSWALK BARS SHALL BE 1'X6\ INSTALLED AS INDICATED ON THE PLANS.

22. THE CONTRACTOR SHALL USE AN APPROPRIATE PREFABRICATED, MOBILE, AND APPROVED MEANS FOR CAPTURING AND REMOVAL OF ANY AND ALL CONCRETE WASHOUT. SUCH WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCIDENTAL TO THE PROJECT.

23. THE CONTRACTOR SHALL REPLACE ANY DAMAGED LANDSCAPING, INCLUDING TOPSOIL, GRASS, IRRIGATION SYSTEM COMPONENTS, TREES, SHRUBS, GROUND COVERS AND MULCH, TO THE ORIGINAL CONDITION. SOD SHALL MATCH EXISTING.

24. THE CONTRACTOR SHALL ENSURE THAT NO MATERIALS, EQUIPMENT, OR VEHICLES ARE STAGED OR PARKED NEAR WETLAND OR DRAINAGE AREAS. THE CONTRACTOR SHALL REMOVE IN A TIMELY MANNER ALL SEDIMENT, MUD DEBRIS OR OTHER POTENTIAL POLLUTANTS WHICH MAY BE DISCHARGED TO, OR ACCUMULATE IN, THE FLOW LINES AND PUBLIC RIGHT-OF-WAYS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT

25. THE SIGNAL SHALL NOT BE TURNED ON OR STARTED IN FLASH UNTIL THE CITY HAS INSPECTED AND APPROVED THE INSTALLATION, AS WELL AS THE APPROPRIATE PAVEMENT MARKINGS ARE IN PLACE, UNLESS APPROVED BY THE CITY.

26. STOP LINE DETECTION SHALL BE BY PRESENCE RADAR DETECTORS (WAVETRONIX SMART SENSOR MATRIX UNLESS SHOWN OTHERWISE ON PLANS. ADVANCE DETECTION SHALL BE BY ADVANCE RADAR DETECTORS (WAVETRONIX SMART SENSOR ADVANCE).

27. ALL SIGNAL EQUIPMENT NOT SPECIFICALLY IDENTIFIED TO BE SALVAGED OR RELOCATED SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.

28. ALL SALVAGED SIGNAL EQUIPMENT TO BE REMOVED SHALL BE PROVIDED TO THE CITY OF ARVADA INDIANA SHOPS AT 6701 INDIANA ST., ARVADA, CO. CONTACT PHIL NEAL (720-898-7743) TO ARRANGE DELIVER

29. WIRING FOR LUMINAIRES SHALL BE PROVIDED FROM THE POWER SOURCE TO THE END OF THE L
BREAKAWAY INCLINE FUSE SHALL BE PROVIDED AT THE HAND HOLE ACCESS AT THE BASE OF TI

30. OPTICOM PREEMPTION SYSTEM SHALL BE INSTALLED FOR PREEMPTING THE DIRECTIONS AS IND
THE PREEMPTION SYSTEM SHALL BE COMPATIBLE WITH THE CITY'S EXISTING SYSTEM. OPTICOM
FOR THE INSTALLATION.

31. POWER SOURCE AT EACH INTERSECTION SHALL BE DETERMINED BY THE CITY. POWER INSTALLA
METER, SHALL MEET XCEL REQUIREMENTS.

32. THE CONTRACTOR SHALL COIL 50 FEET FOR EACH FIBER CABLE IN PULL BOXES THAT ARE DESIG
LOCATIONS AND 25 FEET IN ALL OTHER PULL BOXES.

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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_TRAF_NotesSignal.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:1 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

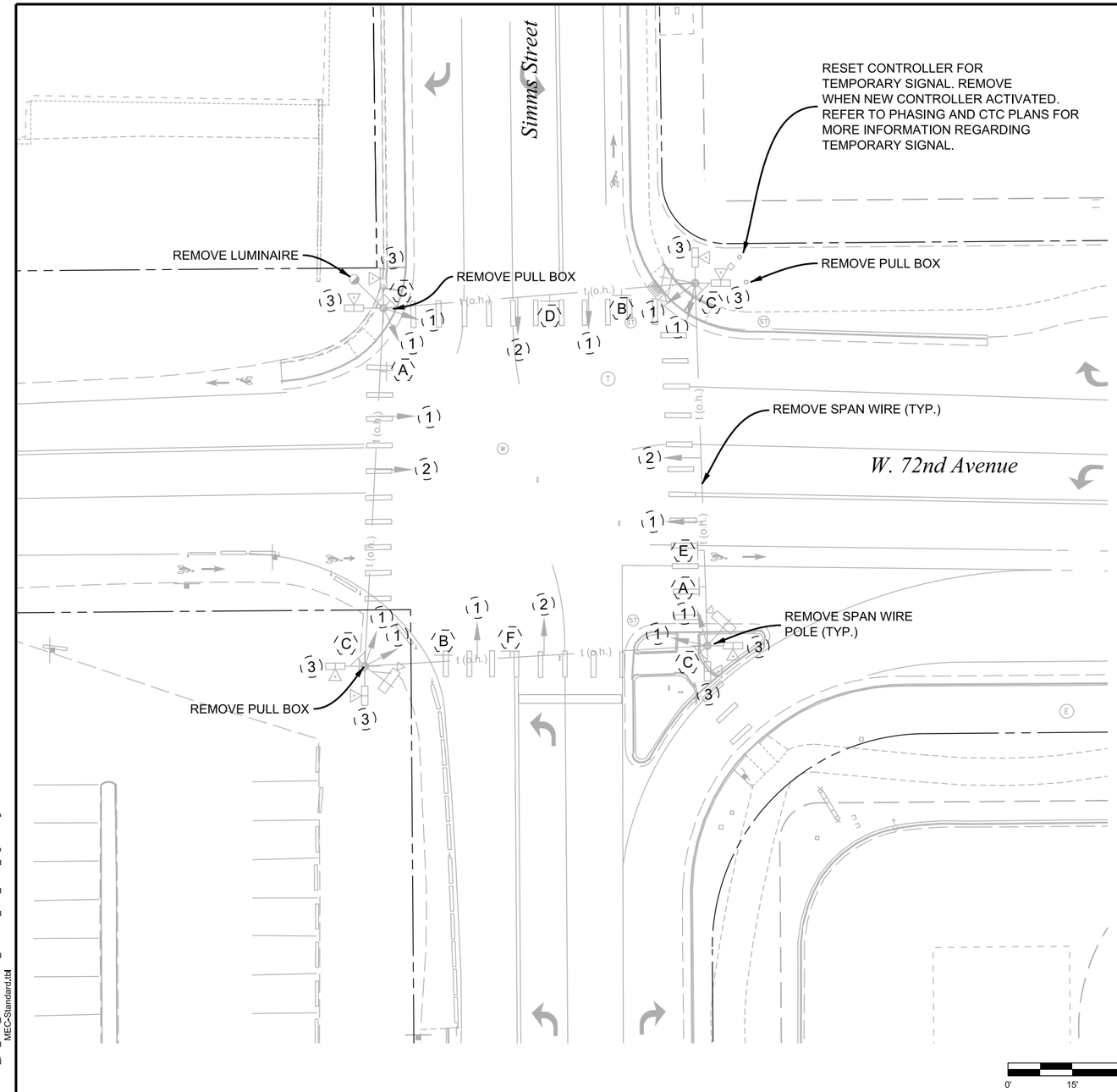
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

TRAFFIC SIGNAL GENERAL NOTES

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIGNAL	Subset Sheets:	1 of 1

Project No./Code

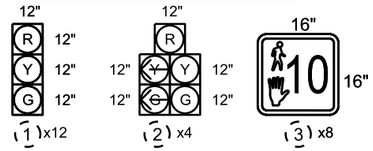
Sheet Number 364



LEGEND

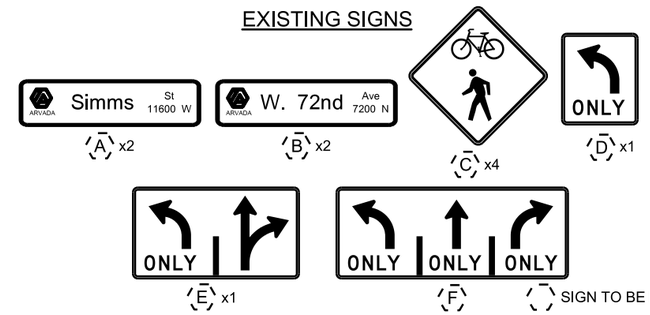
- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
- VIDEO DETECTION CAMERA
- SPAN WIRE POLE
- PEDESTAL POLE
- TRAFFIC PULL BOX
- LUMINAIRE
- MAST ARM MOUNTED SIGN
- CAISSON
- TR — TRAFFIC SIGNAL CONDUIT
- E — ELECTRICAL CONDUIT
- t(o.h.) — SPAN WIRE
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

EXISTING SIGNAL FACES

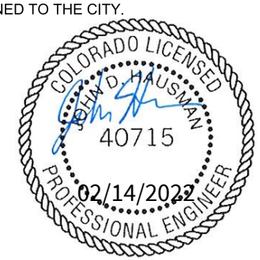


( ) SIGNAL HEADS TO BE REMOVED

EXISTING SIGNS



NOTES:
1. ALL CAMERA EQUIPTMENT AND TRAFFIC SIGNAL CONTROLLER ARE TO BE SALVAGED AND RETURNED TO THE CITY.



811 Know what's **below** **Call** before you dig.

Print Date: 9/17/2021	Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_TRAF_Signal01.dgn	Date:	Comments	Init.		No Revisions:	SIGNAL REMOVAL PLAN
Horiz. Scale: 1:30 Vert. Scale: As Noted					Revised:	SIMMS STREET
Unit Information Unit Leader Initials					Void:	Designer: AJL / Detailer: SAD / Sheet Subset: SIGNAL / Structure Numbers / Subset Sheets: 1 of 9
MULLER ENGINEERING COMPANY						Project No./Code: Sheet Number 365

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9/17/2021
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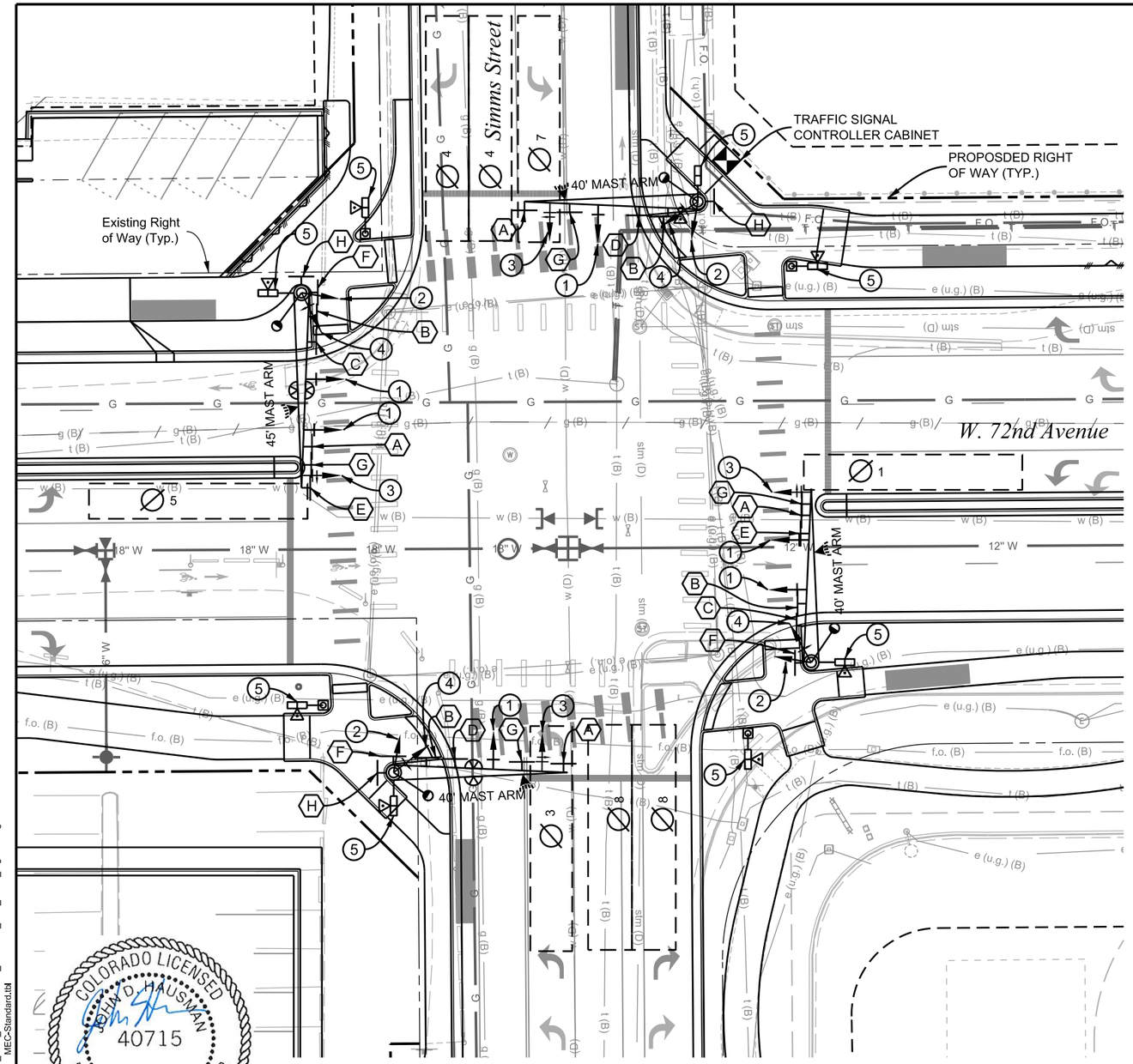


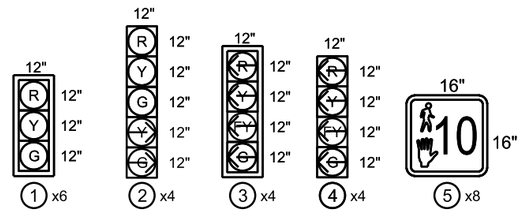
LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
- VIDEO DETECTION CAMERA
- SPAN WIRE POLE
- PEDESTAL POLE
- TRAFFIC PULL BOX
- LUMINAIRE
- MAST ARM MOUNTED SIGN
- CAISSON
- TR — TRAFFIC SIGNAL CONDUIT
- E — ELECTRICAL CONDUIT
- t(o.h.) — SPAN WIRE
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

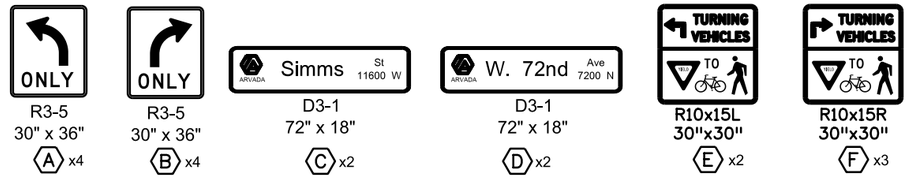
NOTE:

1. SIGNAL POLE LOCATIONS SHALL BE FIELD VERIFIED BY CITY OF ARVADA PRIOR TO INSTALLATION.
2. SIGNAL MOUNTED STREET NAME SIGNS SHALL BE FABRICTED AND INSTALLED BASED ON ARVADA TRAFFIC STANDARD DRAWING TR-12.
3. LUMINAIRES SHOWN SKEWED FOR CLARITY. LUMINAIRES SHALLBE DIRECTLY ABOVE SIGNAL MAST ARMS.
4. EXISTING POLE AND CABINET FOUNDATIONS SHALL BE REMOVED TWO LF BELOW FINISHED GRADE.
5. ADVANCE DETECTION SHALL BE CALIBRATED IN THE FIELD WITH WAVETRONICS.

PROPOSED SIGNAL HEADS



PROPOSED SIGNS



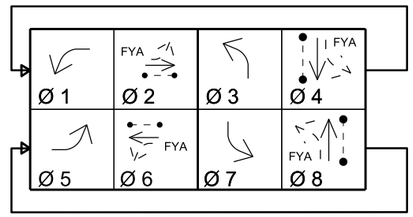
R3-5 30" x 36" (A) x4
R3-5 30" x 36" (B) x4
D3-1 72" x 18" (C) x2
D3-1 72" x 18" (D) x2
R10x15L 30"x30" (E) x2
R10x15R 30"x30" (F) x3

PUSH BUTTON DETAIL

R10-3 9"x12"

PUSH BUTTONS SHALL BE AUDIBLE PEDESTRIAN SIGNAL COMPLIANT

SIGNAL PHASING

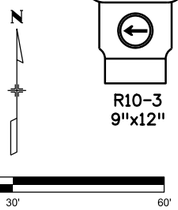


VEHICLE TRAFFIC MOVEMENT
PERMISSIVE VEHICLE MOVEMENT
PEDESTRIAN MOVEMENT

R10-21 (SPECIAL) 30"x36" (G) x4

R9-5 12"x18" (H) x3

811 Know what's below Call before you dig.



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Horiz. Scale: 1:30 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
PROPOSED SIGNAL PLAN
SIMMS STREET

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIGNAL	Subset Sheets:	2 of 9

Project No./Code

Sheet Number 366

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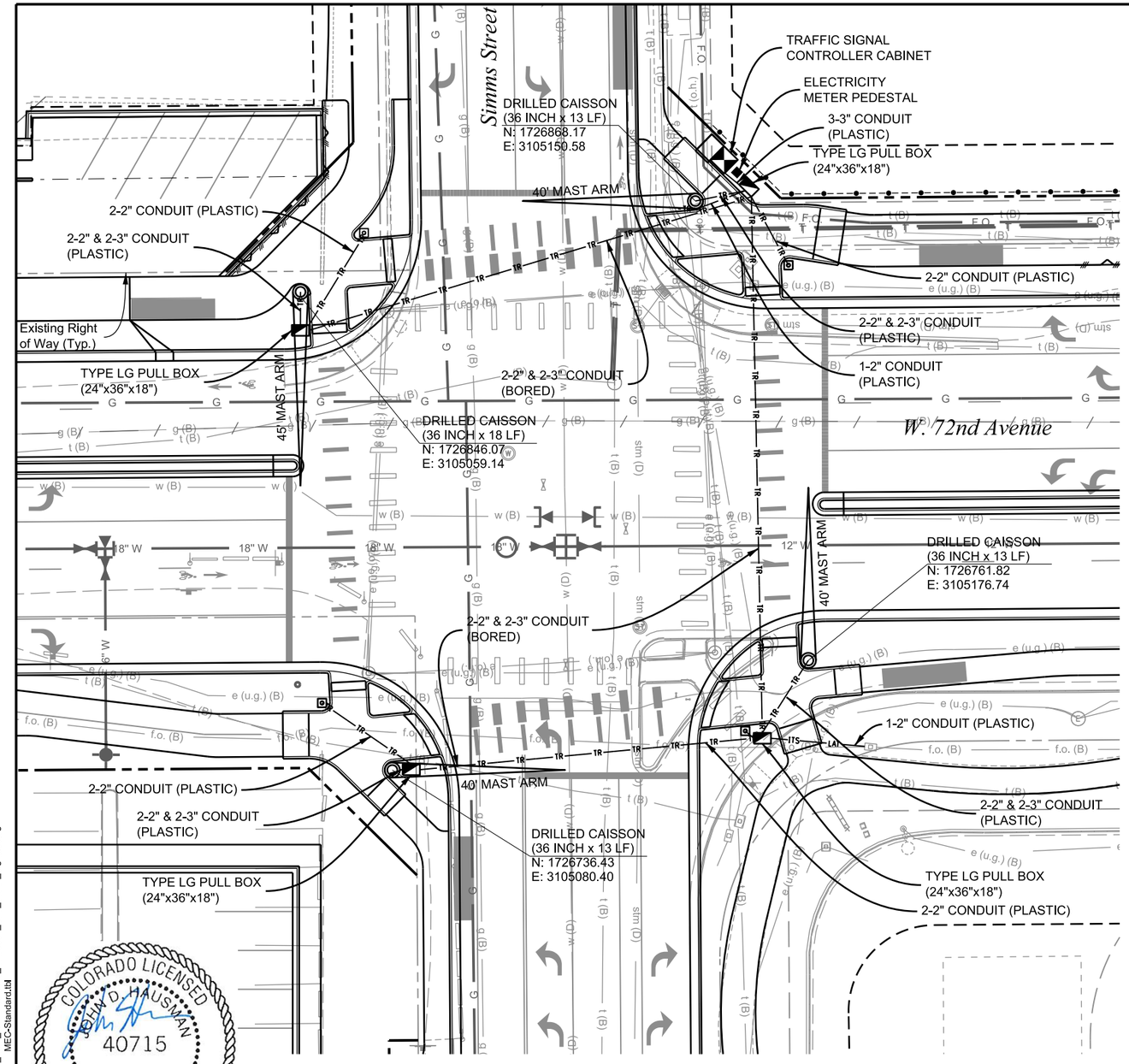

LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
- VIDEO DETECTION CAMERA
- SPAN WIRE POLE
- PEDESTAL POLE
- TRAFFIC PULL BOX
- LUMINAIRE
- MAST ARM MOUNTED SIGN
- CAISSON
- TR — TRAFFIC SIGNAL CONDUIT
- E — ELECTRICAL CONDUIT
- t(o.h.) — SPAN WIRE
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

TABULATION OF SIMMS TRAFFIC SIGNAL ITEMS

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	0.33
503-00018	DRILLED CAISSON (18 INCH)	LF	16
503-00036	DRILLED CAISSON (36 INCH)	LF	57
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	670
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	670
613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	325
613-01300	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	130
613	TYPE LG PULL BOX	EA	4
613-10000	WIRING	LS	0.33
613-13000	LUMINAIRE (LED)	EA	4
613-80130	SERVICE METER CABINET	EA	1
614-00011	SIGN PANEL (CLASS 1)	SF	144
614-10160	SIGNAL HEAD BACKPLATES	EA	10
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EA	8
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EA	6
614-70448	TRAFFIC SIGNAL FACE (12-12-12-12)	EA	8
614-70560	TRAFFIC SIGNAL FACE (12-12-12-12-12)	EA	4
614-72855	TRAFFIC SIGNAL CONTROLLER CABINET	EA	1
614-72860	PEDESTRIAN PUSH BUTTON	EA	8
614	FIRE PREEMPTION UNIT AND TIMER (DUAL EYE)	EA	2
614-72887	MICROWAVE VEHICLE RADAR DETECTOR	EA	6
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EA	3
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	EA	1
614-84000	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EA	4
614-86238	TRAFFIC SIGNAL CONTROLLER (SS)(FA)(8 PHASE)	EA	1
614-86800	UNINTERRUPTED POWER SUPPLY	EA	1
614-87010	FIBER OPTIC CABLE (SINGLE MODE) (12 FIBER)	LF	275
614-87333	CCTV CAMERA (TRAFFIC SURVEILLANCE)	EA	1
614-87690	ETHERNET SWITCH	EA	1

NOTE: SEE TABULATION OF SIGNS FOR SIGNING PAY ITEMS

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

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Call before you dig.

Print Date: 9/21/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Signal03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:30 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SIGNAL CONDUIT AND CAISSON PLAN SIMMS STREET			
Revised:	Designer: AJL	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: SIGNAL	Subset Sheets: 3 of 9		Sheet Number 367

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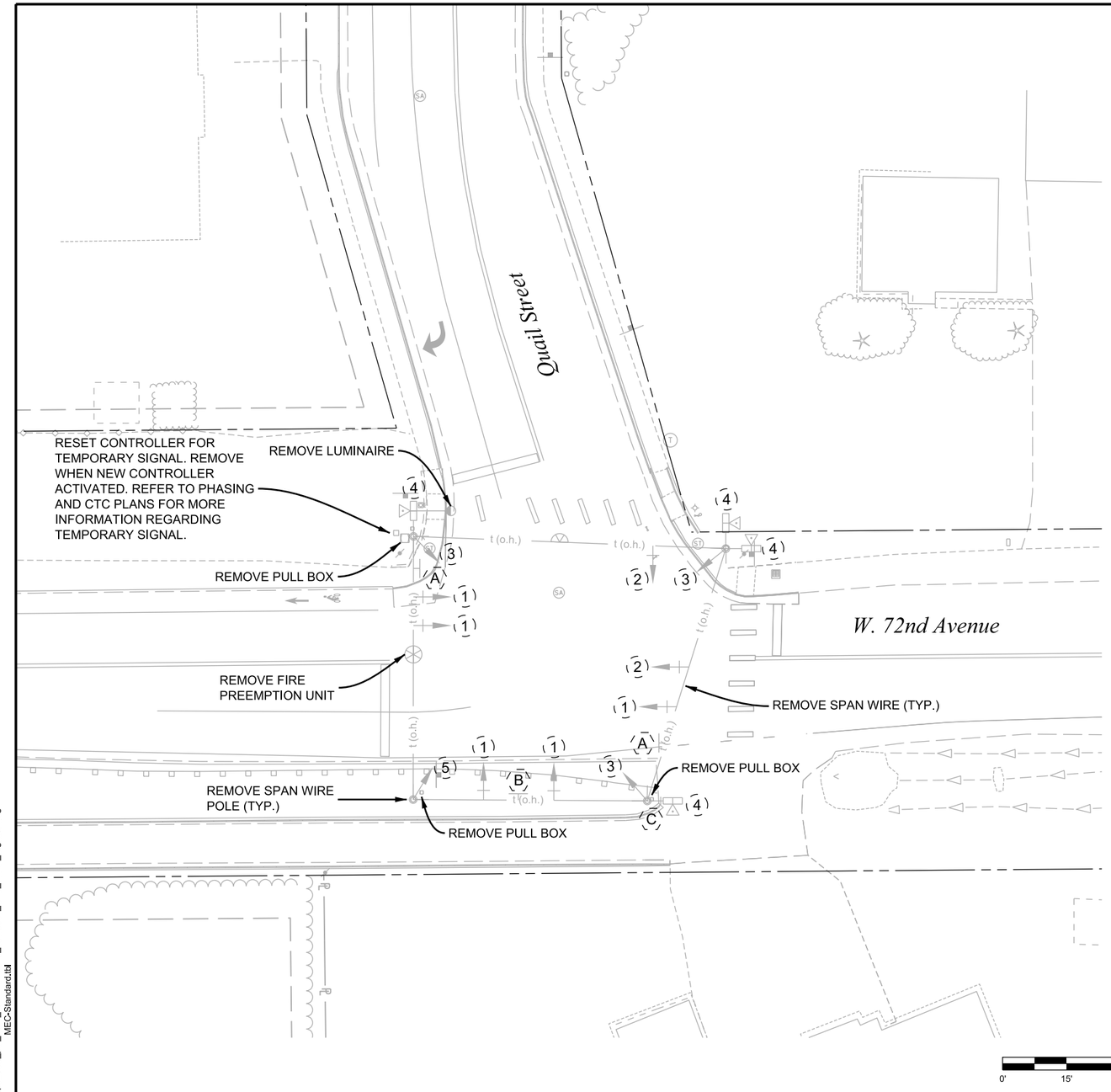

LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
- VIDEO DETECTION CAMERA
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- PEDESTAL POLE
- TRAFFIC PULL BOX
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- MAST ARM MOUNTED SIGN
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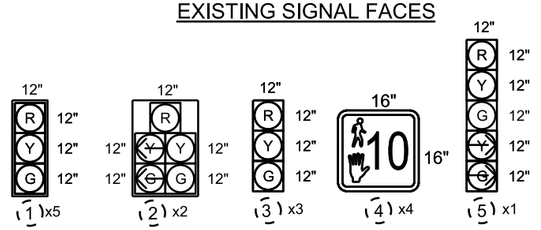
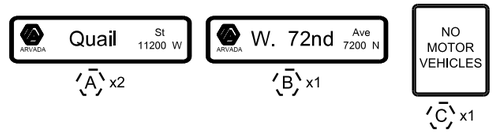
- t(o.h.) — SPAN WIRE
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

EXISTING SIGNAL FACES



(#) SIGNAL HEADS TO BE REMOVED

EXISTING SIGNS



(#) SIGN TO BE REMOVED

NOTES:
1. ALL CAMERA EQUIPTMENT AND TRAFFIC SIGNAL CONTROLLER ARE TO BE SALVAGED AND RETURNED TO THE CITY.

811 Know what's below Call before you dig.

Print Date: 9/17/2021		Sheet Revisions			CITY OF ARVADA	As Constructed
Drawing File Name: 18061_CP2_TRAF_Signal04.dgn		Date:	Comments	Init.		No Revisions:
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Unit Information Unit Leader Initials						Void:
MULLER ENGINEERING COMPANY						

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIGNAL REMOVAL
QUAIL STREET

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIGNAL	Subset Sheets:	4 of 9

Project No./Code

Sheet Number 368

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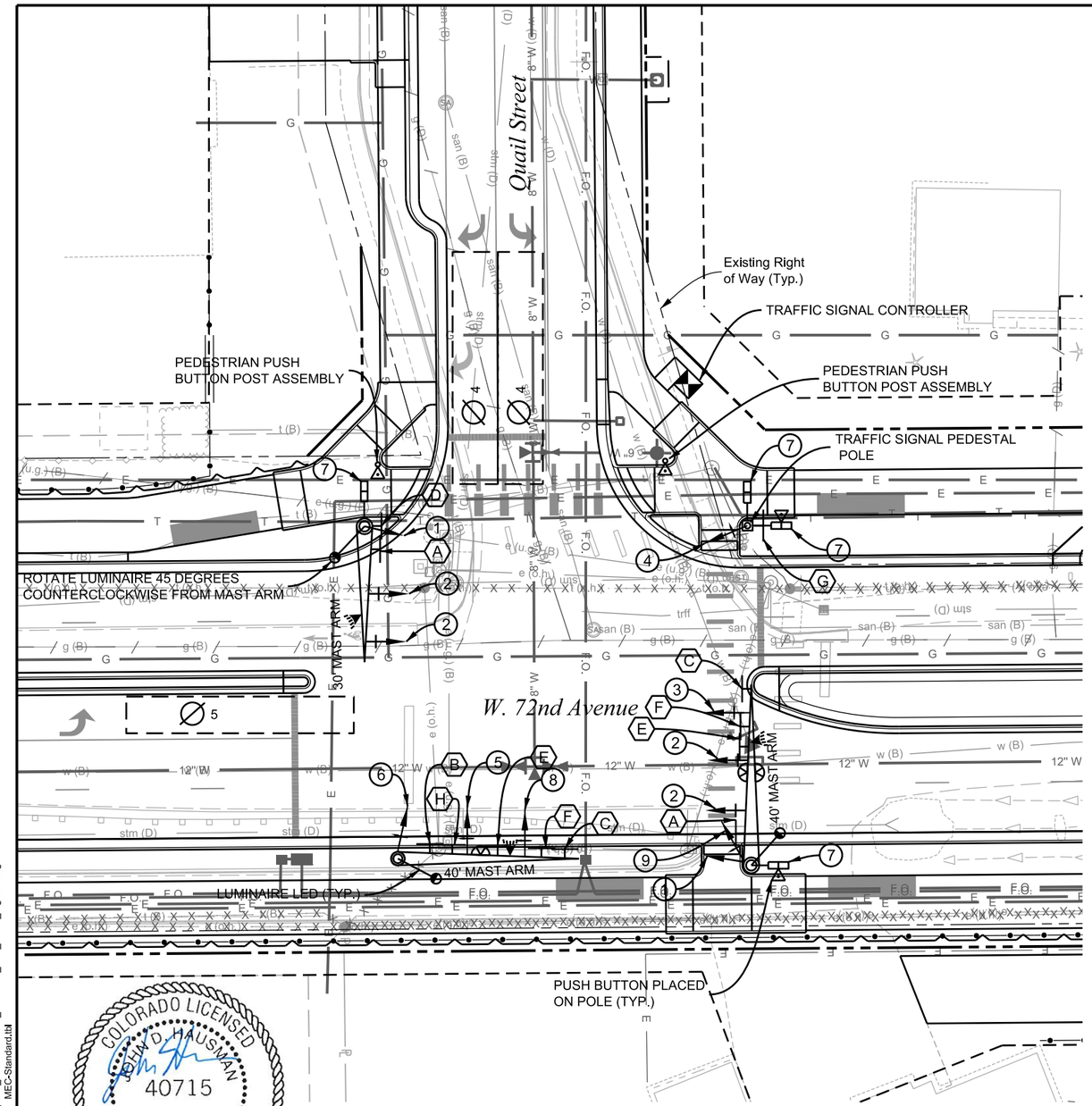

LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
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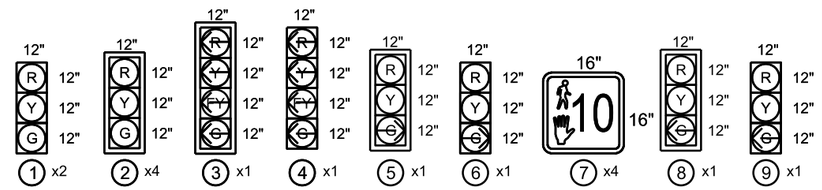
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

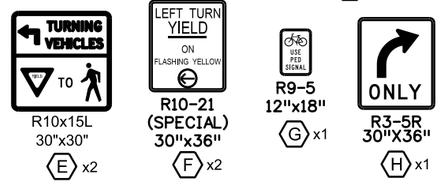
NOTES:

1. LUMINAIRES SHOWN SKEWED FOR CLARITY. LUMINAIRES SHALL BE DIRECTLY ABOVE SIGNAL MAST ARMS UNLESS OTHERWISE NOTED.
2. SIGNAL POLE AND PUSH BUTTON LOCATIONS SHALL BE FIELD VERIFIED BY CITY OF ARVADA PRIOR TO INSTALLATION.
3. SIGNAL MOUNTED STREET NAME SIGNS SHALL BE FABRICTED AND INSTALLED BASED ON ARVADA TRAFFIC STANDARD DRAWING TR-12.
4. EXISTING POLE AND CABINET FOUNDATIONS SHALL BE REMOVED 2 LF BELOW FINISHED GRADE.
5. ADVANCE DETECTION SHALL BE CALIBRATED IN THE FIELD WITH WAVETRONICS.

SIGNAL FACES



SIGNS



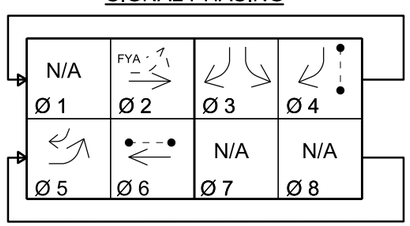
PUSH BUTTON DETAIL

PUSH BUTTONS SHALL BE AUDIBLE PEDESTRIAN SIGNAL COMPLIANT

N

0' 15' 30' 60'

SIGNAL PHASING



- VEHICLE TRAFFIC MOVEMENT
- PERMISSIVE VEHICLE MOVEMENT
- PEDESTRIAN MOVEMENT

COLORADO LICENSED JOHN D. HAUSMAN 40715 PROFESSIONAL ENGINEER 02/14/2022

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Print Date: 9/21/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
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Horiz. Scale: 1:30 Vert. Scale: As Noted				Revised:	QUAIL STREET
Unit Information Unit Leader Initials				Void:	Designer: AJL / Detailer: SAD / Sheet Subset: SIGNAL / Structure Numbers / Subset Sheets: 5 of 9
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code: Sheet Number 369

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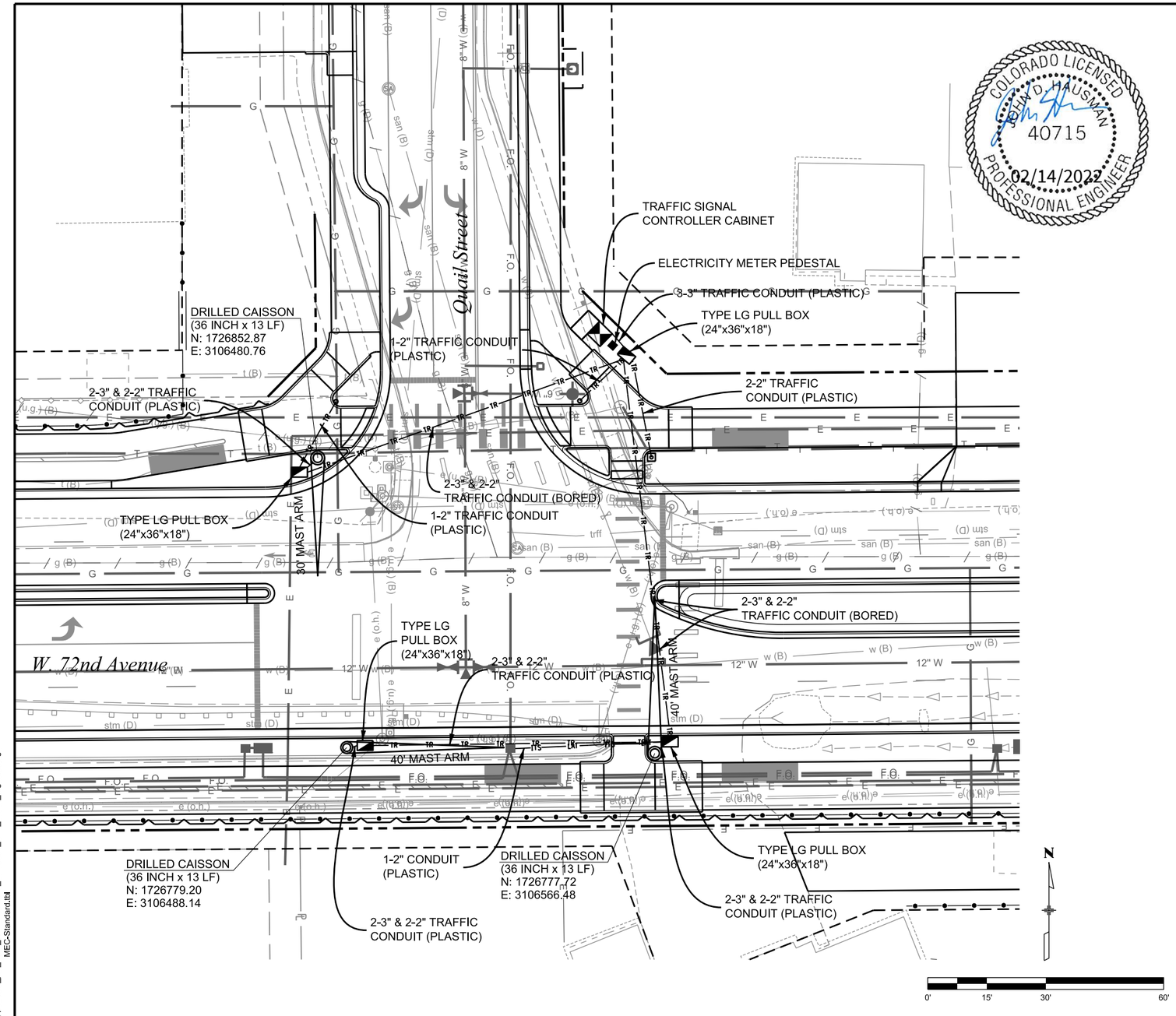

COLORADO LICENSED
JOHN D. HAUSMAN
40715
02/14/2022
PROFESSIONAL ENGINEER

LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
- VIDEO DETECTION CAMERA
- SPAN WIRE POLE
- PEDESTAL POLE
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- LUMINAIRE
- MAST ARM MOUNTED SIGN
- CAISSON
- TR — TRAFFIC SIGNAL CONDUIT
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- t(o.h.) — SPAN WIRE
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

TABULATION OF QUAIL TRAFFIC SIGNAL ITEMS

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	0.33
503-00018	DRILLED CAISSON (18 INCH)	LF	4
503-00036	DRILLED CAISSON (36 INCH)	LF	39
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	560
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)[1]	LF	250
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	560
613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	180
613-01300	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	55
613	TYPE LG PULL BOX	EA	4
613-10000	WIRING	LS	0.33
613-13000	LUMINAIRE (LED)	EA	3
613-80130	SERVICE METER CABINET	EA	1
614-00011	SIGN PANEL (CLASS 1)	SF	85
614-10160	SIGNAL HEAD BACKPLATES	EA	7
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EA	4
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EA	10
614-70448	TRAFFIC SIGNAL FACE (12-12-12-12)	EA	2
614-72855	TRAFFIC SIGNAL CONTROLLER CABINET	EA	1
614-72860	PEDESTRIAN PUSH BUTTON	EA	4
614-72863	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EA	2
614	FIRE PREEMPTION UNIT AND TIMER (DUAL EYE)	EA	2
614-72887	MICROWAVE VEHICLE RADAR DETECTOR	EA	5
614-81130	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-30 FOOT MAST ARM)	EA	1
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EA	2
614-84000	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EA	1
614-86238	TRAFFIC SIGNAL CONTROLLER (SS)(FA)(8 PHASE)	EA	1
614-86800	UNINTERRUPTED POWER SUPPLY	EA	1
614-87010	FIBER OPTIC CABLE (SINGLE MODE) (12 FIBER)	LF	265
614-87333	CCTV CAMERA (TRAFFIC SURVEILLANCE)	EA	1
614-87690	ETHERNET SWITCH	EA	1

NOTE: SEE TABULATION OF SIGNS FOR SIGNING PAY ITEMS

[1] CONDUIT QUANTITY REPRESETS FIBER BACKBONE ON QUAIL STREET

Know what's **below** **Call** before you dig.

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Drawing File Name:	18061_CP2_TRAF_Signal06.dgn
Horiz. Scale: 1:30	Vert. Scale: As Noted
Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

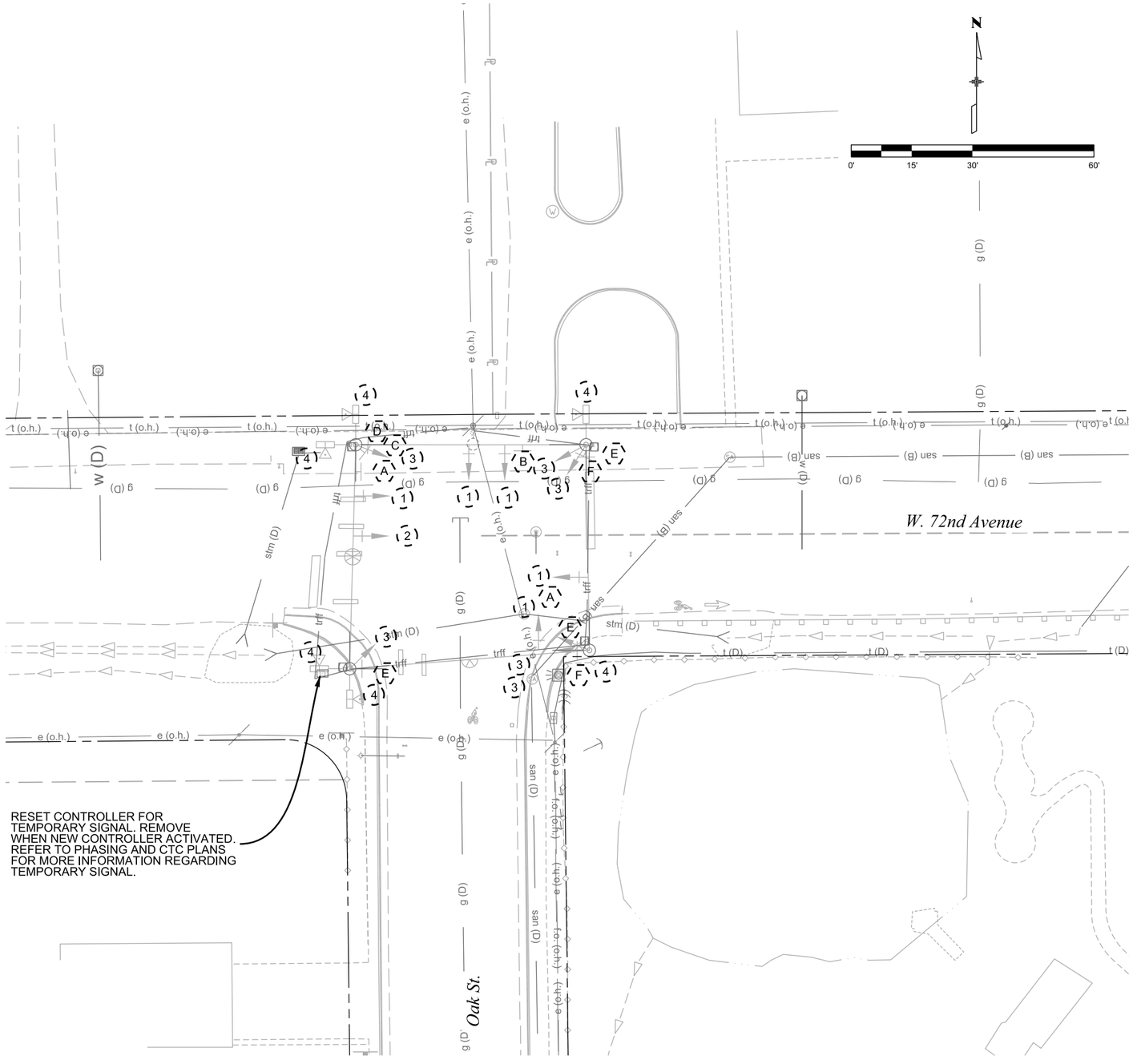
As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIGNAL CONDUIT AND CAISSON PLAN QUAIL STREET

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	SIGNAL	Subset Sheets:	6 of 9

Project No./Code	
Sheet Number	370



LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
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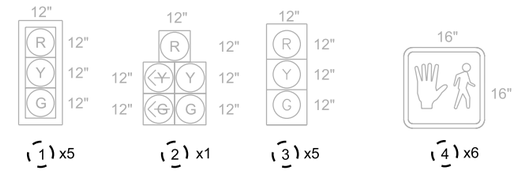
- FIRE PREEMPTION UNIT

EXISTING SIGNAL FACES



(1) x5 (2) x1 (3) x5 (4) x6

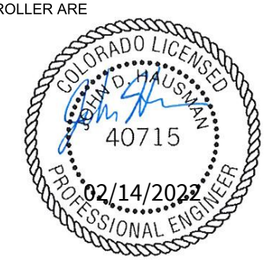
(1) SIGNAL HEADS TO BE REMOVED

EXISTING SIGNS

(A) x2 (B) x1 (C) x1 (D) x1 (E) x3 (F) x2

(A) SIGN TO BE REMOVED

NOTES:
1. ALL CAMERA EQUIPTMENT AND TRAFFIC SIGNAL CONTROLLER ARE TO BE SALVAGED AND RETURNED TO THE CITY.



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Unit Information Unit Leader Initials				Void:	Project No./Code
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Sheet Number 371

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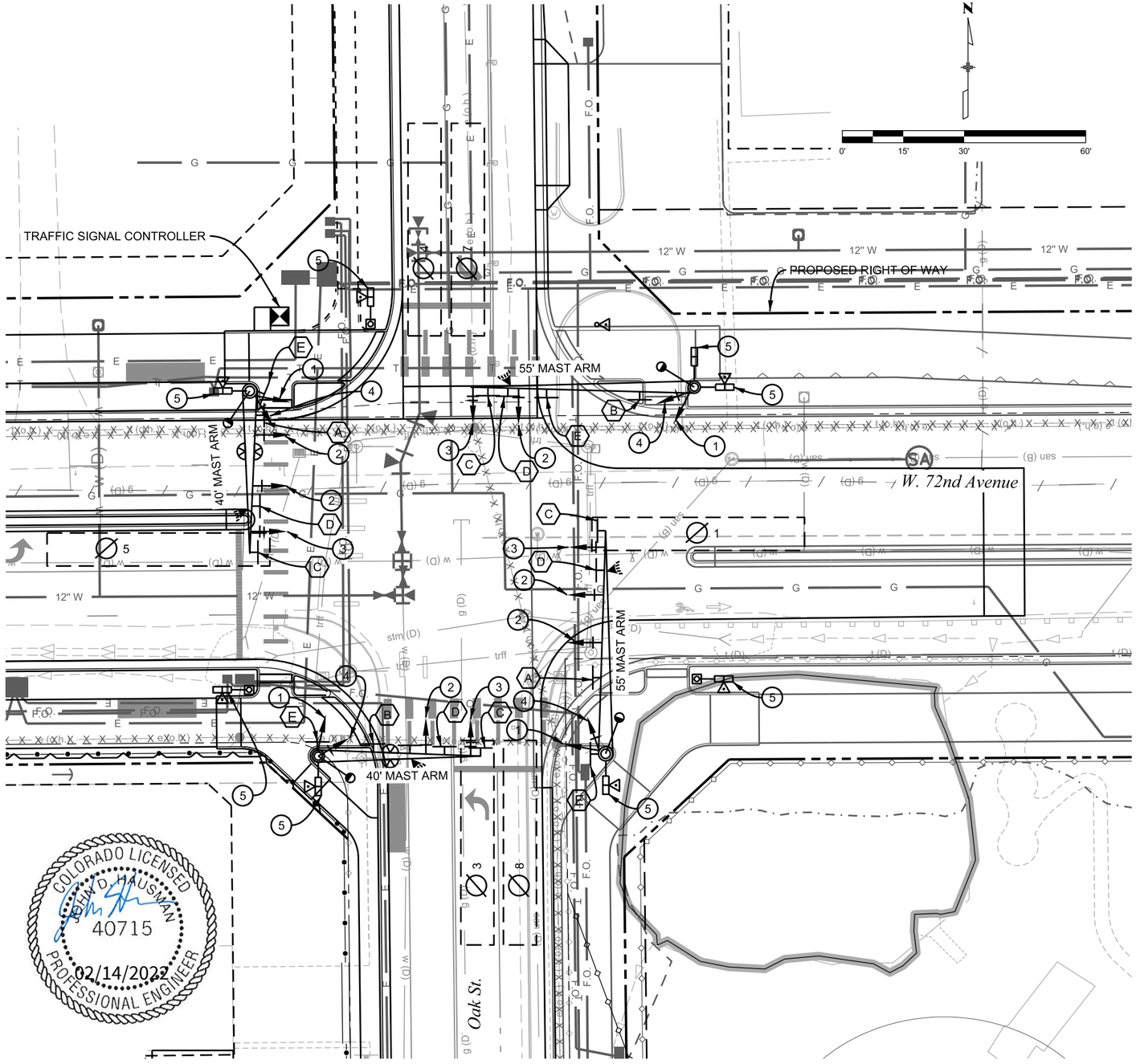
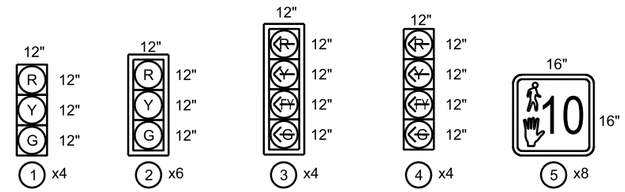


LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
- VIDEO DETECTION CAMERA
- SPAN WIRE POLE
- PEDESTAL POLE
- TRAFFIC PULL BOX
- LUMINAIRE
- MAST ARM MOUNTED SIGN
- CAISSON
- TR — TRAFFIC SIGNAL CONDUIT
- E — ELECTRICAL CONDUIT
- t(o.h.) — SPAN WIRE
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

NOTES:
1. LUMINAIRES SHOWN SKEWED FOR CLARITY. LUMINAIRES SHALL BE DIRECTLY ABOVE SIGNAL MAST ARMS.
2. SIGNAL POLE AND PUSH BUTTON LOCATIONS SHALL BE FIELD VERIFIED BY CITY OF ARVADA PRIOR TO INSTALLATION.
3. SIGNAL MOUNTED STREET NAME SIGNS SHALL BE FABRICTED AND INSTALLED BASED ON ARVADA TRAFFICSTANDARD DRAWING TR-12.
4. EXISTING POLE AND CABINET FOUNDATIONS SHALL BE REMOVED 2 LF BELOW FINISHED GRADE.
5. ADVANCE DETECTION SHALL BE CALIBRATED IN THE FIELD WITH WAVETRONICS.

SIGNAL FACES



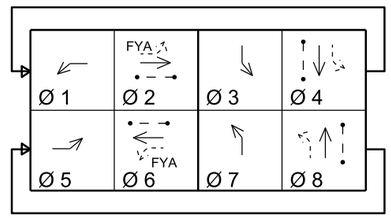
SIGNS

PUSH BUTTON DETAIL

R10-3 9"x12"

PUSH BUTTONS SHALL BE AUDIBLE PEDESTRIAN SIGNAL COMPLIANT

SIGNAL PHASING



VEHICLE TRAFFIC MOVEMENT
PERMISSIVE VEHICLE MOVEMENT
PEDESTRIAN MOVEMENT

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CITY OF ARVADA

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No Revisions:	PROPOSED SIGNAL PLAN OAK STREET			
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EDWARD HAUSMAN
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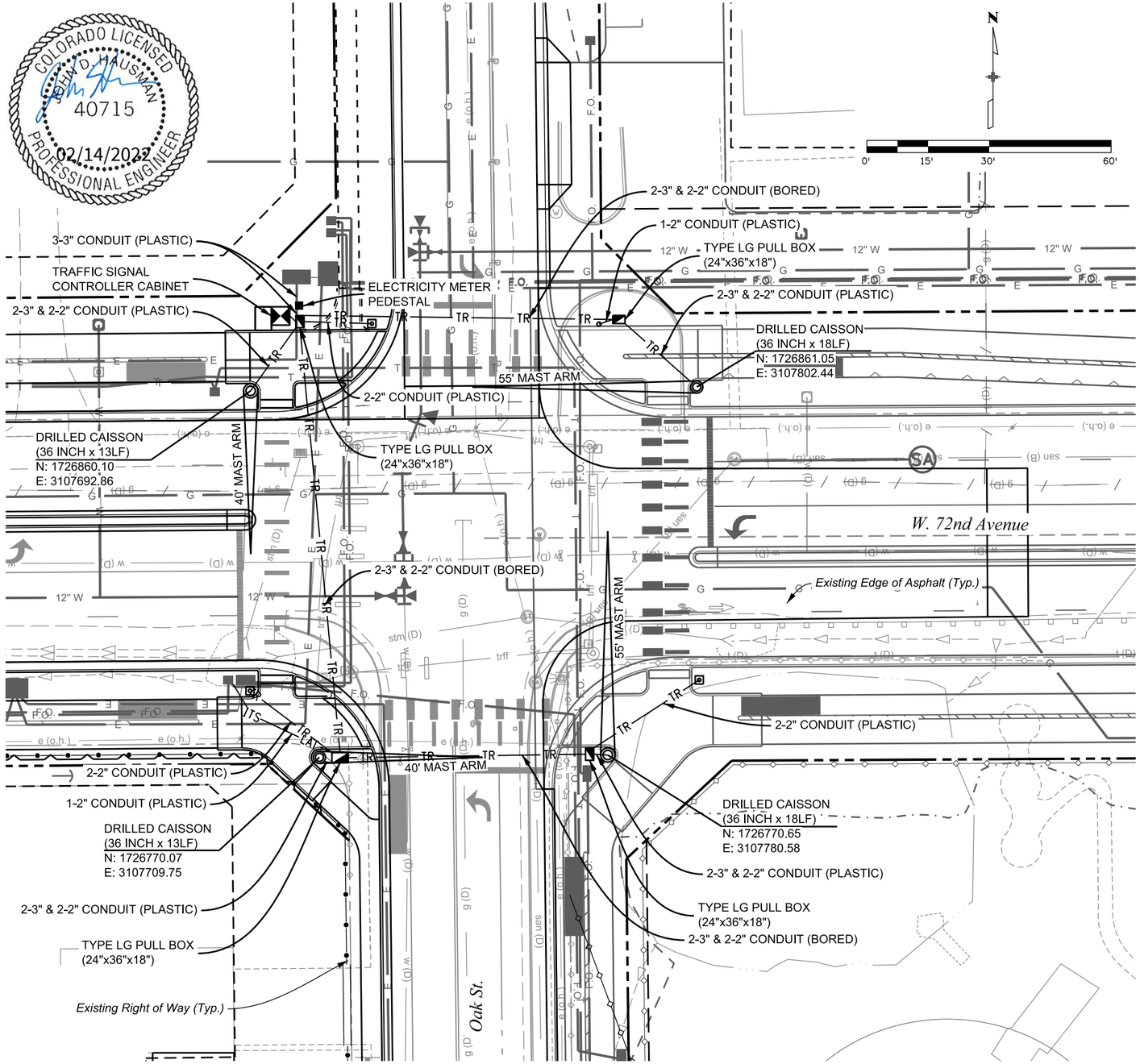

LEGEND

- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- TURNING MOVEMENT SIGNAL HEAD
- PEDESTRIAN SIGNAL FACE
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN PUSH BUTTON POST ASSEMBLY
- TRAFFIC SIGNAL CONTROLLER
- VIDEO DETECTION CAMERA
- SPAN WIRE POLE
- PEDESTAL POLE
- TRAFFIC PULL BOX
- LUMINAIRE
- MAST ARM MOUNTED SIGN
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- TR — TRAFFIC SIGNAL CONDUIT
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- t(o.h.) — SPAN WIRE
- ØX — VEHICLE DETECTION ZONE
- MICROWAVE VEHICLE RADAR DETECTOR
- FIRE PREEMPTION UNIT

TABULATION OF OAK TRAFFIC SIGNAL ITEMS

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	0.33
503-00018	DRILLED CAISSON (18 INCH)	LF	16
503-00036	DRILLED CAISSON (36 INCH)	LF	62
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	520
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	520
613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	330
613-01300	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	145
613	TYPE LG PULL BOX	EA	4
613-10000	WIRING	LS	0.33
613-13000	LUMINAIRE (LED)	EA	4
613-80130	SERVICE METER CABINET	EA	1
614-00011	SIGN PANEL (CLASS 1)	SF	116
614-10160	SIGNAL HEAD BACKPLATES	EA	10
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EA	8
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EA	10
614-70448	TRAFFIC SIGNAL FACE (12-12-12-12)	EA	8
614-72855	TRAFFIC SIGNAL CONTROLLER CABINET	EA	1
614-72860	PEDESTRIAN PUSH BUTTON	EA	8
614-72863	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EA	1
614	FIRE PREEMPTION UNIT AND TIMER (DUAL EYE)	EA	2
614-72887	MICROWAVE VEHICLE RADAR DETECTOR	EA	6
614-81140	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST ARM)	EA	2
614-81155	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)	EA	3
614-84000	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EA	1
614-86238	TRAFFIC SIGNAL CONTROLLER (SS)(FA)(8 PHASE)	EA	1
614-86800	UNINTERRUPTED POWER SUPPLY	EA	1
614-87010	FIBER OPTIC CABLE (SINGLE MODE) (12 FIBER)	LF	265
614-87333	CCTV CAMERA (TRAFFIC SURVEILLANCE)	EA	1
614-87690	ETHERNET SWITCH	EA	1

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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SIGNAL CONDUIT & CAISSON PLAN OAK STREET

Designer: AJL
Detailer: SAD
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Subset Sheets: 9 of 9

Project No./Code:

Sheet Number 373

CONSTRUCTION TRAFFIC CONTROL NOTES

1. IT IS THE INTENT OF THE TRAFFIC CONTROL NOTES AND PLANS TO CONVEY TO THE CONTRACTOR THE GENERAL, BUT ESSENTIAL, DESIGN ELEMENTS REQUIRED TO CONSTRUCT THE PROJECT. OTHER MINI-PHASES (NOT INDICATED IN THE PLAN SET) USING TEMPORARY LANE CLOSURES MAY BE NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL SUBMIT TO CDOT FOR REVIEW AND APPROVAL, A METHOD OF HANDLING TRAFFIC (MHT) CONFORMING TO CDOT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND M&S STANDARDS TWO WEEKS PRIOR TO RELATED CONSTRUCTION ACTIVITY.

2. ALL CONSTRUCTION TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION, AND APPLICABLE STANDARDS IN THE 2019 COLORADO DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE 2019 COLORADO DEPARTMENT OF TRANSPORTATION STANDARD PLANS M&S STANDARDS.

3. REFER TO CDOT M&S STANDARD PLAN S-630-1, CURRENT REVISION, FOR STANDARD TRAFFIC CONTROL CASES THAT WILL BE REQUIRED TO IMPLEMENT PHASES AND OTHER TRAFFIC CONTROL CONDITIONS. ALL TRAFFIC CONTROL DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE CONSTRUCTION TRAFFIC CONTROL PLANS, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION, AND CDOT M&S STANDARD PLAN S-630-1.

4. THE CONTRACTOR SHALL BEAR RESPONSIBILITY AND EXPENSE FOR MAINTAINING ADEQUATE DRAINAGE AND SAFE DRIVING CONDITIONS AT ALL TIMES. THIS WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF RELATED WORK.

5. APPROPRIATE ADVANCE WARNING SIGNS SHALL BE PLACED AS NEEDED. THESE SHALL BE SHOWN IN THE MHT TO BE APPROVED BY THE ENGINEER.

6. 11' MINIMUM WIDTH FOR LANES SHALL BE MAINTAINED AT ALL TIMES UNLESS APPROVED BY THE ENGINEER.

7. A MINIMUM SHOULDER WIDTH OF 2 FEET SHALL BE PROVIDED BETWEEN THE CHANNELIZING DEVICE AND EDGE OF TRAVEL LANE AT ALL TIMES, UNLESS APPROVED BY THE ENGINEER.

8. UNLESS SHOWN OTHERWISE, MINIMUM REDIRECT TAPER RATES SHALL BE 25:1 AND BAY TAPER RATES SHALL BE 12:1.

9. SLOPES WITHIN THE CLEAR ZONE SHALL BE 3:1 OR FLATTER UNLESS PROTECTED BY CONCRETE BARRIER (TEMPORARY). CONCRETE BARRIER (TEMPORARY) SHALL HAVE BOTH ENDS PROTECTED WITH AN IMPACT ATTENUATOR (TEMPORARY).

10. REMOVAL OF TEMPORARY PAVEMENT MARKINGS FOR TEMPORARY LANES WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF PAVEMENT MARKING PAINT. PAINT REMOVALS MUST BE DISPOSED OF PROPERLY OFF-SITE.

11. CONTRACTOR SHALL MAINTAIN SAFE AND REASONABLE ACCESS TO PRIVATE PROPERTIES AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER AND THE PROPERTY OWNER IN WRITING.

12. EXISTING SIGNS IN CONFLICT WITH THE TEMPORARY LANES SHALL BE COVERED OR RESET AS CONDITIONS REQUIRE FOR EACH CONSTRUCTION PHASE AND AS DIRECTED BY THE ENGINEER. MASKING OF EXISTING SIGNS, INCLUDING THE COVERING MATERIALS AND FASTENING DEVICES, WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE CONSTRUCTION TRAFFIC SIGNS.

13. IF EXISTING TRAFFIC SIGNAL CONTROLLERS CANNOT BE RESET, CONTRACTOR SHALL INSTALL A TEMPORARY OR THE PROPOSED NEW TRAFFIC SIGNAL CONTROLLER TO OPERATE THE TEMPORARY SIGNAL.

NOTES:
1. REFER TO CITY OF ARVADA STANDARD DRAWINGS TC-1 THROUGH TC-17 FOR TRAFFIC CONTROL DETAILS.

SUGGESTED CONSTRUCTION PHASING WORK ITEMS

(REFER TO CONSTRUCTION TRAFFIC CONTROL SHEETS FOR EACH PHASE FOR ADDITIONAL DETAILS.)

PHASE 0:

- RESET EXISTING TRAFFIC SIGNAL CONTROLLERS AT SIMMS, QUAIL, AND OAK INSTERSECTIONS OUTSIDE OF THE TEMPORARY ASPHALT PAVING AREA.
- INSTALL TEMPORARY SPAN WIRE SIGNALS AT SIMMS, QUAIL, AND OAK INTERSECTIONS.
- REMOVE EXISTING SPAN WIRES AND SIGNAL POLES AT 72ND AVE AND SIMMS ST.
- CONSTRUCT TEMPORARY ASPHALT PAVEMENT ALONG THE NORTH EDGE OF 72ND AVENUE BETWEEN SWADLEY CT AND OAK ST SUFFICIENT FOR ONE THROUGH LANE AND AN ADDITIONAL 8 FEET FOR BICYCLES AND PEDESTRIANS.
- INSTALL BOLLARDS/FLEX POSTS BETWEEN TEMPORARY TRAFFIC LANES AND 8 FOOT BICYCLE/PEDESTRIAN LANE.

PHASE 1:

- INSTALL CHANNELIZING DEVICES AND TEMPORARY PAVEMENT MARKINGS ALONG 72ND AVE. REDIRECT EXISTING THRU LANES TO UTILIZE THE NORTH SIDE OF 72ND AVE. ADJUST LOCATION OF SPAN WIRE SIGNAL HEADS TO ALIGN WITH TEMPORARY LANES.
- TRENCH AND INSTALL WATER LINE AND STORM SEWER WITHIN CONSTRUCTION LIMITS.
- CONSTRUCT PROPOSED WIDENING ALONG 72ND AVE. CONSTRUCT PROPOSED SIDEWALKS AND DRIVEWAYS AS SHOWN IN PLANS. CONSTRUCT RAISED MEDIANS IN LOCATIONS THAT DO NOT CONFLICT WITH FUTURE TEMPORARY TRAFFIC PHASES.
- MAINTAIN THE EXISTING SIMMS ST INTERSECTION ELEVATION. CONSTRUCT RAMP DOWN GRADES ON 72ND AVE, AS SHOWN IN PLANS, TO TIE PROPOSED WIDENING TO EXISTING INTERSECTION.
- INSTALL PERMANENT TRAFFIC SIGNALS ON SOUTH SIDE OF 72ND AVE AT SIMMS ST, QUAIL ST, AND OAK ST MAINTAIN TEMPORARY SPAN WIRE SIGNAL OPERATIONS.

PHASE 2:

- SHIFT TRAFFIC TO THE NEWLY CONSTRUCTED SOUTH HALF OF 72ND AVE FROM PHASE 1. INSTALL CHANNELIZING DEVICES AND TEMPORARY PAVEMENT MARKINGS. ADJUST LOCATION OF SPAN WIRE SIGNAL HEADS TO ALIGN WITH TEMPORARY LANES.
- TRENCH AND INSTALL GAS AND ELECTRIC LINES WITHIN CONSTRUCTION LIMITS.
- CONSTRUCT PROPOSED WIDENING ALONG 72ND AVE. CONSTRUCT PROPOSED SIDEWALKS AND DRIVEWAYS ALONG 72ND AVENUE. CONSTRUCT RAISED MEDIANS IN LOCATIONS THAT DO NOT CONFLICT WITH FUTURE TEMPORARY TRAFFIC PHASES
- INSTALL PERMANENT TRAFFIC SIGNALS ON NORTH SIDE OF 72ND AVE AT SIMMS ST, QUAIL ST, AND OAK STREET. ACTIVATE THE PERMANENT TRAFFIC SIGNALS AT QUAIL ST AND OAK ST. REMOVE SPAN WIRE SIGNALS AT BOTH LOCATIONS.

PHASE 3A:

- REDIRECT TRAFFIC AT THE INTERSECTION OF 72ND AVE AND SIMMS ST TO THE NORTH HALF OF THE INTERSECTION. ADJUST LOCATION OF SPAN WIRE SIGNAL HEADS TO ALIGN WITH TEMPORARY LANES. MAINTAIN ACCESS TO THE NORTH LEG OF SIMMS ST.
- IMPLEMENT THE PROPOSED DETOUR PLAN FOR THE CLOSURE OF THE SOUTH LEG OF SIMMS ST. CLOSE THE SOUTH LEG OF SIMMS ST.
- TRENCH AND INSTALL STORM SEWER WITHIN CONSTRUCTION LIMITS ON SIMMS ST SOUTH OF 72ND AVE.
- CONSTRUCT PROPOSED WIDENING ALONG SIMMS ST SOUTH OF 72ND AVE. CONSTRUCT PROPOSED SIDEWALKS AND DRIVEWAYS ALONG SIMMS ST SOUTH OF 72ND AVE.
- COMPLETE CONSTRUCTION OF THE SOUTH HALF OF SIMMS ST INTERSECTION.
- COMPLETE INSTALLATION OF REMAINING RAISED MEDIANS ON 72ND AVE.

PHASE 3B:

- REDIRECT TRAFFIC AT THE INTERSECTION OF 72ND AVENUE AND SIMMS STREET TO THE SOUTH HALF OF THE INTERSECTION. ADJUST LOCATION OF SPAN WIRE SIGNAL HEADS TO ALIGN WITH TEMPORARY LANES.
- MAINTAIN CLOSURE OF THE SOUTH LEG OF SIMMS ST. IMPLEMENT THE PROPOSED DETOUR PLAN FOR THE FULL CLOSURE OF SIMMS ST. CLOSE THE NORTH LEG OF SIMMS ST.
- TRENCH AND INSTALL UTILITIES WITHIN CONSTRUCTION LIMITS ON SIMMS STREET NORTH OF 72ND AVE.
- CONSTRUCT PROPOSED WIDENING ALONG SIMMS STREET NORTH OF 72ND AVENUE. CONSTRUCT PROPOSED SIDEWALKS ALONG SIMMS STREET NORTH OF 72ND AVENUE.
- INSTALL ANY REMAINING PERMANENT PAVEMENT MARKINGS AND SHIFT TRAFFIC TO ULTIMATE LANE CONFIGURATION USING TEMPORARY TRAFFIC CONTROL DEVICES AS NEEDED.
- ACTIVATE PERMANENT TRAFFIC SIGNAL AT SIMMS ST. REMOVE SPAN WIRE SIGNAL.
- REOPEN SIMMS ST. REMOVE SIMMS ST DETOURS.

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No Revisions:	TRAFFIC CONTROL NOTES AND TABULATIONS		
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Void:	Detailer: SAD		
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TABULATION OF CONSTRUCTION TRAFFIC CONTROL DEVICES

ITEM NO.	ITEM	UNIT	TOTALS
612-00043	DELINEATOR (FLEXIBLE) (SURFACE MOUNTED)	EA	185
621-00450	DETOUR PAVEMENT	SY	8,700
627-00011	PAVEMENT MARKING PAINT (WATERBORNE)	GAL	95
630-00000	FLAGGING	HOUR	2,000
630-00003	UNIFORMED TRAFFIC CONTROL	HOUR	100
630-00007	TRAFFIC CONTROL INSPECTION	DAY	43
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	107
630-80336	BARRICADE (TYPE 3 M-B) (TEMPORARY)	EA	4
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EA	133
630-80342	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EA	24
630-80355	PORTABLE MESSAGE SIGN PANEL	EA	6
630-80360	DRUM CHANNELIZING DEVICE	EA	44
630-80370	CONCRETE BARRIER (TEMPORARY)	LF	3,100
630-85010	IMPACT ATTENTUATOR (TEMPORARY)	EA	8
630-86810	TRAFFIC SIGNAL (TEMPORARY)	EA	3

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL SIGNS

SIGN CODE	LEGEND	DIMENSION	PANEL SIZE	
			A	B
		W x H	EA	EA
G20-5P	WORK ZONE	24 x 18	16	
G20-10	XYZ CONSTRUCTION THANKS YOU	48 x 48		3
R2-1(25)	SPEED LIMIT 25	24 x 30	1	
R2-1(30)	SPEED LIMIT 30	24 x 30	1	
R2-1(35)	SPEED LIMIT 35	24 x 30	9	
R2-1(40)	SPEED LIMIT 40	24 x 30	2	
R2-6aP	FINES DOUBLE	24 x 18	8	
R11-2	ROAD CLOSED	48 x 30		4
R52-6A	BEGIN FINES DOULBE IN WORK ZONE	36 x 48		3
R52-6B	END FINES DOUBLE IN WORK ZONE	36 x 48		3
W1-4L	LEFT REVERSE CURVE	36 x 36	4	
W1-4R	RIGHT REVERSE CURVE	36 x 36	2	
W1-6L	LEFT ARROW	48 x 24	1	
W1-6R	RIGHT ARROW	48 x 24	1	
W20-1	ROAD WORK XXXX FT	36 x 36	7	
W20-2	DETOUR XXXX FT	36 x 36	6	
W20-3	ROAD CLOSED XXXX FT	36 x 36	4	
M4-9L	DETOUR LEFT ARROW	30 x 24	7	
M4-9R	DETOUR RIGHT ARROW	30 x 24	8	
M4-10L	DETOUR LEFT	48 x 18	1	
R11-4	ROAD CLOSED TO THROUGH TRAFFIC	60 x 30		6
D3-1	STREET NAME SIGN	24 x 12	25	
M4-9b	PEDESTRIAN DETOUR	30 x 24	10	
R9-9	SIDEWALK CLOSED	12 x 24	10	
	CONTINGENCY		10	5
TOTALS			133	24

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TRAFFIC CONTROL NOTES AND TABULATIONS

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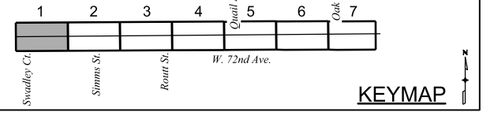

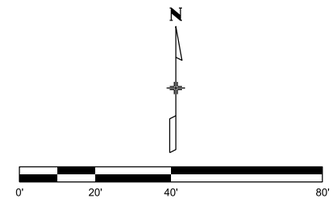

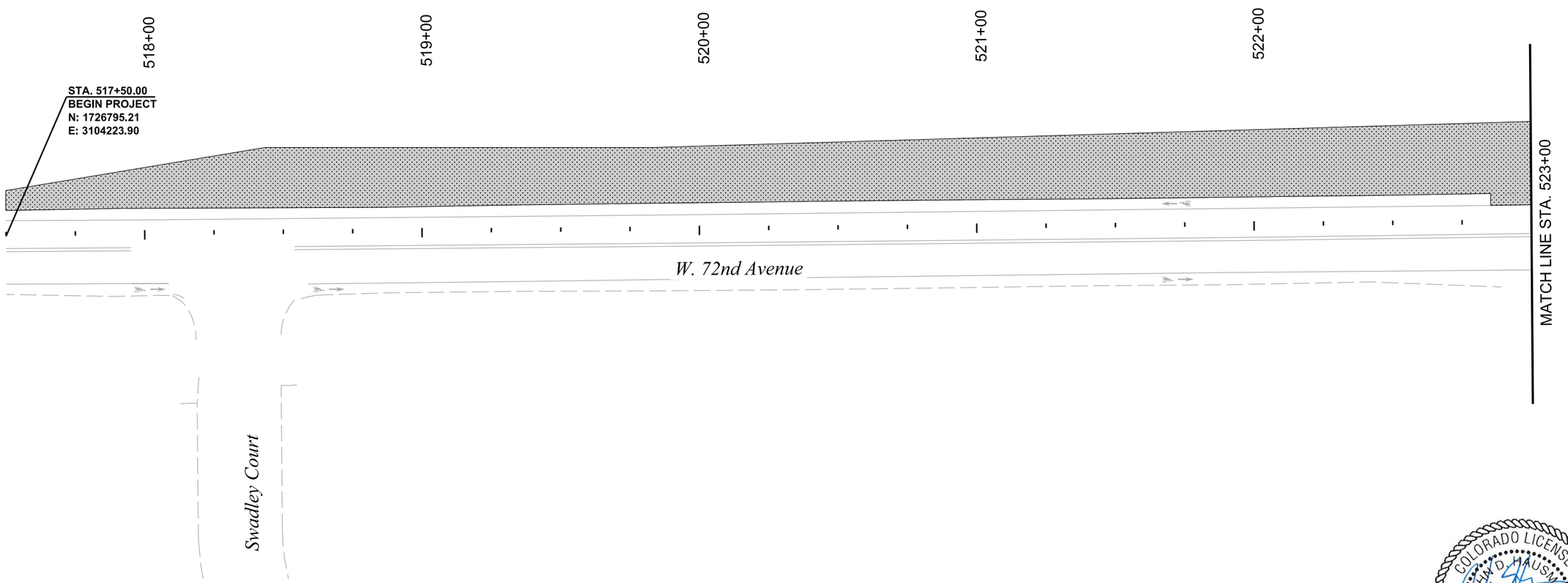

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

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SUGGESTED CONSTRUCTION PHASING - PHASE 0 - W. 72ND AVENUE

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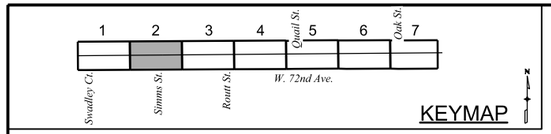
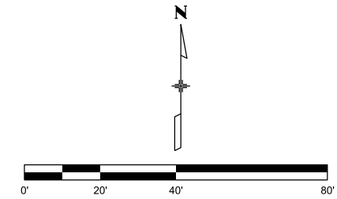
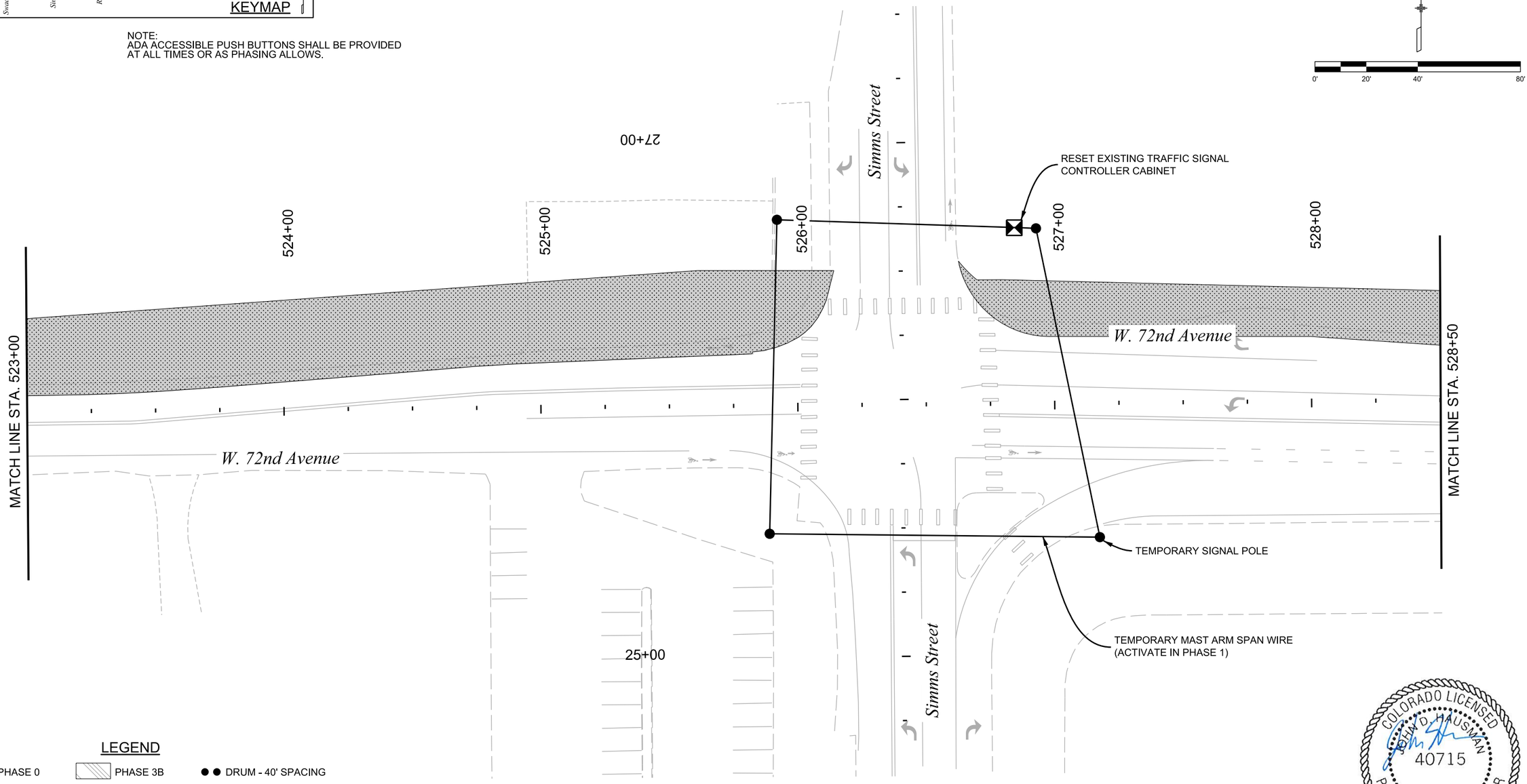


NOTE:
ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.





LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase0_02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SUGGESTED CONSTRUCTION PHASING - PHASE 0 - W. 72ND AVENUE			
Revised:	Designer: AJL	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: PHASING	Subset Sheets: 2 of 7		Sheet Number 377

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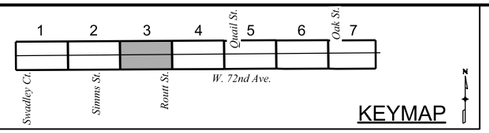

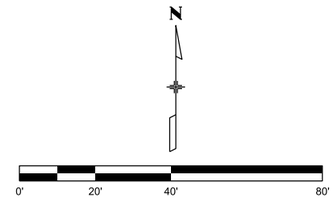

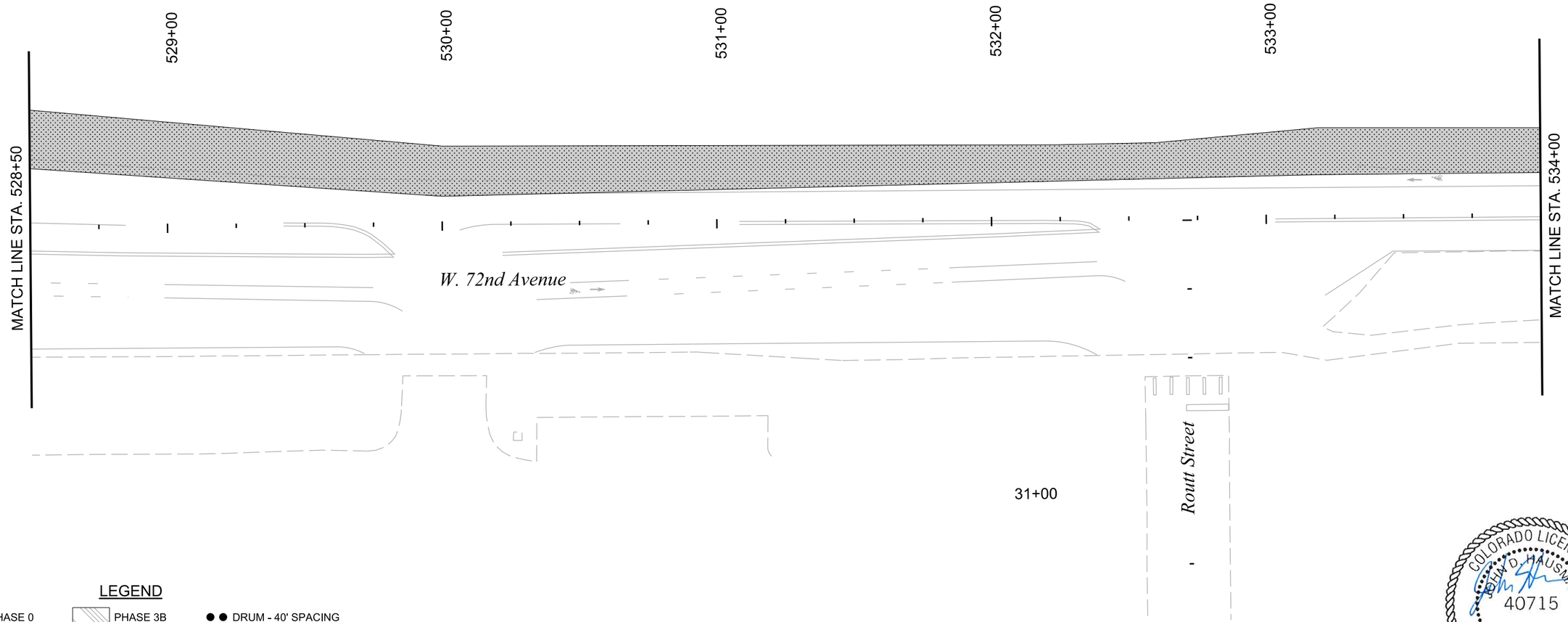

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
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PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase0_03.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRUCTION PHASING - PHASE 0 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	3 of 7

Project No./Code

Sheet Number 378

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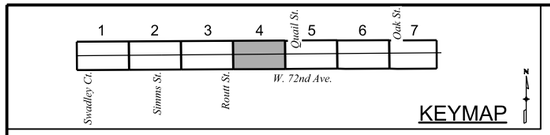

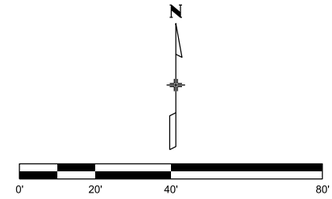

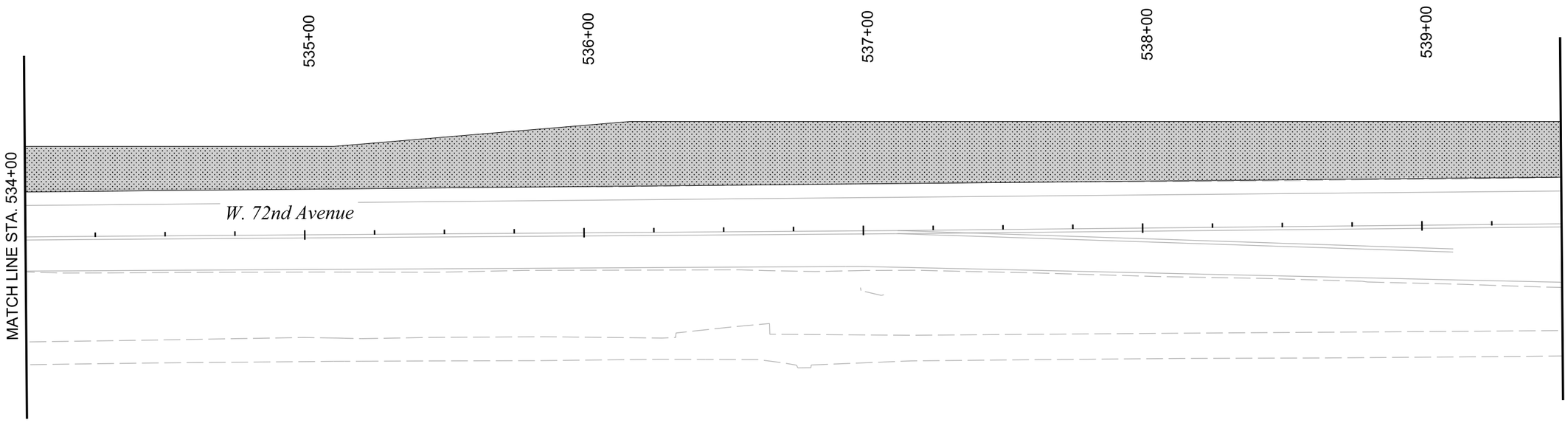

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
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02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase0_04.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 0 - W. 72ND AVENUE

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers
Subset Sheets: 4 of 7

Project No./Code

Sheet Number 379

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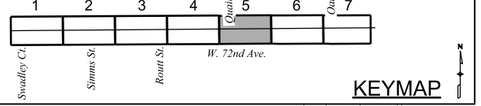
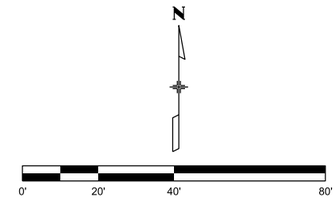
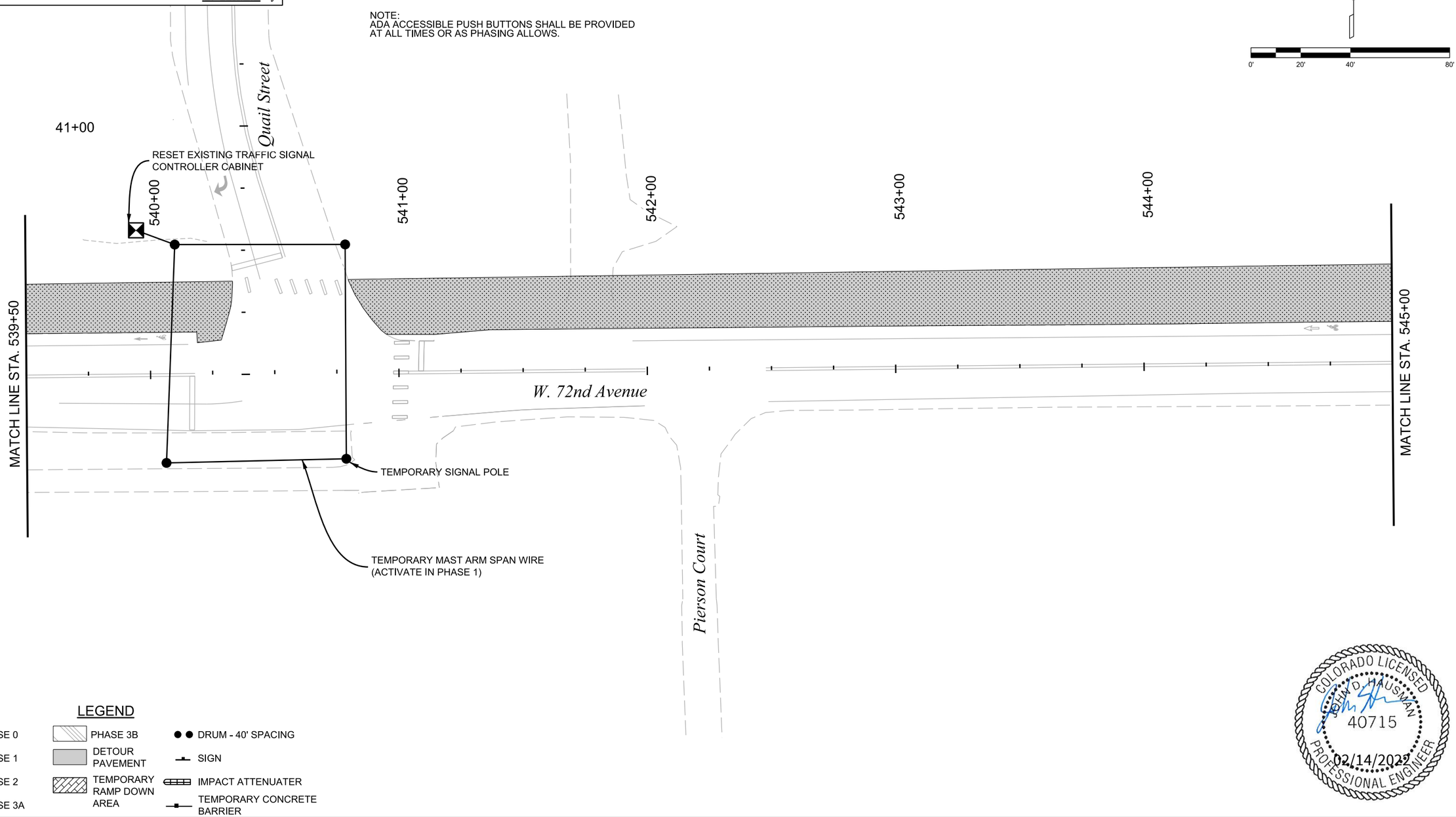


KEYMAP

NOTE:
ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.





LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
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COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase0_05.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRUCTION PHASING - PHASE 0 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	5 of 7

Project No./Code

Sheet Number 380

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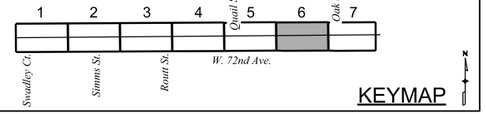

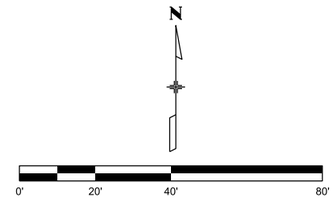

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
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40715
PROFESSIONAL ENGINEER
02/14/2022

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Drawing File Name: 18061_CP2_TRAF_Phase0_06.dgn
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Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 0 - W. 72ND AVENUE

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers
Subset Sheets: 6 of 7

Project No./Code

Sheet Number 381

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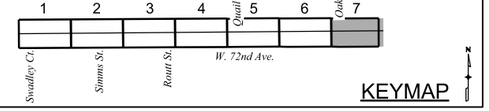

KEYMAP

NOTE:
ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.

N

0' 20' 40' 80'

551+00
552+00
00+69
553+00
554+00
555+00
00+89
67+00

MATCH LINE STA. 550+50

TEMPORARY SIGNAL POLE

RESET EXISTING TRAFFIC SIGNAL CONTROLLER CABINET

TEMPORARY MAST ARM SPAN WIRE (ACTIVATE IN PHASE 1)

Oak Street

STA. 556+00.00
END PROJECT
W. 72ND AVENUE
N: 1726826.54
E: 3108073.77

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
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- SIGN
- IMPACT ATTENUATER
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Print Date: 9/17/2021
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Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 0 - W. 72ND AVENUE

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers
Subset Sheets: 7 of 7

Project No./Code

Sheet Number 382

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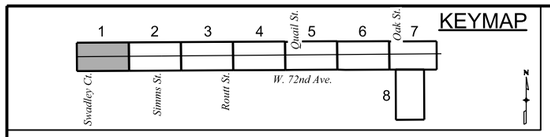

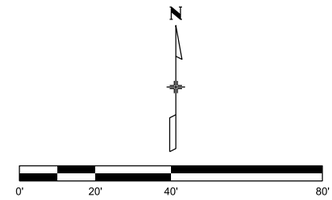

72ND AVENUE WESTBOUND DOWNSTREAM SIGN SEQUENCE

SPEED LIMIT 40
R2-1 (40)
STA. 512+50

XYZ CONSTRUCTION THANKS YOU 555-555-555
G20-10
STA. 507+50

WORK ZONE
G20-5

FINES DOUBLE
R2-6AP

END FINES DOUBLE IN WORK ZONE
R52-6B

518+00 519+00 520+00 521+00 522+00

W1-4L

EDGE LINE, WHITE
4" WIDE (TEMP)

CENTERLINE, YELLOW
2 @ 4" WIDE (TEMP)

STA. 517+50.00
BEGIN PROJECT
N: 1726795.21
E: 3104223.90

8'
11'
11'

18" W 18" W *W. 72nd Avenue* 18" W 18" W 18" W 18" W 18" W 18" W

MATCH LINE STA. 523+00

ROAD CLOSED
R11-2

W1-6L
MOUNT ON BARRICADE
(TYPE 3MB)(TEMP)

Swadley Court

ROAD WORK AHEAD
W20-1

72ND AVENUE EASTBOUND UPSTREAM SIGN SEQUENCE

ROAD WORK AHEAD
W20-1
STA. 502+50

BEGIN FINES DOUBLE IN WORK ZONE
R52-6A
STA. 507+50

WORK ZONE
G20-5

SPEED LIMIT 35
R2-1 (35)
STA. 512+50

W1-4L
STA. 517+50

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

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Drawing File Name:	18061_CP2_TRAF_Phase1_01.dgn
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Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRUCTION PHASING - PHASE 1 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	1 of 8

Project No./Code

Sheet Number 383

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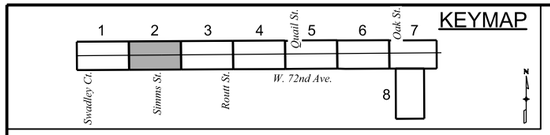

NOTES:
1. ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.
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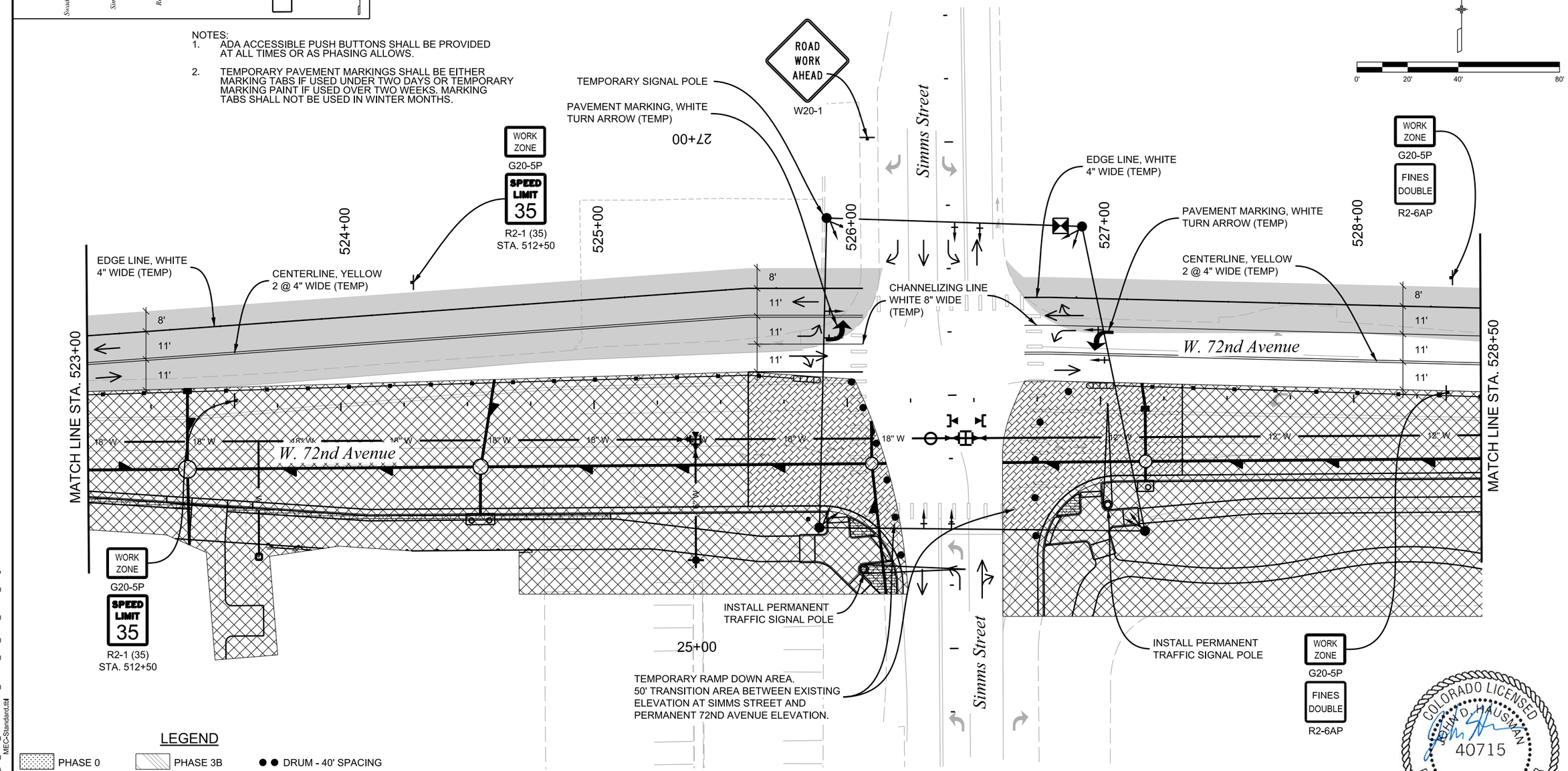

LEGEND

- PHASE 0
- PHASE 1
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- PHASE 3B
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COLORADO LICENSED
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40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase1_02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 1 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:			
Sheet Subset:	PHASING	Subset Sheets:	2 of 8

Project No./Code

Sheet Number 384

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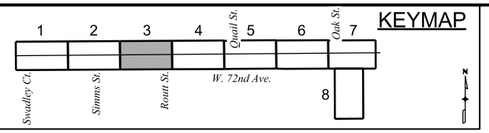

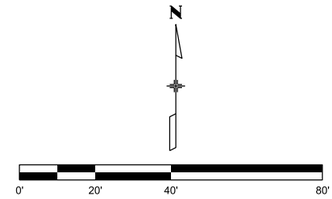

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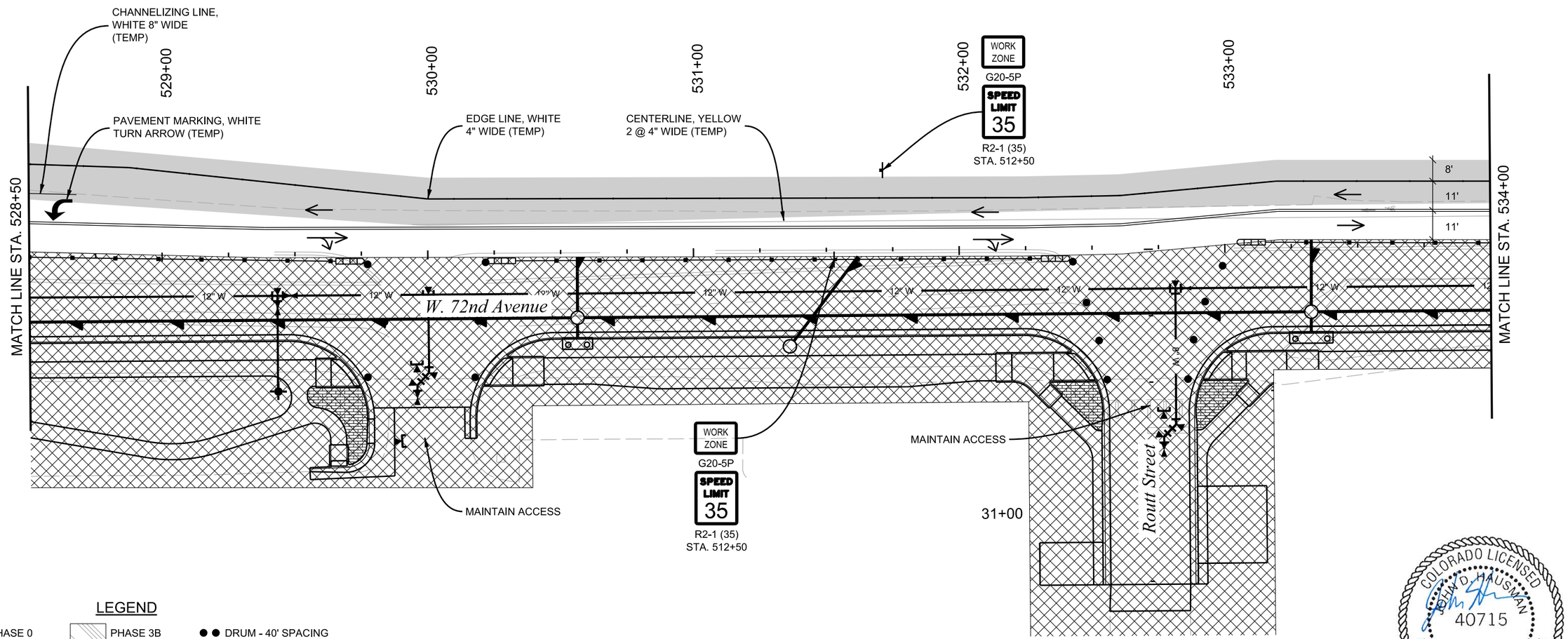

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
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COLORADO LICENSED
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02/14/2022
PROFESSIONAL ENGINEER

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Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRUCTION PHASING - PHASE 1 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	3 of 8

Project No./Code	
Sheet Number	385

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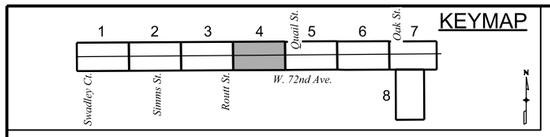

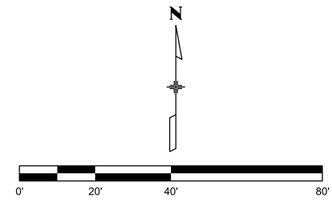

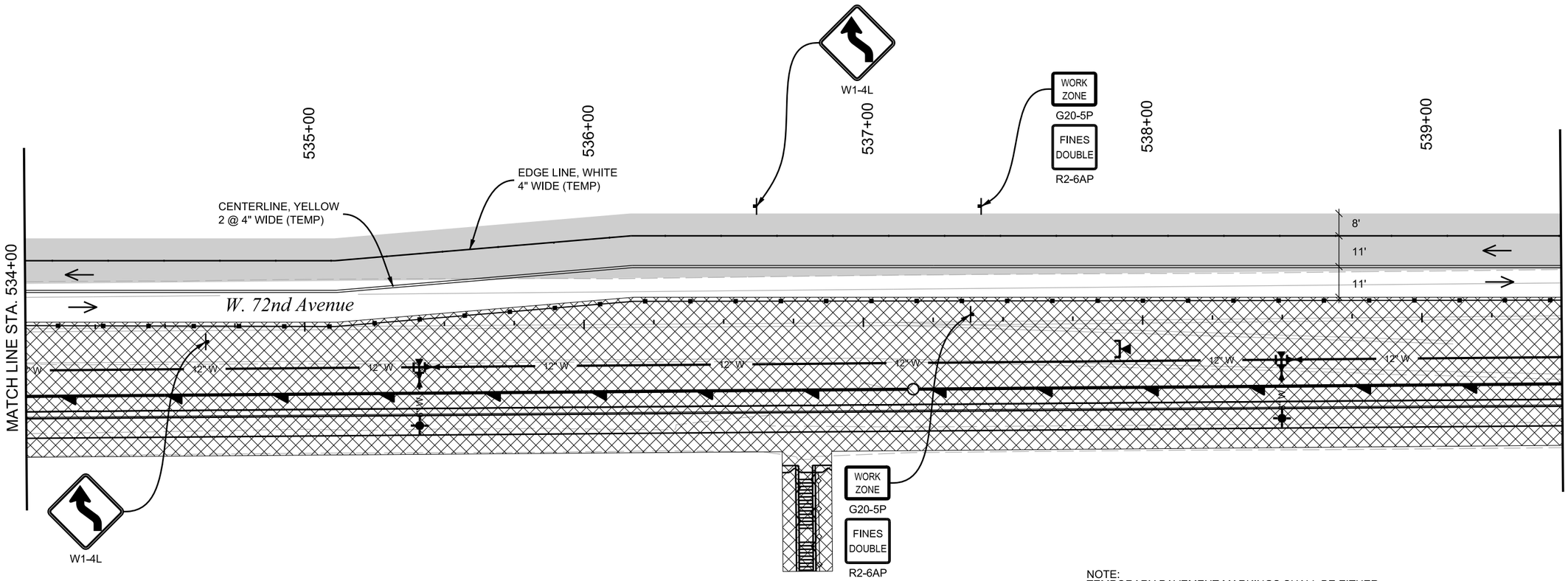

NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase1_04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SUGGESTED CONSTRUCTION PHASING - PHASE 1 - W. 72ND AVENUE			
Revised:	Designer: AJL	Structure Numbers		
Void:	Detailer: SAD			
	Sheet Subset: PHASING	Subset Sheets: 4 of 8		Sheet Number 386

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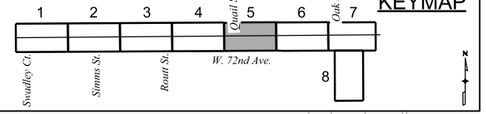
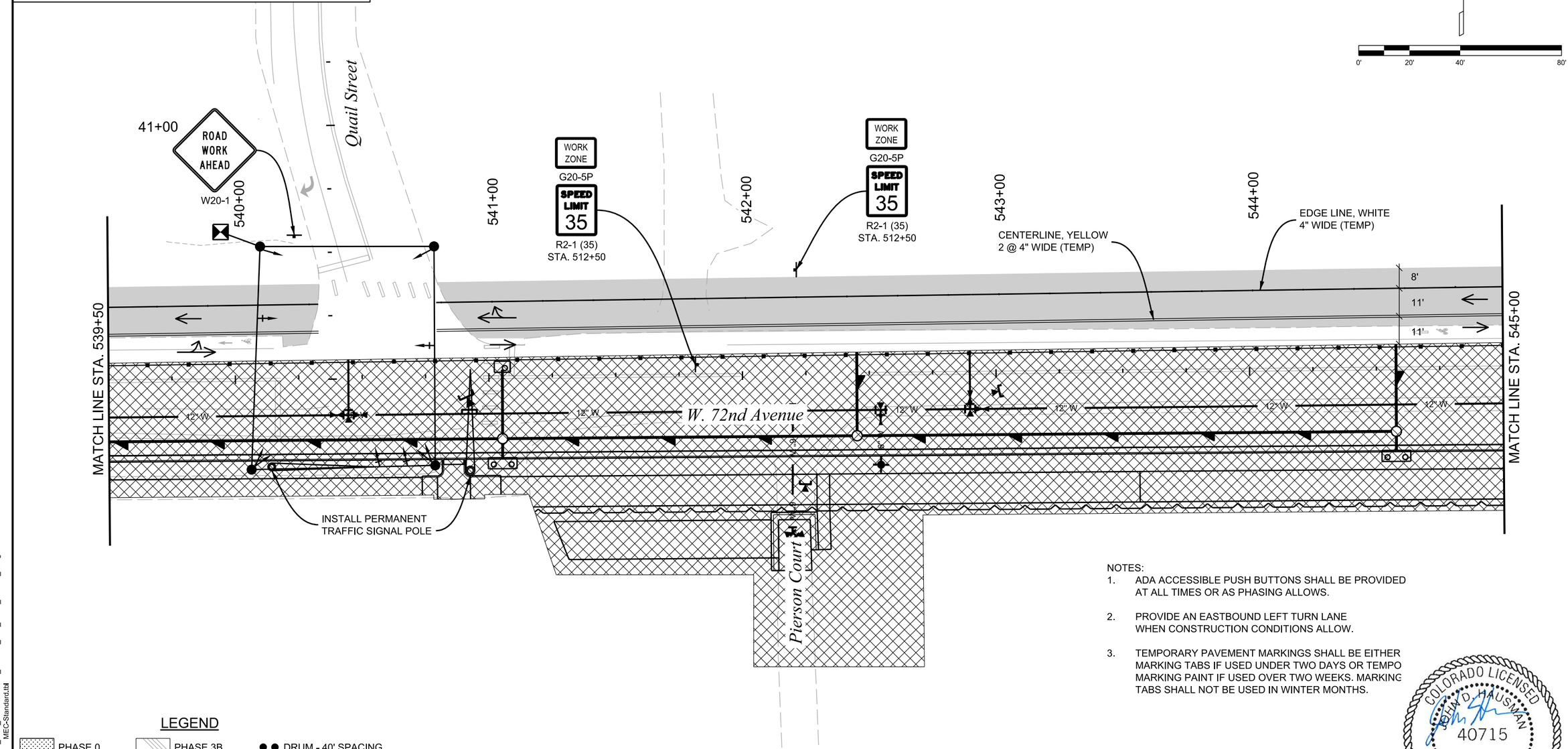
KEYMAP





NOTES:

1. ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.
2. PROVIDE AN EASTBOUND LEFT TURN LANE WHEN CONSTRUCTION CONDITIONS ALLOW.
3. TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPO MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase1_05.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 1 - W. 72ND AVENUE

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers:
Subset Sheets: 5 of 8

Project No./Code

Sheet Number 387

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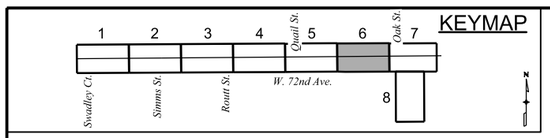

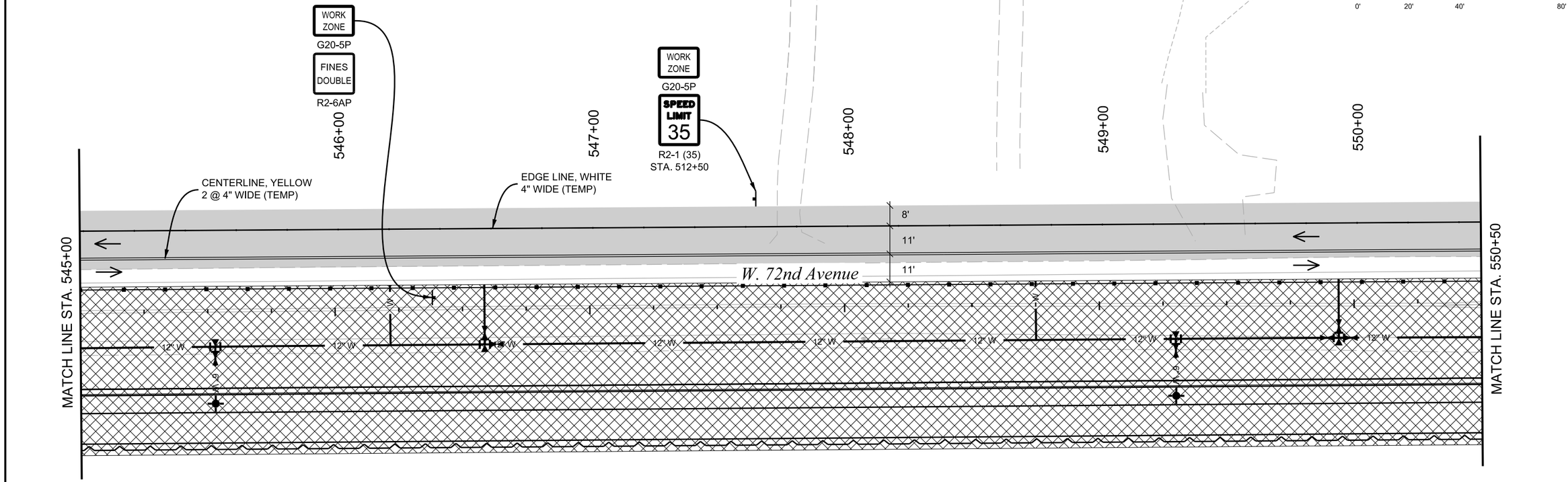

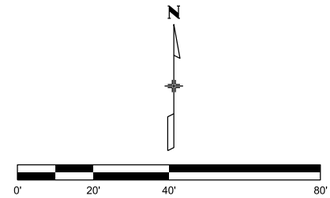

NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
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PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase1_06.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SUGGESTED CONSTRUCTION PHASING - PHASE 1 - W. 72ND AVENUE		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: PHASING	Subset Sheets: 6 of 8	Sheet Number 388

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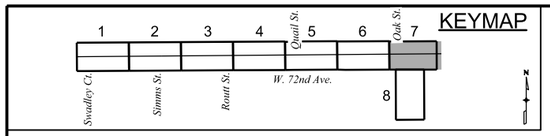


NOTES:

1. PROVIDE A WESTBOUND LEFT TURN LANE WHEN CONSTRUCTION CONDITIONS ALLOW.
2. ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.
3. TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

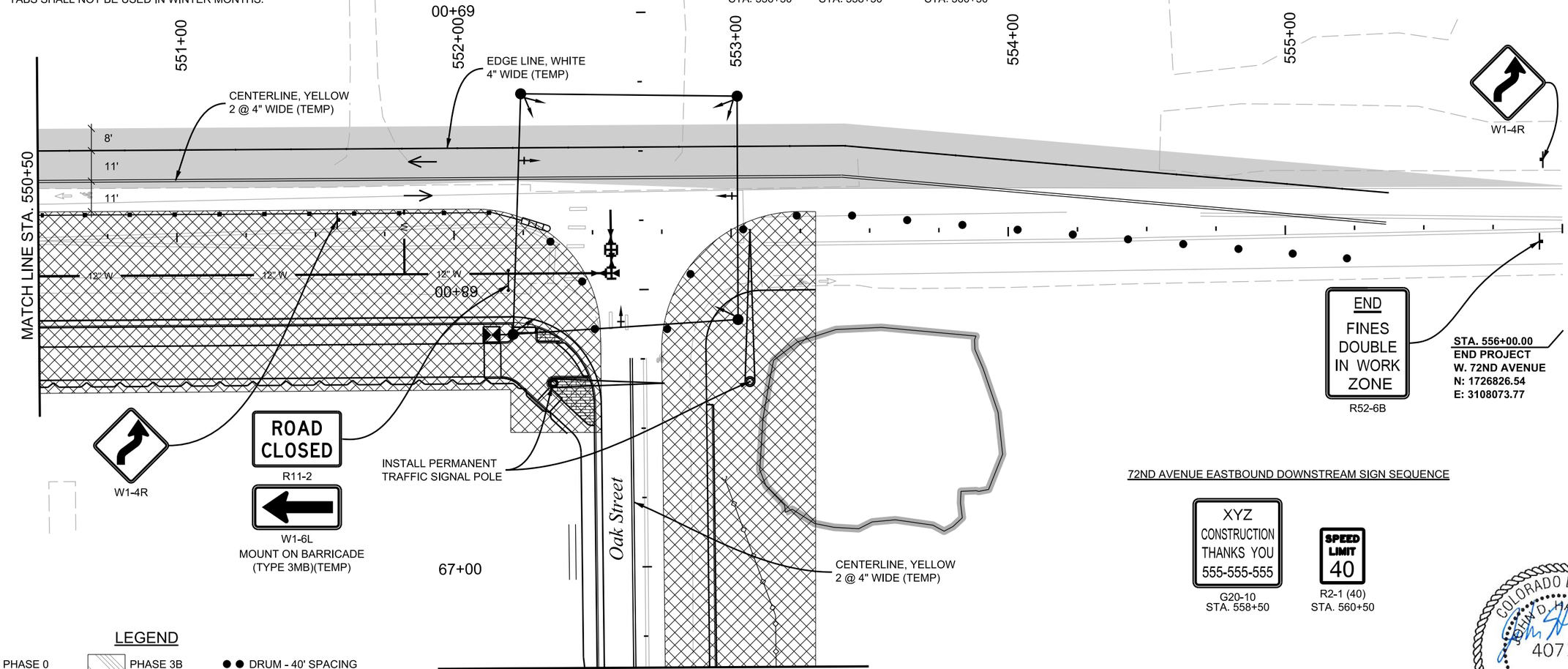
72ND AVENUE WESTBOUND UPSTREAM SIGN SEQUENCE

WORK ZONE
G20-5

SPEED LIMIT 35
R2-1 (35)
STA. 556+50

BEGIN FINES DOUBLE IN WORK ZONE
R52-6A
STA. 558+50

ROAD WORK AHEAD
W20-1
STA. 560+50



72ND AVENUE EASTBOUND DOWNSTREAM SIGN SEQUENCE

XYZ CONSTRUCTION THANKS YOU 555-555-555
G20-10
STA. 558+50

SPEED LIMIT 40
R2-1 (40)
STA. 560+50

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase1_07.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 1 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	7 of 8

Project No./Code

Sheet Number 389

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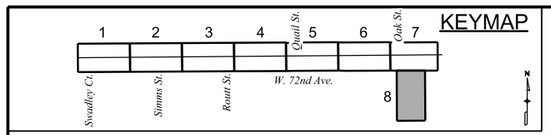
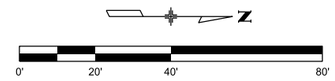
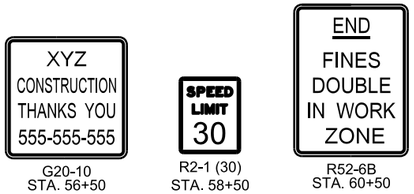




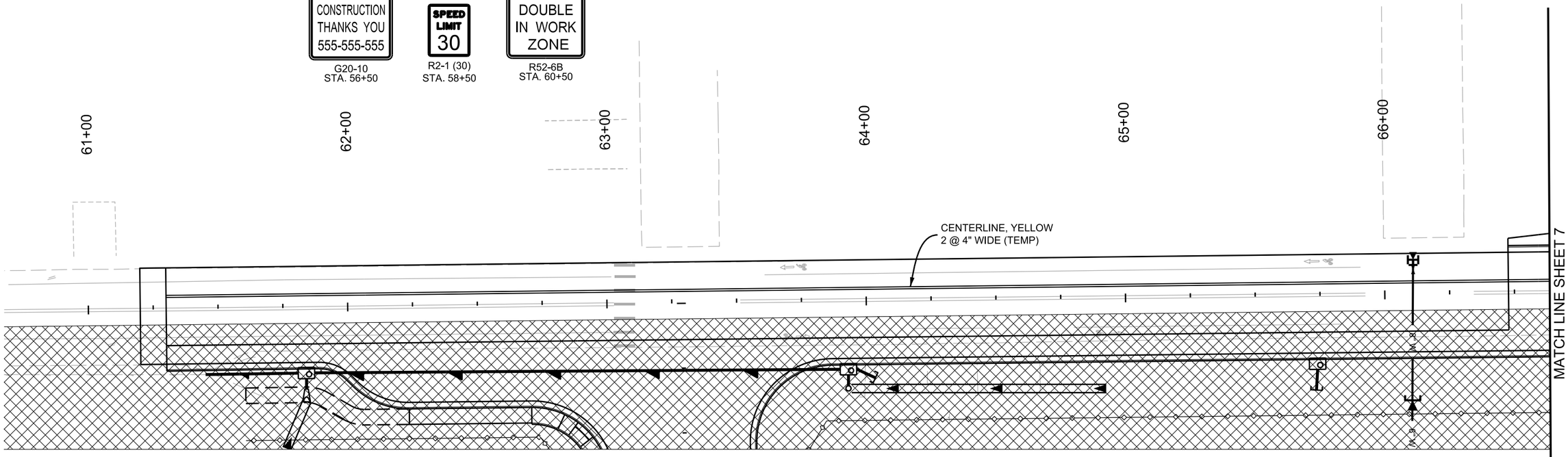
72ND AVENUE SOUTHBOUND DOWNSTREAM SIGN SEQUENCE



G20-10
STA. 56+50

R2-1 (30)
STA. 58+50

R52-6B
STA. 60+50



72ND AVENUE NORTHBOUND UPSTREAM SIGN SEQUENCE

W20-1
STA. 56+50

R52-6A
STA. 58+50

G20-5

R2-1 (25)
STA. 60+50

NOTES:
1. PROVIDE A SIGNLE LANE IN EACH DIRECTION OF TRAVEL THROUGH THE CONSTRUCTION AREA ON OAK ST.
2. TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021			
Drawing File Name: 18061_CP2_TRAF_Phase1_08.dgn			
Horiz. Scale: 1:40	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRUCTION PHASING - PHASE 1 - OAK STREET

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	8 of 8

Project No./Code	
Sheet Number	390

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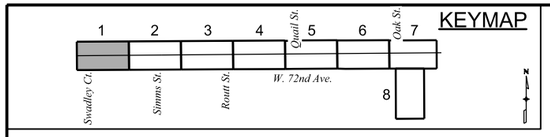

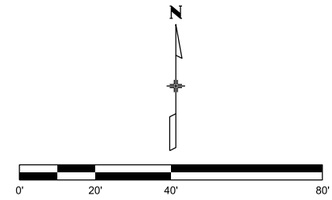

72ND AVENUE WESTBOUND DOWNSTREAM SIGN SEQUENCE

SPEED LIMIT 40
R2-1 (40)
STA. 512+50

XYZ CONSTRUCTION THANKS YOU 555-555-555
G20-10
STA. 507+50

WORK ZONE
G20-5

FINES DOUBLE
R2-6AP

END FINES DOUBLE IN WORK ZONE
R52-6B
STA. 517+50.00

BEGIN PROJECT
N: 1726795.21
E: 3104223.90

518+00
519+00
520+00
521+00
522+00

11'
11'
6'
18" W
W. 72nd Avenue
VARIES
MATCH LINE STA. 523+00

EDGE LINE, WHITE
4" WIDE (TEMP)

CENTERLINE, YELLOW
2 @ 4" WIDE (TEMP)

72ND AVENUE EASTBOUND UPSTREAM SIGN SEQUENCE

ROAD WORK AHEAD
W20-1

ROAD WORK AHEAD
W20-1
STA. 502+50

BEGIN FINES DOUBLE IN WORK ZONE
R52-6A
STA. 507+50

WORK ZONE
G20-5

SPEED LIMIT 35
R2-1 (35)
STA. 512+50

WORK ZONE
G20-5

FINES DOUBLE
R2-6AP

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

COLORADO LICENSED
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02/14/2022

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Print Date: 9/17/2021	Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_TRAF_Phase2_01.dgn	Date:	Comments	Init.	No Revisions:	SUGGESTED CONSTRUCTION PHASING - PHASE 2 - W. 72ND AVENUE
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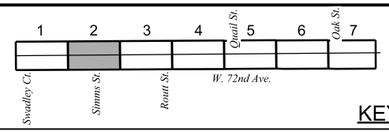
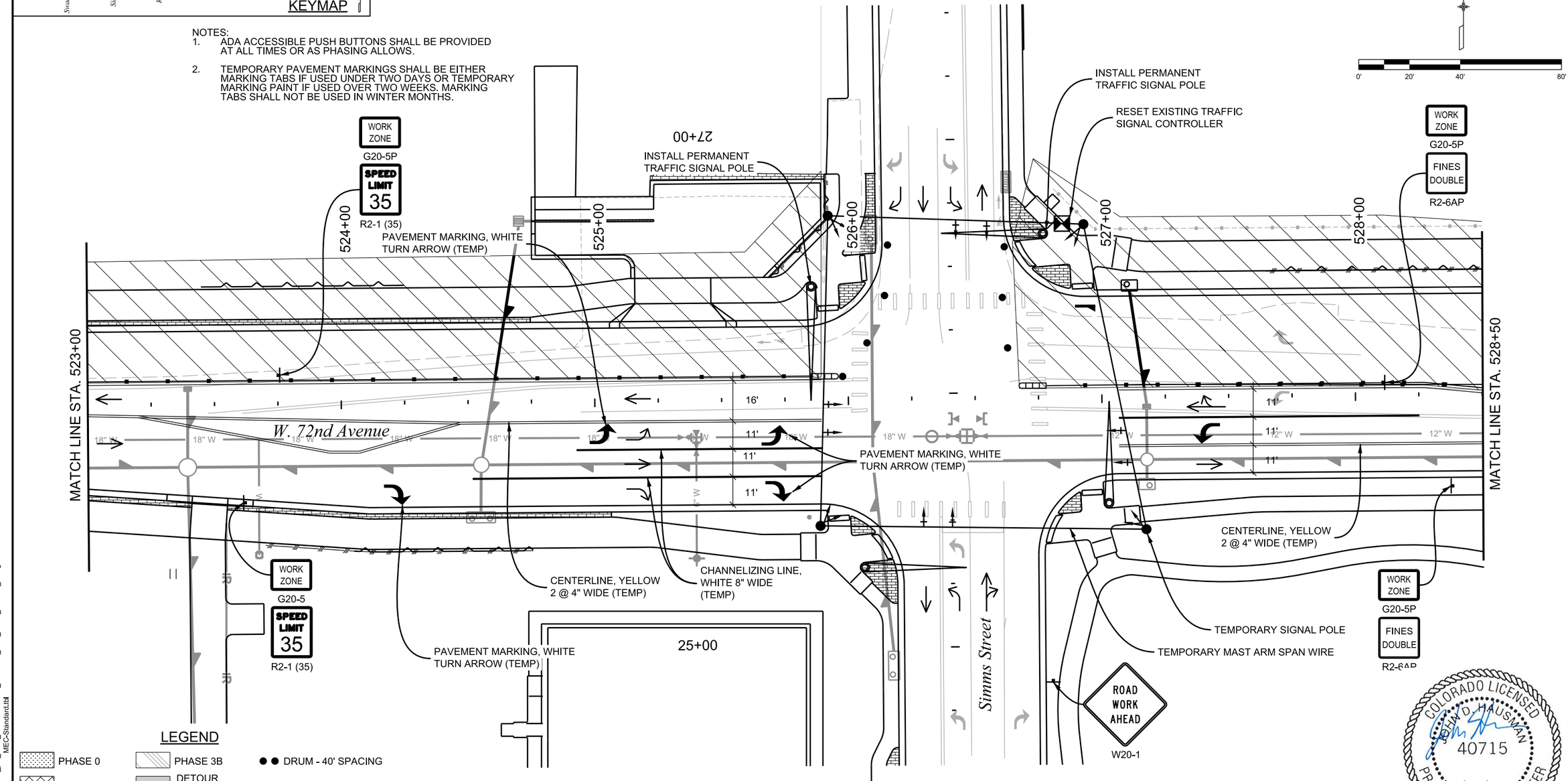
MULLER ENGINEERING COMPANY				CITY OF ARVADA	Project No./Code / Sheet Number 391



KEYMAP

NOTES:
1. ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.
2. TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.



LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

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Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase2_02.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SUGGESTED CONSTRUCTION PHASING - PHASE 2 - W. 72ND AVENUE		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
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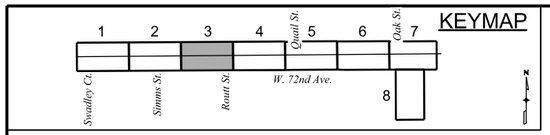

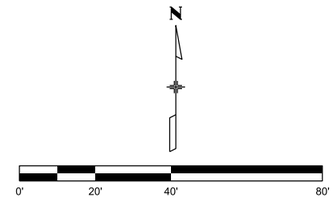

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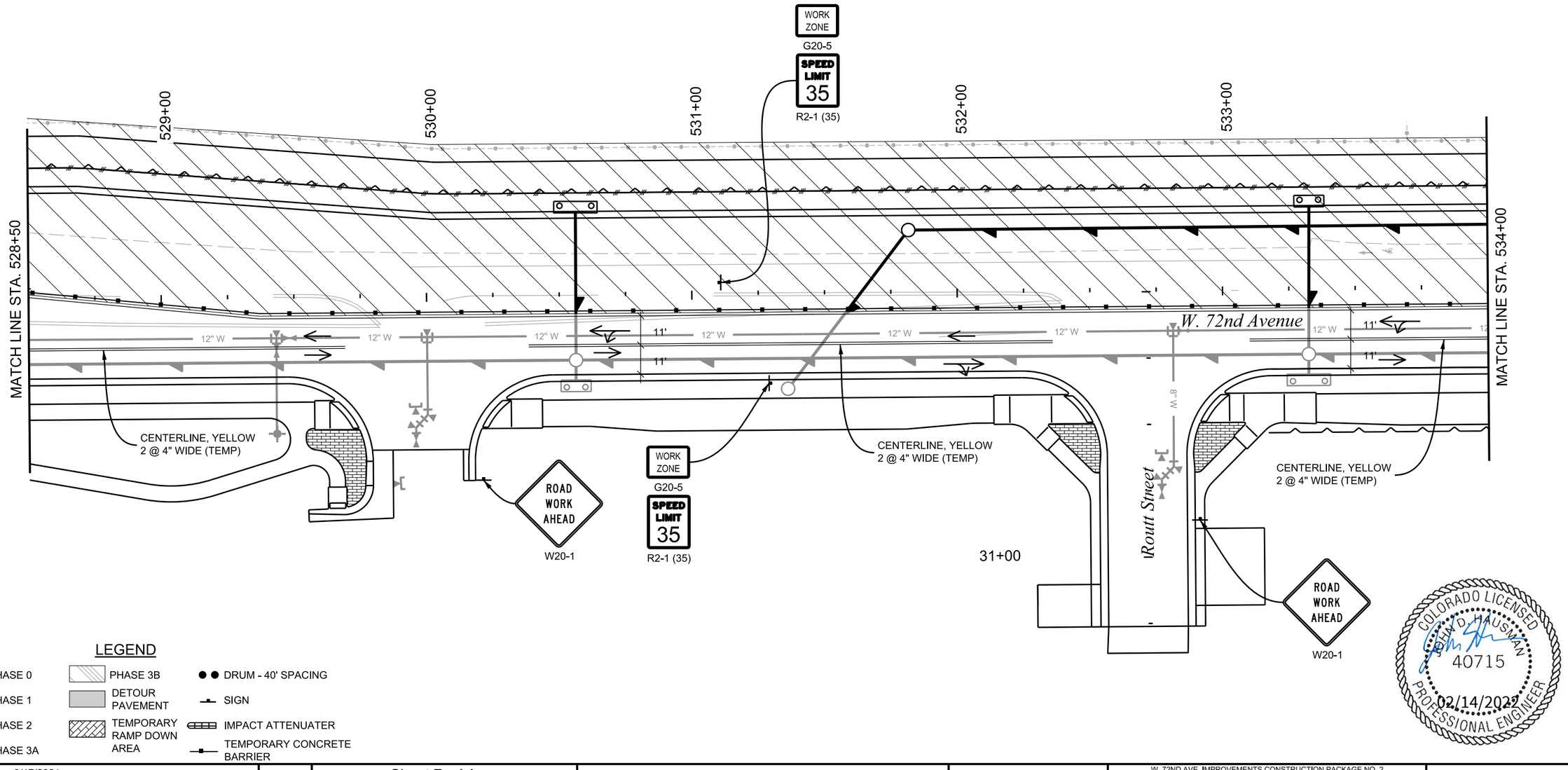

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
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40715
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase2_03.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	SUGGESTED CONSTRUCTION PHASING - PHASE 2 - W. 72ND AVENUE			
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Void:	Detailer: SAD			
	Sheet Subset: PHASING	Subset Sheets: 3 of 8		Sheet Number 393

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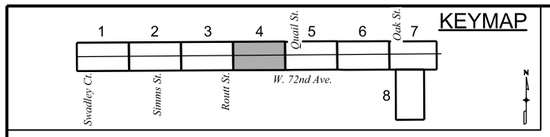

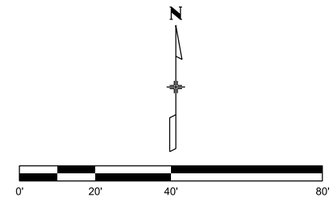

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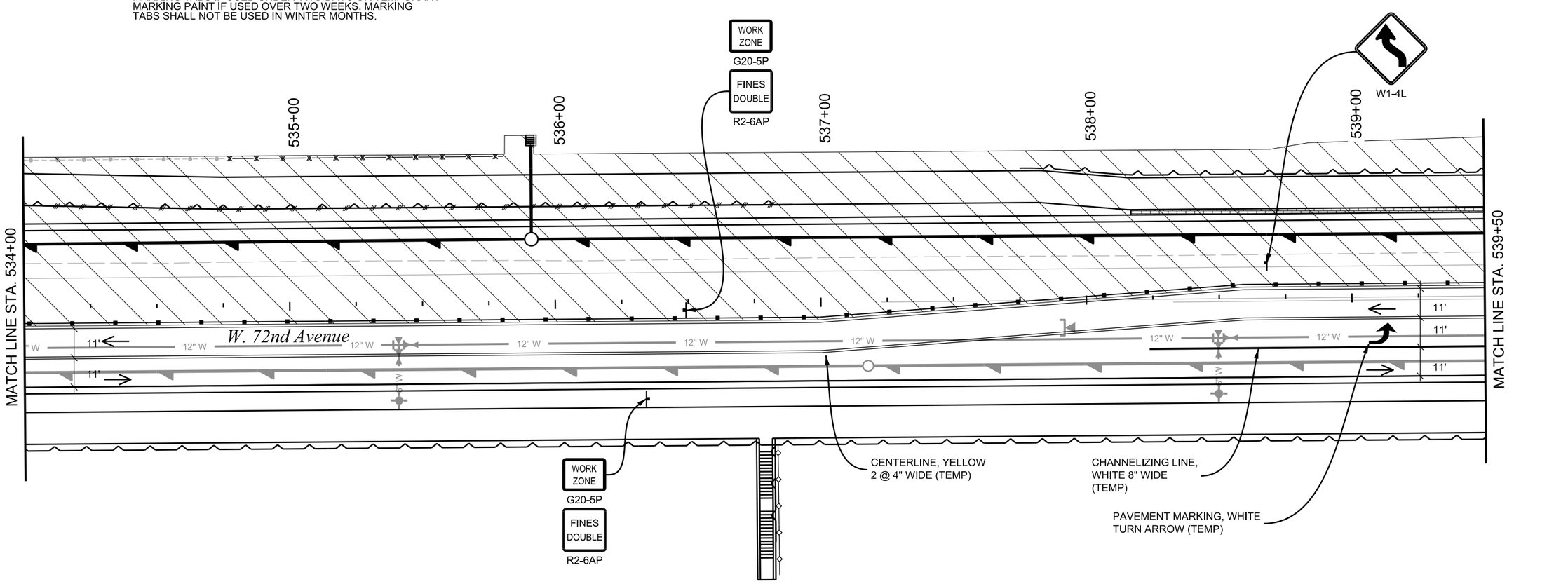

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
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COLORADO LICENSED
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40715
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase2_04.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 2 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	4 of 8

Project No./Code

Sheet Number 394

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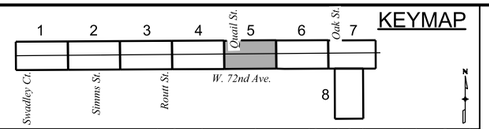
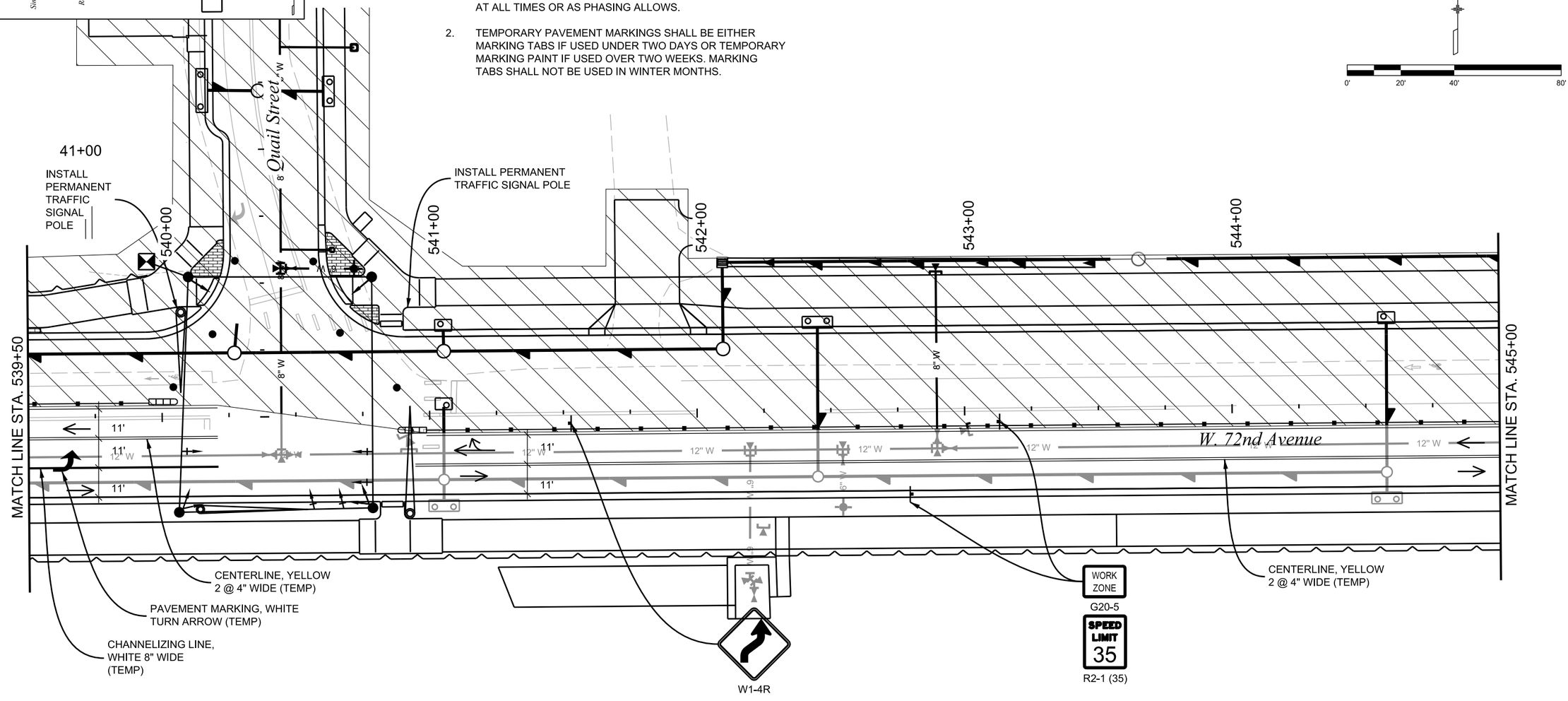


NOTES:
1. ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.
2. TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.



LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 12/10/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase2_05.dgn	Date:	Comments	Init.
Horiz. Scale: 1:40 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SUGGESTED CONSTRUCTION PHASING - PHASE 2 - W. 72ND AVENUE		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: PHASING	Subset Sheets: 5 of 8	Sheet Number 395

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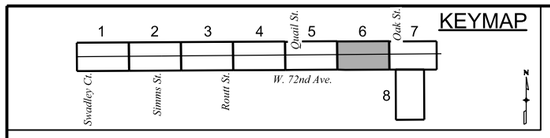
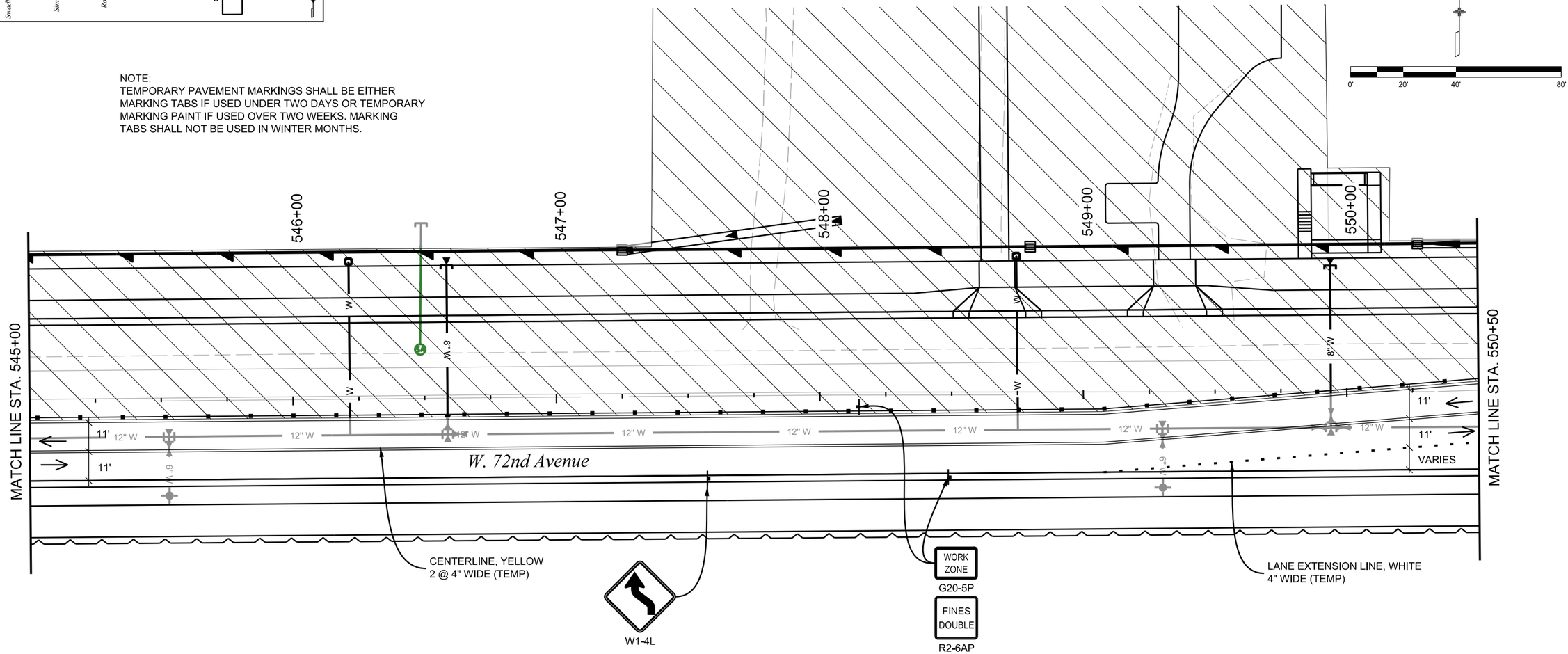


NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.



LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 12/10/2021
Drawing File Name: 18061_CP2_TRAF_Phase2_06.dgn
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Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
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Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 2 - W. 72ND AVENUE

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers
Subset Sheets: 6 of 8

Project No./Code

Sheet Number 396

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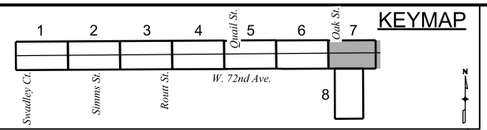

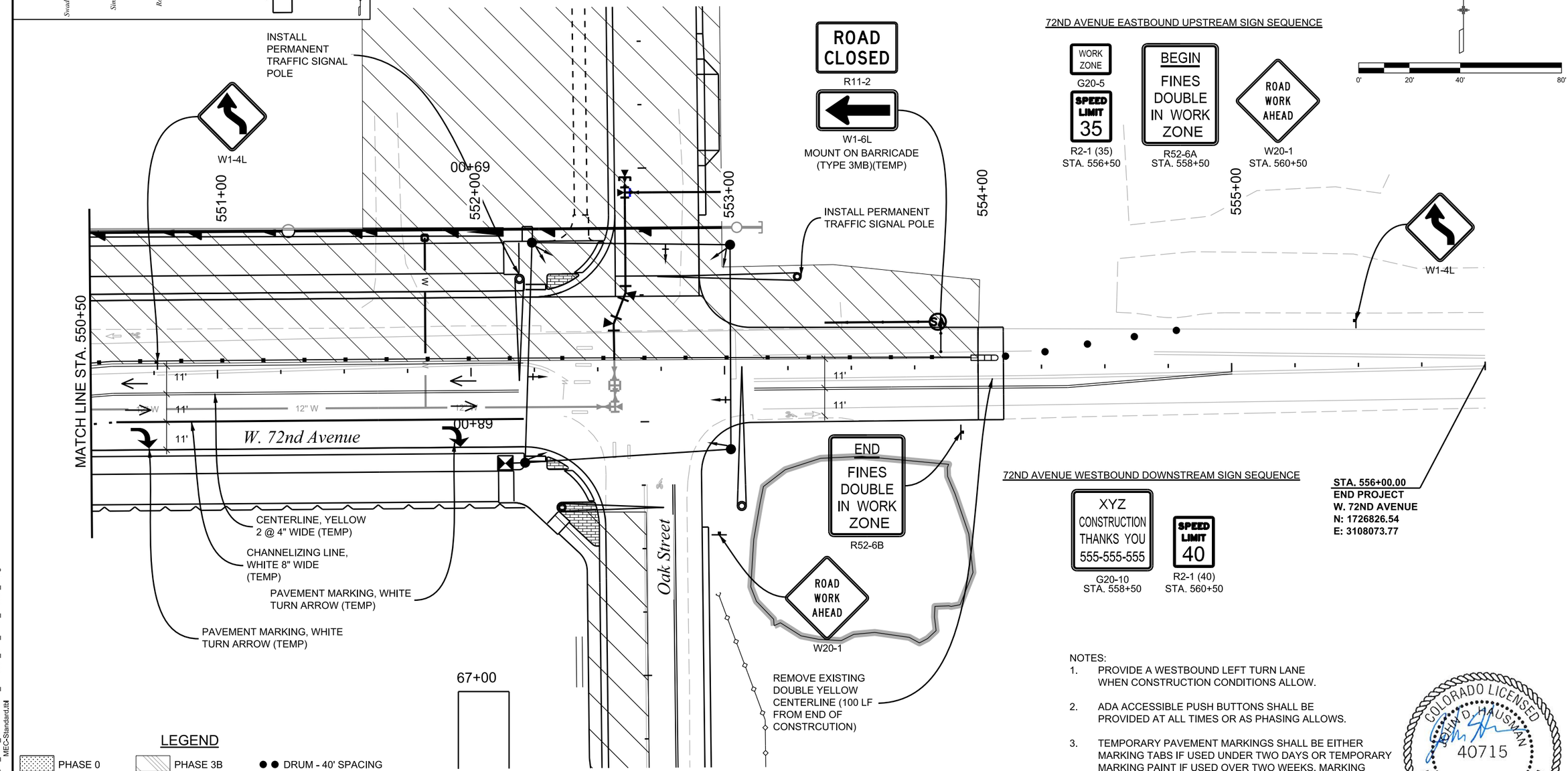

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

NOTES:

1. PROVIDE A WESTBOUND LEFT TURN LANE WHEN CONSTRUCTION CONDITIONS allow.
2. ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.
3. TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase2_07.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRUCTION PHASING - PHASE 2 - W. 72ND AVENUE

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	7 of 8

Project No./Code

Sheet Number 397

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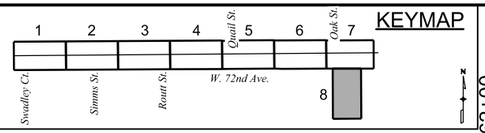

62+00 63+00 64+00 65+00

0' 20' 40' 80'

MATCH LINE SHEET 7

Oak Street

1+00

2+00

8" W

NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

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JOHN D. HAUSMAN
40715
02/14/2022
PROFESSIONAL ENGINEER

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase2_08.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
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Revised:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRUCTION PHASING - PHASE 2 - OAK STREET

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	8 of 8

Project No./Code

Sheet Number 398

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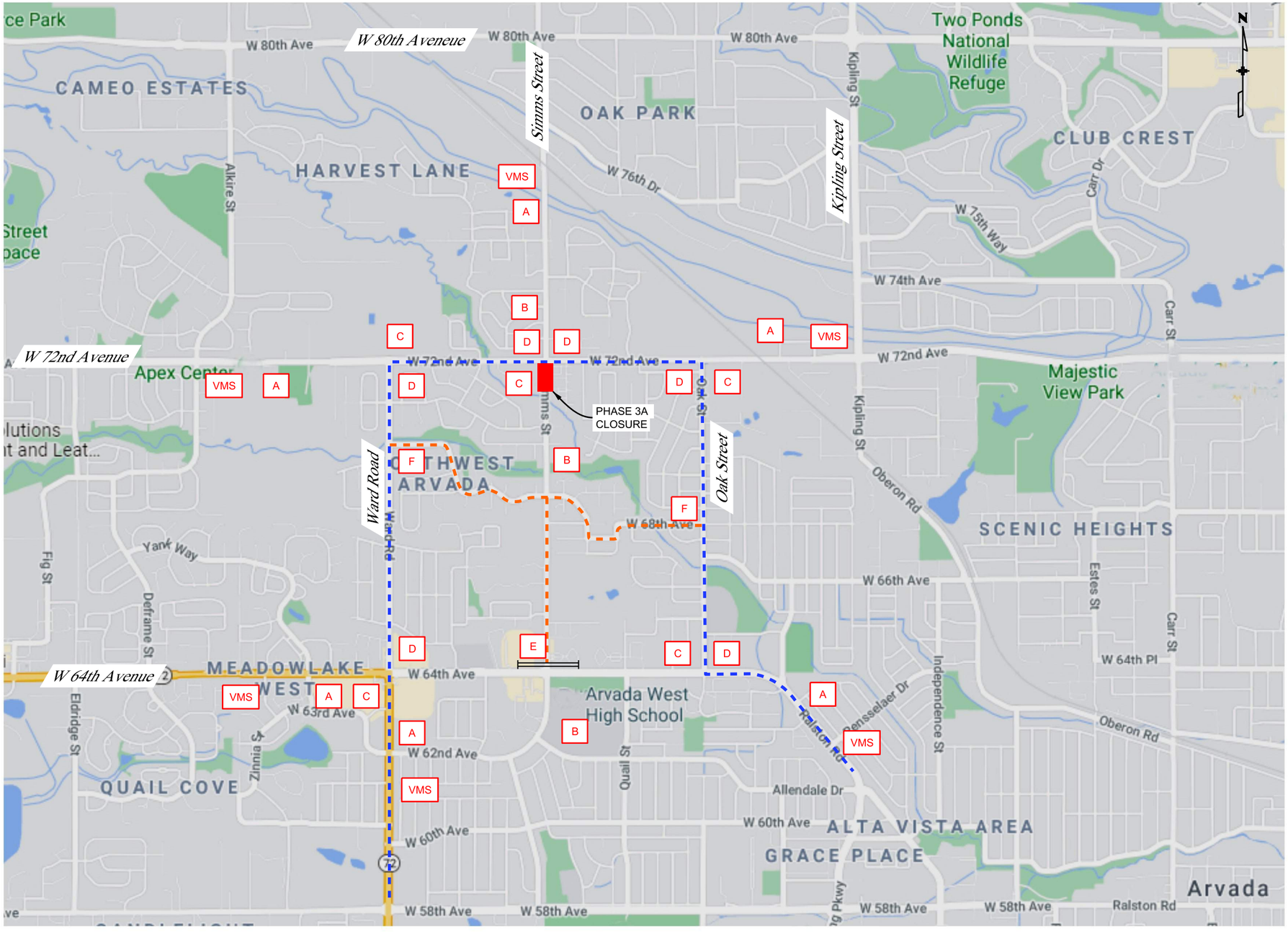

SIGN LEGEND

A — DETOUR AHEAD (W20-2)
SIMMS ST (D3-1)

B — ROAD CLOSED AHEAD (W20-3)
SIMMS ST (D3-1)

C — DETOUR (M4-9l)
SIMMS ST (D3-1)

D — DETOUR (M4-9r)
SIMMS ST (D3-1)

E — ROAD CLOSED TO THRU TRAFFIC (R11-4)
DETOUR (M4-10l)
MOUNT TO BARRICADE

F — ROAD CLOSED TO THRU TRAFFIC (R11-4)

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

LEGEND:

- VMS — PORTABLE VARIABLE MESSAGE SIGN
- A — SIGN INSTALLATION
- BARRICADE (TYPE 3MB) (TEMP)
- DETOUR ROUTE
- LOCAL TRAFFIC ONLY

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_TRAF_Phase3A Detour.dgn	Date:	Comments	Init.
Horiz. Scale: 1:1 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	SUGGESTED CONSTRCUTION PHASING - PHASE 3A DETOUR		
Revised:	Designer: AJL	Structure Numbers	
Void:	Detailer: SAD		
	Sheet Subset: PHASING	Subset Sheets: 1 of 1	Sheet Number 399

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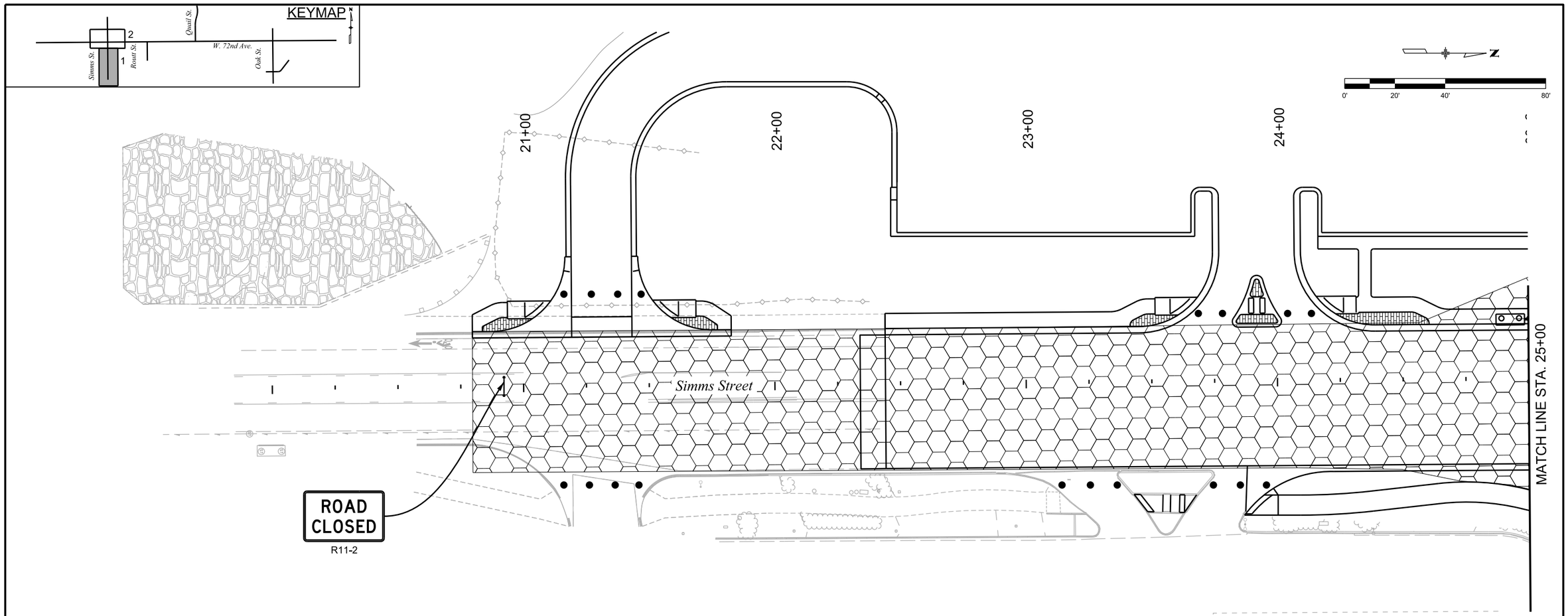

NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

PHASE 3A:

- REDIRECT TRAFFIC AT THE INTERSECTION OF 72ND AVE AND SIMMS ST TO THE NORTH HALF OF THE INTERSECTION. ADJUST LOCATION OF SPAN WIRE SIGNAL HEADS TO ALIGN WITH TEMPORARY LANES. MAINTAIN ACCESS TO THE NORTH LEG OF SIMMS ST.
- IMPLEMENT THE PROPOSED DETOUR PLAN FOR THE CLOSURE OF THE SOUTH LEG OF SIMMS ST. CLOSE THE SOUTH LEG OF SIMMS ST.
- TRENCH AND INSTALL STORM SEWER WITHIN CONSTRUCTION LIMITS ON SIMMS ST SOUTH OF 72ND AVE.
- CONSTRUCT PROPOSED WIDENING ALONG SIMMS ST SOUTH OF 72ND AVE. CONSTRUCT PROPOSED SIDEWALKS AND DRIVEWAYS ALONG SIMMS ST SOUTH OF 72ND AVE.
- COMPLETE CONSTRUCTION OF THE SOUTH HALF OF SIMMS ST INTERSECTION.
- COMPLETE INSTALLATION OF REMAINING RAISED MEDIANS ON 72ND AVE.

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase3A_01.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRCUTION PHASING
PHASE 3A - SIMMS STREET

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers
Subset Sheets: 1 of 2

Project No./Code

Sheet Number 400

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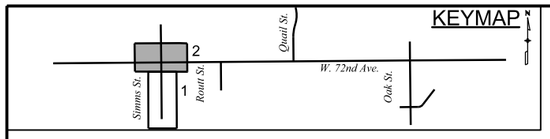
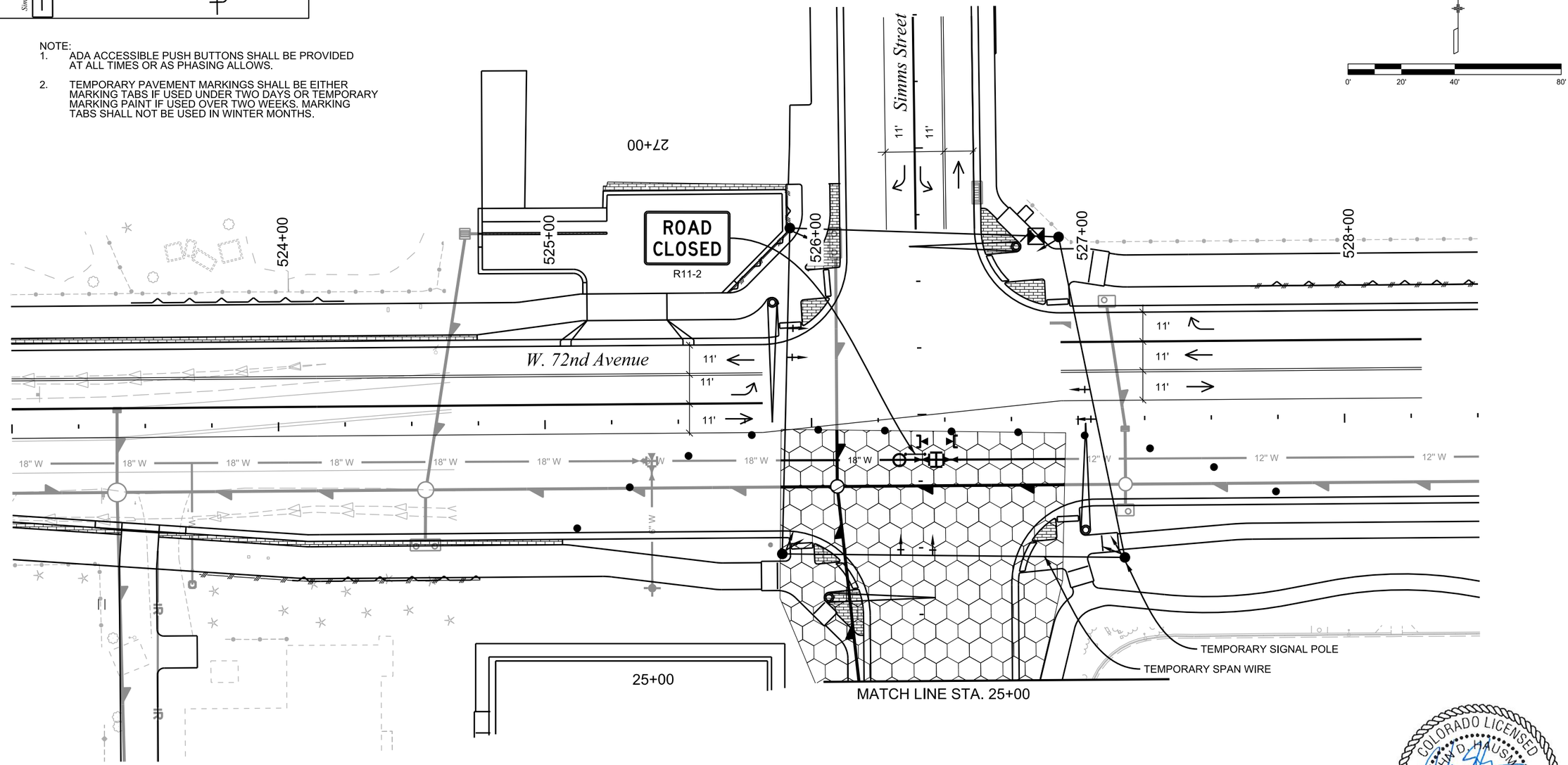


NOTE:
1. ADA ACCESSIBLE PUSH BUTTONS SHALL BE PROVIDED AT ALL TIMES OR AS PHASING ALLOWS.
2. TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.



LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
02/14/2022
PROFESSIONAL ENGINEER

Print Date:	9/17/2021
Drawing File Name:	18061_CP2_TRAF_Phase3A_02.dgn
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Unit Information	Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:	
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRUCTION PHASING - PHASE 3A - SIMMS STREET

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	2 of 2

Project No./Code

Sheet Number 401

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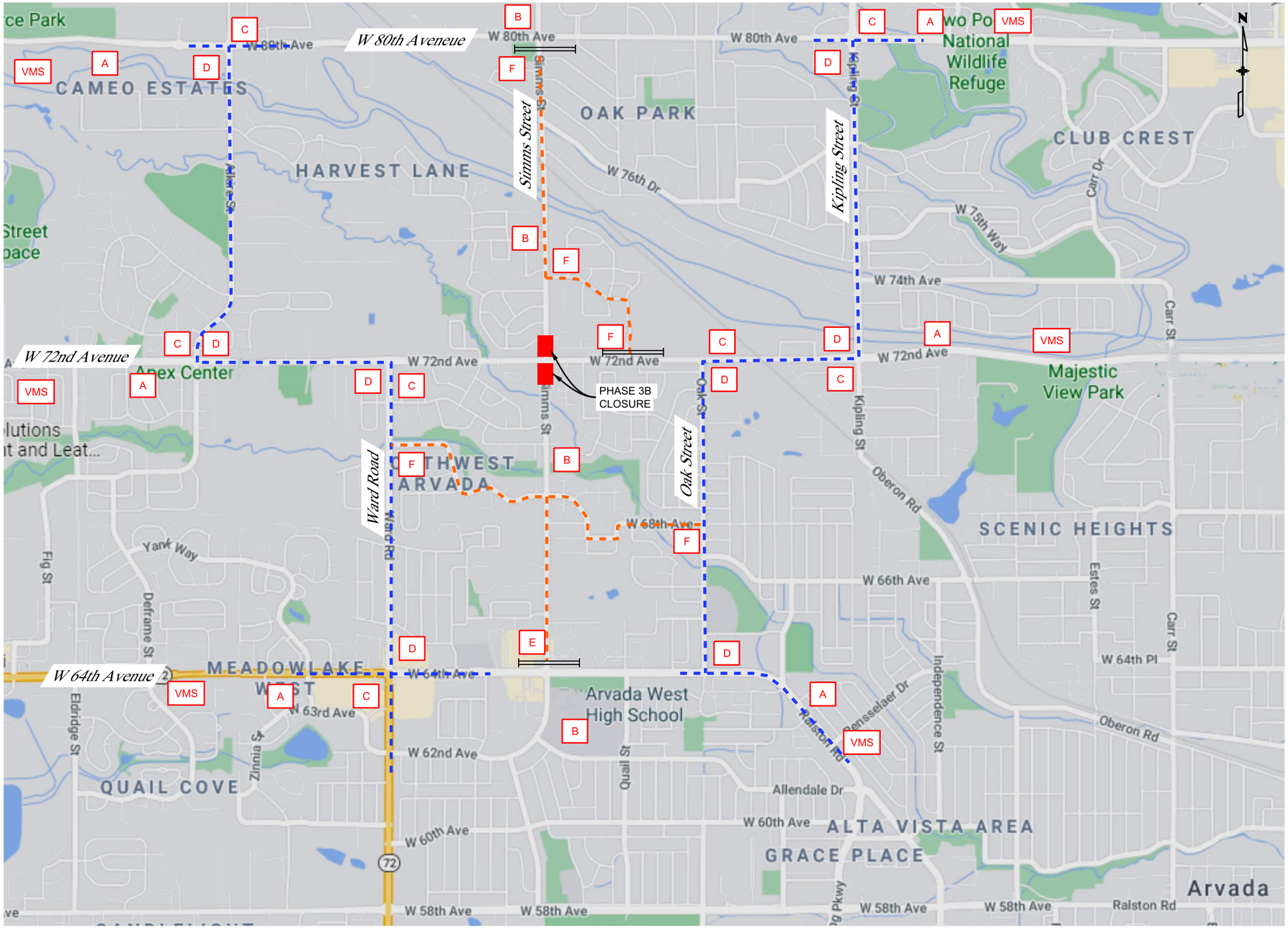

SIGN LEGEND

A — DETOUR AHEAD (W20-2) — SIMMS ST (D3-1)

B — ROAD CLOSED AHEAD (W20-3) — SIMMS ST (D3-1)

C — DETOUR ← (M4-9l) — SIMMS ST (D3-1)

D — DETOUR → (M4-9r) — SIMMS ST (D3-1)

E — ROAD CLOSED TO THRU TRAFFIC (R11-4) — DETOUR (M4-10l) — MOUNT TO BARRICADE

F — ROAD CLOSED TO THRU TRAFFIC (R11-4)

COLORADO LICENSED — JOHN D. HAUSMAN — 40715 — PROFESSIONAL ENGINEER — 02/14/2022

LEGEND:

- VMS — PORTABLE VARIABLE MESSAGE SIGN
- A — SIGN INSTALLATION
- BARRICADE (TYPE 3MB) (TEMP)
- DETOUR ROUTE
- LOCAL TRAFFIC ONLY

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Drawing File Name:	18061_CP2_TRAF_Phase3B Detour.dgn		
Horiz. Scale:	1:1	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

MULLER ENGINEERING COMPANY

Sheet Revisions

Date:	Comments	Init.

CITY OF ARVADA

As Constructed

No Revisions:	
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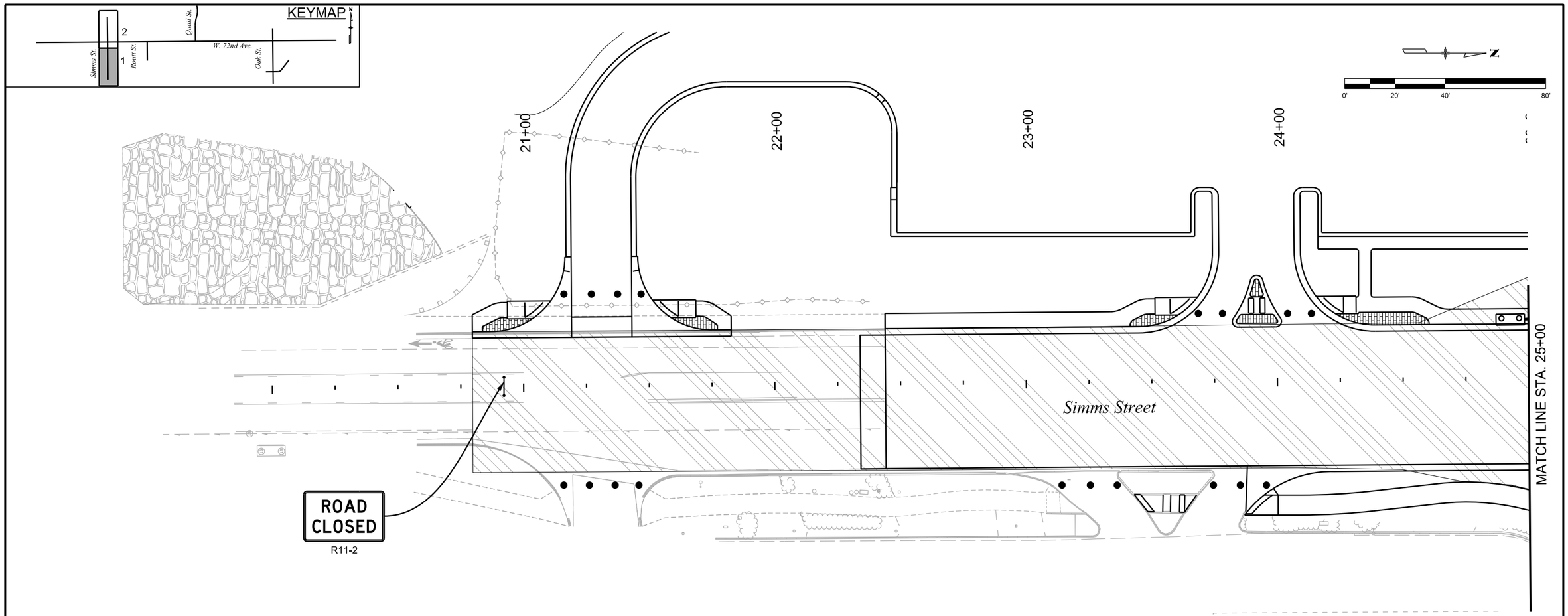
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

SUGGESTED CONSTRCUTION PHASING - PHASE 3A DETOUR

Designer:	AJL	Structure Numbers	
Detailer:	SAD		
Sheet Subset:	PHASING	Subset Sheets:	1 of 1

Project No./Code

Sheet Number 402



NOTE:
TEMPORARY PAVEMENT MARKINGS SHALL BE EITHER MARKING TABS IF USED UNDER TWO DAYS OR TEMPORARY MARKING PAINT IF USED OVER TWO WEEKS. MARKING TABS SHALL NOT BE USED IN WINTER MONTHS.

PHASE 3B:

- REDIRECT TRAFFIC AT THE INTERSECTION OF 72ND AVENUE AND SIMMS STREET TO THE SOUTH HALF OF THE INTERSECTION. ADJUST LOCATION OF SPAN WIRE SIGNAL HEADS TO ALIGN WITH TEMPORARY LANES.
- MAINTAIN CLOSURE OF THE SOUTH LEG OF SIMMS ST. IMPLEMENT THE PROPOSED DETOUR PLAN FOR THE FULL CLOSURE OF SIMMS ST. CLOSE THE NORTH LEG OF SIMMS ST.
- TRENCH AND INSTALL UTILITIES WITHIN CONSTRUCTION LIMITS ON SIMMS STREET NORTH OF 72ND AVE.
- CONSTRUCT PROPOSED WIDENING ALONG SIMMS STREET NORTH OF 72ND AVENUE. CONSTRUCT PROPOSED SIDEWALKS ALONG SIMMS STREET NORTH OF 72ND AVENUE.
- INSTALL ANY REMAINING PERMANENT PAVEMENT MARKINGS AND SHIFT TRAFFIC TO ULTIMATE LANE CONFIGURATION USING TEMPORARY TRAFFIC CONTROL DEVICES AS NEEDED.
- ACTIVATE PERMANENT TRAFFIC SIGNAL AT SIMMS ST. REMOVE SPAN WIRE SIGNAL.
- REOPEN SIMMS ST. REMOVE SIMMS ST DETOURS.

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase3B_01.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRCUTION PHASING
PHASE 3B - SIMMS STREET

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers
Subset Sheets: 1 of 2

Project No./Code

Sheet Number 403

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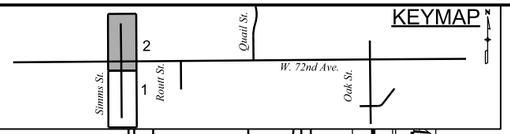

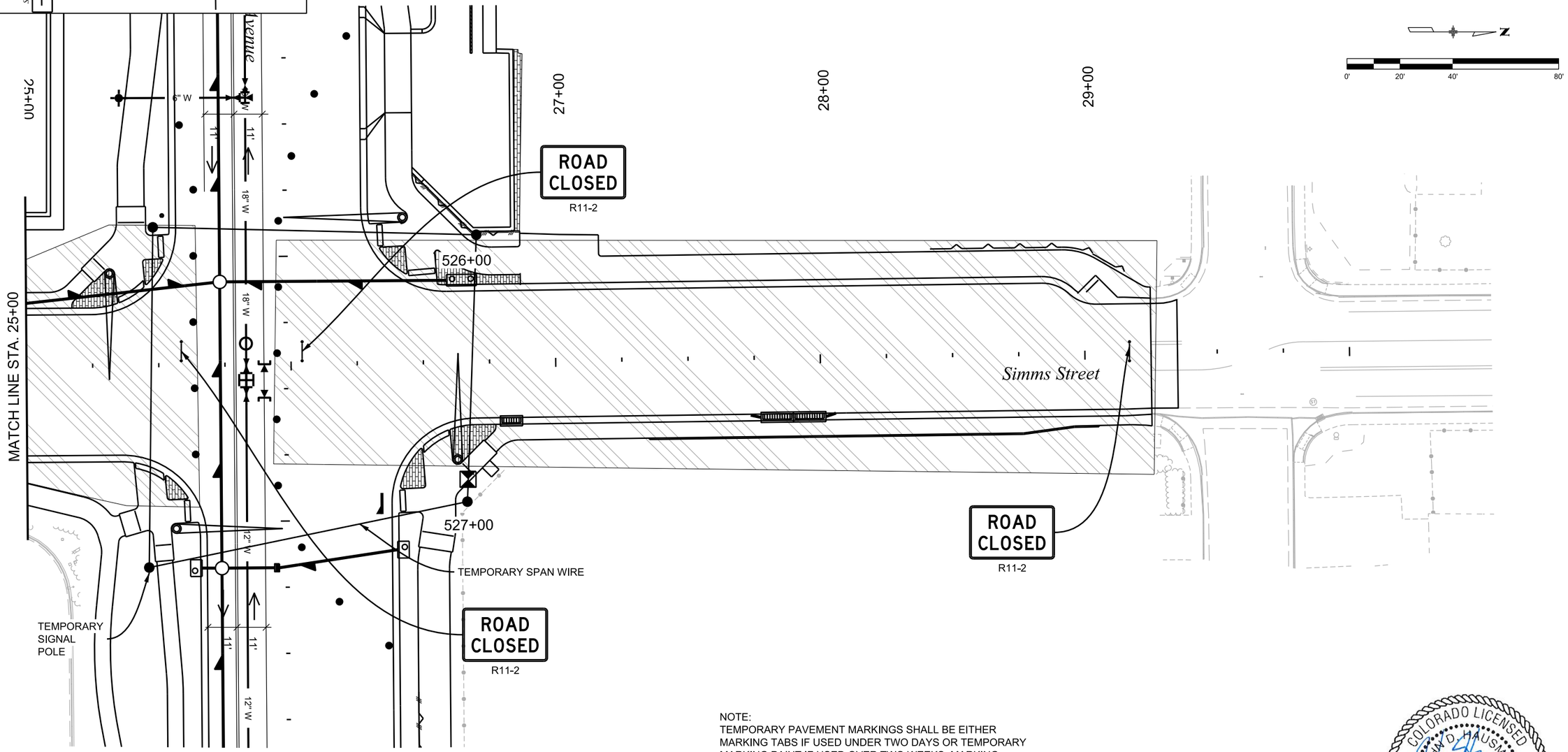

LEGEND

- PHASE 0
- PHASE 1
- PHASE 2
- PHASE 3A
- PHASE 3B
- DETOUR PAVEMENT
- TEMPORARY RAMP DOWN AREA
- DRUM - 40' SPACING
- SIGN
- IMPACT ATTENUATER
- TEMPORARY CONCRETE BARRIER

NOTE:
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COLORADO LICENSED
JOHN D. HAUSMAN
40715
PROFESSIONAL ENGINEER
02/14/2022

Print Date: 9/17/2021
Drawing File Name: 18061_CP2_TRAF_Phase3B_02.dgn
Horiz. Scale: 1:40 Vert. Scale: As Noted
Unit Information Unit Leader Initials

MULLER ENGINEERING COMPANY

Sheet Revisions		
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CITY OF ARVADA

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No Revisions:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
SUGGESTED CONSTRCUTION PHASING
PHASE 3B - SIMMS STREET

Designer: AJL
Detailer: SAD
Sheet Subset: PHASING
Structure Numbers
Subset Sheets: 2 of 2

Project No./Code

Sheet Number 404

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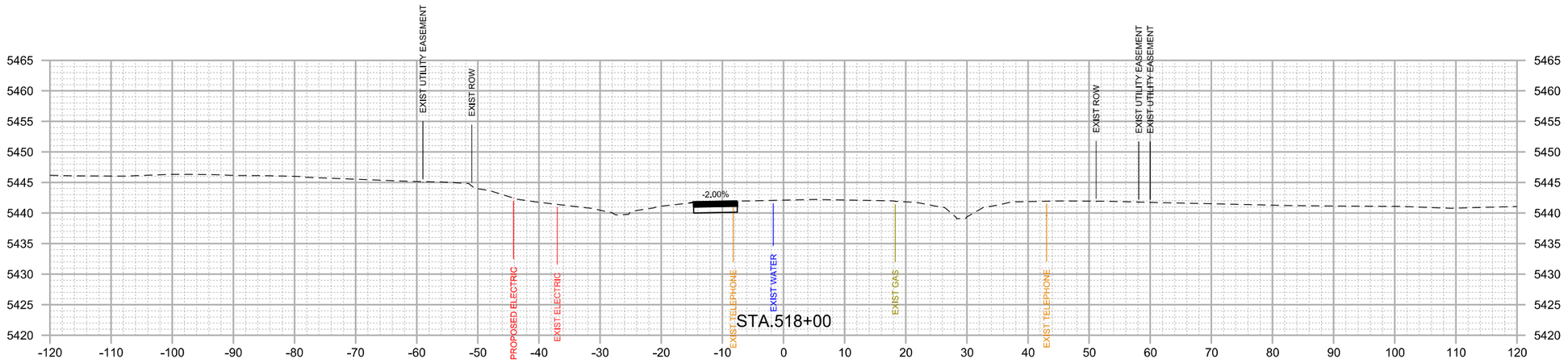

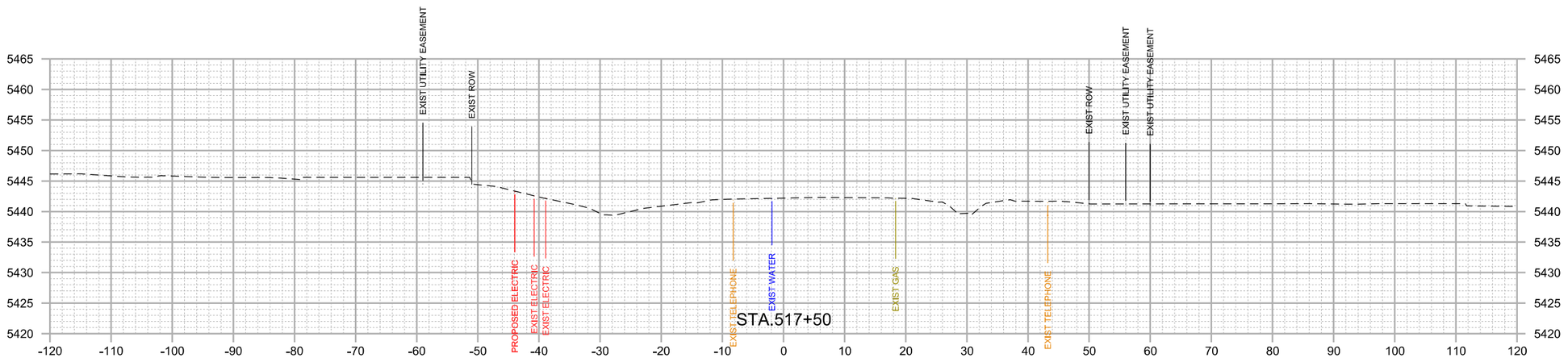

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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	1 of 37

Project No./Code

Sheet Number 405

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12/9/2021
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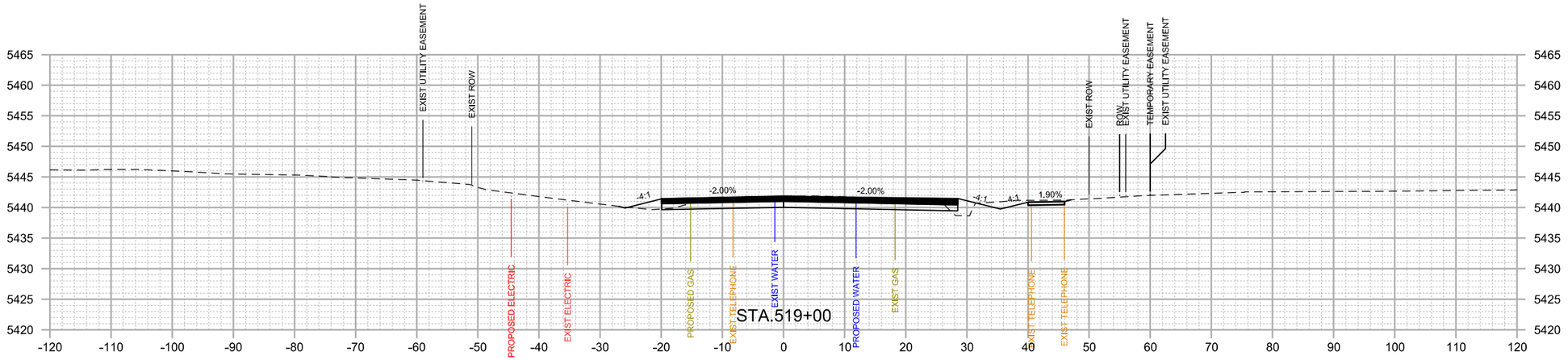

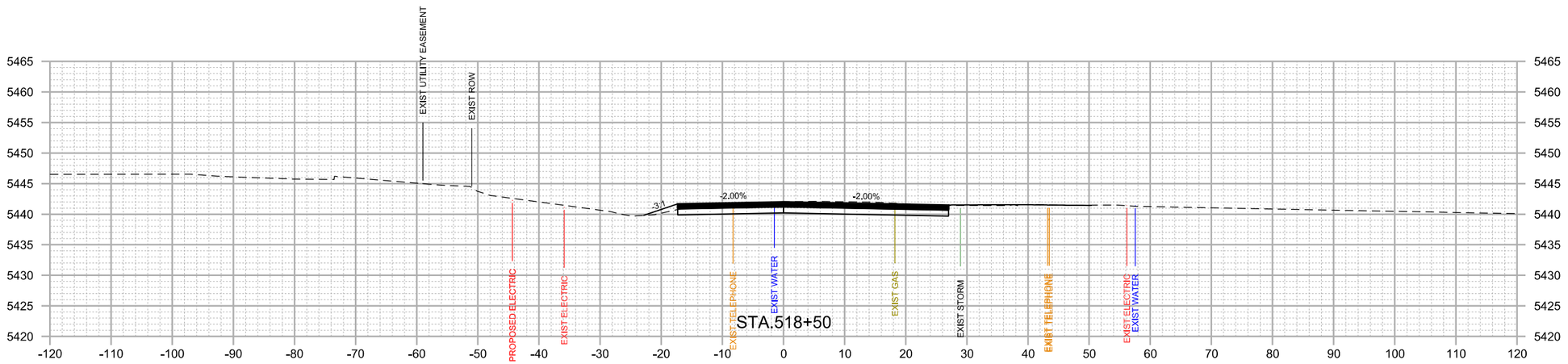

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12/9/2021
CDOT-PDFHighQuality_V8i.pltcfg
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Print Date: 12/9/2021		Sheet Revisions			CITY OF ARVADA
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:20 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
MULLER ENGINEERING COMPANY					

As Constructed
No Revisions:
Revised:
Void;

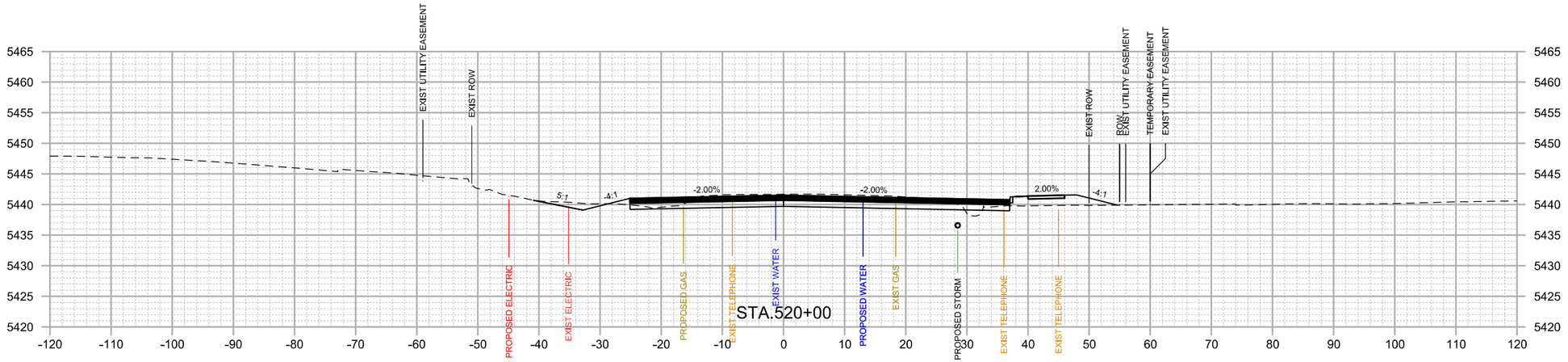
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

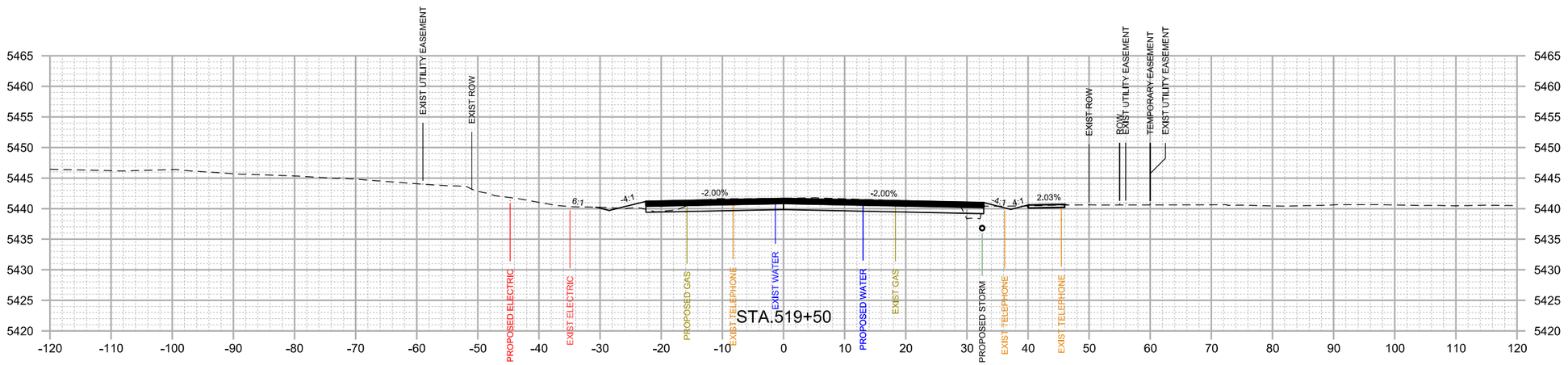
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	2 of 37

Project No./Code

Sheet Number 406





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12/9/2021
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Print Date:	12/9/2021		
Drawing File Name:	18061_CP2_W 72nd Ave Cross Sections.dgn		
Horiz. Scale:	1:20	Vert. Scale: As Noted	
Unit Information		Unit Leader Initials	

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

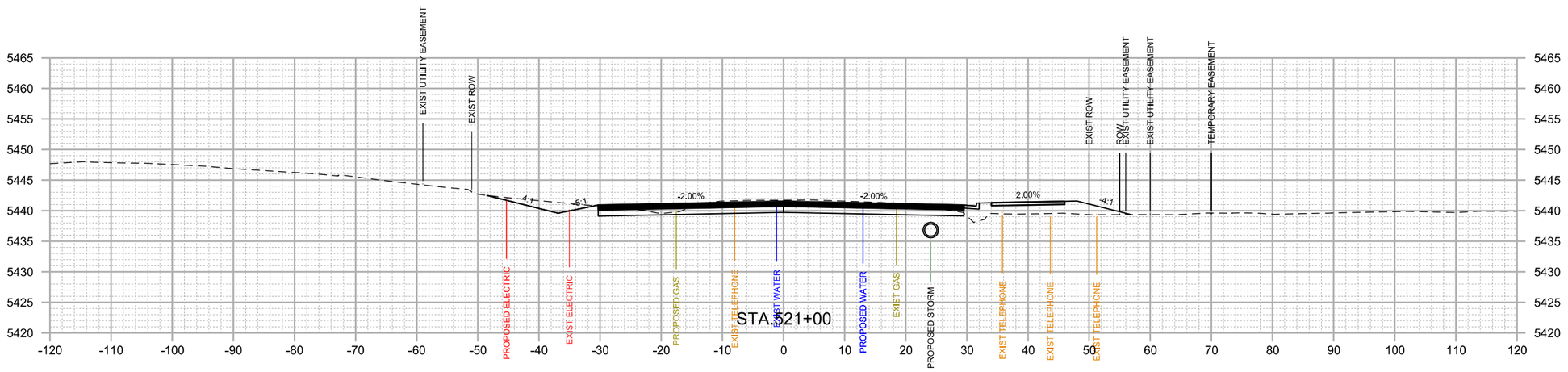
As Constructed	
No Revisions:	
Revised:	
Void:	

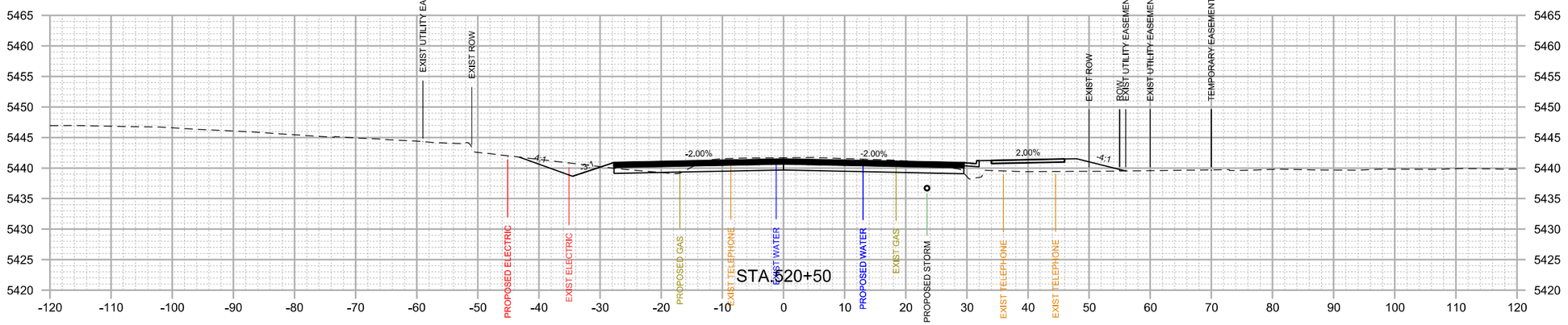
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	3 of 37

Project No./Code	
Sheet Number	407





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12/9/2021
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

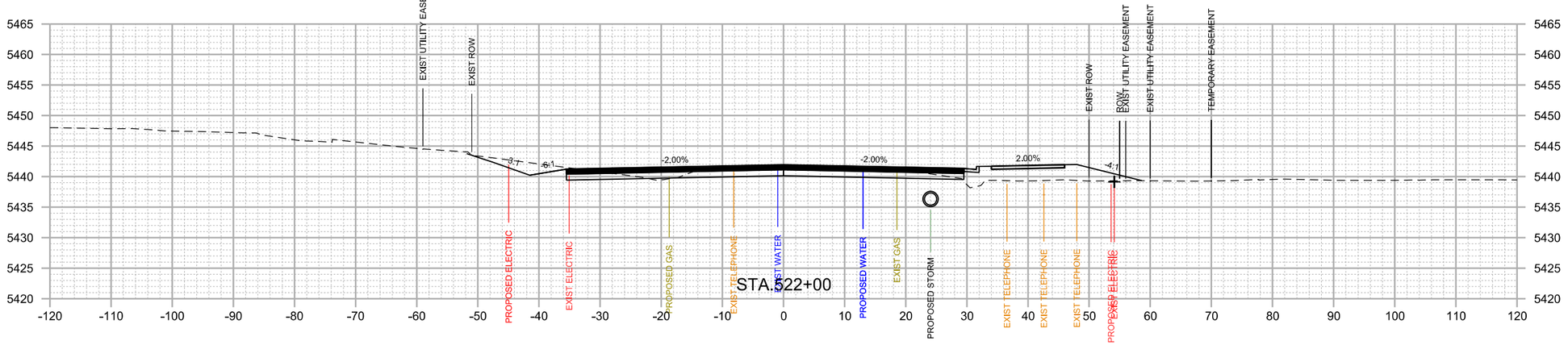
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

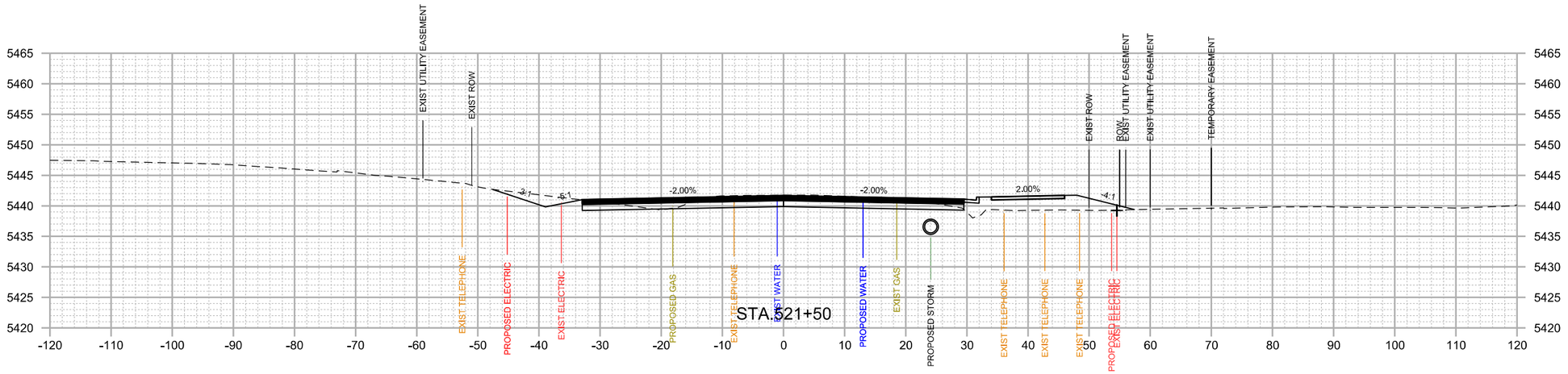
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	4 of 37

Project No./Code

Sheet Number 408





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Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn			
Horiz. Scale: 1:20	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

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Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void;	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	5 of 37

Project No./Code	
Sheet Number	409

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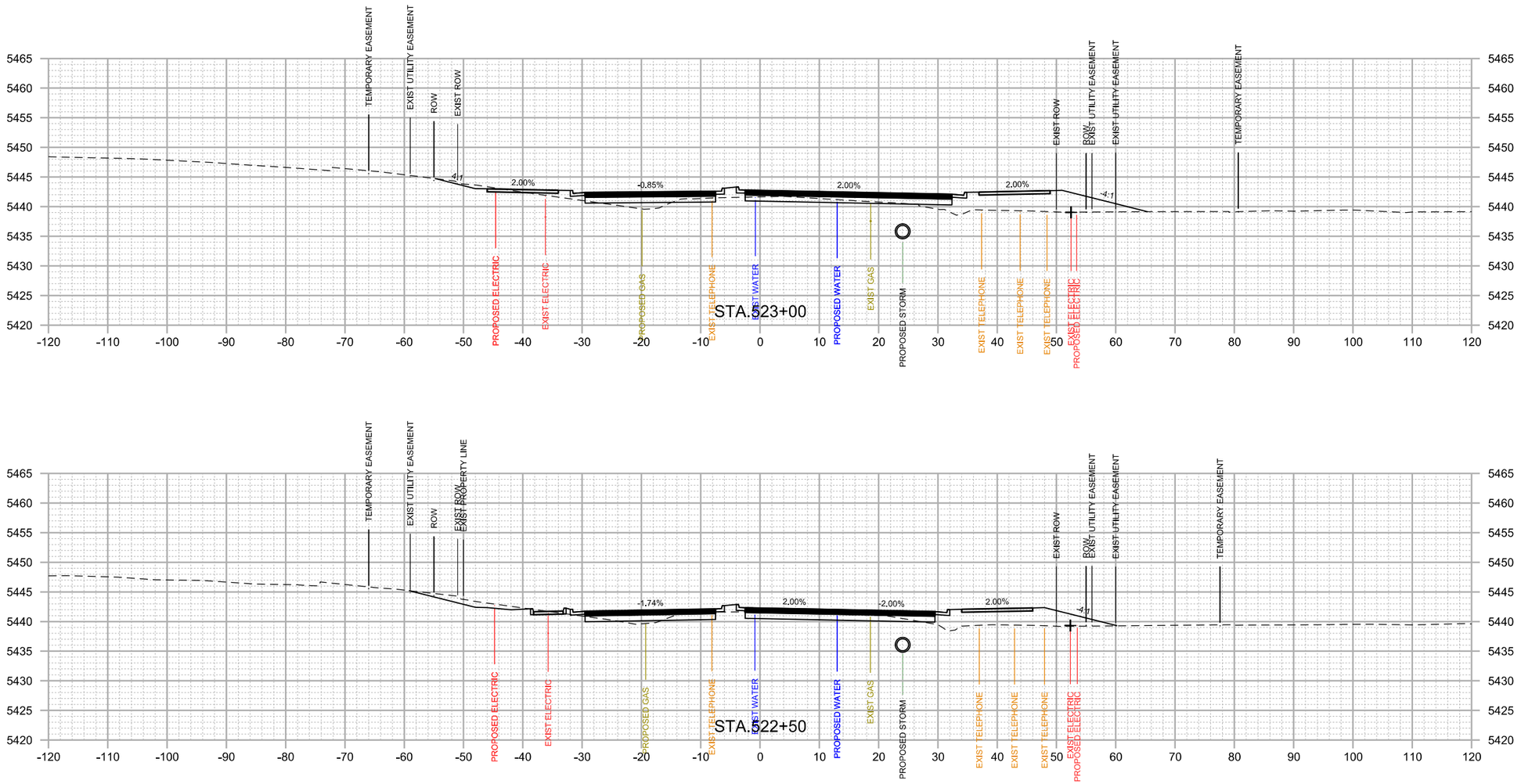

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Print Date: 12/9/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CROSS SECTIONS W. 72nd AVENUE			
Revised:	Designer: DKH	Structure Numbers		
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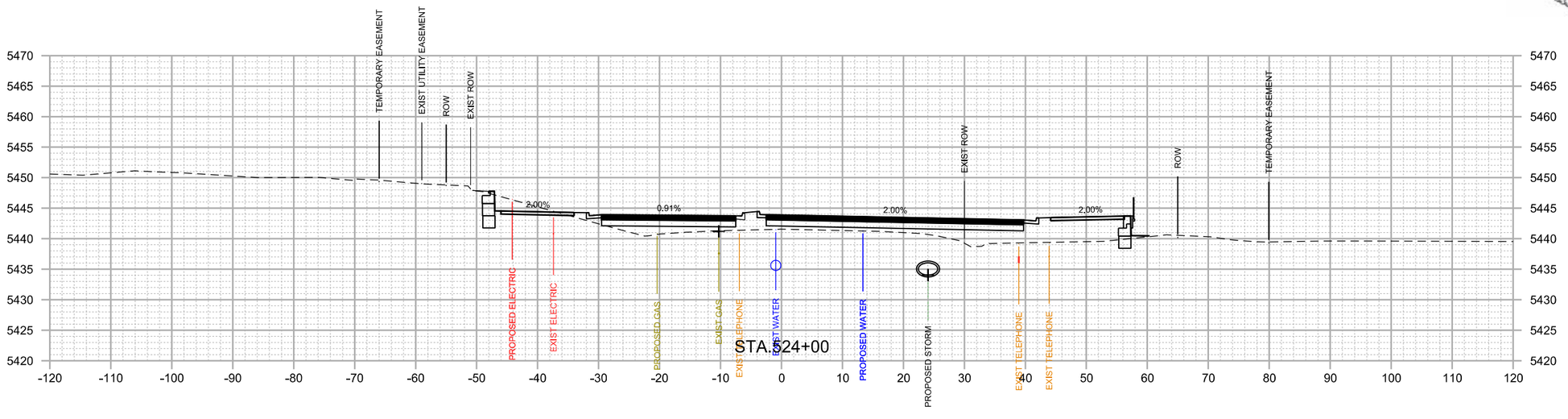

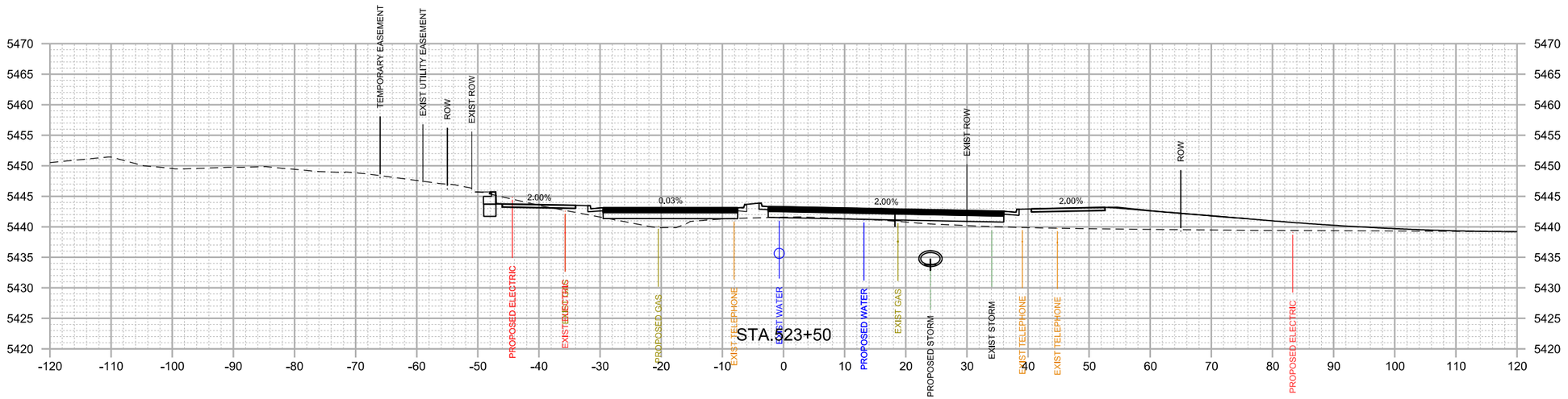

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12/9/2021
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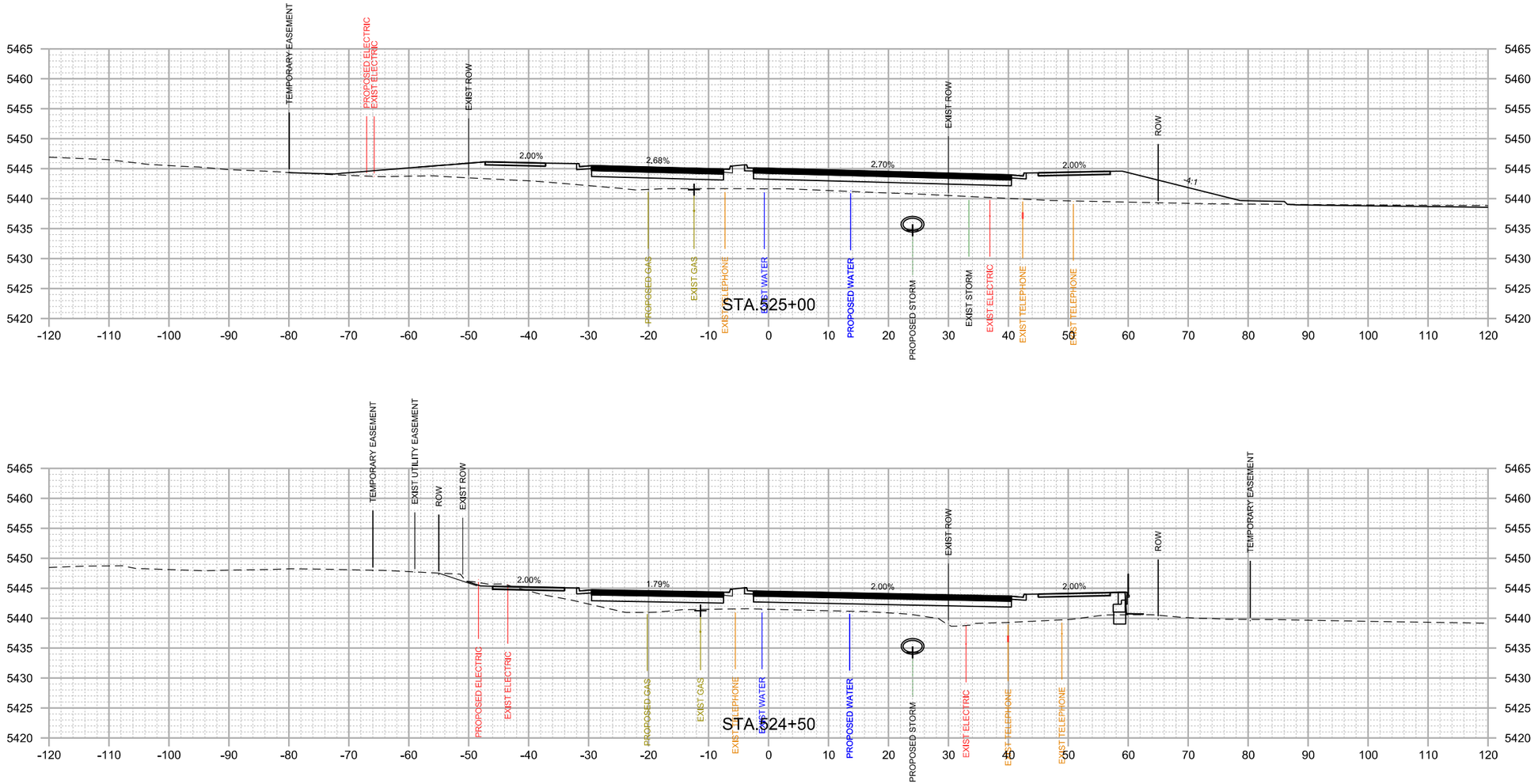
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.		No Revisions:	CROSS SECTIONS W. 72nd AVENUE
Horiz. Scale: 1:20	Vert. Scale: As Noted					Revised:	Designer: DKH / Detailer: DKH / Sheet Subset: X-SEC
Unit Information	Unit Leader Initials					Void;	Structure Numbers / Subset Sheets: 7 of 37
MULLER ENGINEERING COMPANY							Project No./Code / Sheet Number 411



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12/9/2021
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Print Date: 12/9/2021		Sheet Revisions			
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:20 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CROSS SECTIONS W. 72nd AVENUE			
Revised:	Designer: DKH	Structure Numbers		
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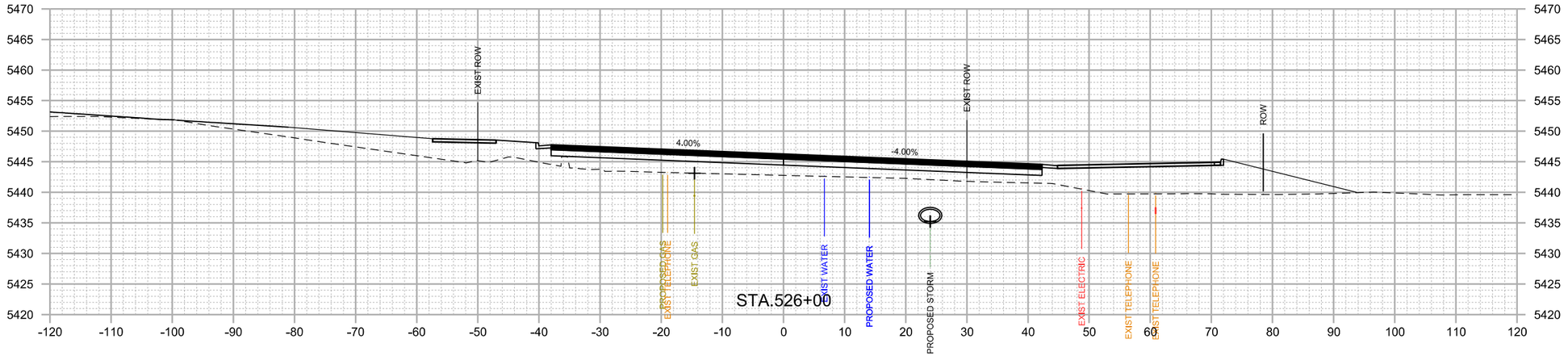

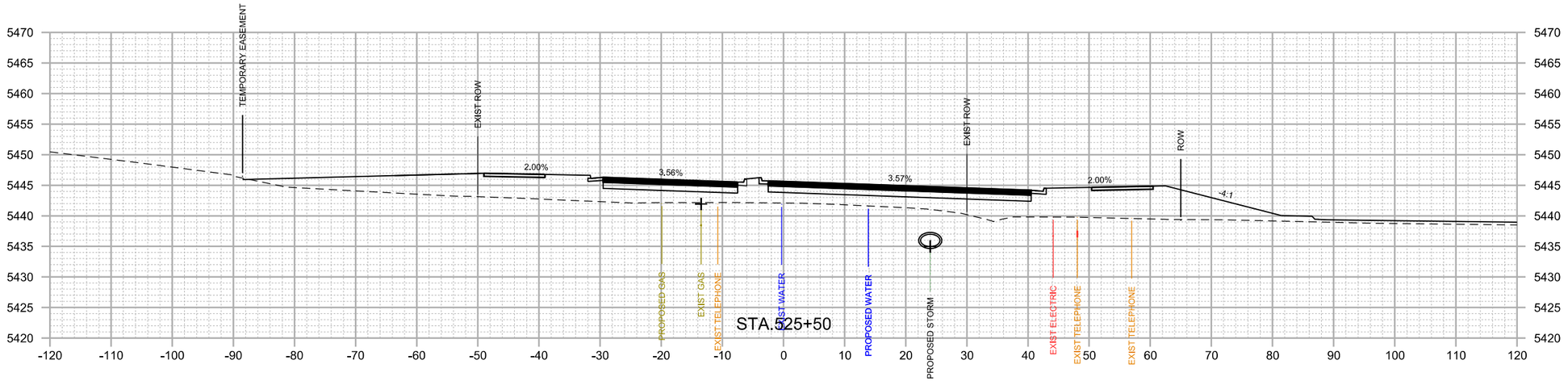

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12/9/2021
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

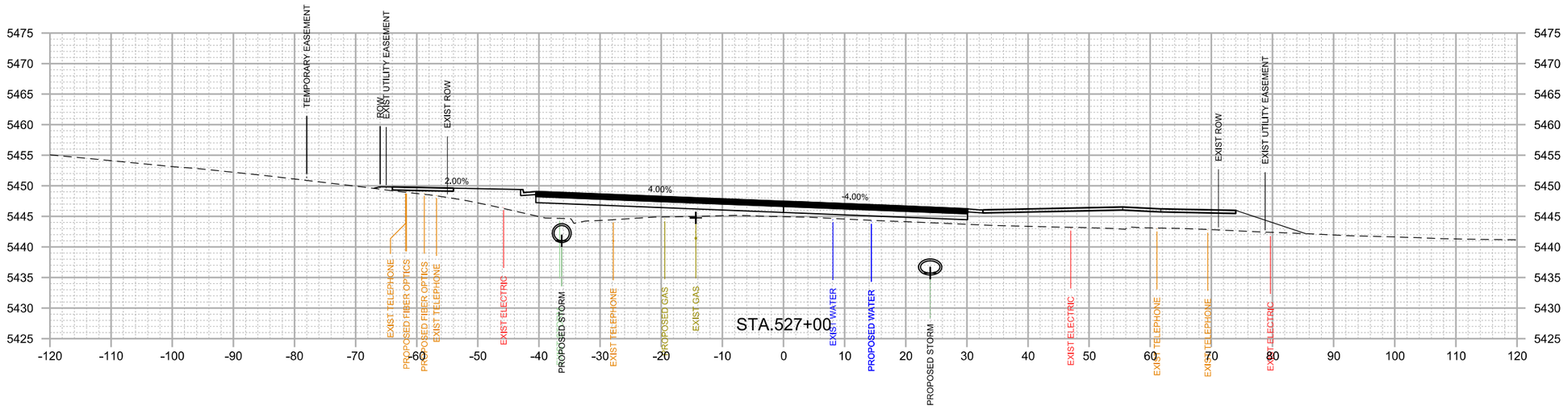
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

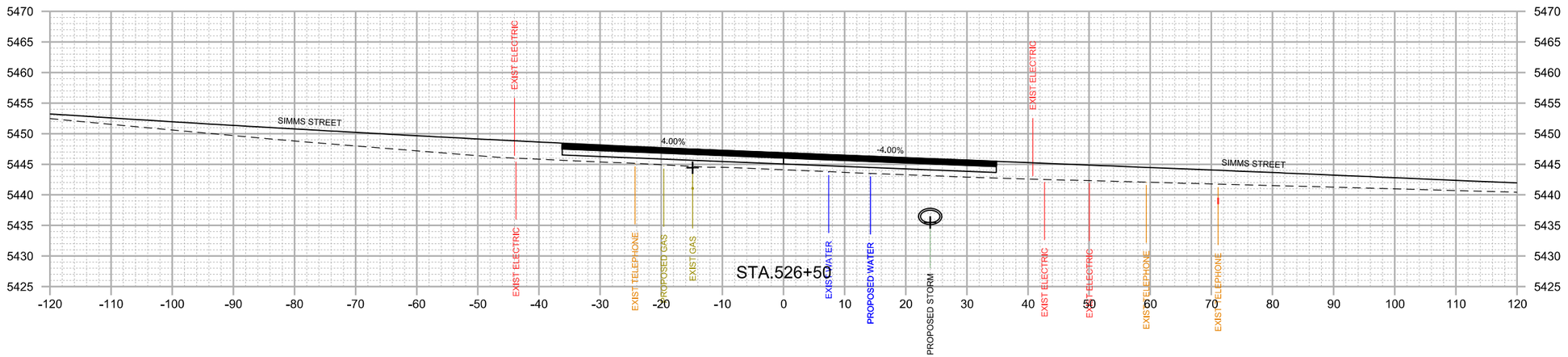
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	9 of 37

Project No./Code

Sheet Number 413





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Print Date: 12/9/2021		Sheet Revisions	
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments / Init.
Horiz. Scale: 1:20	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	10 of 37

Project No./Code

Sheet Number 414

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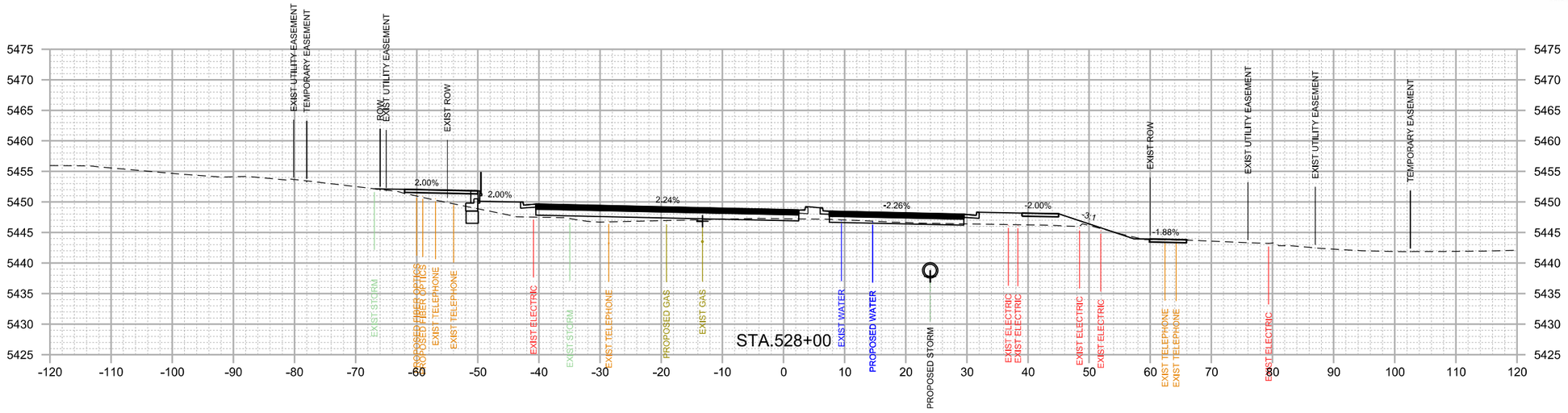

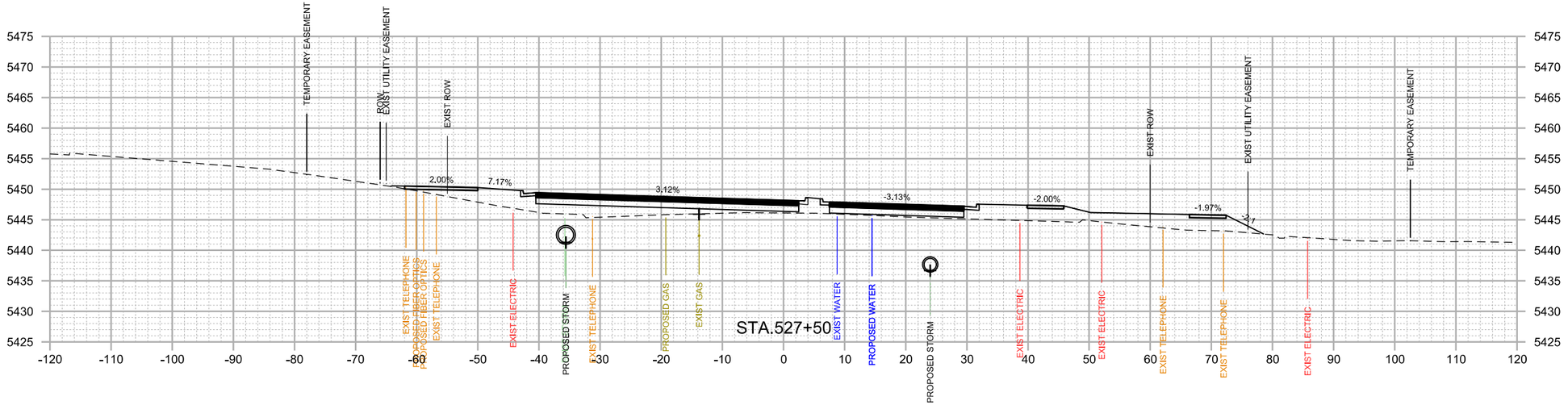

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12/9/2021
CDOT-PDFHighQuality_V8i.pltcfg
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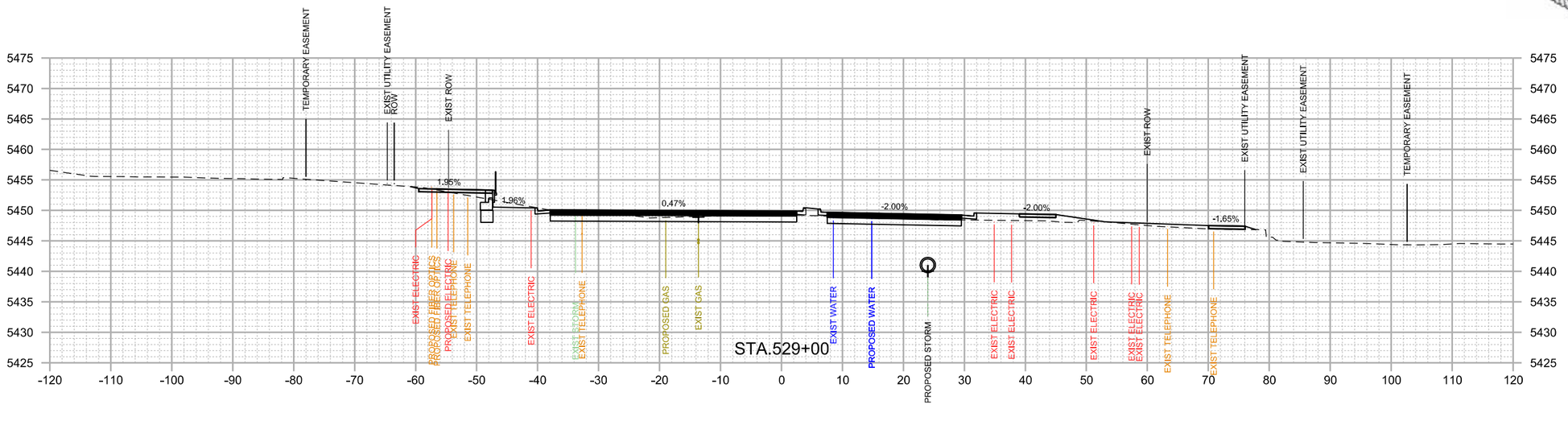
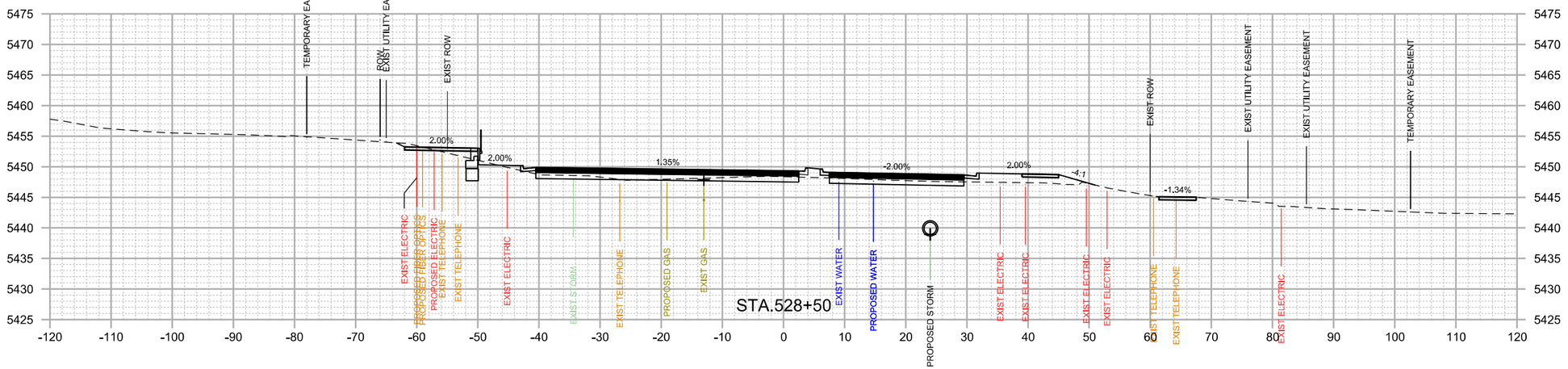
Print Date: 12/9/2021		Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.		No Revisions:	CROSS SECTIONS W. 72nd AVENUE
Horiz. Scale: 1:20	Vert. Scale: As Noted					Revised:	Designer: DKH / Detailer: DKH / Structure Numbers
Unit Information	Unit Leader Initials					Void;	Sheet Subset: X-SEC / Subset Sheets: 11 of 37
MULLER ENGINEERING COMPANY							Project No./Code / Sheet Number 415





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12/9/2021
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Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

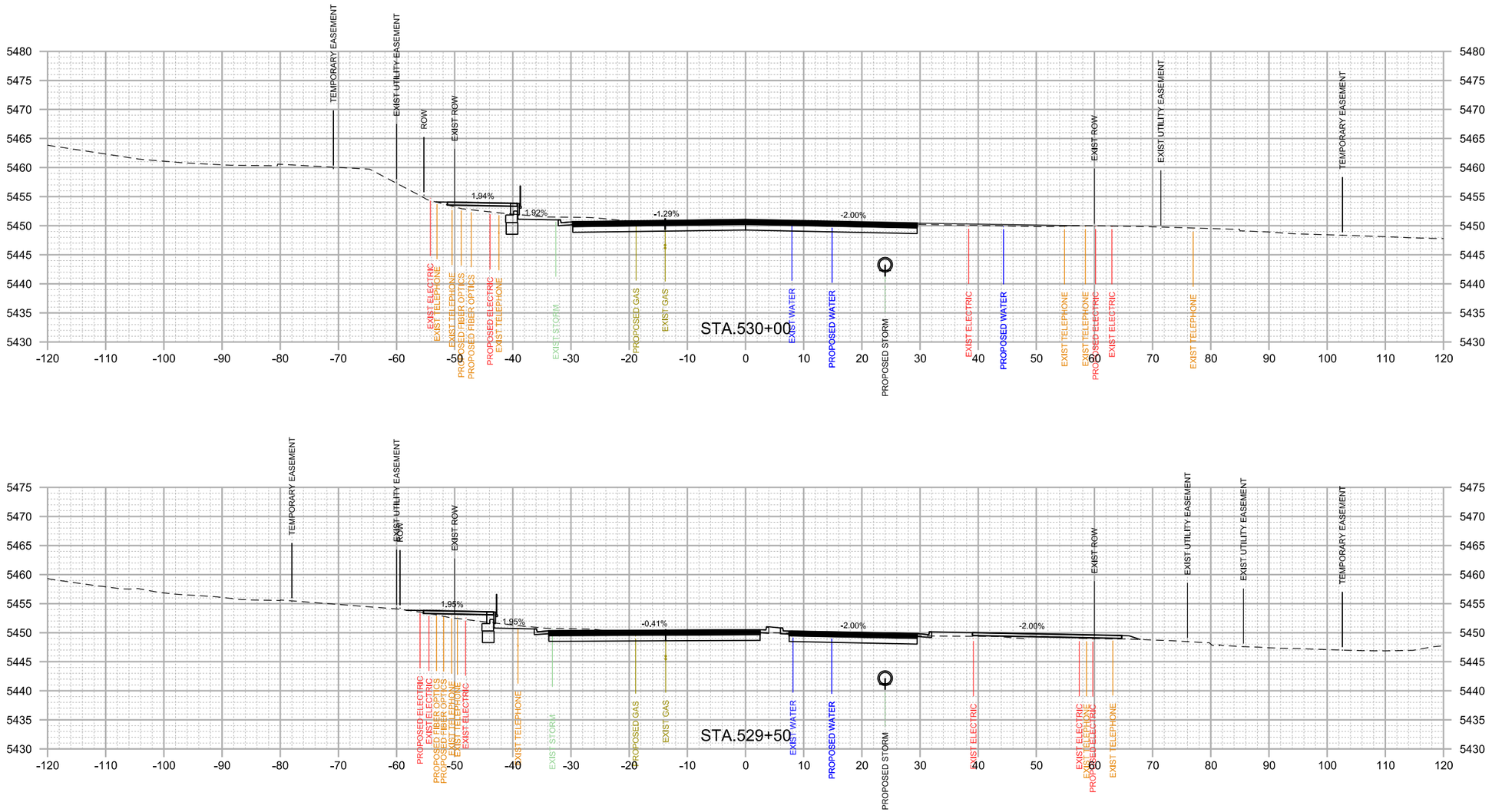
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	12 of 37

Project No./Code

Sheet Number 416



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02/13/2022

Print Date: 12/9/2021		Sheet Revisions			As Constructed
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Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	13 of 37

Project No./Code

Sheet Number 417

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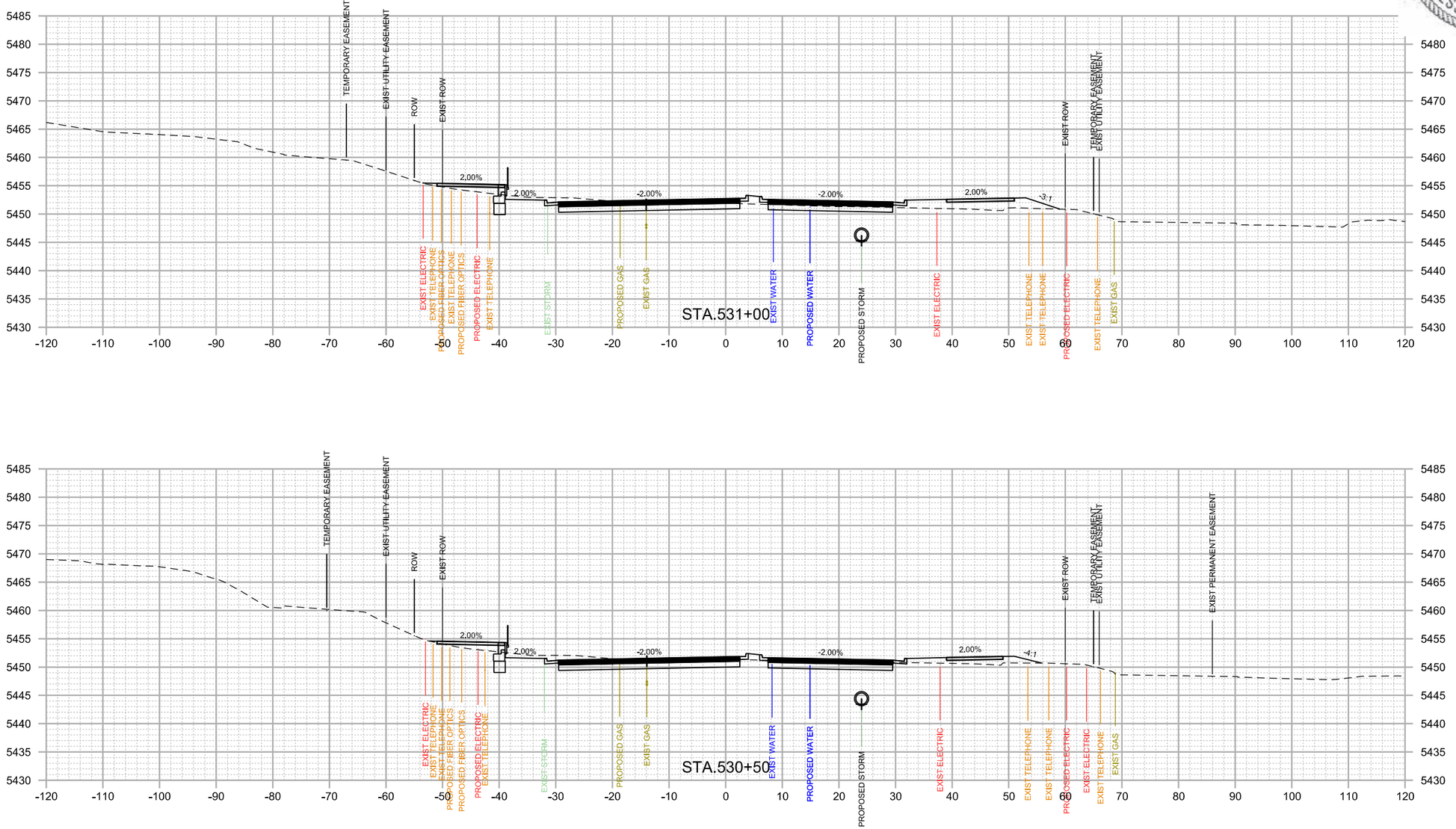

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12/9/2021
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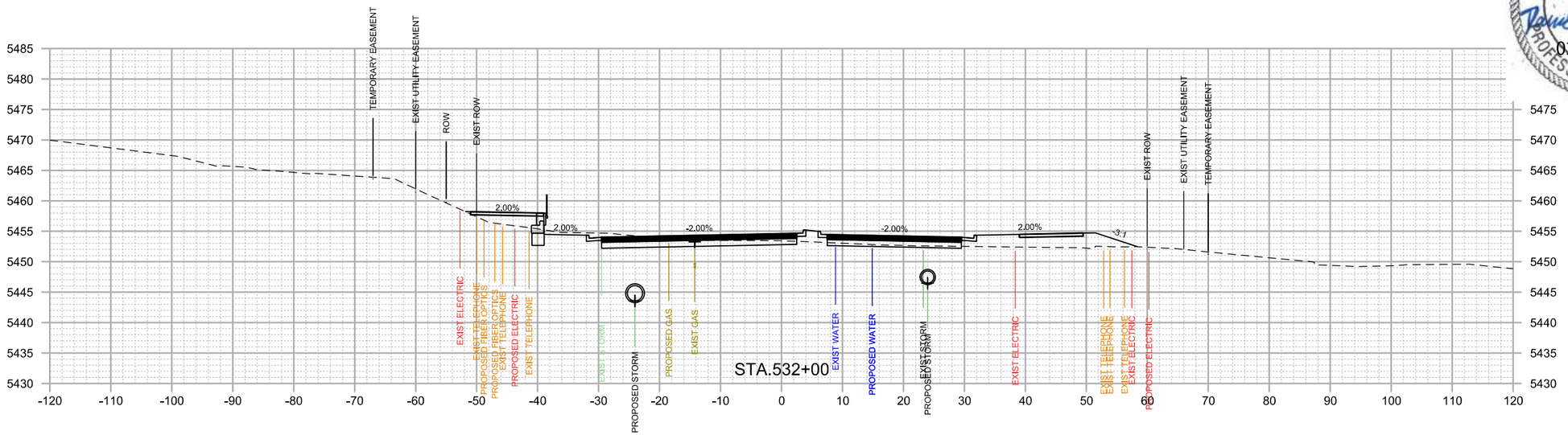
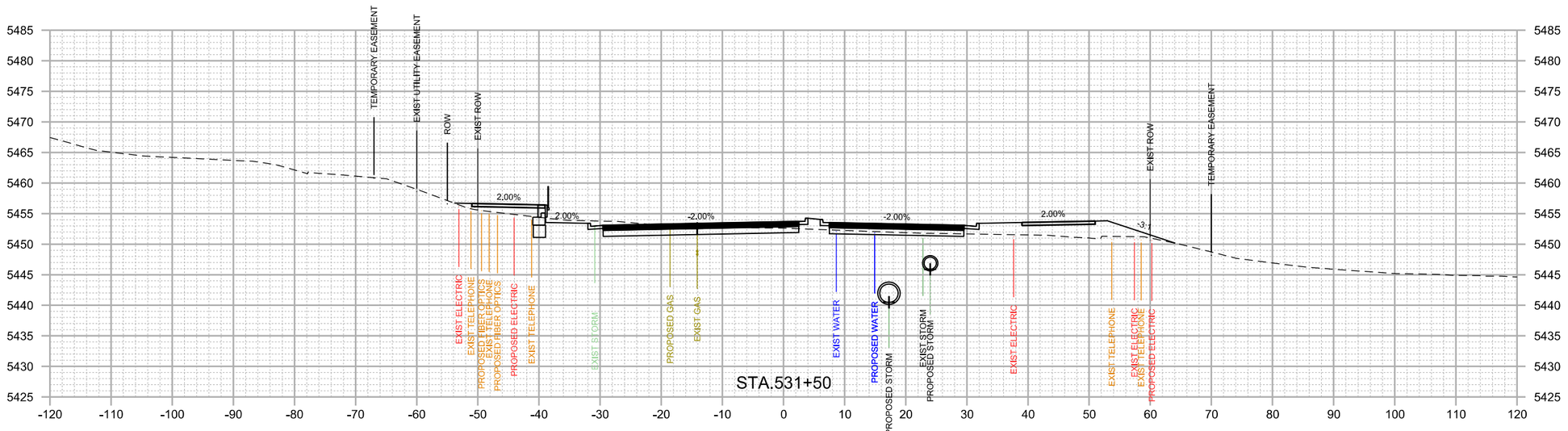
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:	Designer: DKH	Structure Numbers
Unit Information	Unit Leader Initials				Void;	Detailer: DKH	
MULLER ENGINEERING COMPANY						Sheet Subset: X-SEC	Subset Sheets: 14 of 37
					CITY OF ARVADA		Sheet Number 418





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12/9/2021
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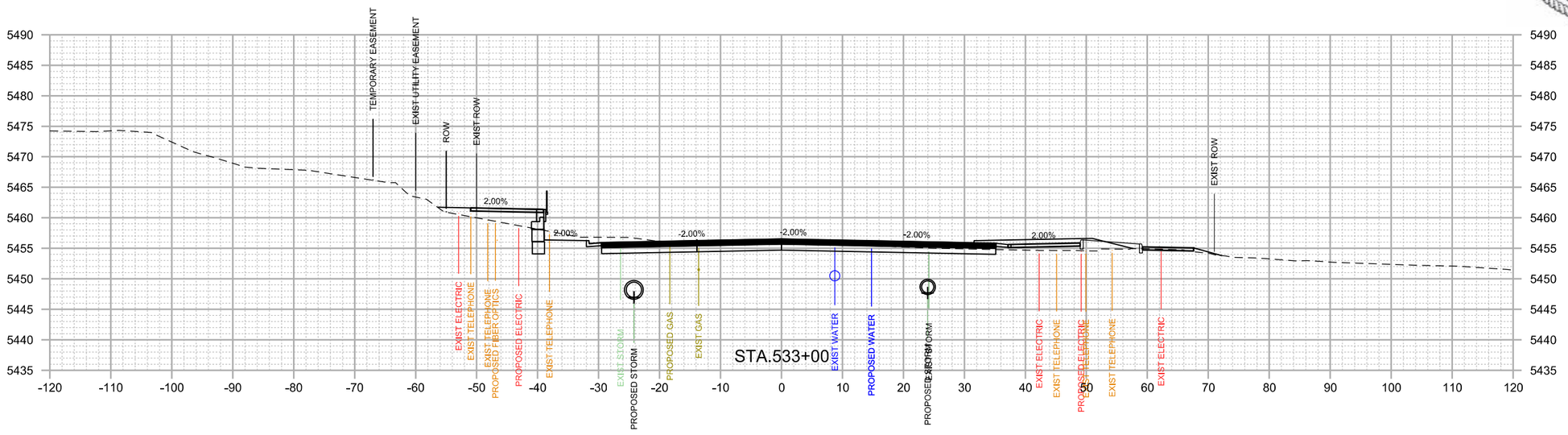
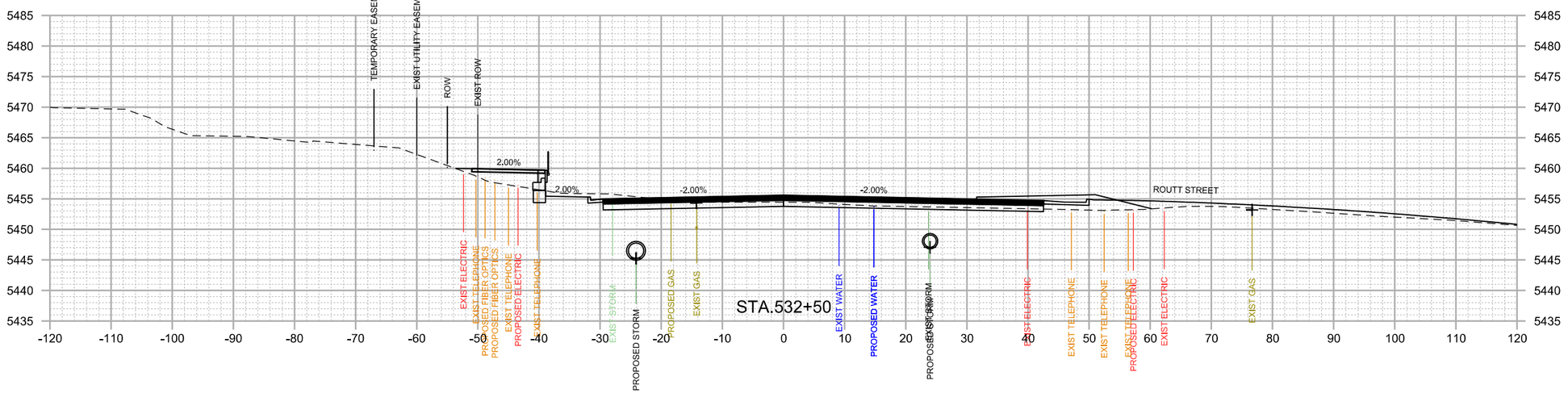
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:	Designer: DKH / Structure Numbers	
Unit Information	Unit Leader Initials					Detailer: DKH	
MULLER ENGINEERING COMPANY					Void;	Sheet Subset: X-SEC / Subset Sheets: 15 of 37	Sheet Number 419

CITY OF ARVADA





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Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY			CITY OF ARVADA		

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

				Project No./Code	
Designer:	DKH	Structure Numbers			
Detailer:	DKH				
Sheet Subset:	X-SEC	Subset Sheets:	16 of 37	Sheet Number	420

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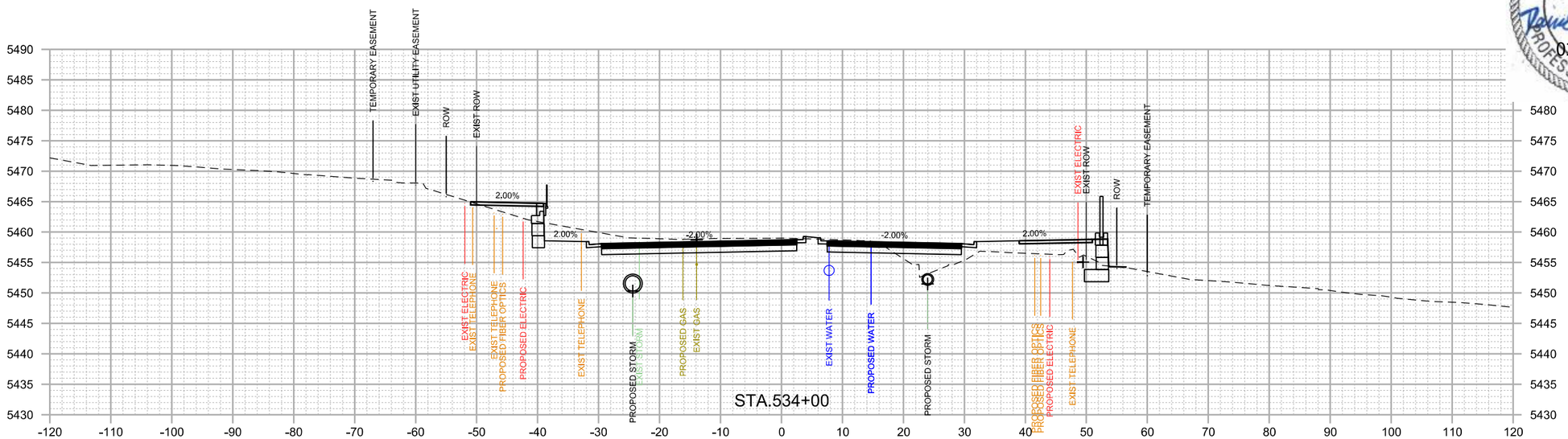

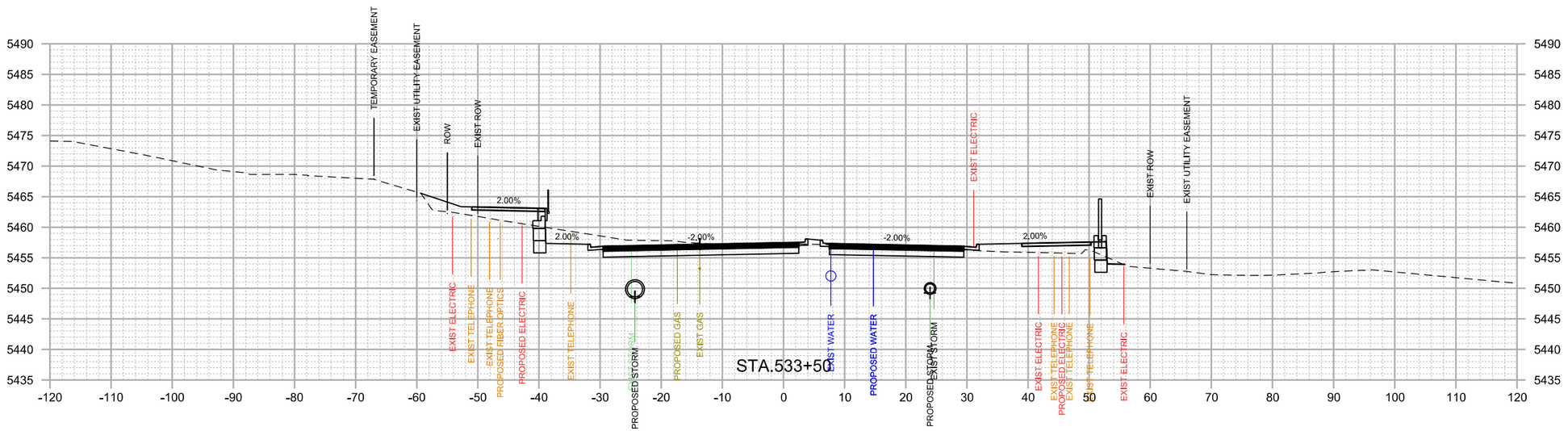

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12/9/2021
CDOT-PDFHighQuality_V8i.pltcfg
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

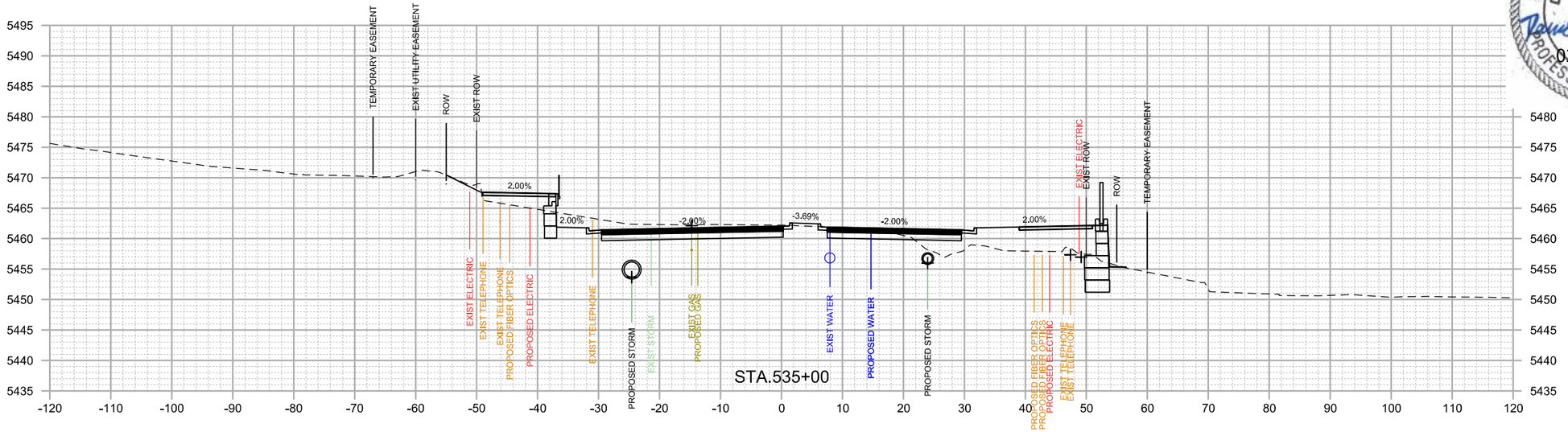
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

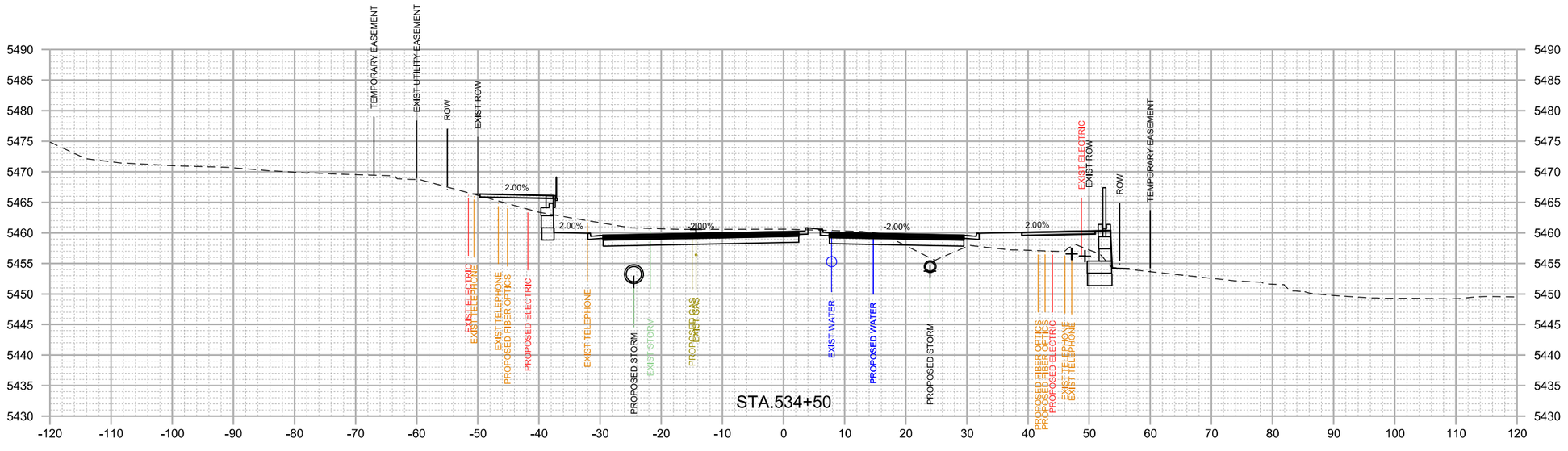
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	17 of 37

Project No./Code

Sheet Number 421





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Print Date: 12/9/2021	Sheet Revisions		
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	18 of 37

Project No./Code

Sheet Number 422

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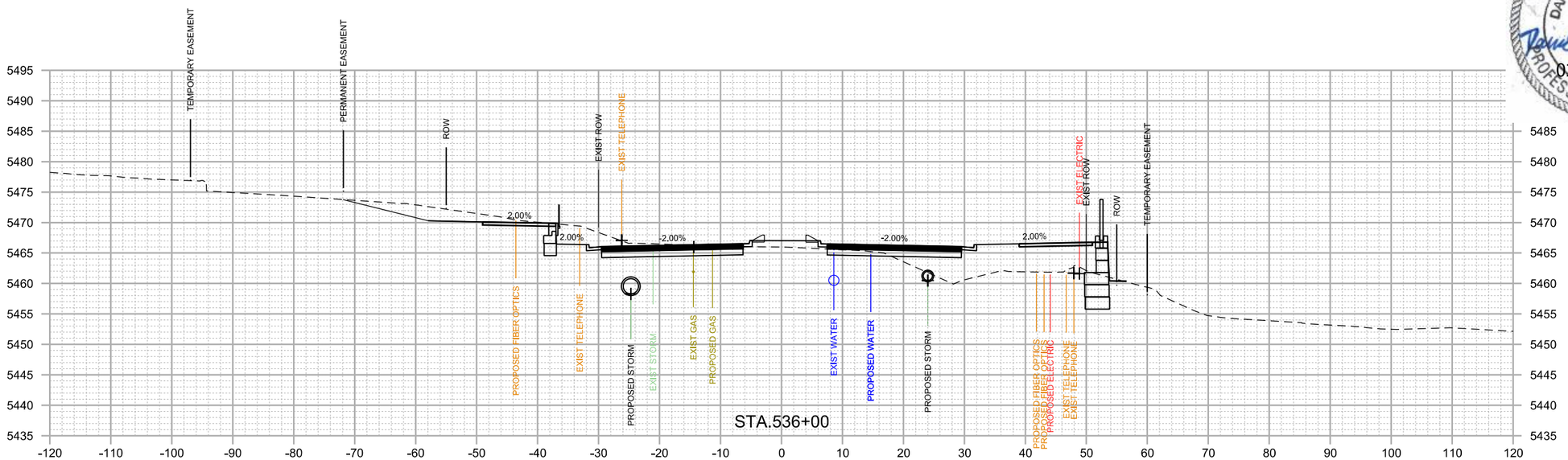

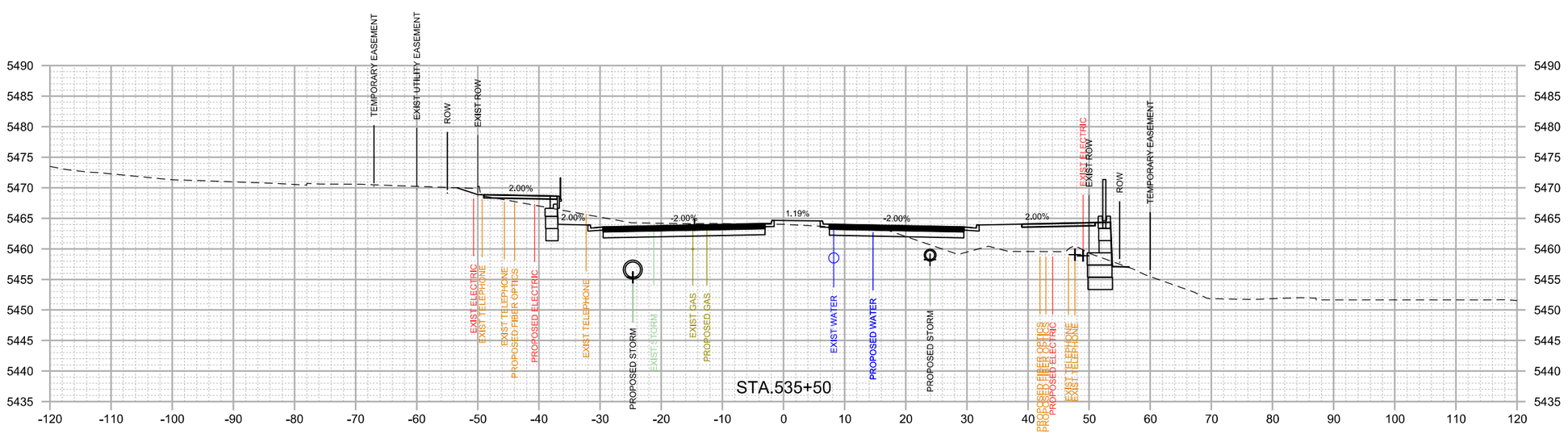

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12/9/2021
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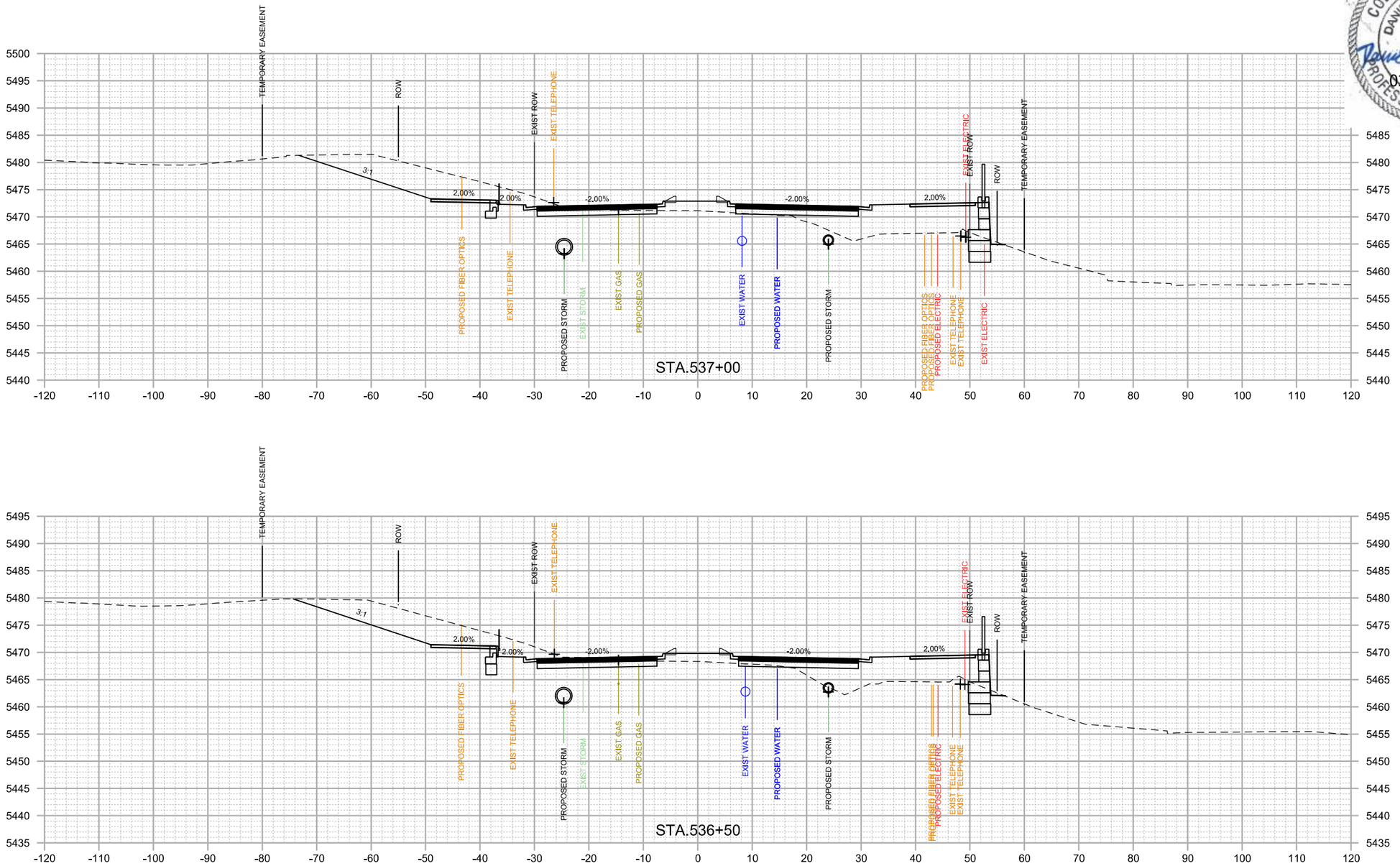
Horiz. Scale: 1:20	Vert. Scale: As Noted					Revised:	Designer: DKH / Structure Numbers	
Unit Information	Unit Leader Initials					Void;	Detailer: DKH	
MULLER ENGINEERING COMPANY							Sheet Subset: X-SEC / Subset Sheets: 19 of 37	Sheet Number 423



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Print Date: 12/9/2021		Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2	Project No./Code
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:	CROSS SECTIONS W. 72nd AVENUE	
Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:	Designer: DKH / Detailer: DKH / Structure Numbers	
Unit Information Unit Leader Initials					Void:	Sheet Subset: X-SEC / Subset Sheets: 20 of 37	Sheet Number 424
MULLER ENGINEERING COMPANY							

CITY OF ARVADA

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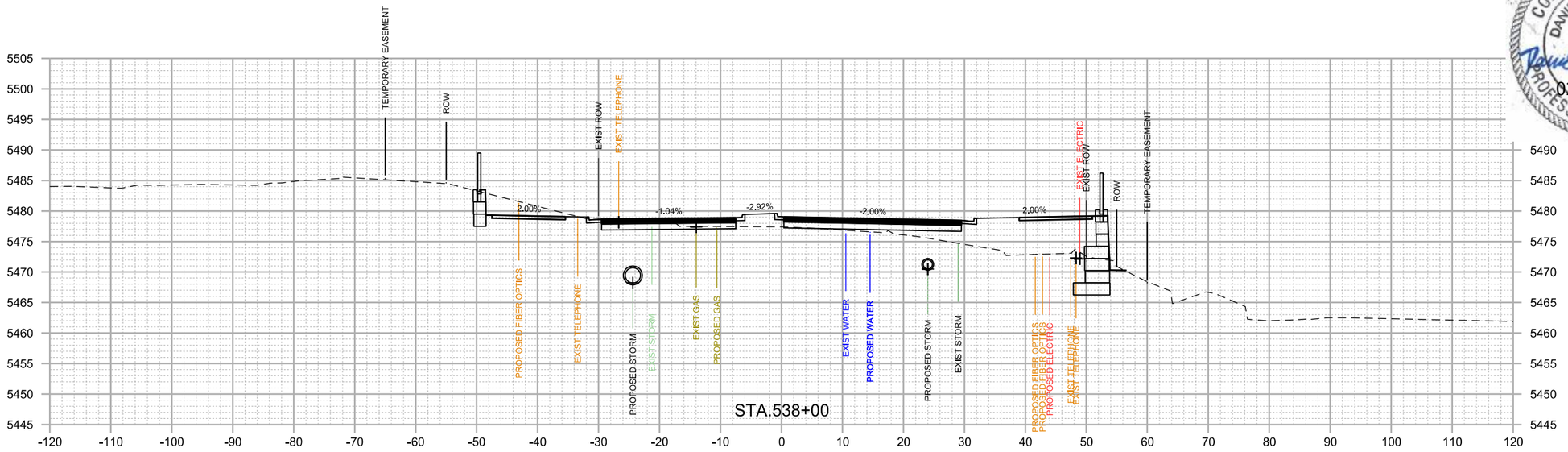

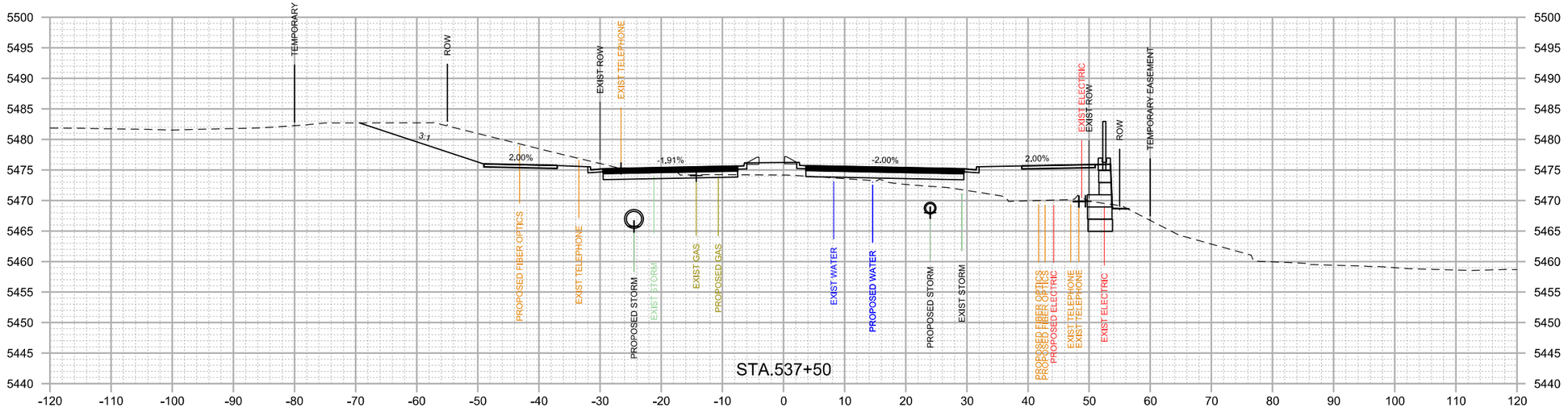

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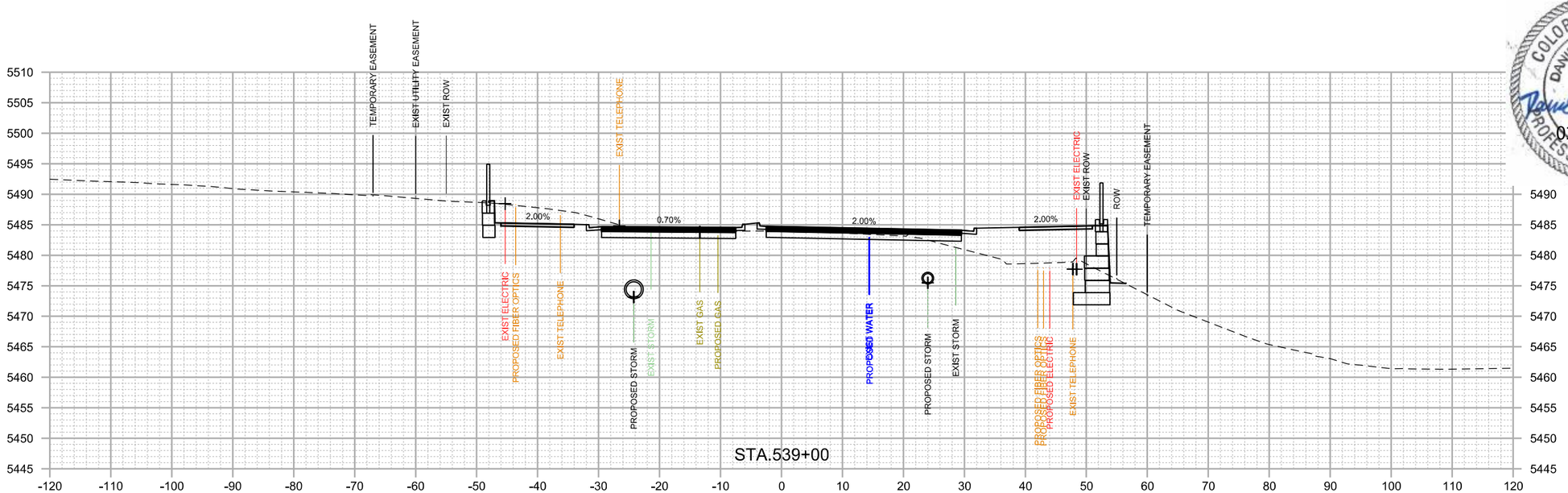
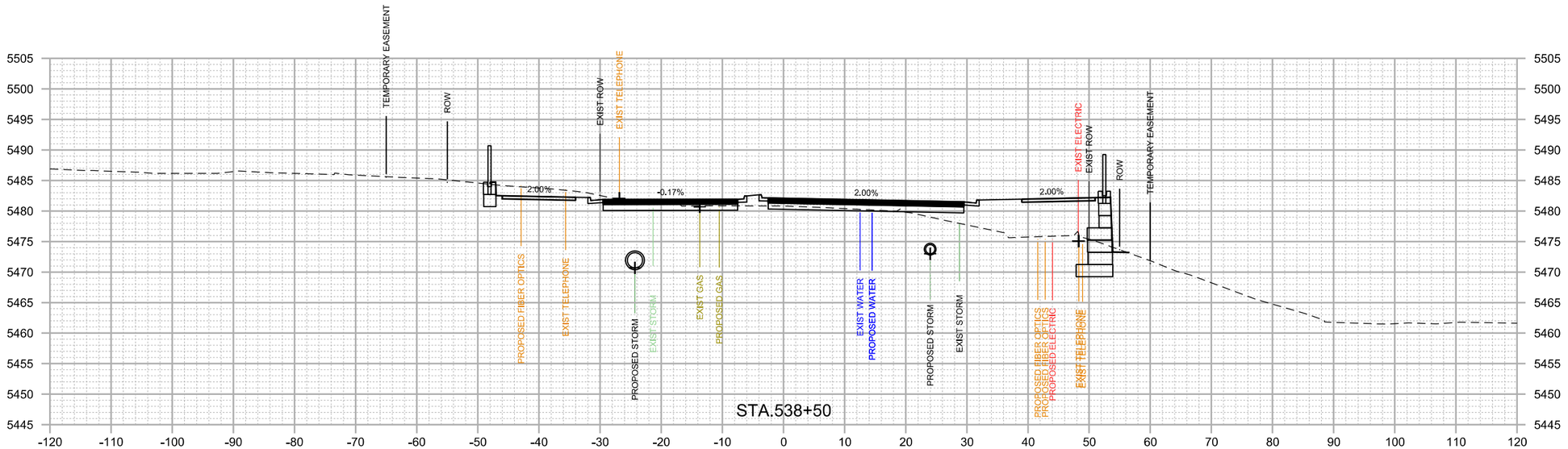
12/9/2021 CDOT-PDFHighQuality_V8i.pltcfg CDOT V8i CLR-UTIL Dark.tbl

Print Date: 12/9/2021		Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2	Project No./Code
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.		No Revisions:	CROSS SECTIONS W. 72nd AVENUE	
Horiz. Scale: 1:20 Vert. Scale: As Noted						Revised:	Designer: DKH / Detailer: DKH	Structure Numbers
Unit Information Unit Leader Initials						Void:	Sheet Subset: X-SEC	Subset Sheets: 21 of 37
MULLER ENGINEERING COMPANY								Sheet Number 425





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Print Date: 12/9/2021	Sheet Revisions		
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Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed
No Revisions:
Revised:
Void:

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	22 of 37

Project No./Code

Sheet Number 426

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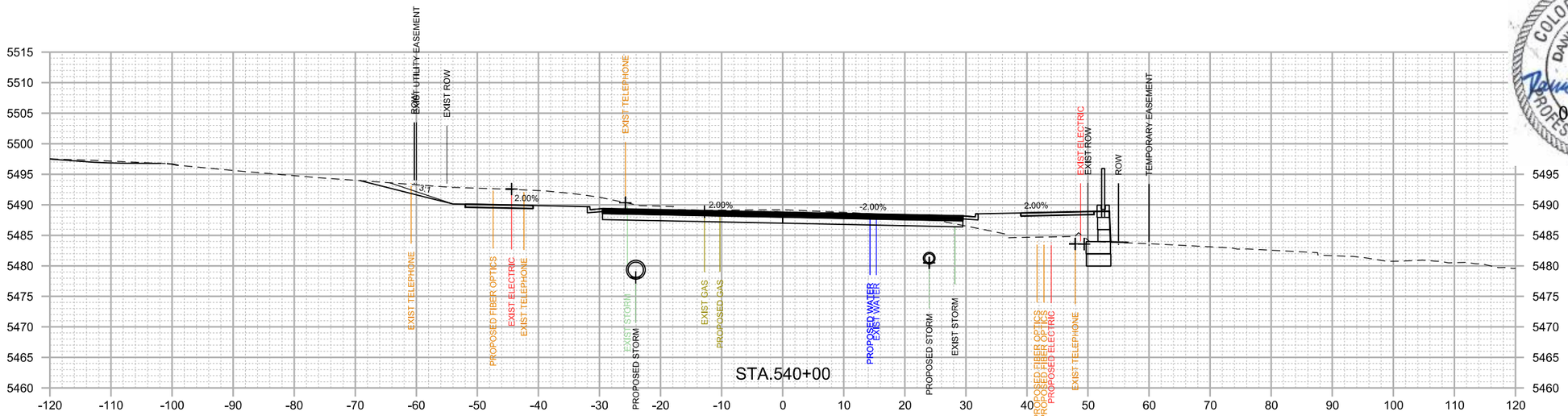

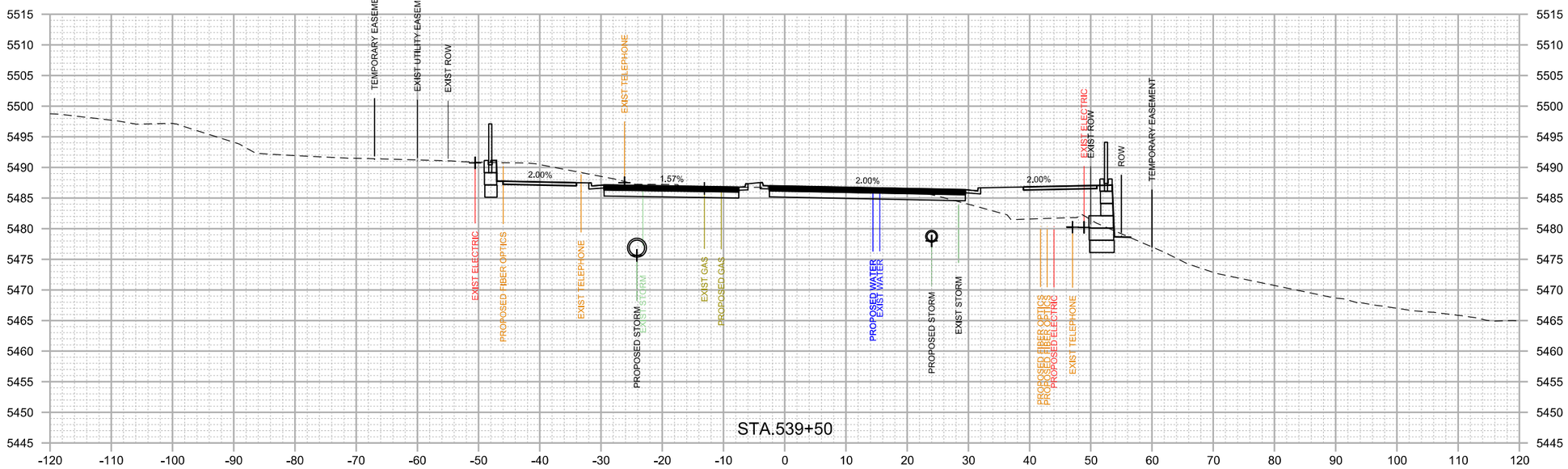

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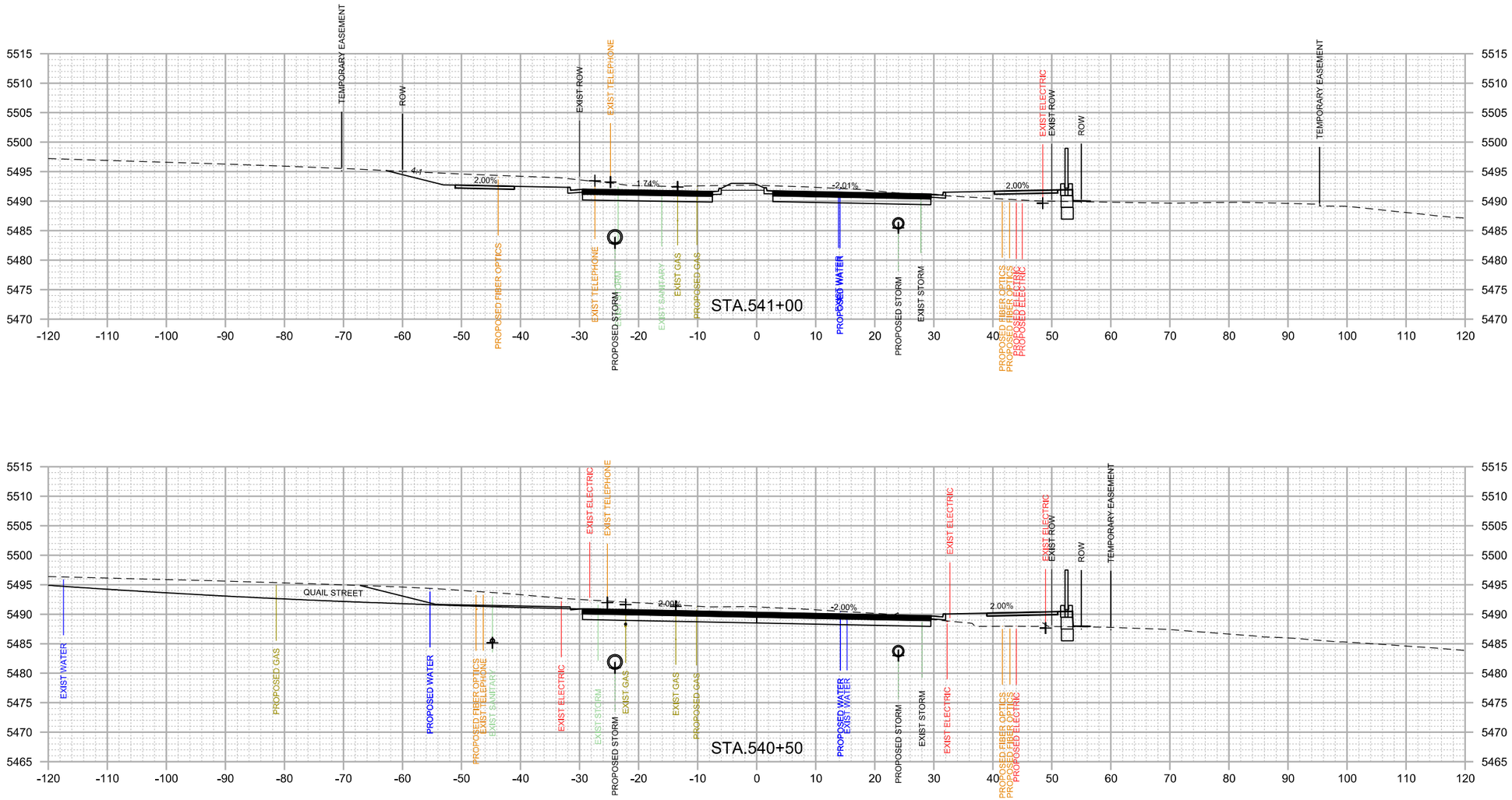
12/9/2021 CDOT-PDF-HighQuality_V8i.pltcfg CDOT V8i CLR-UTIL Dark.tbl

Print Date: 12/9/2021		Sheet Revisions				As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	CITY OF ARVADA	No Revisions:	CROSS SECTIONS W. 72nd AVENUE
Horiz. Scale: 1:20 Vert. Scale: As Noted						Revised:	Designer: DKH / Detailer: DKH / Structure Numbers
Unit Information Unit Leader Initials						Void:	Sheet Subset: X-SEC / Subset Sheets: 23 of 37
MULLER ENGINEERING COMPANY							Project No./Code / Sheet Number 427



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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	24 of 37

Project No./Code

Sheet Number 428

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12/9/2021
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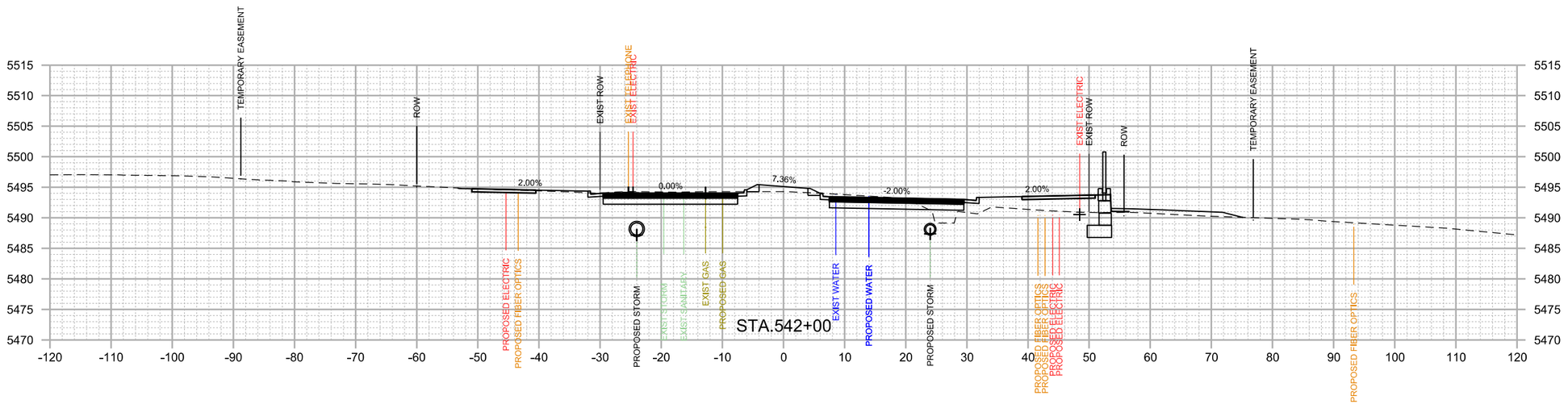

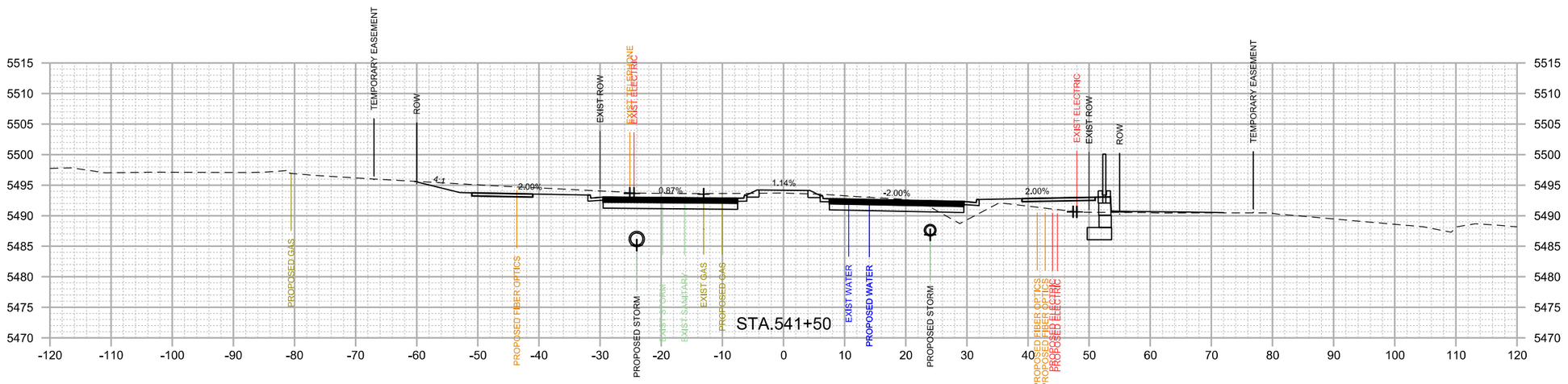

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Print Date: 12/9/2021			
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn			
Horiz. Scale: 1:20	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void;	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	25 of 37

Project No./Code

Sheet Number 429

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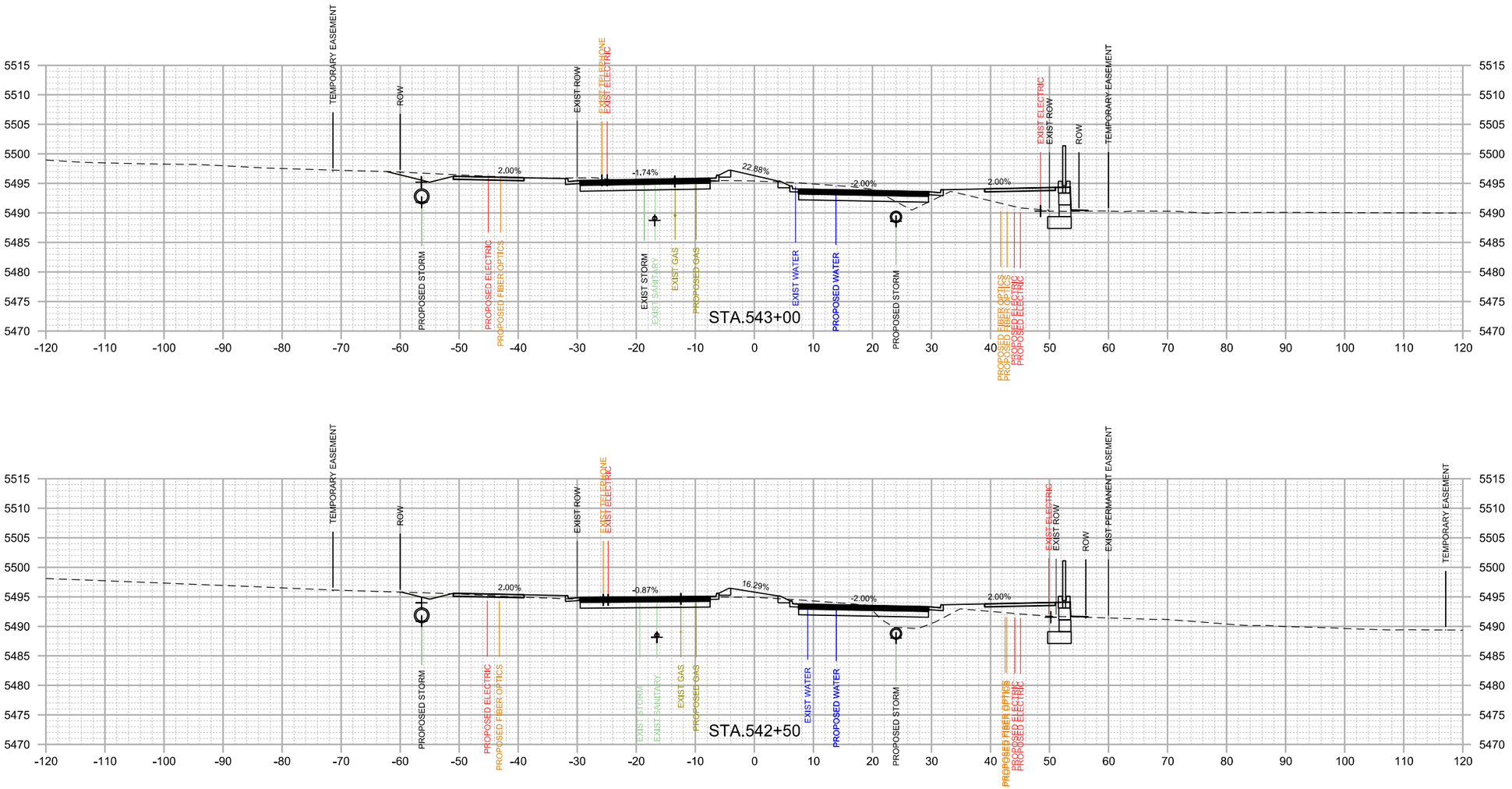
12/9/2021 CDOT-PDFHighQuality_V8i.pltcfg CDOT V8i CLR-UTIL Dark.tbl



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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	26 of 37

Project No./Code

Sheet Number 430

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12/9/2021
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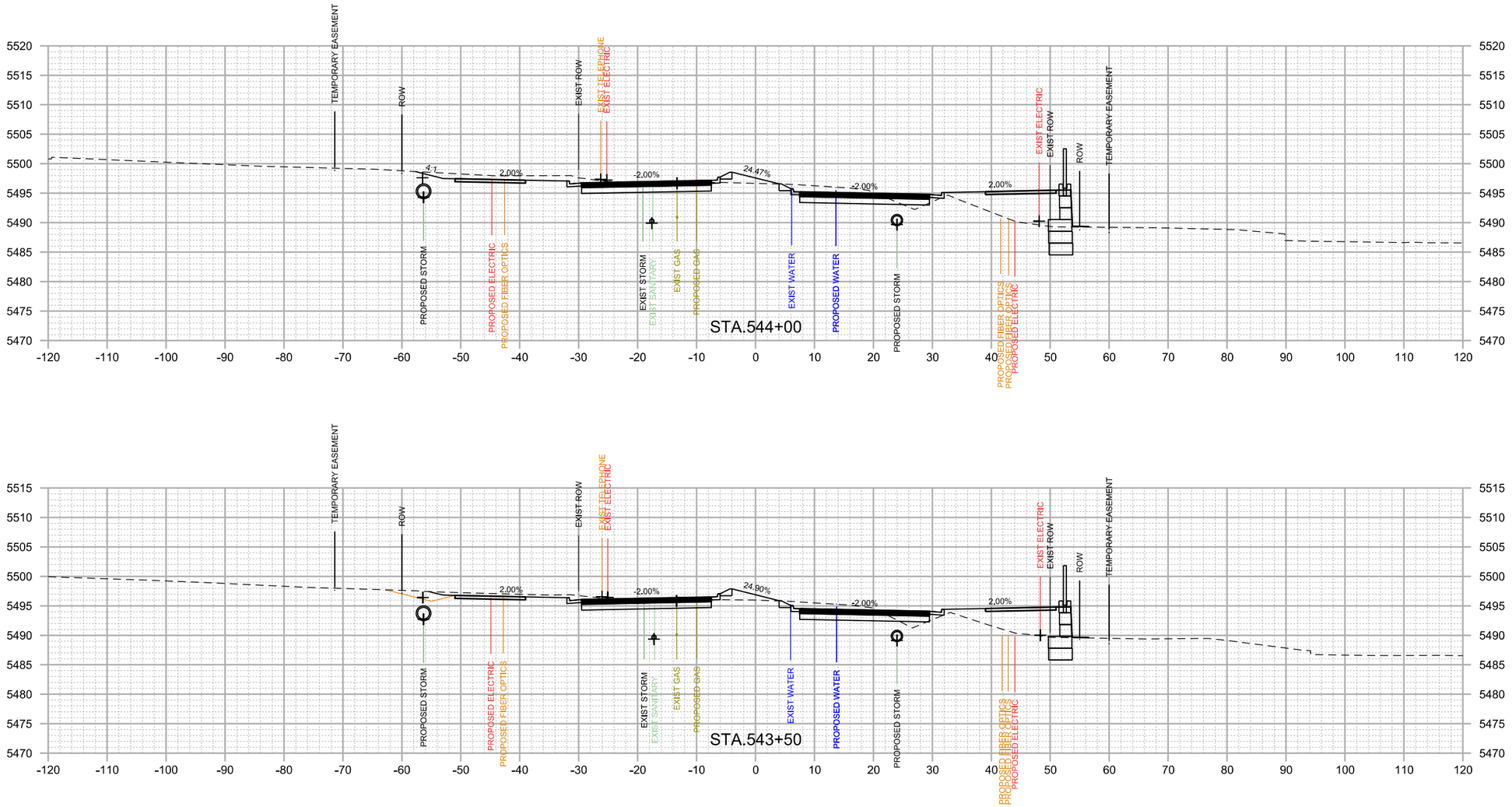

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12/9/2021
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

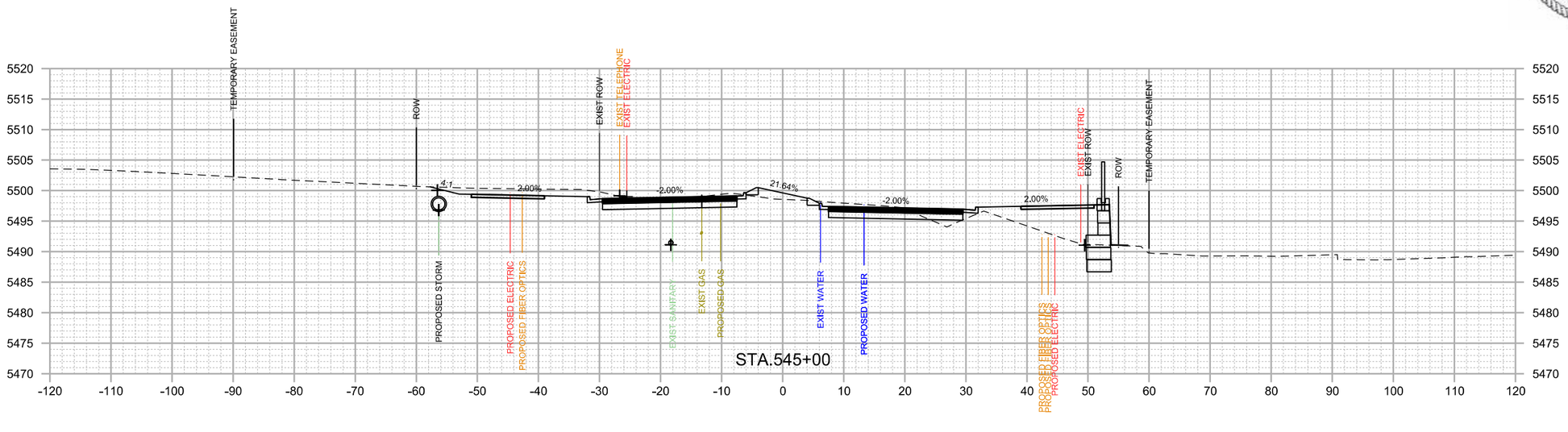
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

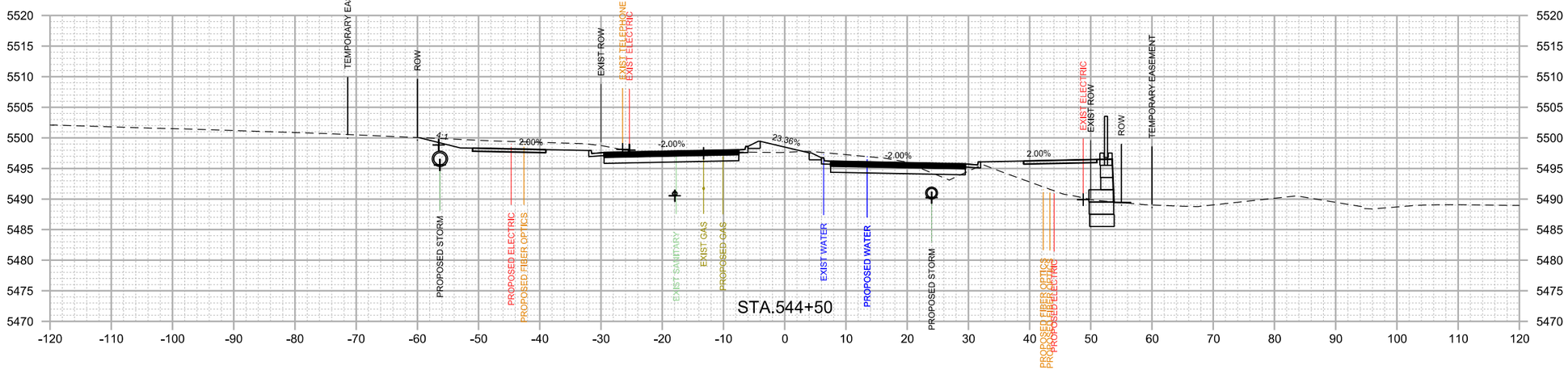
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	27 of 37

Project No./Code

Sheet Number 431





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PROFESSIONAL ENGINEER
02/13/2022

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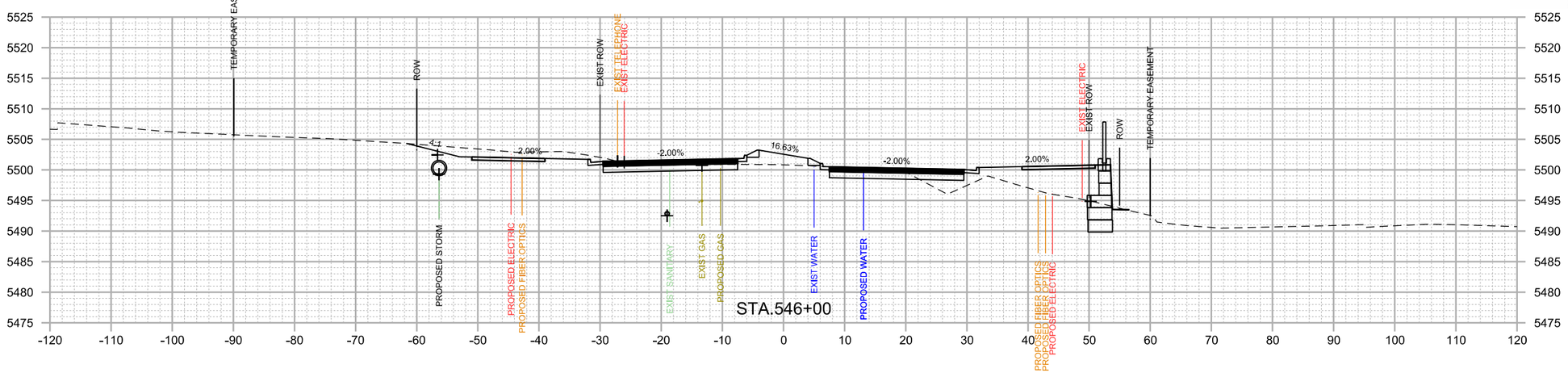
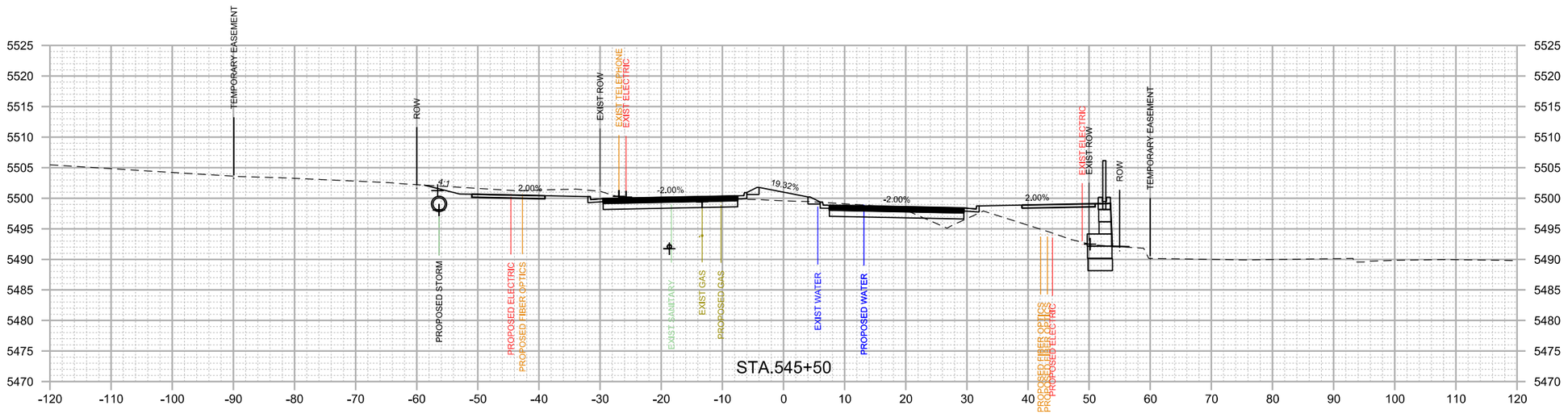
12/9/2021
CDOT-PDFHighQuality_V8i.pltcfg
CDOT V8i CLR-UTIL Dark.tbl

Print Date: 12/9/2021		Sheet Revisions			CITY OF ARVADA	As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.		No Revisions:	CROSS SECTIONS W. 72nd AVENUE
Horiz. Scale: 1:20	Vert. Scale: As Noted					Revised:	Designer: DKH / Structure Numbers
Unit Information	Unit Leader Initials					Void:	Detailer: DKH
MULLER ENGINEERING COMPANY							Sheet Subset: X-SEC / Subset Sheets: 28 of 37
							Project No./Code
							Sheet Number 432





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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	29 of 37

Project No./Code

Sheet Number 433

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12/9/2021
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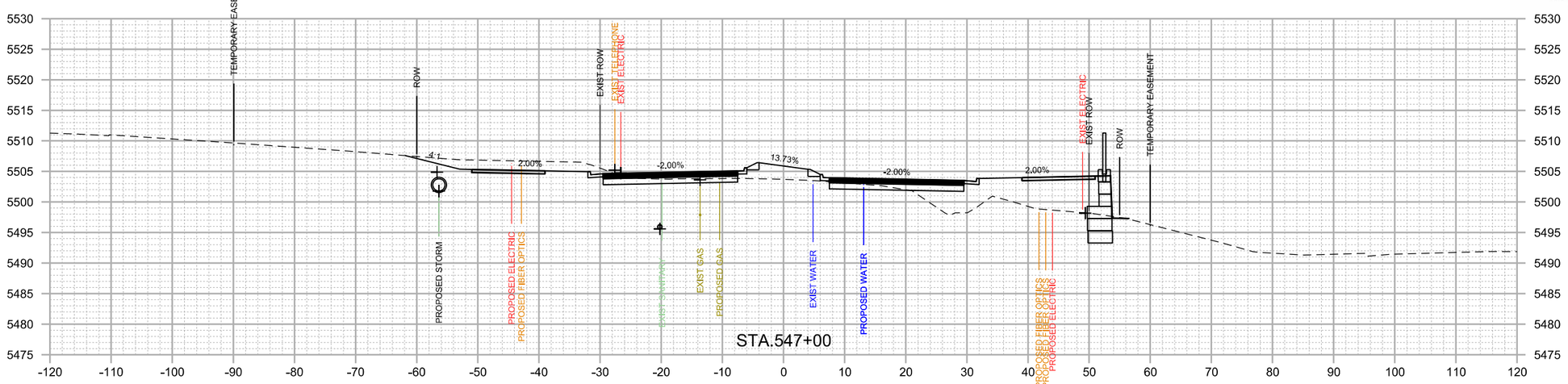

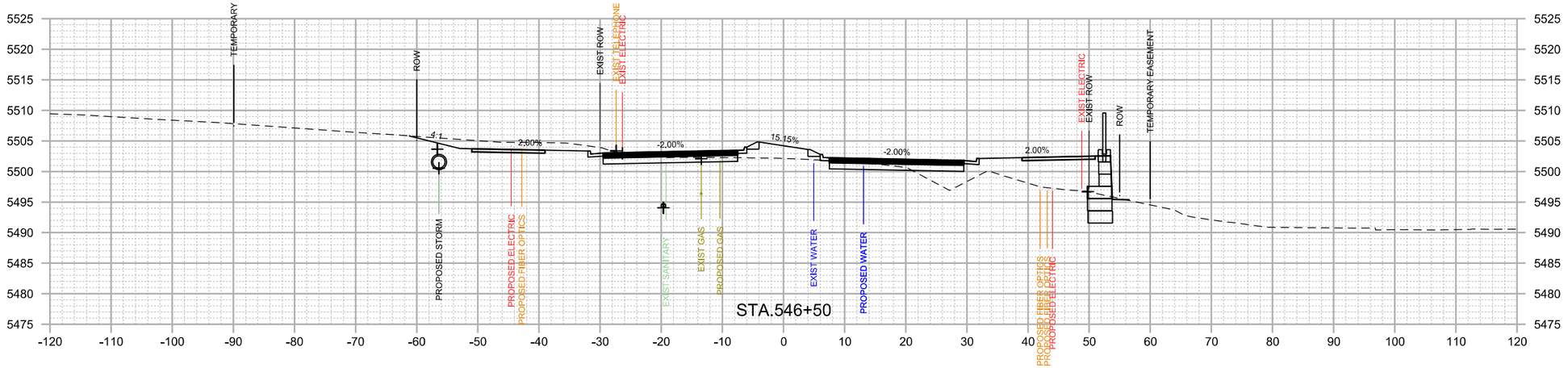

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12/9/2021
CDOT-PDFHighQuality_V8i.pltcfg
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

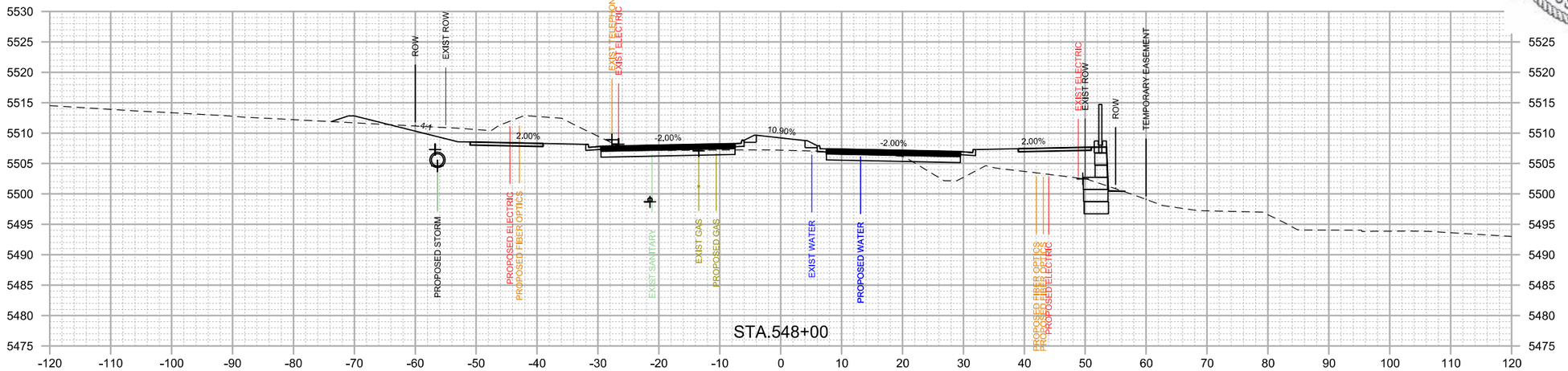
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

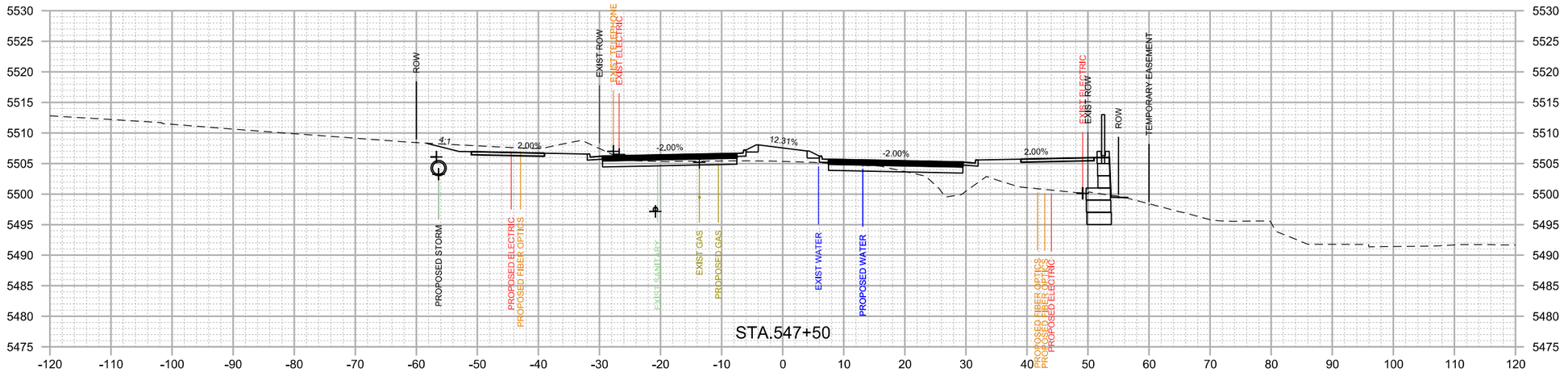
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	30 of 37

Project No./Code

Sheet Number 434





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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	31 of 37

Project No./Code

Sheet Number 435

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12/9/2021
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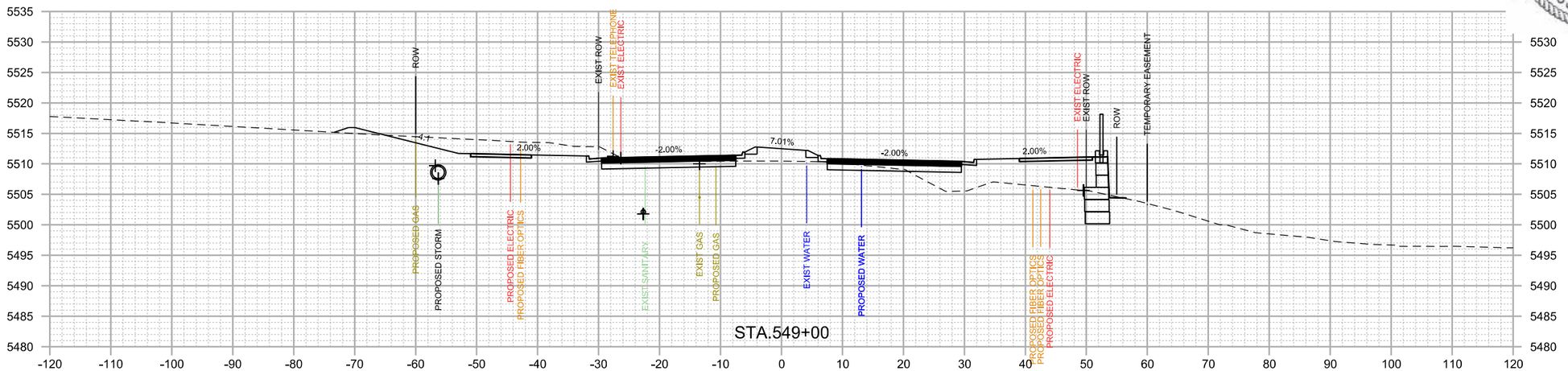
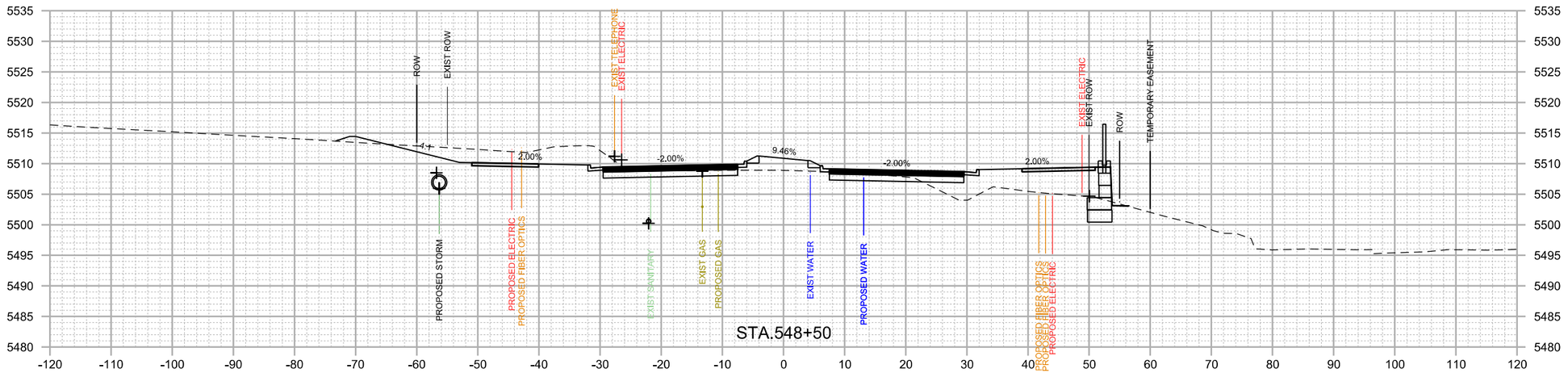
CDOT V8i CLR-UTIL Dark.tbl





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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
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W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	32 of 37

Project No./Code

Sheet Number 436

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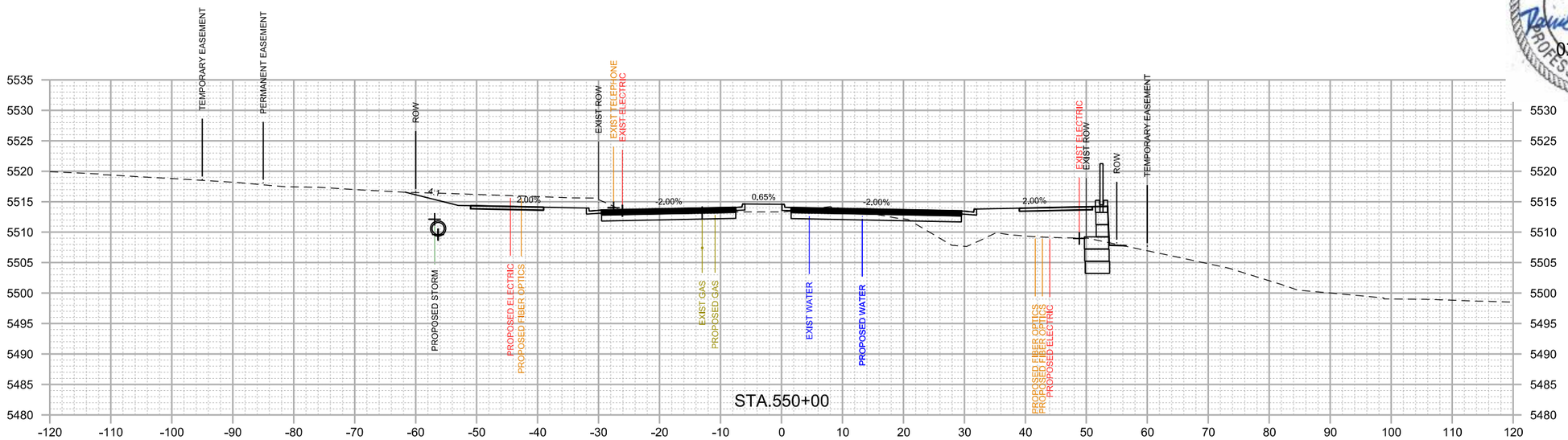

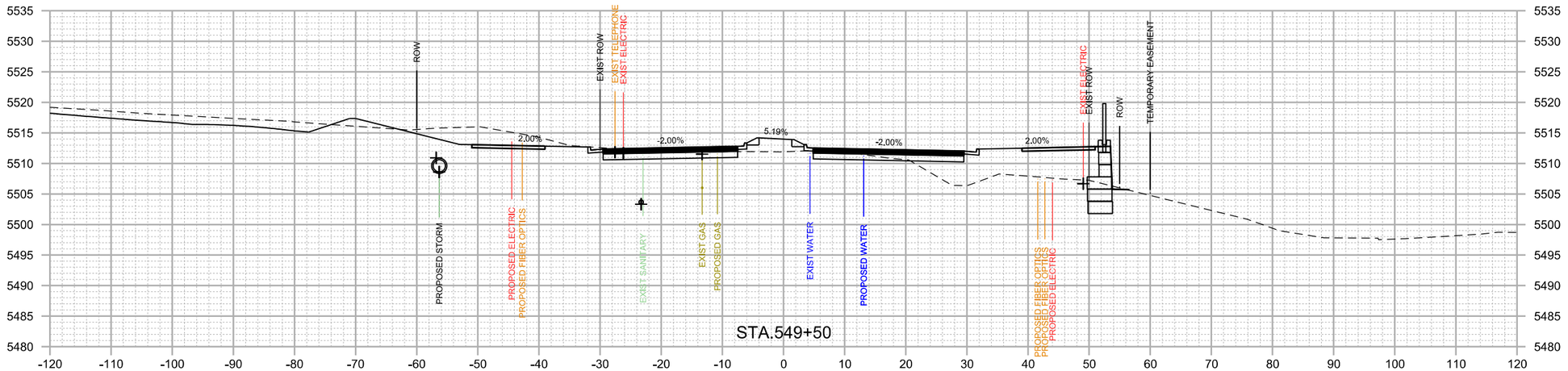

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12/9/2021
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

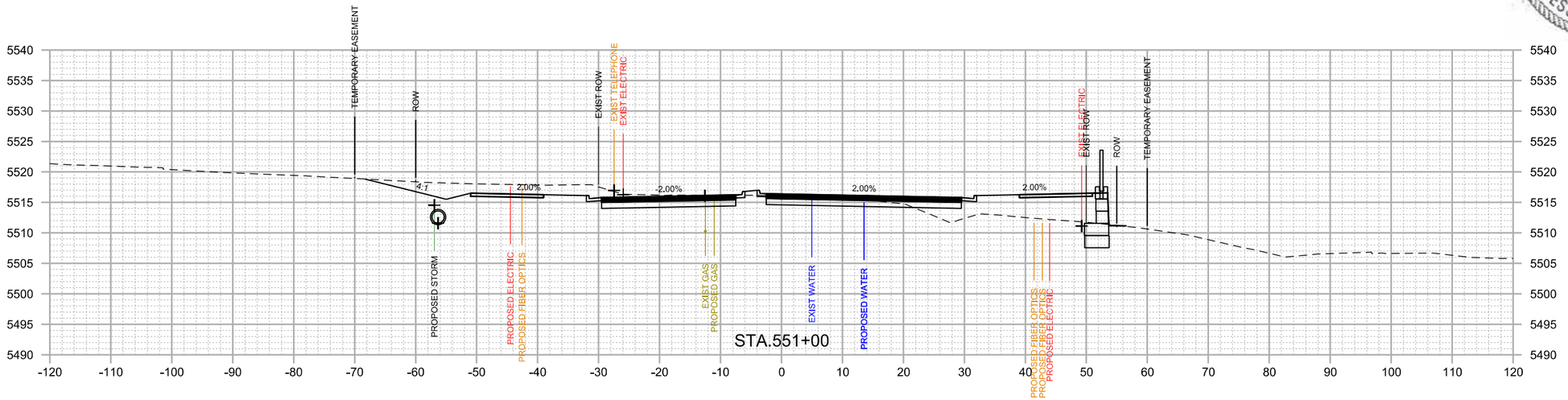
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

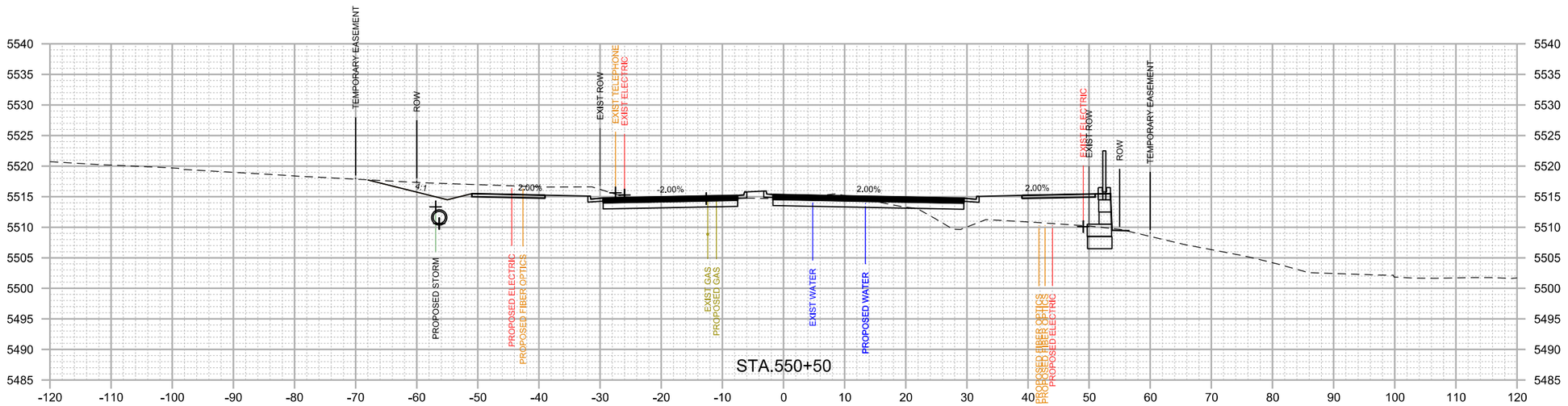
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	33 of 37

Project No./Code

Sheet Number 437





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12/9/2021
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
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Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

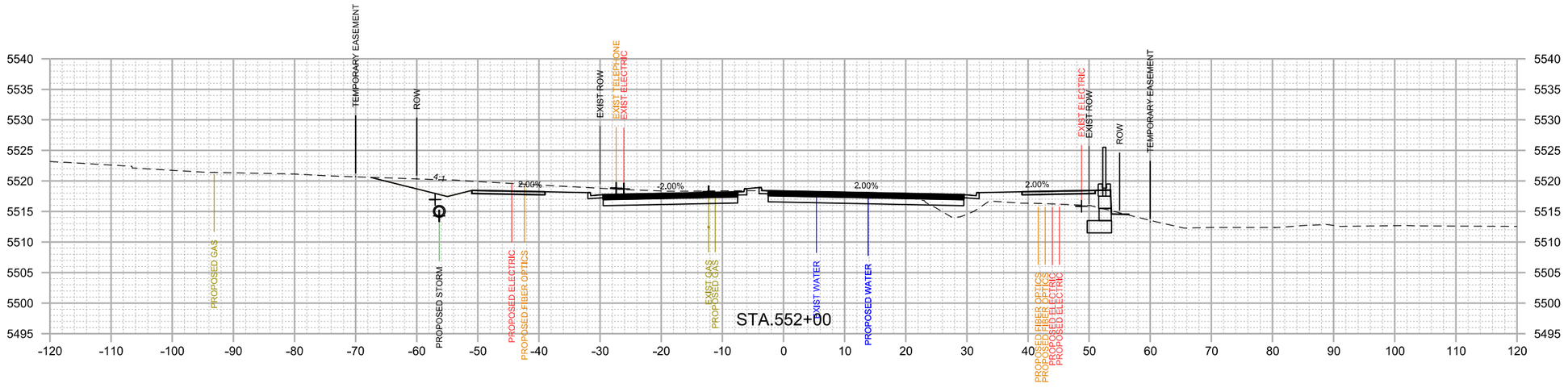
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

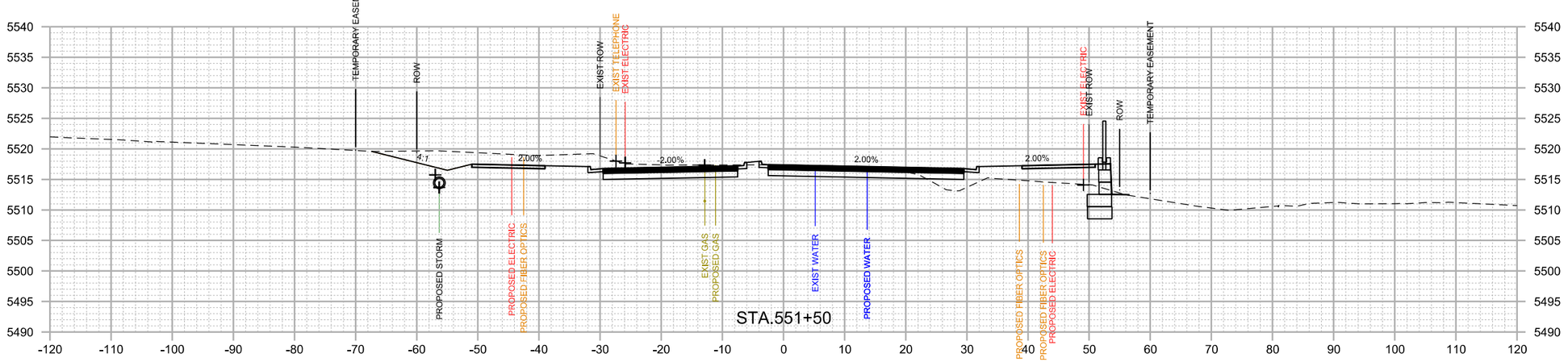
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	34 of 37

Project No./Code

Sheet Number 438





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12/9/2021
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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

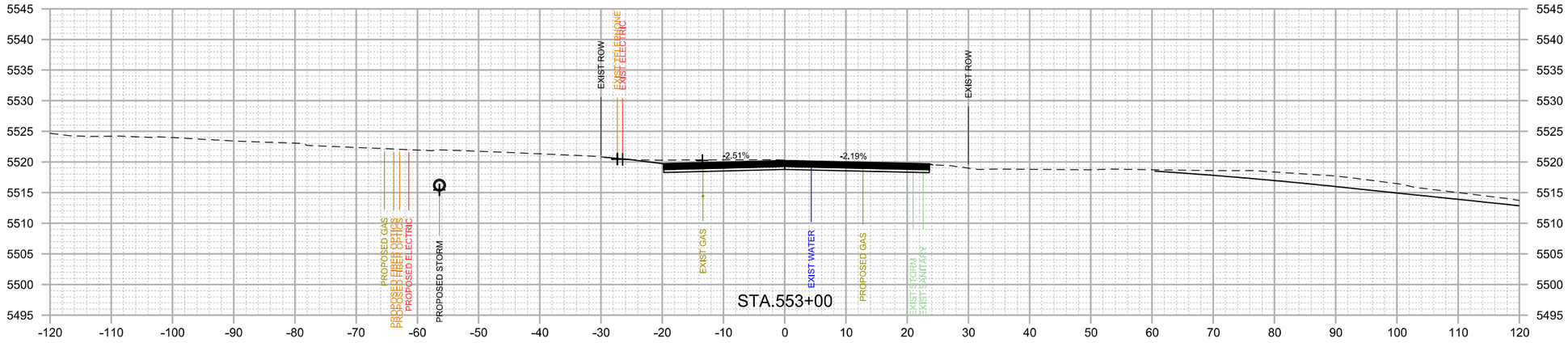
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

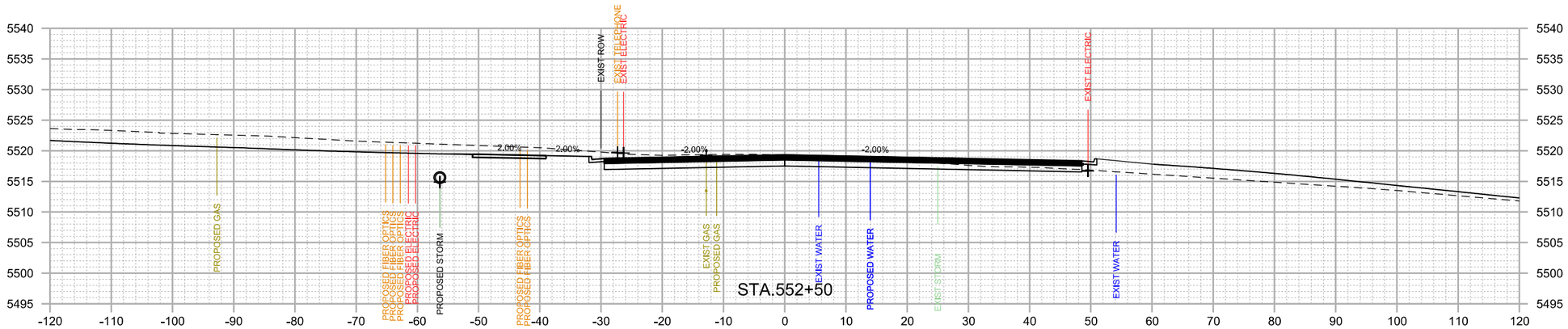
CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	35 of 37

Project No./Code

Sheet Number 439





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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void;
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	36 of 37

Project No./Code

Sheet Number 440

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12/9/2021
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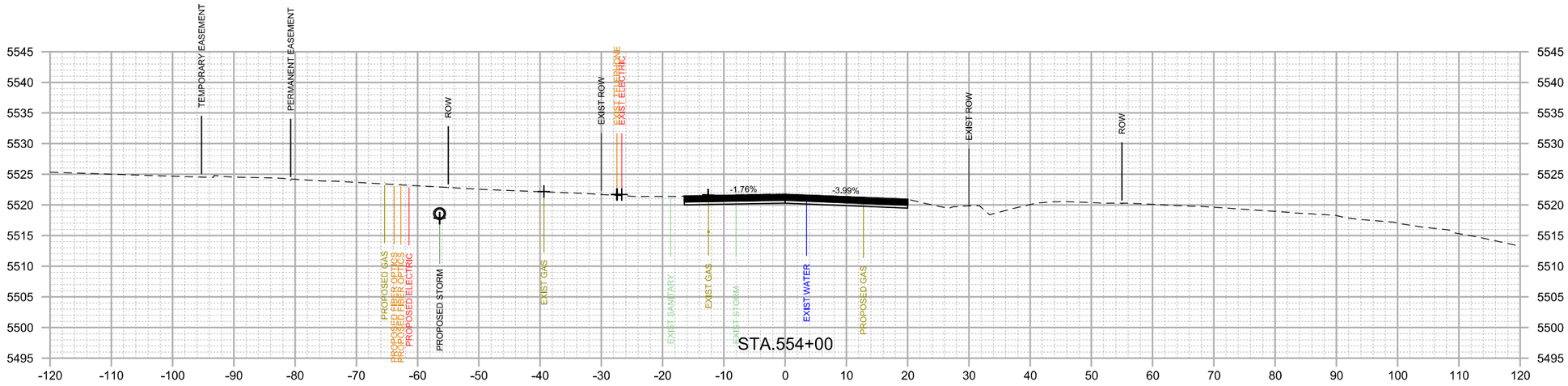

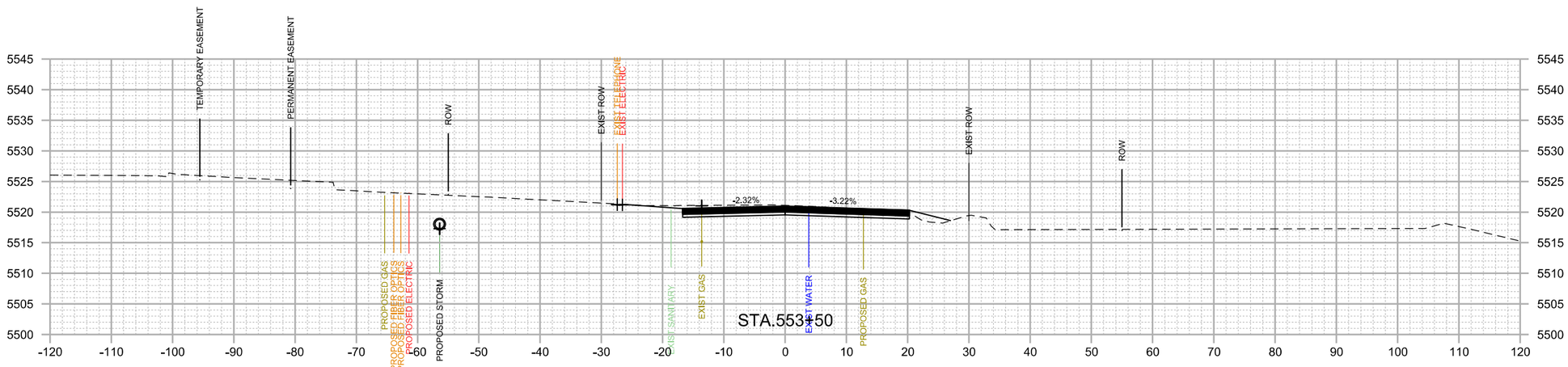

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Print Date: 12/9/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_CP2_W 72nd Ave Cross Sections.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY			CITY OF ARVADA		

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
W. 72nd AVENUE

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	37 of 37

Project No./Code

Sheet Number 441

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12/9/2021
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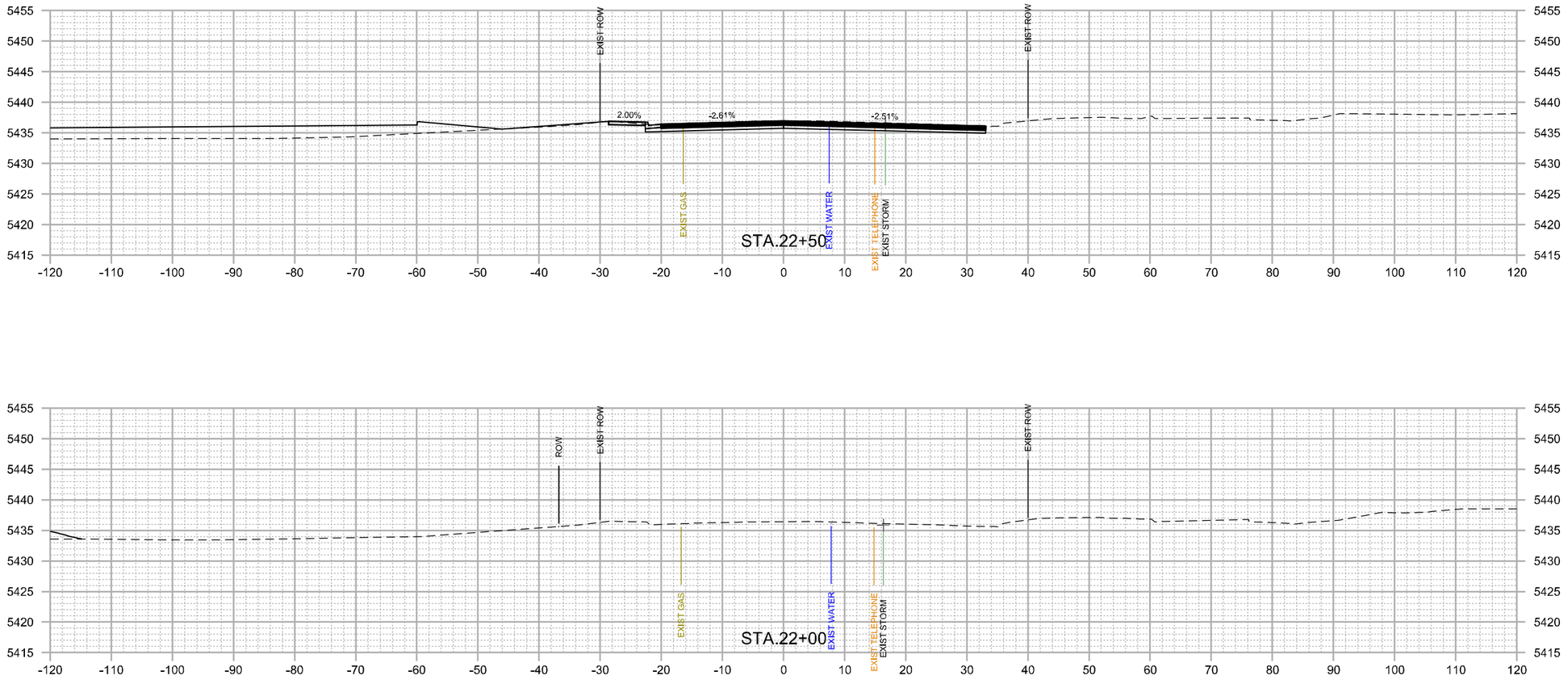

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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_W_DES_Cross Sections_Simms St.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
SIMMS STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	1 of 8

Project No./Code

Sheet Number 442

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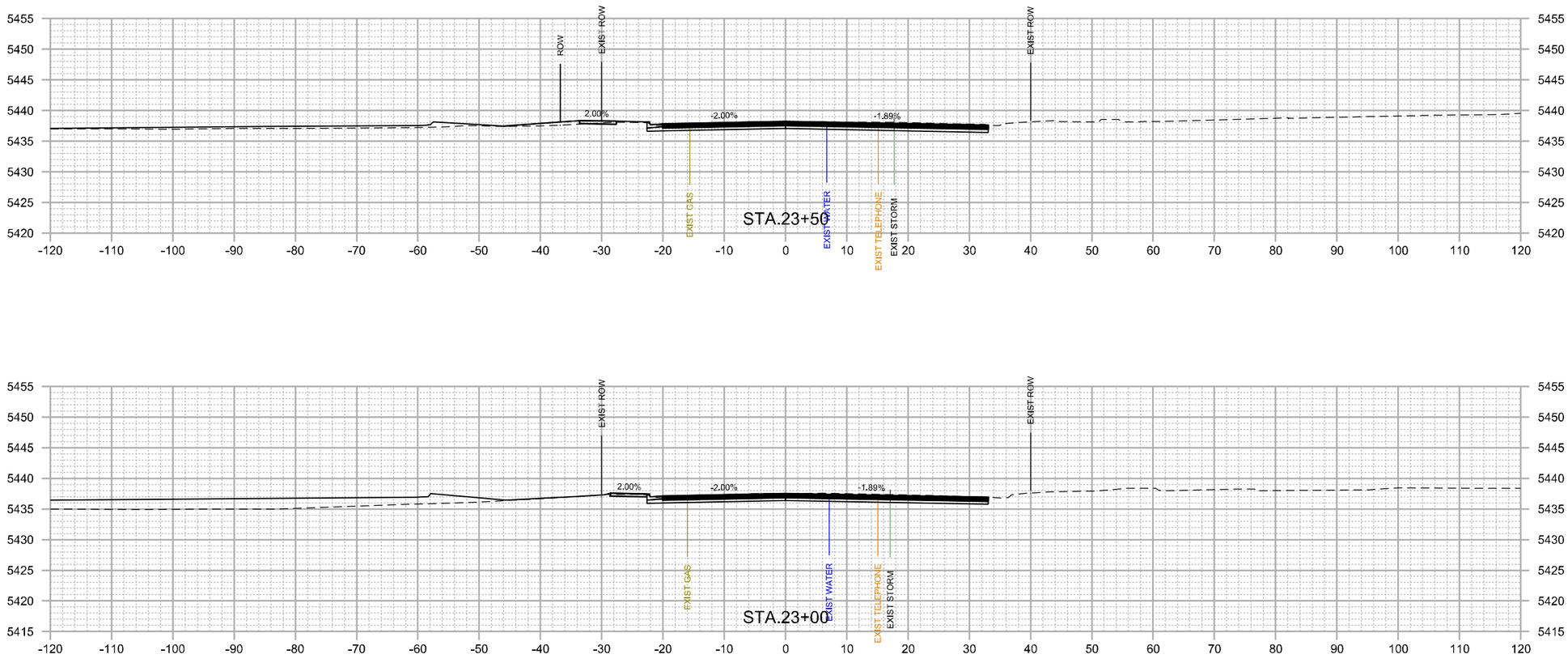
9/17/2021 CDOT-DefaultPrinter_V8i.pltcfg CDOT V8i CLR-UTIL Dark.tbl



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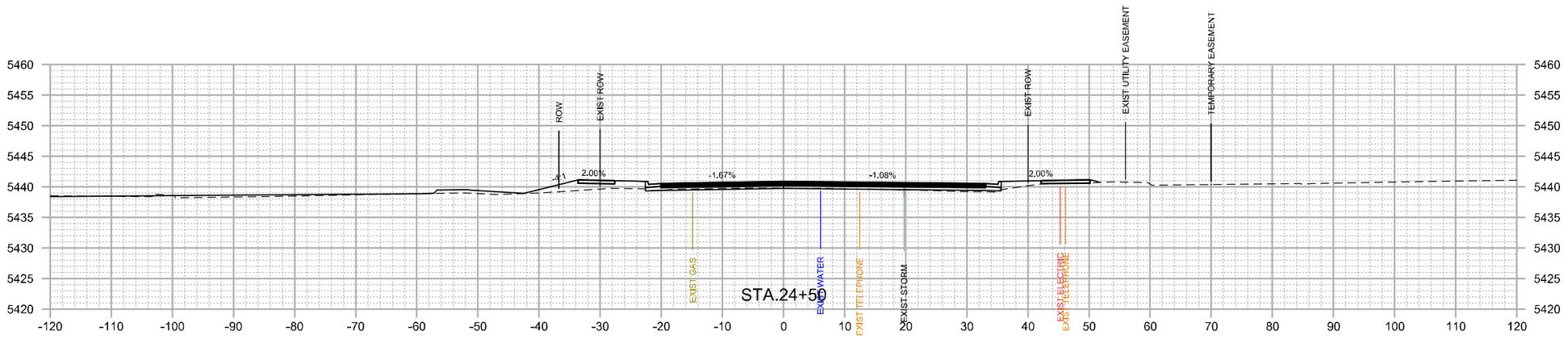
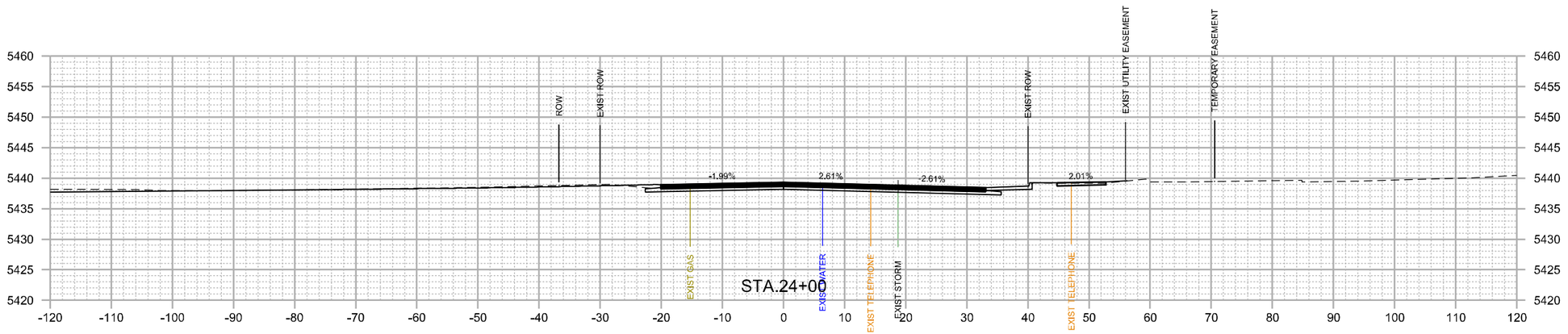
9/17/2021
CDOT-DefaultPrinter_V8i.pltcfg
CDOT V8i CLR-UTIL Dark.tbl

Print Date: 9/17/2021		Sheet Revisions		
Drawing File Name: 18061_W_DES_Cross Sections_Simms St.dgn		Date:	Comments	Init.
Horiz. Scale: 1:20	Vert. Scale: As Noted			
Unit Information	Unit Leader Initials			
MULLER ENGINEERING COMPANY				

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	CROSS SECTIONS SIMMS STREET		
Revised:	Designer: DKH	Structure Numbers	
Void:	Detailer: DKH		
	Sheet Subset: X-SEC	Subset Sheets: 2 of 8	Sheet Number 443





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9/17/2021
CDOT-DefaultPrinter_V8i.pltcfg
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Print Date: 9/17/2021			
Drawing File Name: 18061_W_DES_Cross Sections_Simms St.dgn			
Horiz. Scale: 1:20	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		

MULLER ENGINEERING COMPANY

Sheet Revisions		
Date:	Comments	Init.

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

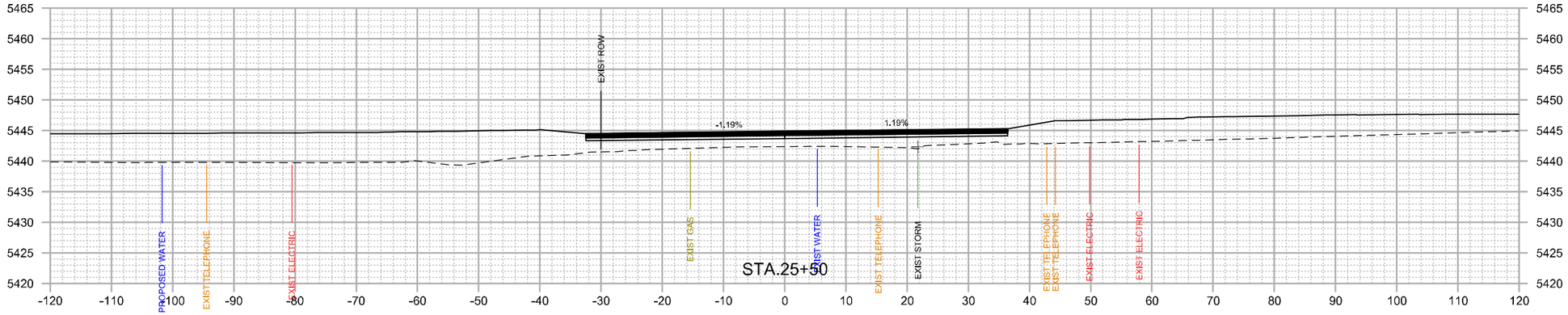
W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

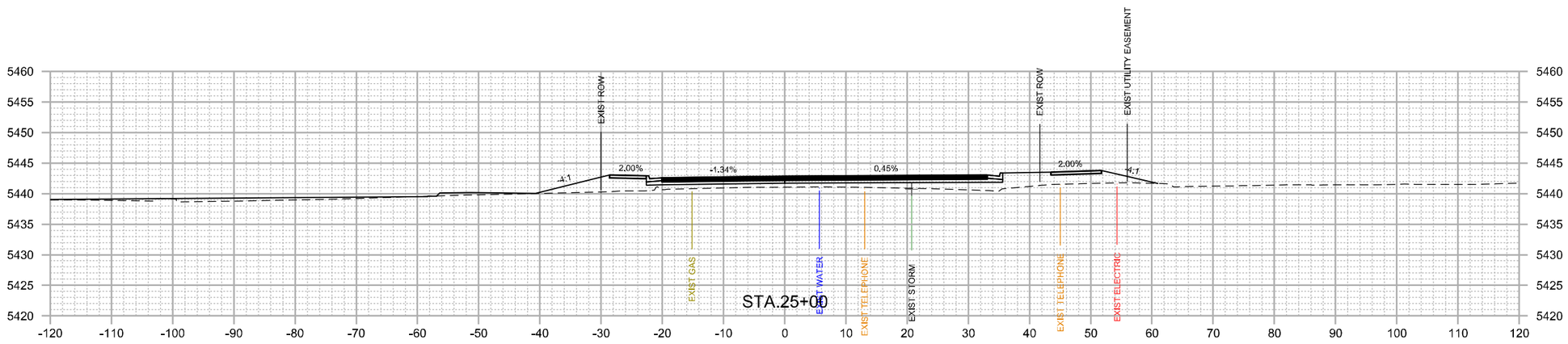
CROSS SECTIONS
SIMMS STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	3 of 8

Project No./Code

Sheet Number 444





COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021		Sheet Revisions	
Drawing File Name: 18061_W_DES_Cross Sections_Simms St.dgn		Date:	Comments / Init.
Horiz. Scale: 1:20	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
SIMMS STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	4 of 8

Project No./Code

Sheet Number 445

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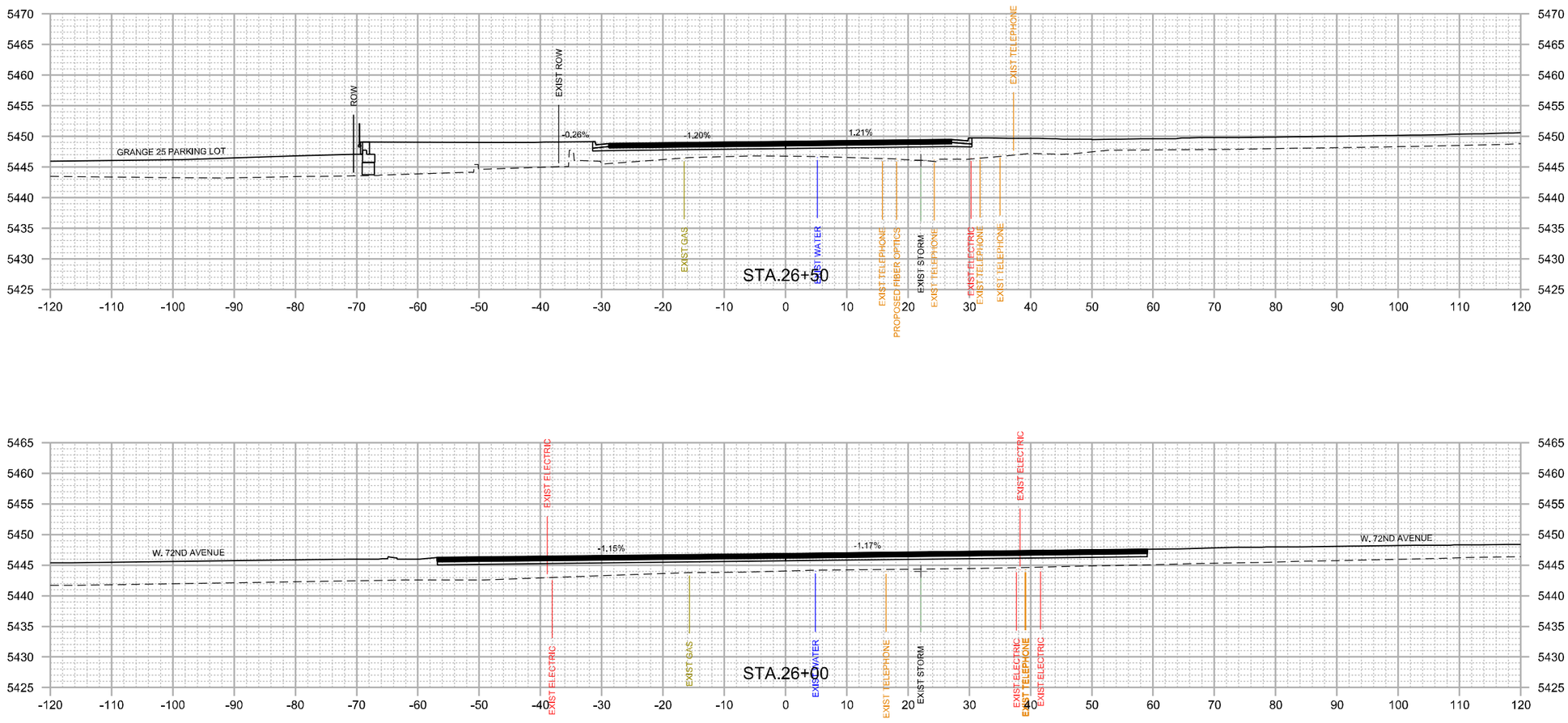

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02/13/2022

Print Date: 9/17/2021		Sheet Revisions	
Drawing File Name: 18061_W_DES_Cross Sections_Simms St.dgn		Date:	Comments / Init.
Horiz. Scale: 1:20	Vert. Scale: As Noted		
Unit Information	Unit Leader Initials		
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	
No Revisions:	
Revised:	
Void:	

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
SIMMS STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	5 of 8

Project No./Code

Sheet Number 446

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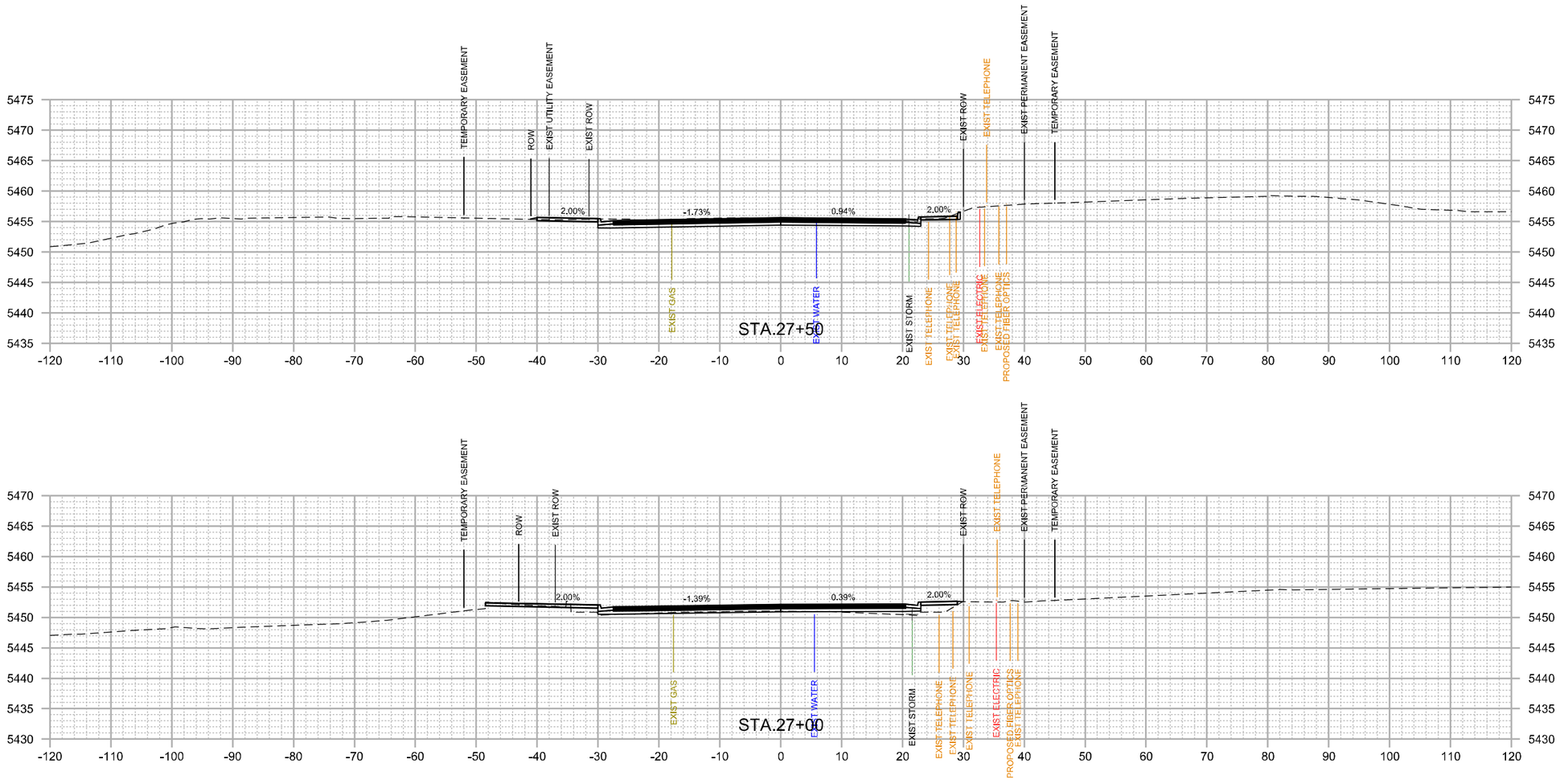

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9/17/2021
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Print Date: 9/17/2021		Sheet Revisions			
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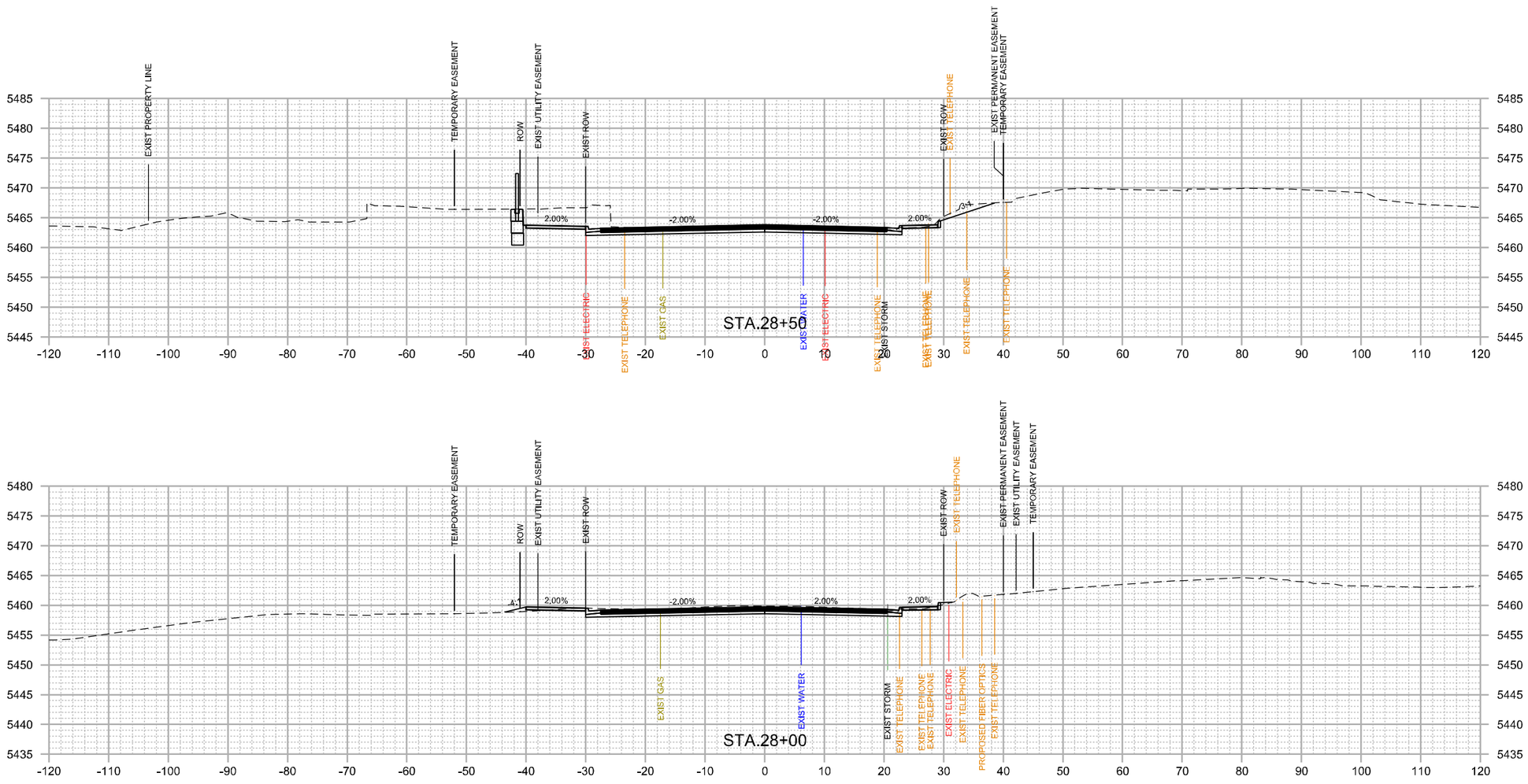
Horiz. Scale: 1:20 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CROSS SECTIONS SIMMS STREET			
Revised:	Designer: DKH	Structure Numbers		
Void:	Detailer: DKH			
	Sheet Subset: X-SEC	Subset Sheets: 6 of 8		Sheet Number 447



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02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
Drawing File Name: 18061_W_DES_Cross Sections_Simms St.dgn	Date:	Comments	Init.
Horiz. Scale: 1:20 Vert. Scale: As Noted			
Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
No Revisions:	CROSS SECTIONS SIMMS STREET		
Revised:	Designer: DKH	Structure Numbers	
Void:	Detailer: DKH		
	Sheet Subset: X-SEC	Subset Sheets: 7 of 8	Sheet Number 448

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9/17/2021
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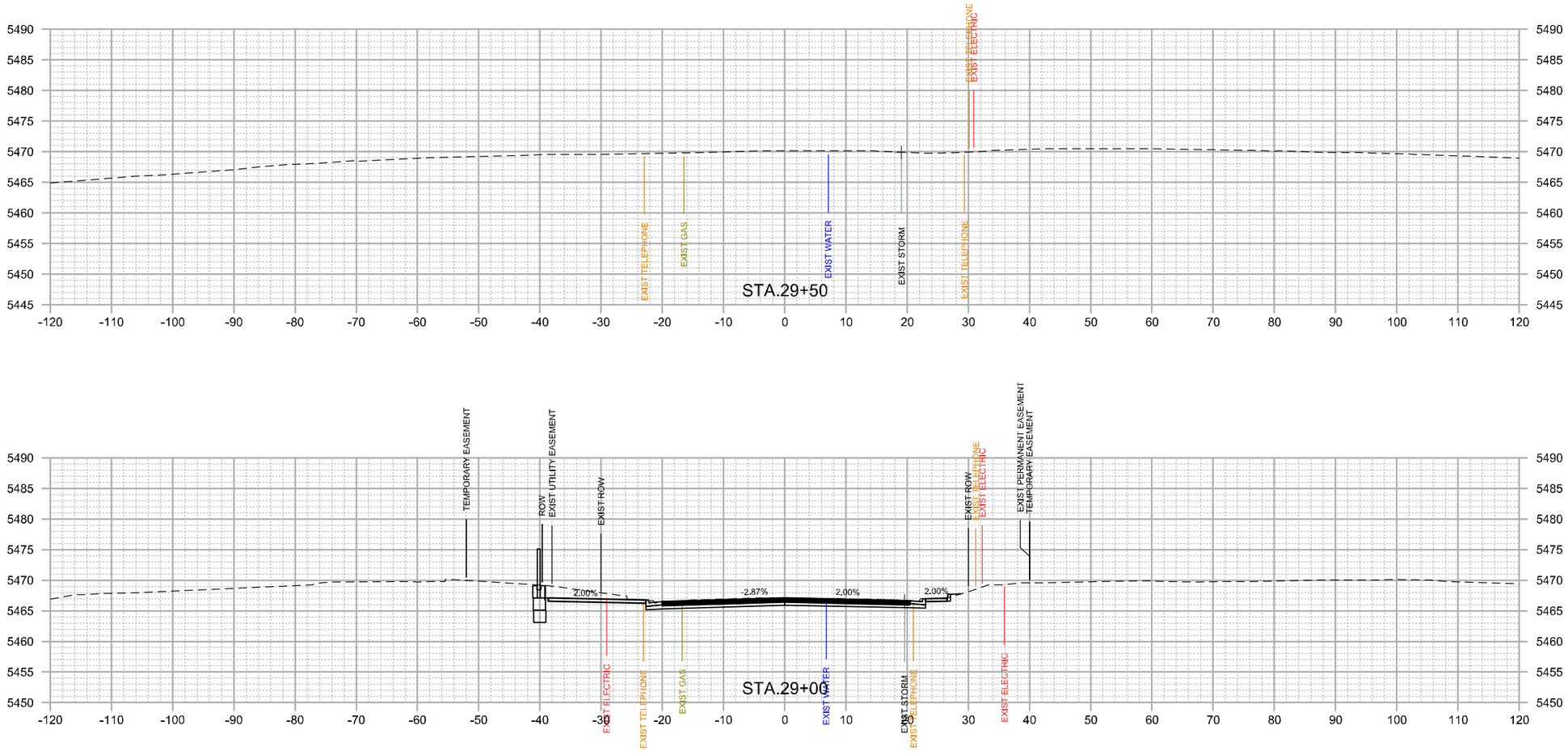

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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_W_DES_Cross Sections_Simms St.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY			CITY OF ARVADA		

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
SIMMS STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	8 of 8

Project No./Code

Sheet Number 449

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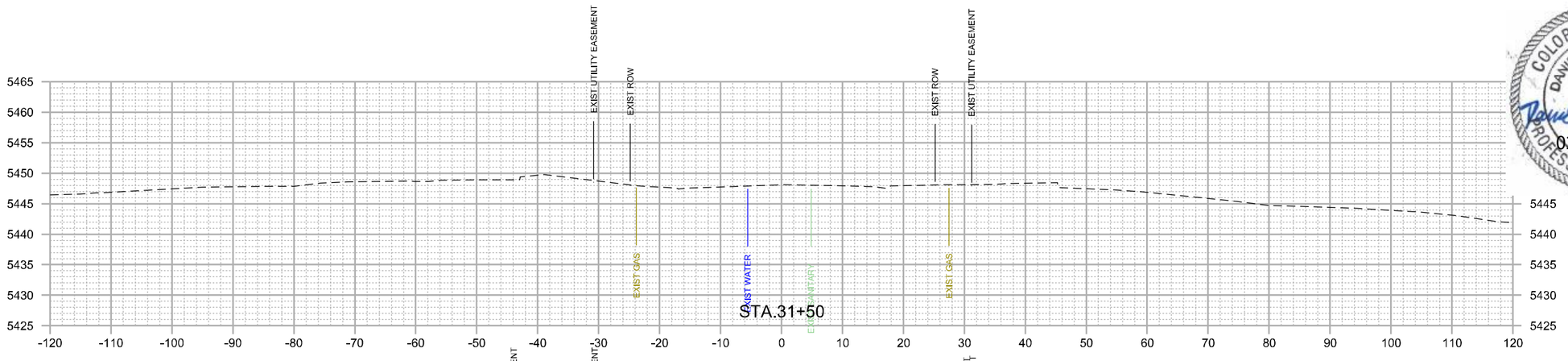
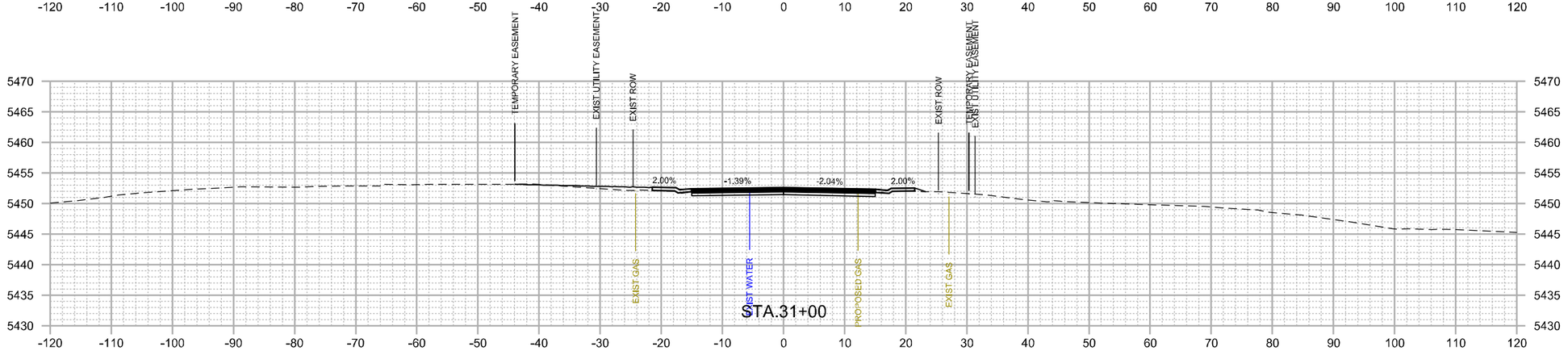
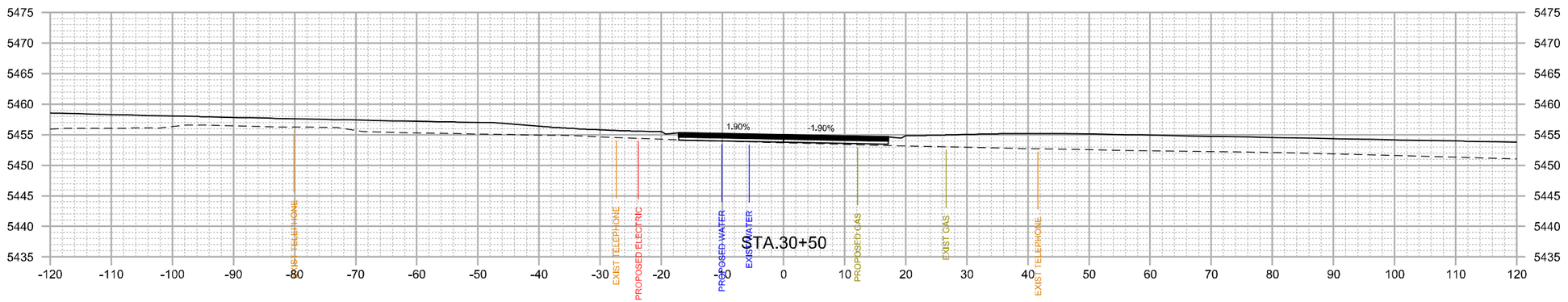
9/17/2021 CDOT-DefaultPrinter_V8i.pltcfg CDOT V8i CLR-UTIL Dark.tbl







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02/13/2022

Print Date: 9/17/2021		Sheet Revisions			As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2
Drawing File Name: 18061_W_DES_Cross Sections_Routt St.dgn		Date:	Comments	Init.	No Revisions:	CROSS SECTIONS ROUTT STREET
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:	Designer: DKH / Detailer: DKH / Sheet Subset: X-SEC
Unit Information	Unit Leader Initials				Void:	Structure Numbers / Subset Sheets: 1 of 1
MULLER ENGINEERING COMPANY					CITY OF ARVADA	Project No./Code / Sheet Number 450

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9/17/2021
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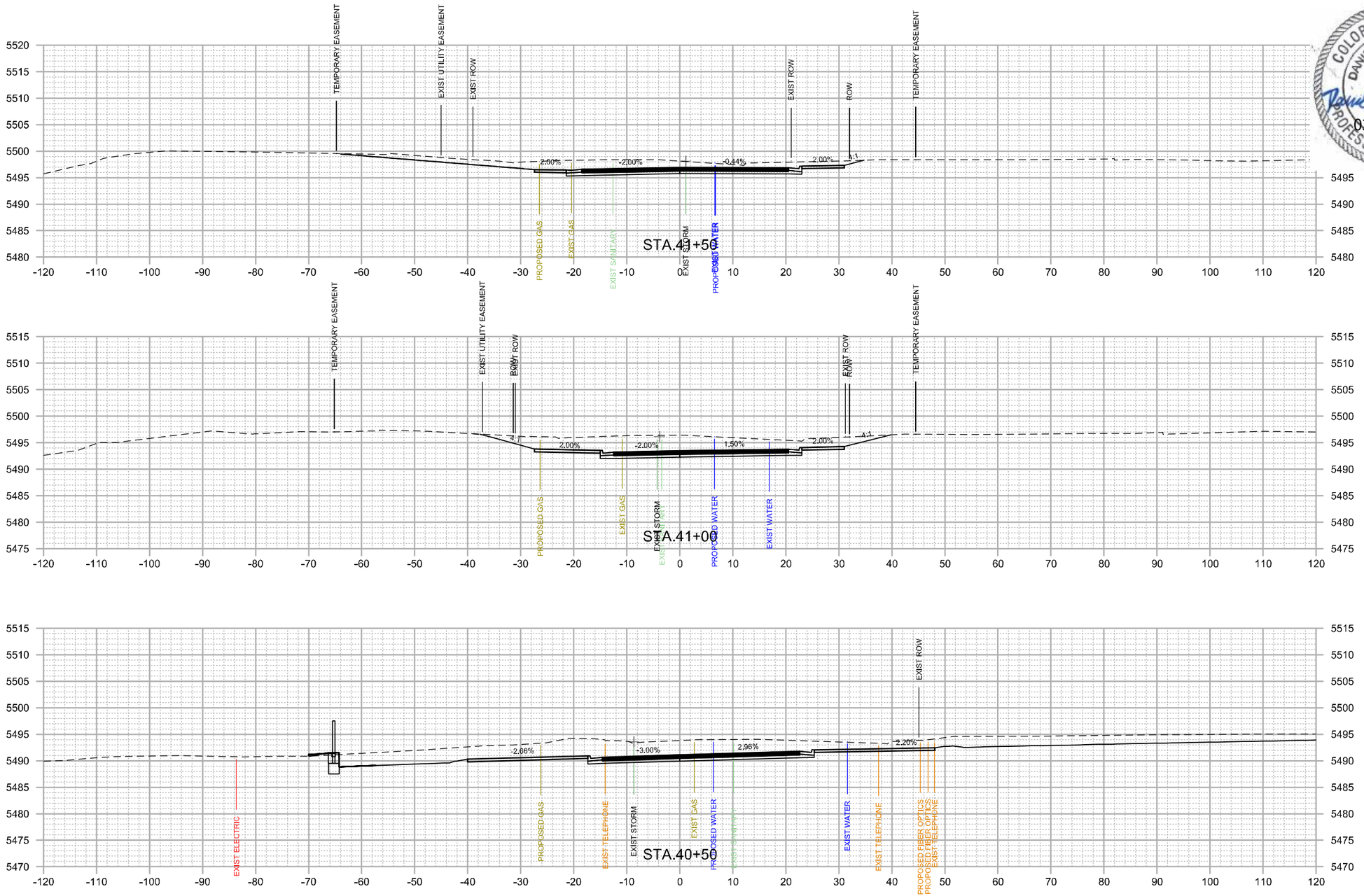

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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_W_DES_Cross Sections_Quail St.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY			CITY OF ARVADA		

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
QUAIL STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	1 of 3

Project No./Code

Sheet Number 451

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9/17/2021
CDOT-DefaultPrinter_V8i.pltcfg
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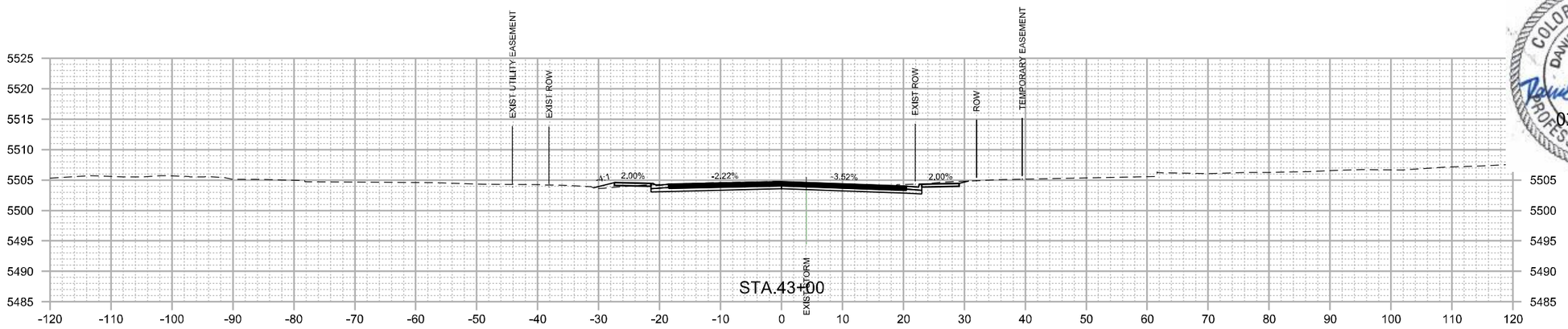

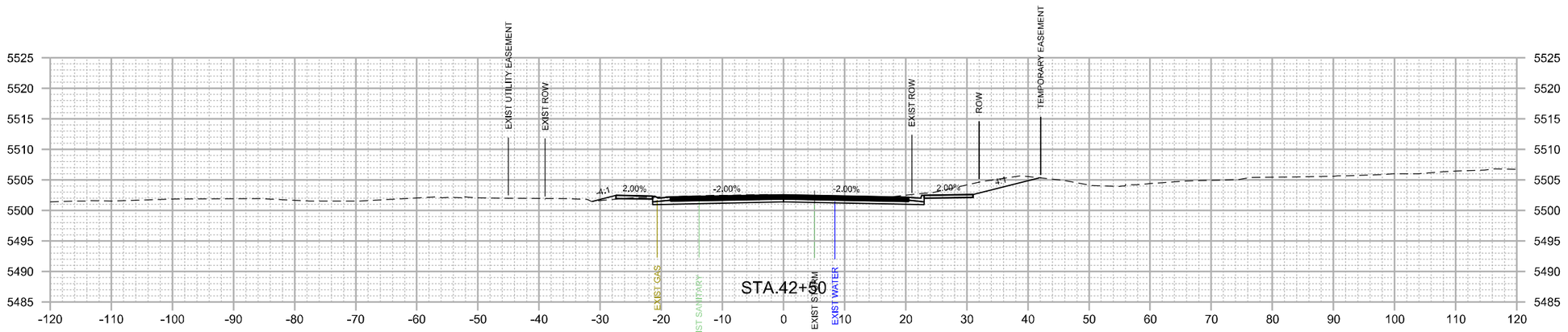

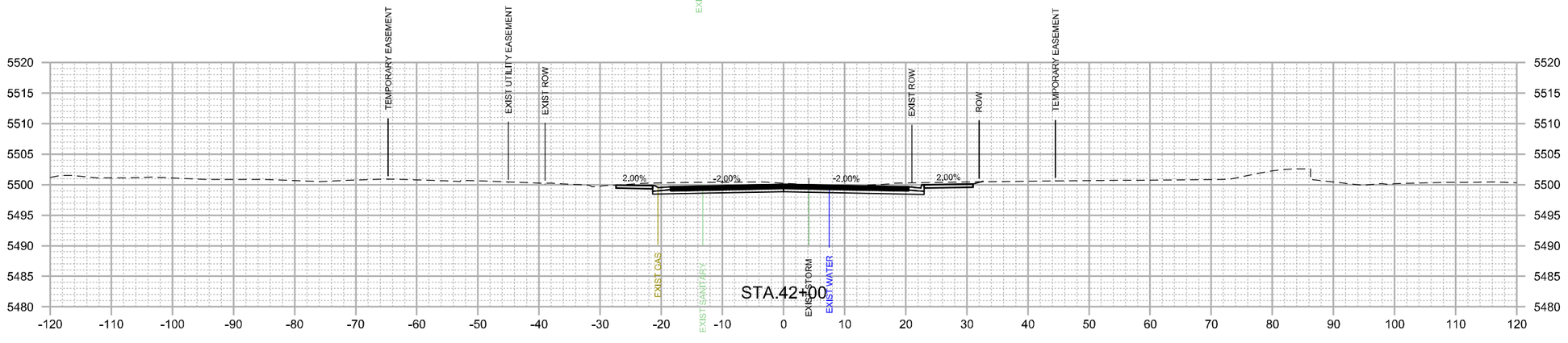

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9/17/2021
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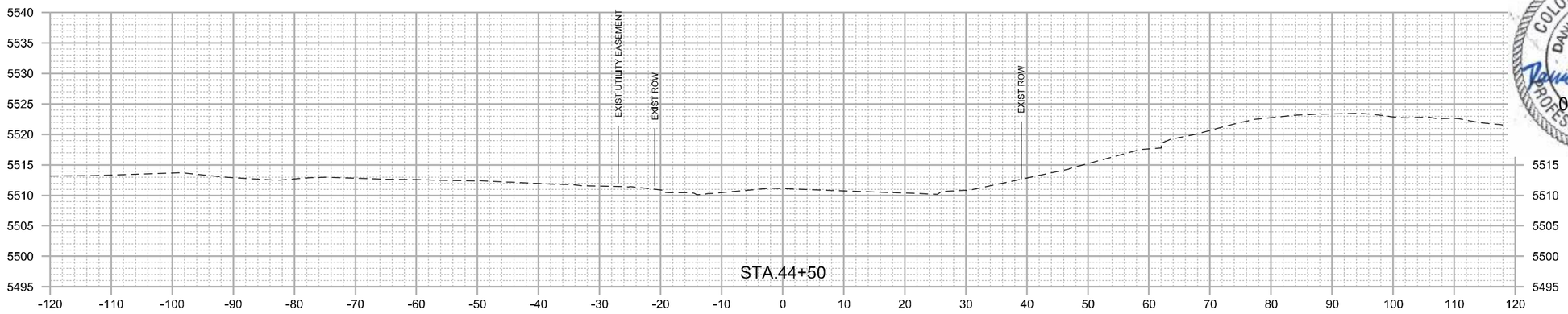
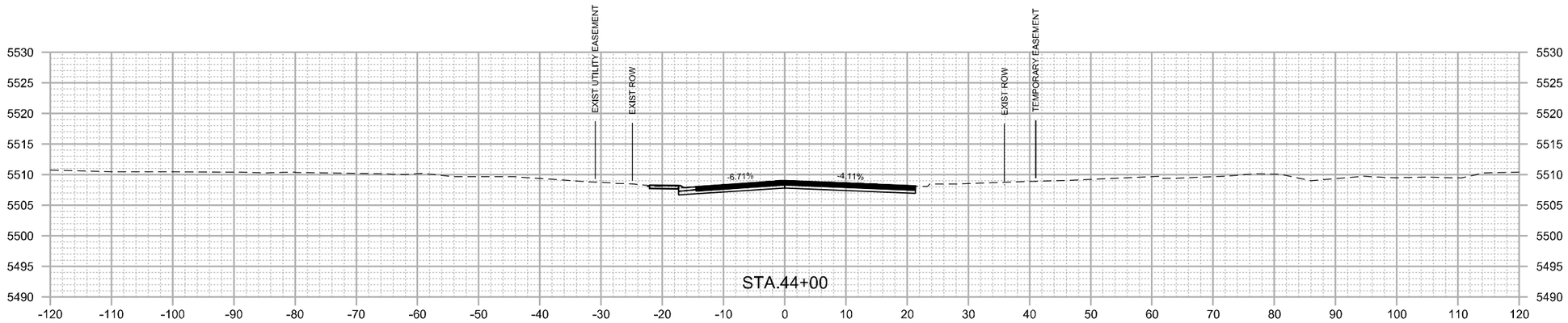
CDOT V8i CLR-UTIL Dark.tbl

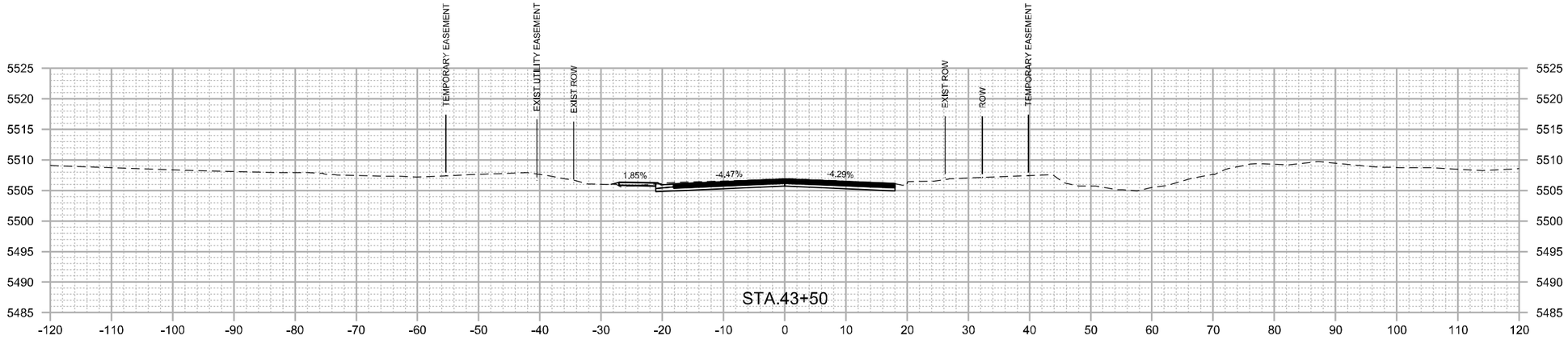
Print Date: 9/17/2021		Sheet Revisions			
Drawing File Name: 18061_W_DES_Cross Sections_Quail St.dgn		Date:	Comments	Init.	
Horiz. Scale: 1:20 Vert. Scale: As Noted					
Unit Information Unit Leader Initials					
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CROSS SECTIONS QUAIL STREET			
Revised:	Designer: DKH	Structure Numbers		
Void:	Detailer: DKH			
	Sheet Subset: X-SEC	Subset Sheets: 2 of 3		Sheet Number 452







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PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_W_DES_Cross Sections_Quail St.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
QUAIL STREET

Designer:	DKH	Structure Numbers		Project No./Code
Detailer:	DKH			
Sheet Subset:	X-SEC	Subset Sheets:	3 of 3	Sheet Number 453

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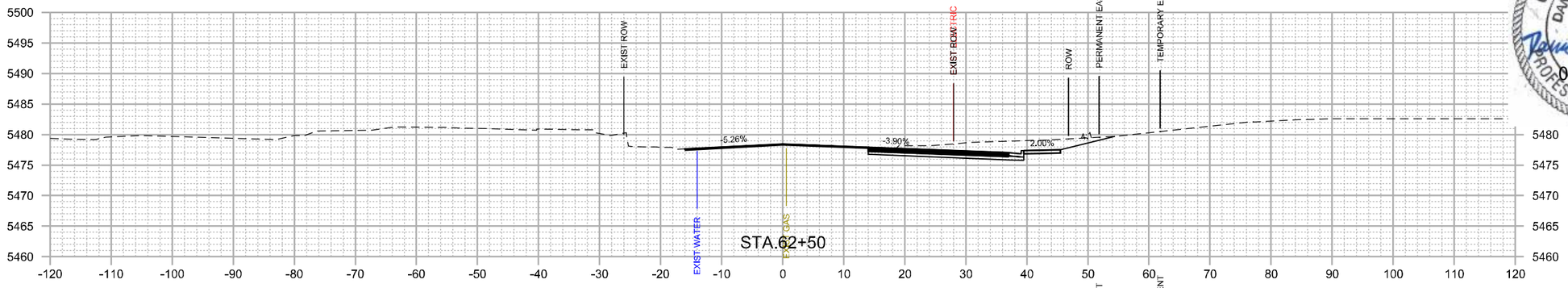

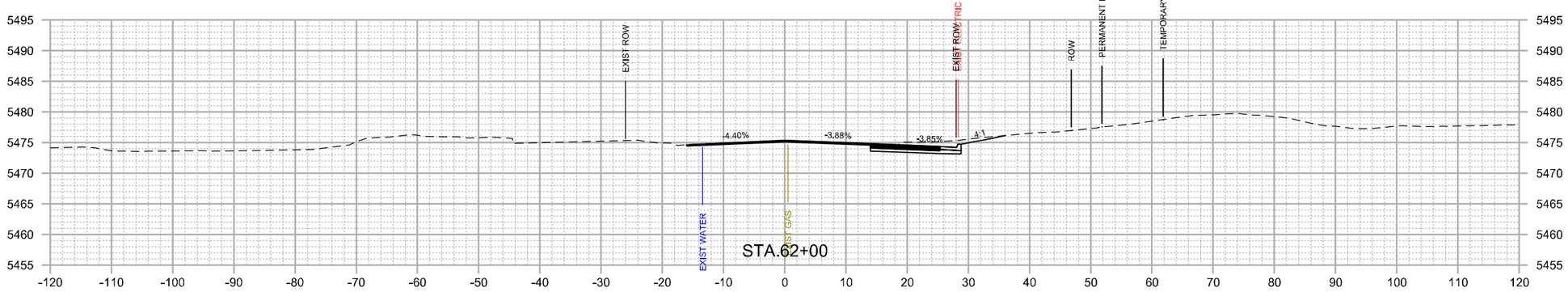

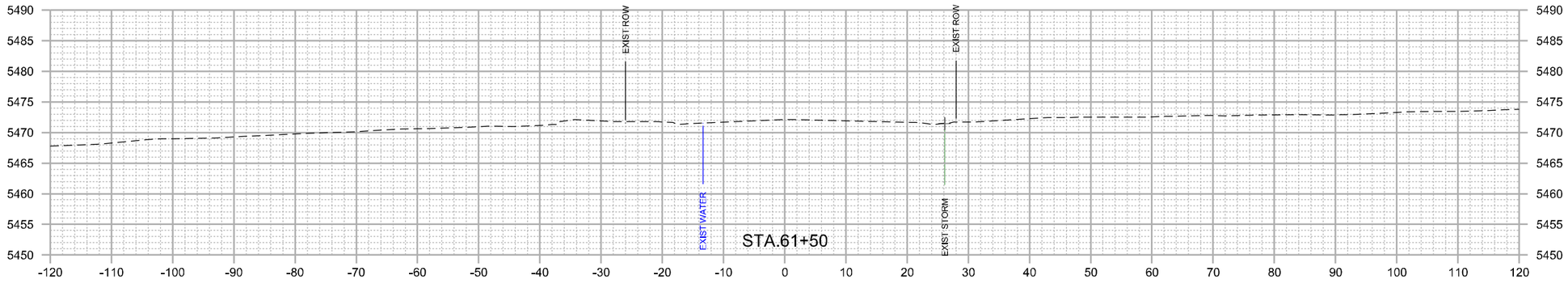

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Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_W_DES_Cross Sections_Oak St.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

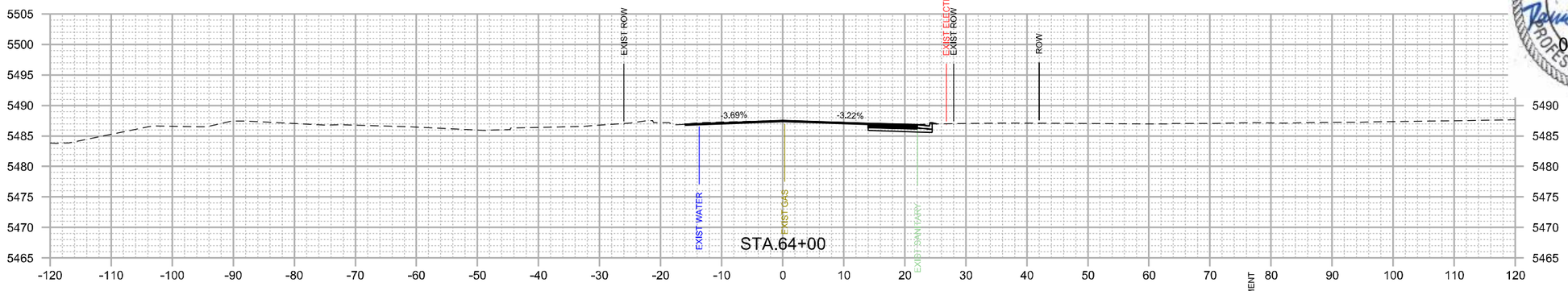
CROSS SECTIONS
OAK STREET

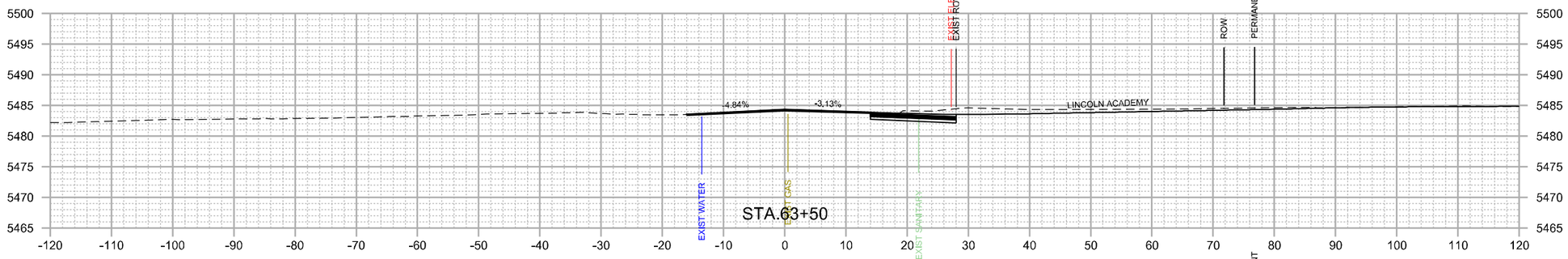
Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	1 of 7

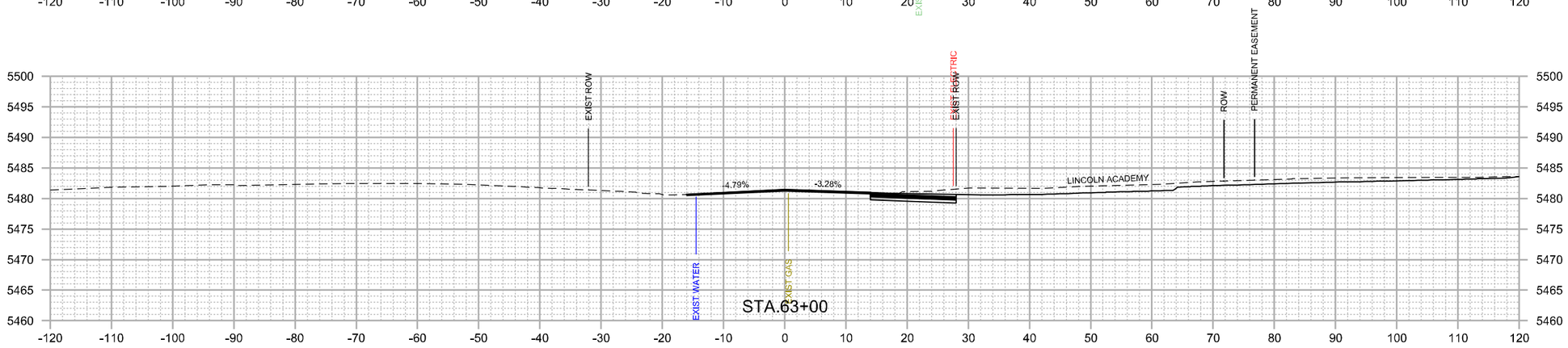
Project No./Code

Sheet Number 454

L:\Rotella 9:36:36 AM pw:\\mullereng-pw.bentley.com:mullereng-pw-01\Documents\2018 Projects\18-061.01 West 72nd Ave - Swadley to Kipling\18061\CP2\Design\Drawings\Cross Sections\18061_W_DES_Cross Sections_Oak St.dgn
9/17/2021 CDOT-DefaultPrinter_V8i.pltcfg CDOT V8i CLR-UTIL Dark.tbl







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DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_W_DES_Cross Sections_Oak St.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
OAK STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	2 of 7

Project No./Code

Sheet Number 455

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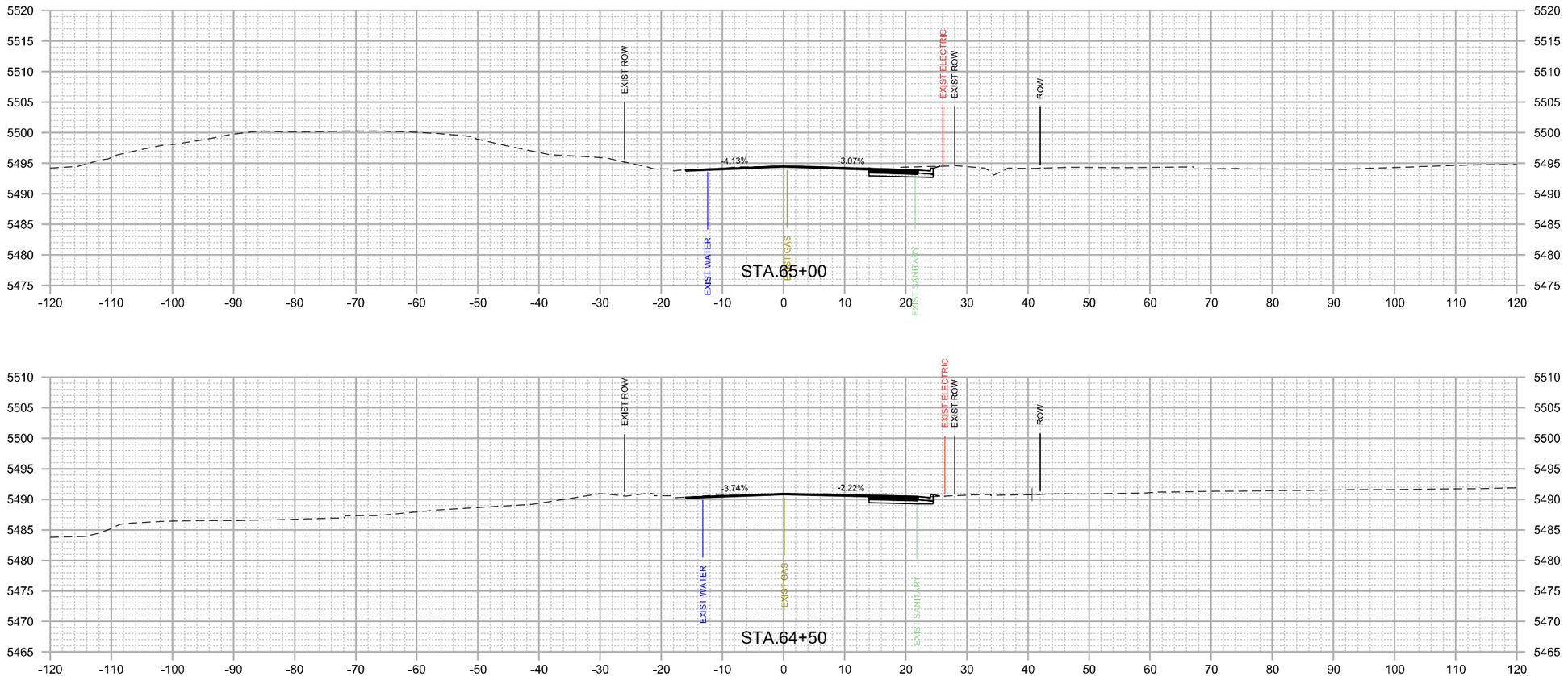

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PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021		Sheet Revisions			As Constructed
Drawing File Name: 18061_W_DES_Cross Sections_Oak St.dgn		Date:	Comments	Init.	No Revisions:
Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
OAK STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	3 of 7

Project No./Code

Sheet Number 456

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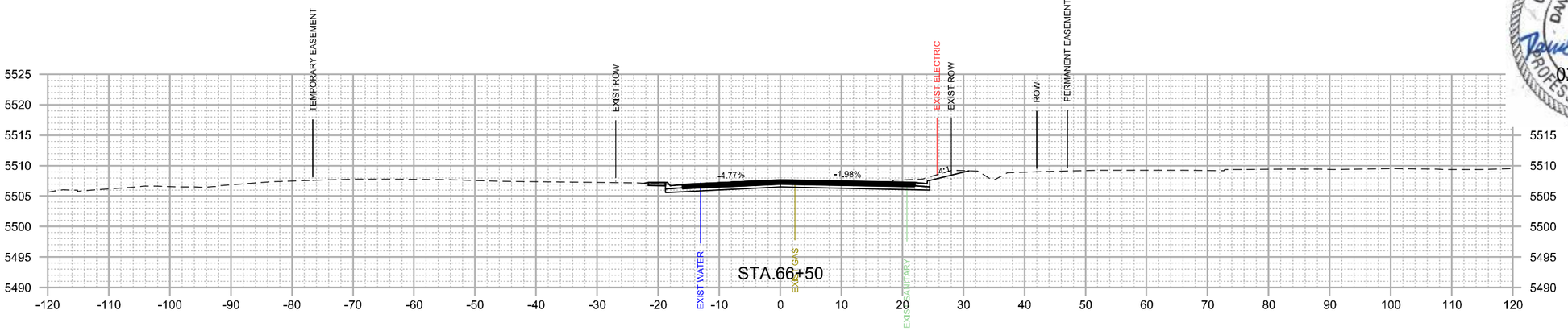

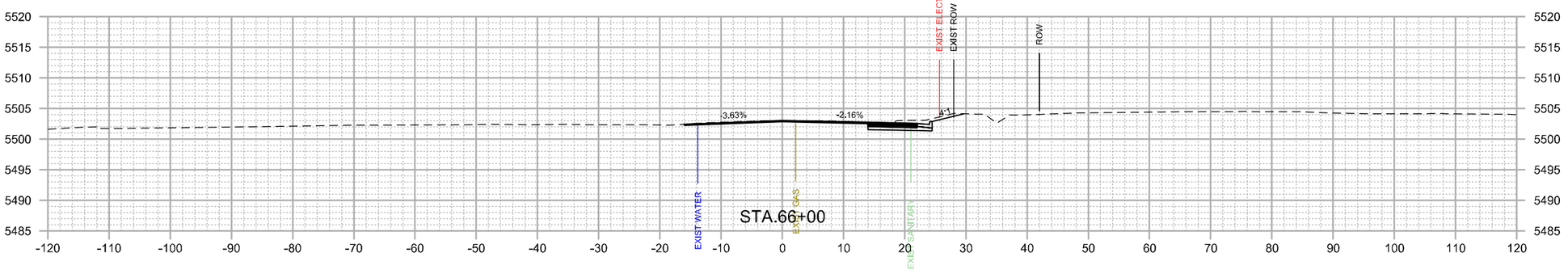

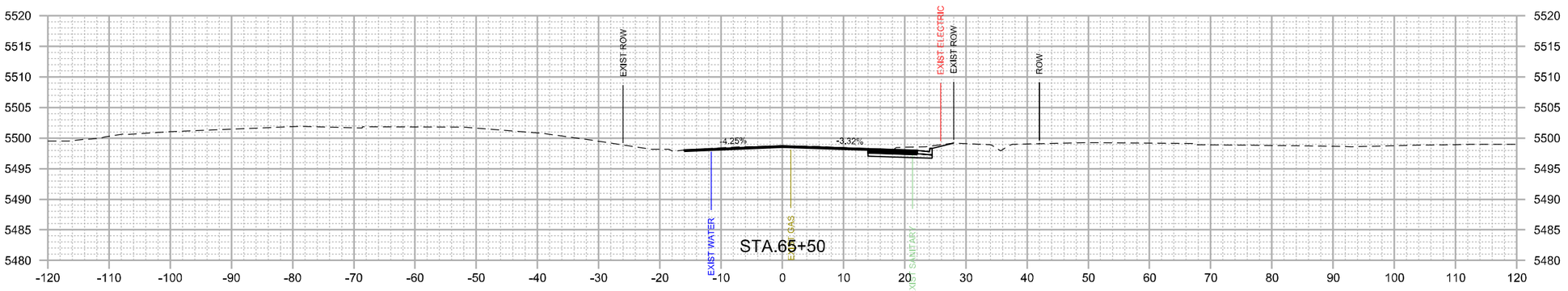

COLORADO LICENSED
DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

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Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:
Unit Information Unit Leader Initials					Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
OAK STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	4 of 7

Project No./Code

Sheet Number 457

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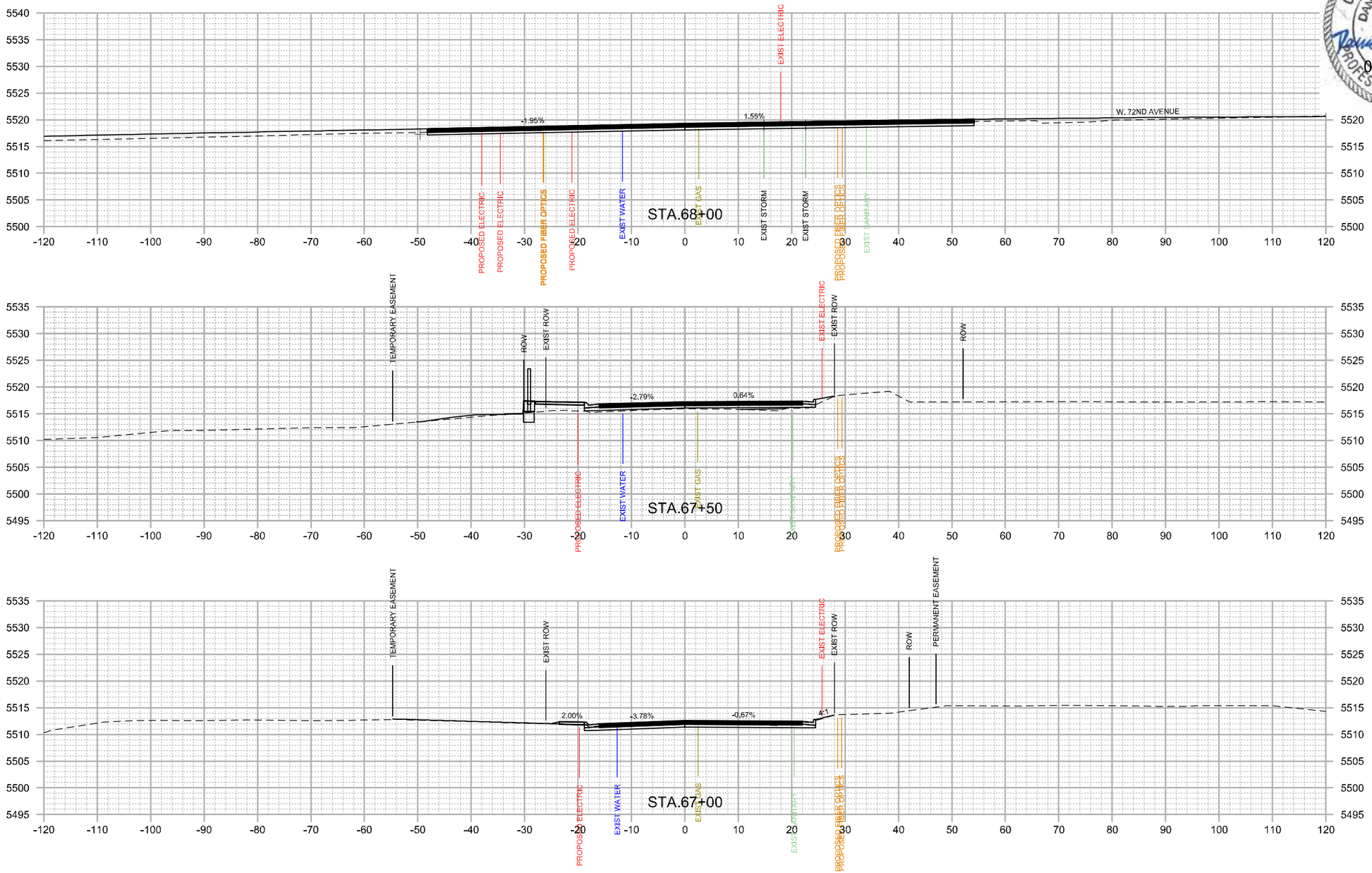

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PROFESSIONAL ENGINEER
02/13/2022

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Unit Information	Unit Leader Initials				
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2			Project No./Code
No Revisions:	CROSS SECTIONS OAK STREET			
Revised:	Designer: DKH	Structure Numbers		
Void:	Detailer: DKH			
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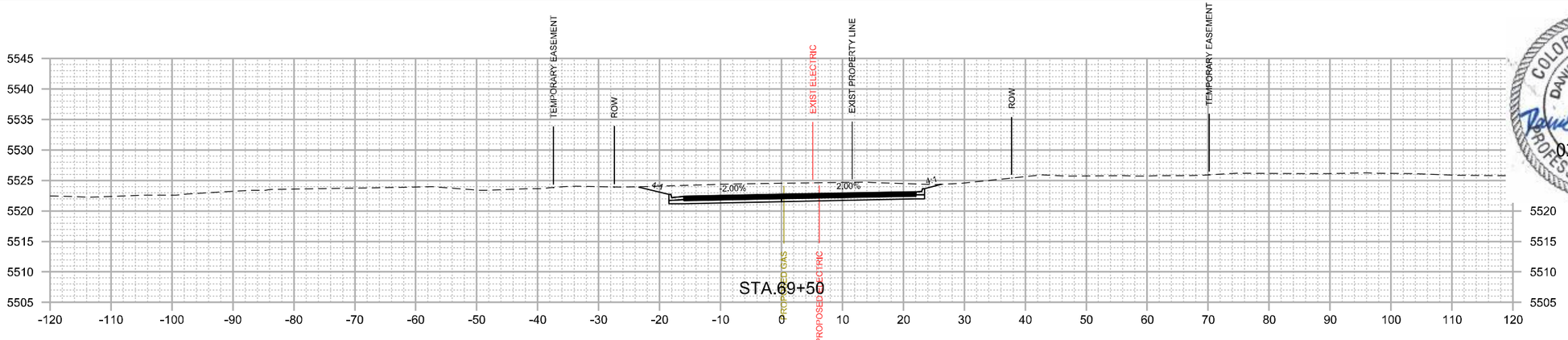

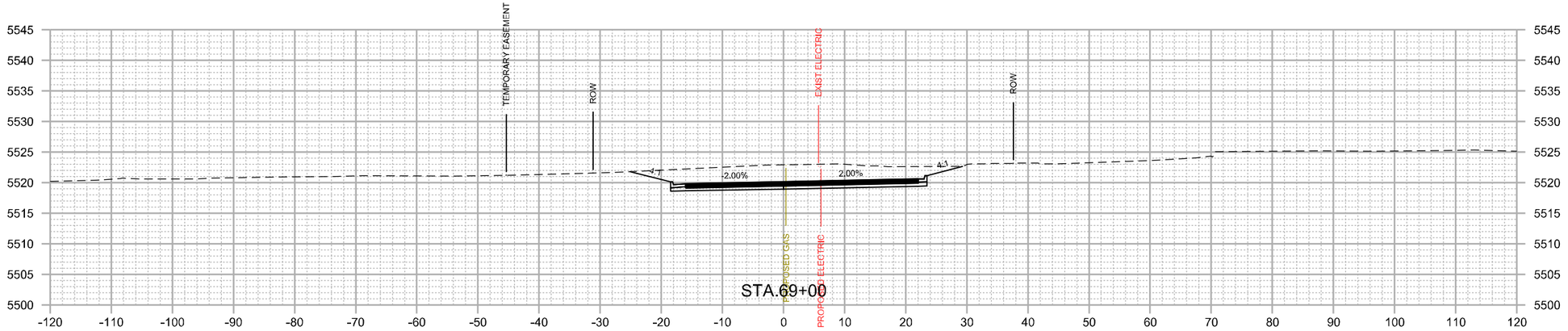

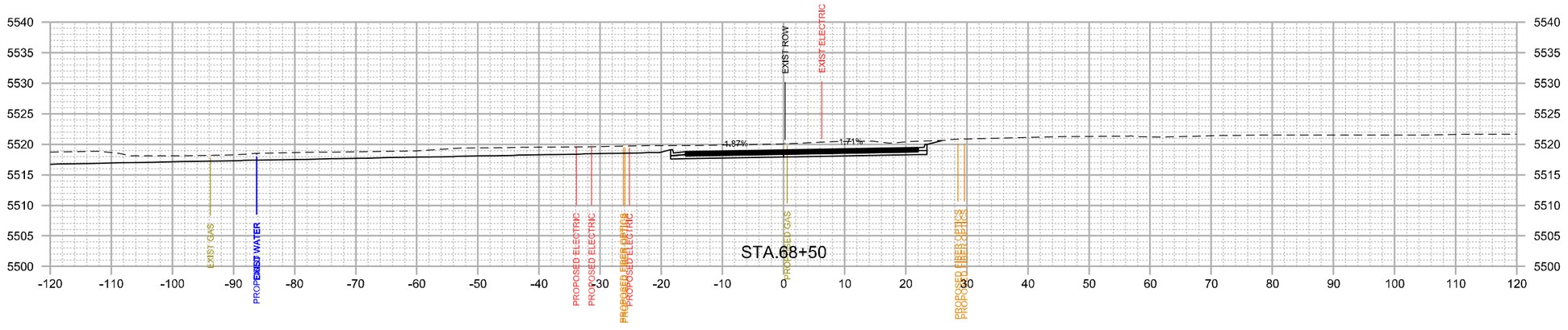

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02/13/2022

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Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY					

CITY OF ARVADA

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
OAK STREET

Designer:	DKH	Structure Numbers	
Detailer:	DKH		
Sheet Subset:	X-SEC	Subset Sheets:	6 of 7

Project No./Code

Sheet Number 459

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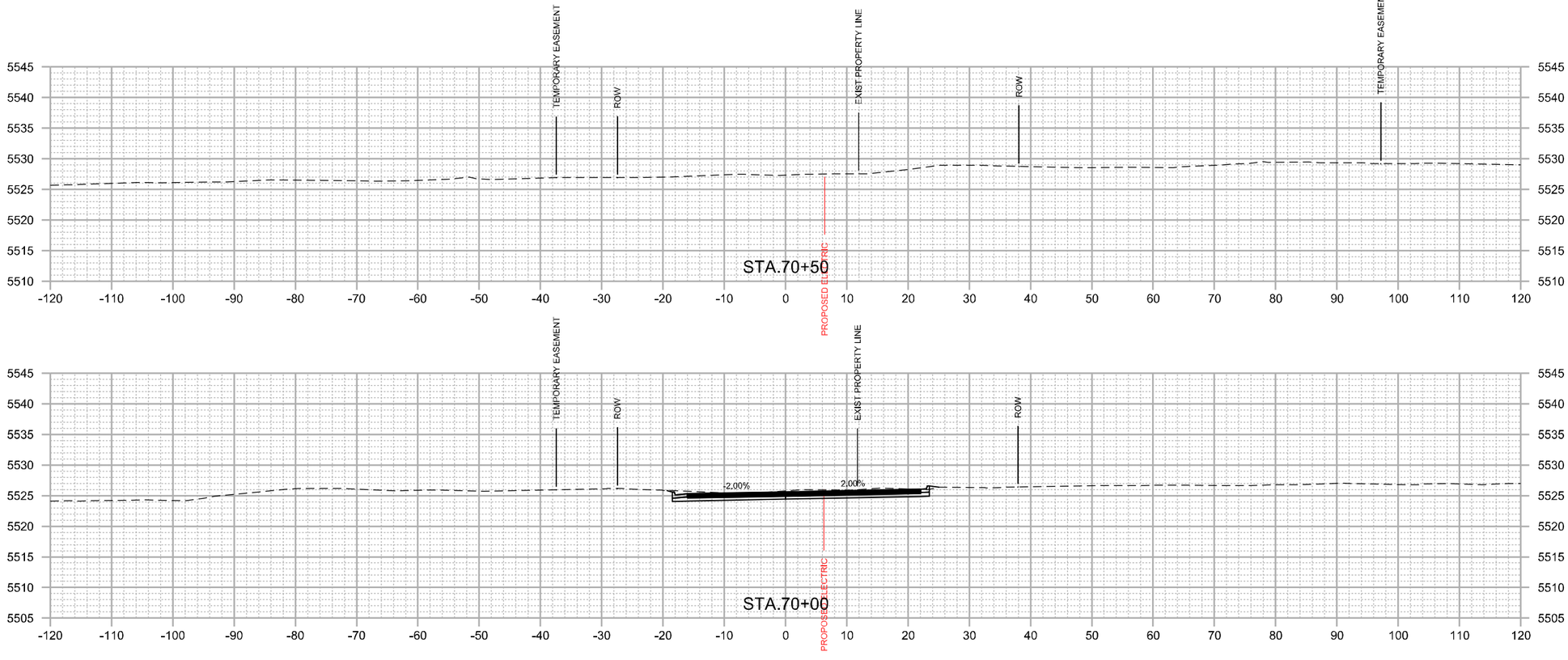

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02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
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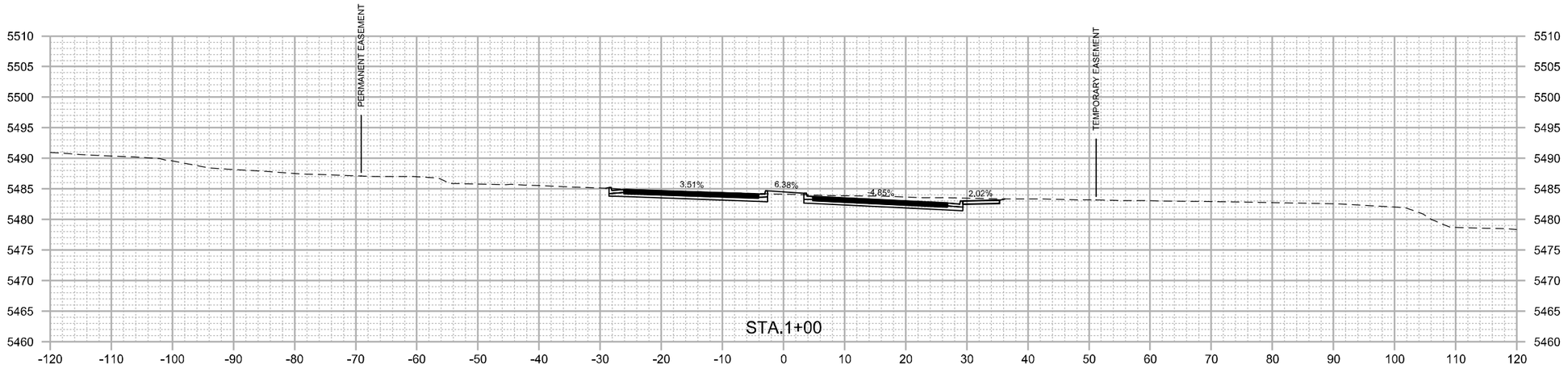

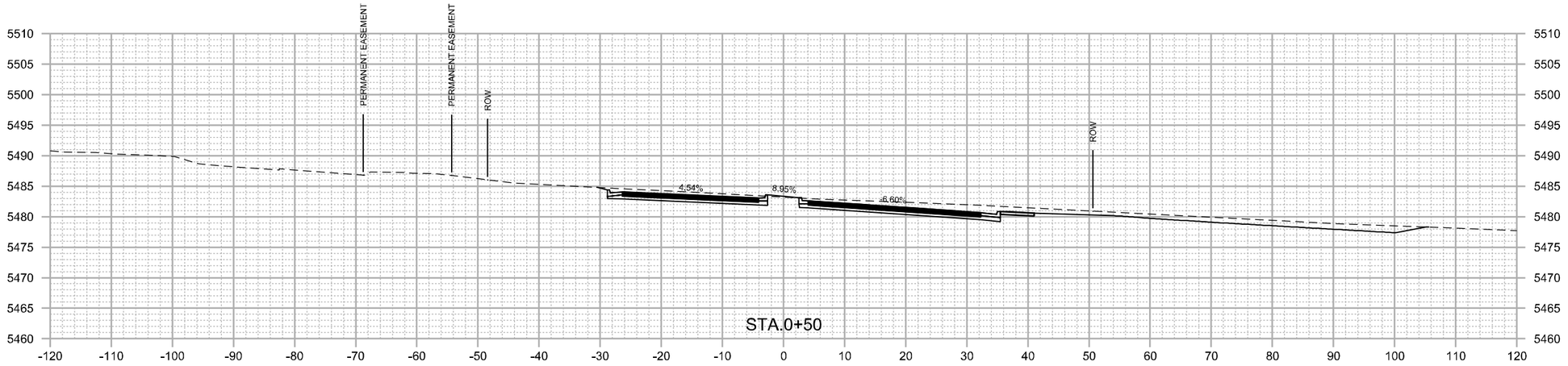

COLORADO LICENSED
DANIEL K. HELLRUNG
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PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021	Sheet Revisions		
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Unit Information Unit Leader Initials			
MULLER ENGINEERING COMPANY			

CITY OF ARVADA

As Constructed	W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2		Project No./Code
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Revised:	Designer: DKH	Structure Numbers	
Void:	Detailer: DKH		
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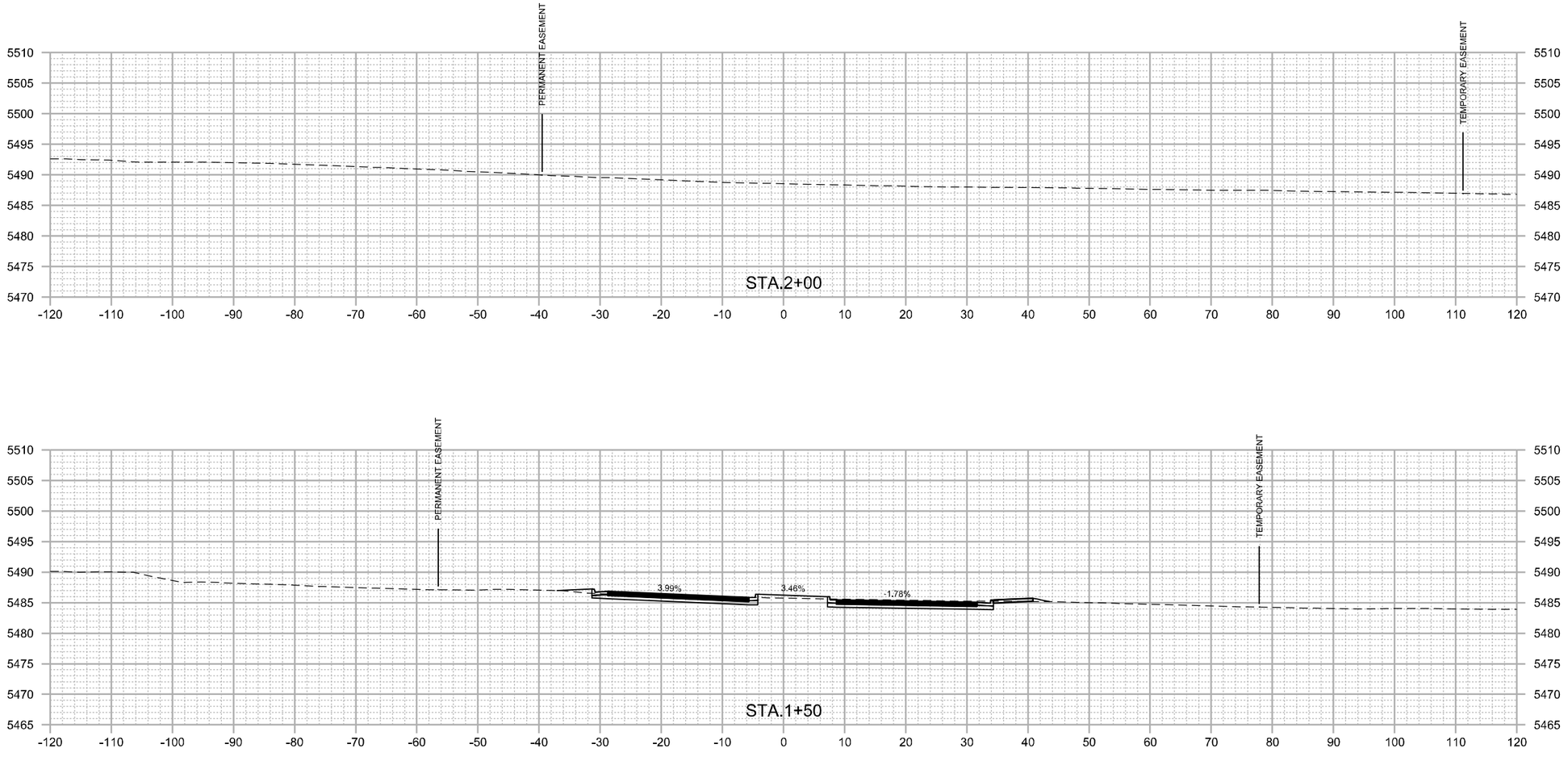

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DANIEL K. HELLRUNG
56232
PROFESSIONAL ENGINEER
02/13/2022

Print Date: 9/17/2021		Sheet Revisions			As Constructed
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Horiz. Scale: 1:20	Vert. Scale: As Noted				Revised:
Unit Information	Unit Leader Initials				Void:
MULLER ENGINEERING COMPANY			CITY OF ARVADA		

W. 72ND AVE. IMPROVEMENTS CONSTRUCTION PACKAGE NO. 2

CROSS SECTIONS
LINCOLN ACADEMY

Designer:	DKH	Structure Numbers		Project No./Code
Detailer:	DKH			
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Exhibit 2.11.5

Specification Illustrations and attachments

Exhibit 2.11.6

All supplementary requirements regarding wage rates, E.E.O., affirmative action and all other Federal-State requirements as outlined in the specifications

Exhibit 2.11.7

Construction Agreed Price (CAP) Documents, Drawings and Specifications including Addenda and Modifications (when approved by the Owner)

CMGC CAP COST MODEL SUMMARY (February 18, 2022)

(25 MONTH CONSTRUCTION DURATION THROUGH FEBRUARY 2024)

City of Arvada - W 72nd Avenue CMGC - CP2 Simms Street to Oak Street

SUMMARY OF APPROXIMATE QUANTITIES						SEMA COST		SEMA COST + 7% CMGC FEE	
BID ITEM	OVERRUN ALLOWED	CL#	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY			UNIT PRICE	AMOUNT
5	NO	201	CLEARING AND GRUBBING	L S	1.00	$ 29,107.29	$ 29,107.29	$31,144.80	$ 31,144.80
10	NO	202	REMOVAL OF ASBESTOS CEMENT PIPE	LF	15.00	$ 323.70	$ 4,855.50	$346.36	$ 5,195.40
15	NO	202	REMOVAL OF SAMPLING STATION	EACH	1.00	$ 2,894.99	$ 2,894.99	$3,097.64	$ 3,097.64
20	NO	202	REMOVAL OF WATER METER	EACH	5.00	$ 1,414.78	$ 7,073.90	$1,513.81	$ 7,569.05
25	NO	202	ABANDON STORM PIPE	LF	100.00	$ 107.36	$ 10,736.00	$114.88	$ 11,488.00
30	NO	202	REMOVAL OF TREE	EACH	86.00	$ 466.74	$ 40,139.64	$499.41	$ 42,949.26
35	NO	202	REMOVAL OF INLET	EACH	10.00	$ 1,377.72	$ 13,777.20	$1,474.16	$ 14,741.60
40	NO	202	REMOVAL OF MANHOLE	EACH	7.00	$ 1,514.32	$ 10,600.24	$1,620.32	$ 11,342.24
45	NO	202	REMOVAL OF RIPRAP	SY	251.00	$ 36.37	$ 9,128.87	$38.92	$ 9,768.92
50	NO	202	REMOVAL OF STORM PIPE	LF	2,747.00	$ 29.73	$ 81,668.31	$31.81	$ 87,382.07
55	NO	202	REMOVAL OF GAS LINE	LF	3,327.00	$ 19.30	$ 64,211.10	$20.65	$ 68,702.55
60	NO	202	REMOVAL OF WATER LINE	LF	1,072.00	$ 36.32	$ 38,935.04	$38.86	$ 41,657.92
65	NO	202	REMOVAL OF FIRE HYDRANT	EACH	3.00	$ 3,152.14	$ 9,456.42	$3,372.79	$ 10,118.37
70	NO	202	REMOVAL OF VALVE	EACH	6.00	$ 727.80	$ 4,366.80	$778.75	$ 4,672.50
75	NO	202	REMOVAL OF END SECTION	EACH	7.00	$ 289.31	$ 2,025.17	$309.56	$ 2,166.92
80	NO	202	REMOVAL OF DELINEATOR	EACH	33.00	$ 5.00	$ 165.00	$5.35	$ 176.55
85	NO	202	REMOVAL OF WALL	LF	582.00	$ 34.12	$ 19,857.84	$36.51	$ 21,248.82
90	NO	202	REMOVAL OF CONCRETE MEDIAN COVER MATERIAL	SY	32.00	$ 23.19	$ 742.08	$24.81	$ 793.92
95	NO	202	REMOVAL OF SIDEWALK	SY	4,545.00	$ 12.13	$ 55,130.85	$12.98	$ 58,994.10
100	NO	202	REMOVAL OF CURB AND GUTTER	LF	6,919.00	$ 5.40	$ 37,362.60	$5.78	$ 39,991.82
105	NO	202	REMOVAL OF WHEEL STOP	EACH	58.00	$ 30.06	$ 1,743.48	$32.16	$ 1,865.28
110	NO	202	REMOVAL OF CONCRETE CURB RAMP	SY	224.00	$ 21.68	$ 4,856.32	$23.20	$ 5,196.80
115	NO	202	REMOVAL OF CONCRETE PAVEMENT	SY	1,092.00	$ 27.37	$ 29,888.04	$29.29	$ 31,984.68
120	NO	202	REMOVAL OF ASPHALT MAT	SY	28,300.00	$ 6.25	$ 176,875.00	$6.69	$ 189,327.00
125	NO	202	REMOVAL OF ASPHALT MAT (PLANING)	SY	2,078.00	$ 4.48	$ 9,309.44	$4.79	$ 9,953.62
130	NO	202	REMOVAL OF PAVEMENT MARKING	SF	9,000.00	$ 3.09	$ 27,810.00	$3.31	$ 29,790.00
135	NO	202	REMOVAL OF SHED	EACH	5.00	$ 2,039.82	$ 10,199.10	$2,182.61	$ 10,913.05
140	NO	202	REMOVAL OF LIGHT STANDARD FOUNDATION	EACH	14.00	$ 773.48	$ 10,828.72	$827.62	$ 11,586.68
145	NO	202	REMOVAL OF GROUND SIGN	EACH	44.00	$ 175.00	$ 7,700.00	$187.25	$ 8,239.00
150	NO	202	REMOVAL OF SIGN PANEL	EACH	11.00	$ 175.00	$ 1,925.00	$187.25	$ 2,059.75
155	NO	202	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	LS	1.00	$ 20,131.09	$ 20,131.09	$21,540.27	$ 21,540.27
160	NO	202	REMOVAL OF FENCE	LF	5,932.00	$ 8.04	$ 47,693.28	$8.60	$ 51,015.20
165	NO	202	REMOVAL OF GATE	EACH	5.00	$ 463.92	$ 2,319.60	$496.39	$ 2,481.95
170	NO	202	REMOVAL OF GUARDRAIL TYPE 3	LF	427.00	$ 4.00	$ 1,708.00	$4.28	$ 1,827.56
175	NO	202	REMOVAL OF END ANCHORAGE	EACH	2.00	$ 618.06	$ 1,236.12	$661.32	$ 1,322.64
180	NO	202	PLUG CULVERT	EACH	9.00	$ 2,012.91	$ 18,116.19	$2,153.81	$ 19,384.29
185	YES	203	UNSUITABLE MATERIAL	CY	250.00	$ 87.73	$ 21,932.50	$93.87	$ 23,467.50
190	NO	203	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	19,640.00	$ 14.89	$ 292,439.60	$15.93	$ 312,865.20
195	YES	203	PROOFROLLING	HOUR	100.00	$ 114.42	$ 11,442.00	$122.43	$ 12,243.00
200	YES	203	BLADING	HOUR	50.00	$ 176.92	$ 8,846.00	$189.30	$ 9,465.00
205	YES	203	DOZING	HOUR	50.00	$ 177.85	$ 8,892.50	$190.30	$ 9,515.00
210	YES	203	POTHOLING	HOUR	100.00	$ 309.58	$ 30,958.00	$331.25	$ 33,125.00
215	YES	206	STRUCTURE BACKFILL (FLOWFILL)	CY	100.00	$ 108.76	$ 10,876.00	$116.37	$ 11,637.00
220	YES	207	TOPSOIL IMPORT	CY	2,592.00	$ 51.45	$ 133,358.40	$55.05	$ 142,689.60
225	NO	207	TOPSOIL (ONSITE)	CY	3,021.00	$ 27.65	$ 83,530.65	$29.59	$ 89,391.39

SUMMARY OF APPROXIMATE QUANTITIES						SEMA COST		SEMA COST + 7% CMGC FEE	
BID ITEM	OVERRUN ALLOWED	CL#	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY			UNIT PRICE	AMOUNT
230	YES	208	(SEDIMENT CONTROL LOG) EROSION LOG TYPE 1 (12 INCH	LF	8,610.00	$ 4.02	$ 34,612.20	$4.30	$ 37,023.00
235	YES	208	SILT FENCE	LF	100.00	$ 1.50	$ 150.00	$1.61	$ 161.00
240	YES	208	(ROCK SOCK) AGGREGATE BAG	LF	990.00	$ 6.31	$ 6,246.90	$6.75	$ 6,682.50
245	NO	208	CONCRETE WASHOUT STRUCTURE	EACH	3.00	$ 10,186.47	$ 30,559.41	$10,899.52	$ 32,698.56
250	NO	208	STORM DRAIN INLET PROTECTION (TYPE I) (CURB INLETS	EACH	26.00	$ 147.66	$ 3,839.16	$158.00	$ 4,108.00
255	NO	208	STORM DRAIN INLET PROTECTION (TYPE II) (COMBINATIO	EACH	5.00	$ 229.12	$ 1,145.60	$245.16	$ 1,225.80
260	NO	208	STORM DRAIN INLET PROTECTION (TYPE III) (AREA INLE	EACH	15.00	$ 229.12	$ 3,436.80	$245.16	$ 3,677.40
265	NO	208	PRE-FABRICATED VEHICLE TRACKING PAD	EACH	5.00	$ 16,013.80	$ 80,069.00	$17,134.77	$ 85,673.85
270	YES	208	REMOVAL AND DISPOSAL OF SEDIMENT (LABOR)	HOUR	20.00	$ 57.08	$ 1,141.60	$61.08	$ 1,221.60
275	YES	208	REMOVAL AND DISPOSAL OF SEDIMENT (EQUIPMENT)	HOUR	20.00	$ 108.11	$ 2,162.20	$115.68	$ 2,313.60
280	YES	208	SWEEPING (SEDIMENT REMOVAL)	HOUR	100.00	$ 132.99	$ 13,299.00	$142.30	$ 14,230.00
285	NO	208	EROSION CONTROL MANAGEMENT (ECM)	LS	1.00	$ 314,481.86	$ 314,481.86	$336,495.59	$ 336,495.59
290	NO	210	PIPE SCOPE	EACH	1.00	$ 4,500.00	$ 4,500.00	$4,815.00	$ 4,815.00
295	NO	210	RESET IRRIGATION EQUIPMENT (SPECIAL)	LS	1.00	$ 8,146.64	$ 8,146.64	$8,716.90	$ 8,716.90
300	NO	210	ADJUST FIRE HYDRANT	EACH	1.00	$ 2,290.91	$ 2,290.91	$2,451.27	$ 2,451.27
305	NO	210	RESET VINYL FENCE	LF	104.00	$ 61.86	$ 6,433.44	$66.19	$ 6,883.76
310	NO	210	RESET SIGN SPECIAL	EACH	3.00	$ 600.00	$ 1,800.00	$642.00	$ 1,926.00
315	NO	210	RESET MAILBOX STRUCTURE	EACH	11.00	$ 500.00	$ 5,500.00	$535.00	$ 5,885.00
320	NO	210	RELAY PIPE (30 INCH)	LF	67.00	$ 306.77	$ 20,553.59	$328.24	$ 21,992.08
325	NO	210	ABANDON VALVE BOX	EACH	2.00	$ 1,339.53	$ 2,679.06	$1,433.30	$ 2,866.60
330	NO	210	ADJUST MANHOLE	EACH	16.00	$ 1,612.34	$ 25,797.44	$1,725.20	$ 27,603.20
335	NO	210	MODIFY MANHOLE	EACH	8.00	$ 2,030.76	$ 16,246.08	$2,172.91	$ 17,383.28
340	NO	210	ADJUST VALVE BOX	EACH	7.00	$ 1,776.25	$ 12,433.75	$1,900.59	$ 13,304.13
345	NO	212	SEEDING (NATIVE)	ACRE	8.40	$ 838.09	$ 7,039.96	$896.76	$ 7,532.78
350	NO	212	SEEDING (WETLANDS)	ACRE	0.10	$ 5,091.60	$ 509.16	$5,448.01	$ 544.80
355	NO	212	SOIL CONDITIONING	ACRE	5.60	$ 7,983.71	$ 44,708.78	$8,542.57	$ 47,838.39
360	NO	212	PLANTING - SOD	SF	37,385.00	$ 1.17	$ 43,740.45	$1.25	$ 46,731.25
365	NO	213	MULCH	SF	494.00	$ 1.37	$ 676.78	$1.47	$ 726.18
370	NO	213	MULCHING (WEED FREE)	ACRE	5.60	$ 1,400.20	$ 7,841.12	$1,498.21	$ 8,389.98
375	NO	213	MULCH TRACKING	LB	1,124.00	$ 2.29	$ 2,573.96	$2.45	$ 2,753.80
380	YES	214	PLANTING - PERENNIALS (1 GAL)	EACH	189.00	$ 23.88	$ 4,513.32	$25.55	$ 4,828.95
385	YES	214	PLANTING - SHRUBS (5 GAL)	EACH	956.00	$ 63.81	$ 61,002.36	$68.28	$ 65,275.68
390	YES	214	PLANTING - TREE (2.5" CAL)	EACH	181.00	$ 813.65	$ 147,270.65	$870.61	$ 157,580.41
395	NO	215	LANDSCAPE WARRANTY AND MAINTENANCE - 2 YEAR	L S	1.00	$ 131,364.56	$ 131,364.56	$140,560.08	$ 140,560.08
400	NO	216	(EROSION CONTROL BLANKET) SOIL RETENTION BLANKET (	SY	1,736.00	$ 2.83	$ 4,912.88	$3.03	$ 5,260.08
405	NO	304	AGGREGATE BASE COURSE (CLASS 6)	TON	22,559.00	$ 27.33	$ 616,537.47	$29.24	$ 659,625.16
410	YES	403	HOT MIX ASPHALT (PATCHING) (ASPHALT)	TON	358.00	$ 229.34	$ 82,103.72	$245.39	$ 87,849.62
415	YES	403	HOT MIX ASPHALT (GRADING SX) (100) (PG 64-22)	TON	12,122.00	$ 81.72	$ 990,609.84	$87.44	$ 1,059,947.68
420	YES	403	HOT MIX ASPHALT (GRADING SX) (100) (PG 76-28)	TON	5,487.00	$ 105.43	$ 578,494.41	$112.81	$ 618,988.47
425	NO	409	PED-BIKE BUFFER-CONCRETE WITH COLORED MICROTOPPING	SF	4,818.00	$ 25.00	$ 120,450.00	$26.75	$ 128,881.50
430	NO	411	EMULSIFIED ASPHALT (SLOW SETTING)	GAL	5,228.00	$ 3.08	$ 16,102.24	$3.30	$ 17,252.40
435	NO	412	PATTERNED CONCRETE PAVEMENT (6 INCH) (SPECIAL)	SY	130.00	$ 75.76	$ 9,848.80	$81.06	$ 10,537.80
440	NO	412	CONCRETE PAVEMENT (6 INCH)	SY	1,422.00	$ 69.70	$ 99,113.40	$74.58	$ 106,052.76
445	NO	420	GEOTEXTILE (DRAINAGE) (CLASS 2)	SY	168.00	$ 9.64	$ 1,619.52	$10.31	$ 1,732.08
450	NO	420	GEOTEXTILE (SEPARATOR) (CLASS 1)	SY	36,498.00	$ 2.49	$ 90,880.02	$2.66	$ 97,084.68
455	YES	503	DRILLED CAISSON (18 INCH)	LF	32.00	$ 190.79	$ 6,105.28	$204.15	$ 6,532.80
460	YES	503	DRILLED CAISSON (36 INCH)	LF	158.00	$ 386.74	$ 61,104.92	$413.81	$ 65,381.98
465	NO	504	MAGNUM STONE WALL	SF	18,600.00	$ 95.11	$ 1,769,046.00	$101.77	$ 1,892,922.00
470	NO	506	GROUTED BOULDERS (24 INCH)	EACH	3.00	$ 467.45	$ 1,402.35	$500.17	$ 1,500.51
475	NO	506	GROUTED BOULDERS (36 INCH)	EACH	32.00	$ 678.96	$ 21,726.72	$726.49	$ 23,247.68
480	NO	506	SOIL RIPRAP (12 INCH)	CY	130.00	$ 119.64	$ 15,553.20	$128.01	$ 16,641.30

SUMMARY OF APPROXIMATE QUANTITIES						SEMA COST		SEMA COST + 7% CMGC FEE	
BID ITEM	OVERRUN ALLOWED	CL#	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY			UNIT PRICE	AMOUNT
485	NO	506	VOID FILLED RIPRAP (6 INCH)	CY	5.00	$ 284.47	$ 1,422.35	$304.38	$ 1,521.90
490	NO	506	VOID FILLED RIPRAP (12 INCH)	CY	25.00	$ 313.72	$ 7,843.00	$335.68	$ 8,392.00
495	NO	514	METAL HANDRAIL	LF	64.00	$ 146.09	$ 9,349.76	$156.32	$ 10,004.48
500	NO	514	PERFORATED METAL RAIL	LF	1,080.00	$ 221.36	$ 239,068.80	$236.86	$ 255,808.80
505	NO	514	PERFORATED METAL RAIL WITH HANDRAIL	LF	101.00	$ 222.05	$ 22,427.05	$237.59	$ 23,996.59
510	NO	601	CONCRETE (CLASS B): 24" TOEWALL	CY	2.00	$ 1,300.16	$ 2,600.32	$1,391.17	$ 2,782.34
515	NO	601	CONCRETE (CLASS B): CURB WALL	CY	14.00	$ 1,475.67	$ 20,659.38	$1,578.97	$ 22,105.58
520	NO	601	CONCRETE (CLASS B): FOREBAY BASE	CY	14.80	$ 1,103.64	$ 16,333.87	$1,180.89	$ 17,477.17
525	YES	603	12 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLAC	LF	4.00	$ 504.14	$ 2,016.56	$539.43	$ 2,157.72
530	YES	603	15 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLAC	LF	136.00	$ 220.80	$ 30,028.80	$236.26	$ 32,131.36
535	YES	603	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLAC	LF	2,079.00	$ 167.99	$ 349,251.21	$179.75	$ 373,700.25
540	YES	603	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLAC	LF	2,106.00	$ 189.33	$ 398,728.98	$202.58	$ 426,633.48
545	YES	603	30 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLAC	LF	843.00	$ 246.05	$ 207,420.15	$263.27	$ 221,936.61
550	YES	603	36 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLAC	LF	70.00	$ 412.24	$ 28,856.80	$441.10	$ 30,877.00
555	YES	603	38X24 INCH REINFORCED CONCRETE PIPE ELLIPTICAL	LF	361.00	$ 299.90	$ 108,263.90	$320.89	$ 115,841.29
560	YES	603	45X29 INCH REINFORCED CONCRETE PIPE ELLIPTICAL	LF	338.00	$ 288.31	$ 97,448.78	$308.49	$ 104,269.62
565	YES	603	12 INCH REINFORCED CONCRETE END SECTION	EACH	1.00	$ 1,223.08	$ 1,223.08	$1,308.70	$ 1,308.70
570	YES	603	24 INCH REINFORCED CONCRETE END SECTION	EACH	1.00	$ 1,380.60	$ 1,380.60	$1,477.24	$ 1,477.24
575	YES	603	45X29 INCH REINFORCED CONCRETE END SECTION ELLIPTI	EACH	1.00	$ 2,855.81	$ 2,855.81	$3,055.72	$ 3,055.72
580	YES	603	6 INCH PLASTIC PIPE	LF	5.00	$ 270.17	$ 1,350.85	$289.08	$ 1,445.40
585	YES	603	8 INCH PLASTIC PIPE	LF	183.00	$ 147.57	$ 27,005.31	$157.90	$ 28,895.70
590	NO	604	DRAIN BASIN	EACH	2.00	$ 3,664.48	$ 7,328.96	$3,920.99	$ 7,841.98
595	NO	604	MEDIAN INLET	EACH	2.00	$ 7,627.19	$ 15,254.38	$8,161.09	$ 16,322.18
600	NO	604	12 INCH SIDEWALK CHASE DRAIN	LF	16.00	$ 472.67	$ 7,562.72	$505.76	$ 8,092.16
605	NO	604	INLET TYPE C (5 FOOT)	EACH	5.00	$ 6,451.11	$ 32,255.55	$6,902.69	$ 34,513.45
610	NO	604	INLET TYPE C (10 FOOT)	EACH	2.00	$ 6,829.45	$ 13,658.90	$7,307.51	$ 14,615.02
615	NO	604	INLET TYPE 16 (DOUBLE) (10 FOOT)	EACH	1.00	$ 12,816.39	$ 12,816.39	$13,713.54	$ 13,713.54
620	NO	604	INLET TYPE 16 (TRIPLE) (10 FOOT)	EACH	2.00	$ 19,273.35	$ 38,546.70	$20,622.48	$ 41,244.96
625	NO	604	INLET SPECIAL (TRENCH DRAIN)(8 INCH WIDE)	LF	47.00	$ 475.16	$ 22,332.52	$508.42	$ 23,895.74
630	NO	604	INLET TYPE R L5 (5 FOOT)	EACH	5.00	$ 8,817.66	$ 44,088.30	$9,434.90	$ 47,174.50
635	NO	604	INLET TYPE R L5 (10 FOOT)	EACH	3.00	$ 9,195.97	$ 27,587.91	$9,839.69	$ 29,519.07
640	NO	604	INLET TYPE R L10 (5 FOOT)	EACH	5.00	$ 12,055.18	$ 60,275.90	$12,899.04	$ 64,495.20
645	NO	604	INLET TYPE R L10 (10 FOOT)	EACH	4.00	$ 12,433.50	$ 49,734.00	$13,303.85	$ 53,215.40
650	NO	604	INLET TYPE R L10 (15 FOOT)	EACH	1.00	$ 12,811.82	$ 12,811.82	$13,708.65	$ 13,708.65
655	NO	604	INLET TYPE R L15 (10 FOOT)	EACH	3.00	$ 15,516.34	$ 46,549.02	$16,602.48	$ 49,807.44
660	NO	604	OUTLET STRUCTURE 1	EACH	1.00	$ 25,537.52	$ 25,537.52	$27,325.15	$ 27,325.15
665	NO	604	MANHOLE SLAB BASE (5 FOOT)	EACH	3.00	$ 7,240.45	$ 21,721.35	$7,747.28	$ 23,241.84
670	NO	604	MANHOLE SLAB BASE (10 FOOT)	EACH	12.00	$ 7,441.66	$ 89,299.92	$7,962.58	$ 95,550.96
675	NO	604	MANHOLE SLAB BASE (15 FOOT)	EACH	6.00	$ 7,313.35	$ 43,880.10	$7,825.28	$ 46,951.68
680	YES	607	FENCE WOOD WITH METAL POSTS	LF	3,701.00	$ 91.75	$ 339,566.75	$98.17	$ 363,327.17
685	YES	607	FENCE (TEMPORARY)	LF	1,900.00	$ 9.28	$ 17,632.00	$9.93	$ 18,867.00
690	YES	607	FENCE (PLASTIC)	LF	1,317.00	$ 4.50	$ 5,926.50	$4.82	$ 6,347.94
695	YES	607	FENCE CHAIN LINK (60 INCH)	LF	685.00	$ 43.45	$ 29,763.25	$46.49	$ 31,845.65
700	YES	607	4 FOOT GATE	EACH	2.00	$ 2,355.67	$ 4,711.34	$2,520.57	$ 5,041.14
705	YES	607	15 FOOT GATE	EACH	1.00	$ 7,835.05	$ 7,835.05	$8,383.50	$ 8,383.50
710	YES	607	20 FOOT GATE	EACH	2.00	$ 5,680.41	$ 11,360.82	$6,078.04	$ 12,156.08
715	NO	608	CIP CONCRETE STAIRS	CY	59.00	$ 1,080.53	$ 63,751.27	$1,156.17	$ 68,214.03
720	NO	608	CONCRETE SIDEWALK (6 INCH)	SY	8,446.00	$ 53.36	$ 450,678.56	$57.10	$ 482,266.60
725	NO	608	CONCRETE CURB RAMP	SY	1,210.00	$ 153.20	$ 185,372.00	$163.92	$ 198,343.20
730	NO	609	RIBBON CURB	LF	323.00	$ 32.82	$ 10,600.86	$35.12	$ 11,343.76
735	NO	609	CURB (SPECIAL)	LF	165.00	$ 49.88	$ 8,230.20	$53.37	$ 8,806.05

SUMMARY OF APPROXIMATE QUANTITIES						SEMA COST		SEMA COST + 7% CMGC FEE	
BID ITEM	OVERRUN ALLOWED	CL#	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY			UNIT PRICE	AMOUNT
740	NO	609	CURB TYPE 2 (SECTION B)	LF	501.00	$ 26.29	$ 13,171.29	$28.13	$ 14,093.13
745	NO	609	CURB AND GUTTER TYPE 2 (SECTION I-B)	LF	6,159.00	$ 27.20	$ 167,524.80	$29.10	$ 179,226.90
750	NO	609	CURB AND GUTTER TYPE 2 (SECTION II-B)	LF	8,715.00	$ 28.49	$ 248,290.35	$30.48	$ 265,633.20
755	NO	609	CURB AND GUTTER TYPE 2 (SECTION II-M)	LF	790.00	$ 30.90	$ 24,411.00	$33.06	$ 26,117.40
760	NO	609	GUTTER TYPE 2 (8 FOOT)	LF	48.00	$ 113.95	$ 5,469.60	$121.93	$ 5,852.64
765	NO	610	MEDIAN COVER MATERIAL (PATTERNED CONCRETE)	SF	9,116.00	$ 11.25	$ 102,555.00	$12.04	$ 109,756.64
770	NO	610	MEDIAN COVER MATERIAL (CONCRETE)	SF	130.00	$ 23.34	$ 3,034.20	$24.97	$ 3,246.10
775	NO	610	MEDIAN EDGING (PATTERNED CONCRETE)	LF	2,151.00	$ 59.35	$ 127,661.85	$63.50	$ 136,588.50
780	NO	612	DELINEATOR TYPE I (CRYSTAL)	EACH	17.00	$ 97.94	$ 1,664.98	$104.80	$ 1,781.60
785	NO	612	DELINEATOR (FLEXIBLE) (SURFACE MOUNTED)	EACH	185.00	$ 154.64	$ 28,608.40	$165.46	$ 30,610.10
790	YES	613	TYPE LG PULL BOX	EACH	12.00	$ 1,918.23	$ 23,018.76	$2,052.51	$ 24,630.12
795	NO	613	2 INCH ELECTRICAL CONDUIT (BORED)	LF	2,000.00	$ 19.59	$ 39,180.00	$20.96	$ 41,920.00
800	NO	613	3 INCH ELECTRICAL CONDUIT (BORED)	LF	1,750.00	$ 19.59	$ 34,282.50	$20.96	$ 36,680.00
805	NO	613	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	6,190.00	$ 15.73	$ 97,368.70	$16.83	$ 104,177.70
810	NO	613	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	1,385.00	$ 22.69	$ 31,425.65	$24.28	$ 33,627.80
815	YES	613	WIRING (TRAFFIC SIGNALS)	LS	1.00	$ 14,661.05	$ 14,661.05	$15,687.32	$ 15,687.32
820	YES	613	WIRING (LIGHTING)	LS	1.00	$ 106,657.67	$ 106,657.67	$114,123.71	$ 114,123.71
825	YES	613	LUMINAIRE (LED)	EACH	11.00	$ 837.42	$ 9,211.62	$896.04	$ 9,856.44
830	YES	613	LUMINAIRE (LED) (9,600 LUMENS) LSXX	EACH	30.00	$ 837.42	$ 25,122.60	$896.04	$ 26,881.20
835	YES	613	LUMINAIRE (LED) (9,600 LUMENS) LTXX	EACH	7.00	$ 837.42	$ 5,861.94	$896.04	$ 6,272.28
840	YES	613	LIGHTING STANDARD STEEL (30 FOOT)	EACH	30.00	$ 4,911.08	$ 147,332.40	$5,254.86	$ 157,645.80
845	YES	613	CONCRETE FOUNDATION PAD	EACH	2.00	$ 840.52	$ 1,681.04	$899.36	$ 1,798.72
850	YES	613	LIGHT STANDARD FOUNDATION	EACH	30.00	$ 2,201.84	$ 66,055.20	$2,355.97	$ 70,679.10
855	YES	613	LIGHTING CONTROL CENTER (SPECIAL)	EACH	2.00	$ 9,576.71	$ 19,153.42	$10,247.08	$ 20,494.16
860	YES	613	SERVICE METER CABINET	EACH	3.00	$ 6,209.49	$ 18,628.47	$6,644.15	$ 19,932.45
865	NO	614	SIGN SUPPORT (2 INCH X 2 INCH STEEL SLEEVE)	LF	156.00	$ 22.68	$ 3,538.08	$24.27	$ 3,786.12
870	NO	614	SIGN SUPPORT (3 INCH SLEEVE)	EACH	20.00	$ 400.00	$ 8,000.00	$428.00	$ 8,560.00
875	NO	614	SIGN PANEL (CLASS 1)	SF	751.00	$ 35.05	$ 26,322.55	$37.50	$ 28,162.50
880	NO	614	STEEL SIGN POST (1.75 X 1.75 INCH TUBING)	LF	546.00	$ 20.62	$ 11,258.52	$22.06	$ 12,044.76
885	NO	614	SIGNAL HEAD BACKPLATES	EACH	27.00	$ 224.82	$ 6,070.14	$240.56	$ 6,495.12
890	NO	614	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	20.00	$ 541.44	$ 10,828.80	$579.34	$ 11,586.80
895	NO	614	TRAFFIC SIGNAL FACE (12-12-12)	EACH	26.00	$ 706.44	$ 18,367.44	$755.89	$ 19,653.14
900	NO	614	TRAFFIC SIGNAL FACE (12-12-12-12)	EACH	18.00	$ 1,012.74	$ 18,229.32	$1,083.63	$ 19,505.34
905	NO	614	TRAFFIC SIGNAL FACE (12-12-12-12-12)	EACH	4.00	$ 923.02	$ 3,692.08	$987.63	$ 3,950.52
910	NO	614	TRAFFIC SIGNAL CONTROLLER CABINET	EACH	3.00	$ 16,748.41	$ 50,245.23	$17,920.80	$ 53,762.40
915	NO	614	PEDESTRIAN PUSH BUTTON	EACH	20.00	$ 1,666.59	$ 33,331.80	$1,783.25	$ 35,665.00
920	NO	614	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EACH	3.00	$ 1,561.40	$ 4,684.20	$1,670.70	$ 5,012.10
925	NO	614	FIRE PREEMPTION UNIT AND TIMER (DUAL EYE)	EACH	6.00	$ 5,596.90	$ 33,581.40	$5,988.68	$ 35,932.08
930	NO	614	MICROWAVE VEHICLE RADAR DETECTOR	EACH	17.00	$ 8,427.83	$ 143,273.11	$9,017.78	$ 153,302.26
935	NO	614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-30 FOOT MAST AR	EACH	1.00	$ 24,555.40	$ 24,555.40	$26,274.28	$ 26,274.28
940	NO	614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-40 FOOT MAST AR	EACH	7.00	$ 31,794.13	$ 222,558.91	$34,019.72	$ 238,138.04
945	NO	614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST AR	EACH	1.00	$ 33,762.90	$ 33,762.90	$36,126.30	$ 36,126.30
950	NO	614	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST AR	EACH	2.00	$ 44,051.21	$ 88,102.42	$47,134.79	$ 94,269.58
955	NO	614	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EACH	8.00	$ 1,302.54	$ 10,420.32	$1,393.72	$ 11,149.76
960	NO	614	TRAFFIC SIGNAL CONTROLLER (SS)(FA)(8 PHASE)	EACH	3.00	$ 4,544.97	$ 13,634.91	$4,863.12	$ 14,589.36
965	NO	614	UNINTERRUPTED POWER SUPPLY	EACH	3.00	$ 8,693.91	$ 26,081.73	$9,302.48	$ 27,907.44
970	NO	614	CCTV CAMERA (TRAFFIC SURVEILLANCE)	EACH	3.00	$ 4,889.42	$ 14,668.26	$5,231.68	$ 15,695.04
975	YES	619	ABANDON EXISTING PIPE	EACH	12.00	$ 2,368.73	$ 28,424.76	$2,534.54	$ 30,414.48
980	YES	619	SAMPLING STATION	EACH	1.00	$ 4,550.75	$ 4,550.75	$4,869.30	$ 4,869.30
985	YES	619	WATER METER	EACH	5.00	$ 6,091.32	$ 30,456.60	$6,517.71	$ 32,588.55
990	YES	619	CONNECT TO EXISTING WATERLINE	EACH	8.00	$ 14,500.64	$ 116,005.12	$15,515.68	$ 124,125.44

SUMMARY OF APPROXIMATE QUANTITIES						SEMA COST		SEMA COST + 7% CMGC FEE	
BID ITEM	OVERRUN ALLOWED	CL#	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY			UNIT PRICE	AMOUNT
995	YES	619	6 INCH PLASTIC PIPE	LF	51.00	$ 193.62	$ 9,874.62	$207.17	$ 10,565.67
1000	YES	619	8 INCH PLASTIC PIPE	LF	515.00	$ 159.63	$ 82,209.45	$170.80	$ 87,962.00
1005	YES	619	12 INCH PLASTIC PIPE	LF	2,619.00	$ 165.60	$ 433,706.40	$177.19	$ 464,060.61
1010	YES	619	18 INCH PLASTIC PIPE	LF	766.00	$ 298.98	$ 229,018.68	$319.91	$ 245,051.06
1015	YES	619	24 INCH PLASTIC PIPE	LF	10.00	$ 536.24	$ 5,362.40	$573.78	$ 5,737.80
1020	YES	619	6 INCH GATE VALVE	EACH	1.00	$ 1,911.10	$ 1,911.10	$2,044.88	$ 2,044.88
1025	YES	619	8 INCH GATE VALVE	EACH	7.00	$ 2,616.59	$ 18,316.13	$2,799.75	$ 19,598.25
1030	YES	619	12 INCH GATE VALVE	EACH	12.00	$ 4,427.40	$ 53,128.80	$4,737.32	$ 56,847.84
1035	YES	619	18 INCH BUTTERFLY VALVE	EACH	4.00	$ 12,207.94	$ 48,831.76	$13,062.50	$ 52,250.00
1040	YES	619	6 INCH FIRE HYDRANT	EACH	9.00	$ 15,640.29	$ 140,762.61	$16,735.11	$ 150,615.99
1045	YES	619	2 INCH AIR AND VACUUM VALVE	EACH	1.00	$ 12,888.28	$ 12,888.28	$13,790.46	$ 13,790.46
1050	NO	620	FIELD OFFICE (CLASS 2)	EACH	1.00	$ 135,425.00	$ 135,425.00	$144,904.75	$ 144,904.75
1055	NO	620	SANITARY FACILITY	EACH	1.00	$ 3,500.00	$ 3,500.00	$3,745.00	$ 3,745.00
1060	YES	621	DETOUR PAVEMENT	SY	8,700.00	$ 44.09	$ 383,583.00	$47.18	$ 410,466.00
1065	NO	623	IRRIGATION	LS	1.00	$ 334,108.96	$ 334,108.96	$357,496.59	$ 357,496.59
1070	NO	623	AUTOMATIC IRRIGATION CONTROLLER (FURNISH AND INSTA	EACH	4.00	$ 4,322.81	$ 17,291.24	$4,625.41	$ 18,501.64
1075	NO	623	3/4 INCH PLASTIC IRRIGATION PIPE	LF	470.00	$ 1.99	$ 935.30	$2.13	$ 1,001.10
1080	NO	625	CONSTRUCTION SURVEYING	L S	1.00	$ 341,642.69	$ 341,642.69	$365,557.68	$ 365,557.68
1085	NO	626	MOBILIZATION	L S	1.00	$ 245,098.23	$ 245,098.23	$3,861,947.28	$ 3,861,947.28
1090	NO	626	PUBLIC INFORMATION SERVICES	L S	1.00	$ 229,700.00	$ 229,700.00	$245,779.00	$ 245,779.00
1095	YES	627	1110 SERIES HIGH BUILD WATERBORNE ACRYLIC TRAFFIC	GAL	61.00	$ 195.20	$ 11,907.20	$208.86	$ 12,740.46
1100	YES	627	PREFORMED THERMOPLASTIC BURN DOWN	SF	511.00	$ 13.92	$ 7,113.12	$14.89	$ 7,608.79
1105	YES	627	PREFORMED THERMOPLASTIC BURN DOWN (WORD - SYMBOL)	SF	943.00	$ 22.68	$ 21,387.24	$24.27	$ 22,886.61
1110	YES	627	PREFORMED THERMOPLASTIC BURN DOWN (XWALK - STOPLIN	SF	1,339.00	$ 13.92	$ 18,638.88	$14.89	$ 19,937.71
1115	YES	627	PREFORMED THERMOPLASTIC BURN DOWN (BIKE XWALK - GR	SF	3,016.00	$ 20.10	$ 60,621.60	$21.51	$ 64,874.16
1120	YES	627	PREFORMED THERMOPLASTIC BURN DOWN (WHEELCHAIR SYMB	SF	35.00	$ 15.46	$ 541.10	$16.54	$ 578.90
1125	YES	627	PAVEMENT MARKING PAINT (WATERBORNE)	GAL	95.00	$ 443.57	$ 42,139.15	$474.62	$ 45,088.90
1130	NO	629	SURVEY MONUMENT (TYPE 3A)	EACH	2.00	$ 1,000.00	$ 2,000.00	$1,070.00	$ 2,140.00
1135	YES	630	FLAGGING	HOUR	2,000.00	$ 20.62	$ 41,240.00	$22.06	$ 44,120.00
1140	YES	630	UNIFORMED TRAFFIC CONTROL	HOUR	100.00	$ 113.40	$ 11,340.00	$121.34	$ 12,134.00
1145	YES	630	TRAFFIC CONTROL INSPECTION	DAY	217.00	$ 154.64	$ 33,556.88	$165.46	$ 35,904.82
1150	YES	630	TRAFFIC CONTROL MANAGEMENT	DAY	543.00	$ 1,013.27	$ 550,205.61	$1,084.20	$ 588,720.60
1155	YES	630	BARRICADE (TYPE 3 M-B) (TEMPORARY)	EA	4.00	$ 257.73	$ 1,030.92	$275.77	$ 1,103.08
1160	YES	630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EA	133.00	$ 82.47	$ 10,968.51	$88.24	$ 11,735.92
1165	YES	630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EA	24.00	$ 113.40	$ 2,721.60	$121.34	$ 2,912.16
1170	YES	630	PORTABLE MESSAGE SIGN PANEL	EA	6.00	$ 12,371.13	$ 74,226.78	$13,237.11	$ 79,422.66
1175	YES	630	DRUM CHANNELIZING DEVICE	EA	44.00	$ 46.39	$ 2,041.16	$49.64	$ 2,184.16
1180	YES	630	CONCRETE BARRIER (TEMPORARY)	LF	3,700.00	$ 67.87	$ 251,119.00	$72.62	$ 268,694.00
1185	YES	630	TRAFFIC SIGNAL (TEMPORARY)	EA	3.00	$ 54,218.85	$ 162,656.55	$58,014.17	$ 174,042.51
1190	YES	630	IMPACT ATTENUATOR (TEMPORARY)	EA	8.00	$ 10,080.59	$ 80,644.72	$10,786.23	$ 86,289.84
9000			**SEMA MANAGEMENT AND INDIRECT COSTS**						
9010		626-	PROJECT OFFICE EXPENSES	LS	1.00	$ -	$ -	Included in Mobilization	
9020		626-	FIELD OFFICES EXPENSES	LS	1.00	$ 200,750.00	$ 200,750.00	Included in Mobilization	
9030		626-	ADMINISTRATIVE SALARIED LABOR	LS	1.00	$ 2,155,182.73	$ 2,155,182.73	Included in Mobilization	
9040		626-	EMPLOYEE MOBILIZATION,SUBSISTENCE,HOUSING	LS	1.00	$ -	$ -	Included in Mobilization	
9050		626-	SAFETY TRAINING,MEETINGS,SUPPLIES	LS	1.00	$ 87,596.21	$ 87,596.21	Included in Mobilization	
9060		626-	MOBILIZATION & DEMOBILIZATION	LS	1.00	$ 70,896.60	$ 70,896.60	Included in Mobilization	
9070		626-	ON-SITE TRANSPORTATION	LS	1.00	$ 50,949.00	$ 50,949.00	Included in Mobilization	
9080		626-	MATERIAL HANDLING & UNLOADING	LS	1.00	$ -	$ -	Included in Mobilization	
9090		626-	YARDS & STAGING	LS	1.00	$ 59,204.00	$ 59,204.00	Included in Mobilization	
9100		626-	TEMPORARY ACCESS & HAUL ROADS	LS	1.00	$ -	$ -	Included in Mobilization	

SUMMARY OF APPROXIMATE QUANTITIES						SEMA COST		SEMA COST + 7% CMGC FEE	
BID ITEM	OVERRUN ALLOWED	CL#	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY			UNIT PRICE	AMOUNT
9110		626-	PUBLIC ROAD MAINTENANCE	LS	1.00	$ 123,711.30	$ 123,711.30	Included in Mobilization	
9120		626-	CONSTRUCTION MAINTENANCE & PROTECTION	LS	1.00	$ 4,545.45	$ 4,545.45	Included in Mobilization	
9130		626-	JOBSITE CLEANUP & PUNCHLIST	LS	1.00	$ 30,584.91	$ 30,584.91	Included in Mobilization	
9140		626-	EQUIPMENT SERVICING & REPAIR	LS	1.00	$ -	$ -	Included in Mobilization	
9150		626-	SUPPORT EQUIPMENT & TIME-SPANNED UTILIZATION	LS	1.00	$ 51,696.03	$ 51,696.03	Included in Mobilization	
9160		626-	SMALL TOOLS/EQUIPMENT & FIELD SUPPLIES	LS	1.00	$ 20,936.35	$ 20,936.35	Included in Mobilization	
9170		626-	QUALITY CONTROL	LS	1.00	$ 410,297.00	$ 410,297.00	Included in Mobilization	
9180		626-	ENGINEERING	LS	1.00	$ -	$ -	Included in Mobilization	
9190		626-	PROJECT SERVICES	LS	1.00	$ -	$ -	Included in Mobilization	
9200		626-	BONDS & INSURANCE	LS	1.00	$ 83,159.70	$ 83,159.70	Included in Mobilization	
9210		626-	TAXES & LICENSES	LS	1.00	$ -	$ -	Included in Mobilization	
9220		626-	PERMITS & FEES	LS	1.00	$ 14,500.00	$ 14,500.00	Included in Mobilization	
	TOTAL CONSTRUCTION PACKAGE COST						$ 20,057,513.48		
	TOTAL CONSTRUCTION PACKAGE COST + 7% CMGC FEE						$ 21,461,539.43		$ 21,461,539.43
			FORCE ACCOUNT ALLOWNACES						
1200		700	F/A MINOR CONTRACT REVISIONS	FA	1.00	$ 300,000.00	$ 300,000.00	$ 300,000.00	$ 300,000.00
1205		700	F/A FUEL COST ADJUSTMENT	FA	1.00	$ 35,000.00	$ 35,000.00	$ 35,000.00	$ 35,000.00
1210		700	F/A ASPHALT CEMENT COST ADJUSTMENT	FA	1.00	$ 35,000.00	$ 35,000.00	$ 35,000.00	$ 35,000.00
1215		700	F/A RELOCATE UTILITIES	FA	1.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
1220		700	F/A EROSION CONTROL	FA	1.00	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00
1225		700	F/A ENVIRONMENTAL HEALTH & SAFETY MANAGEMENT	FA	1.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00
1230		700	F/A DEWATERING	FA	1.00	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00
1235		700	F/A CMGC OVERRUN POOL	FA	1.00	$ 330,000.00	$ 330,000.00	$ 330,000.00	$ 330,000.00
1240		700	F/A RISK REGISTER	FA	1.00	$ 365,000.00	$ 365,000.00	$ 365,000.00	$ 365,000.00
	TOTAL CONSTRUCTION PACKAGE PRICE WITH FORCE ACCOUNT						$ 22,636,539.43		$ 22,636,539.43

Exhibit 2.11.8

The General Terms and Conditions, Special Conditions, Insurance Requirements, Exhibits, and Addenda (if any) in the RFQ (RFQ-19-W.72nd Ave. - CMGC)

CITY OF ARVADA

REQUEST FOR QUALIFICATIONS

RFQ #: **RFQ-19-W. 72nd Ave.-CMGC**

Title: Construction Manager/General Contractor Services for West 72nd Avenue – Kipling Street to Simms Street

RFQ Issued: 09/06/2019

Informational Meeting: 09/20/2019 9:00 a.m., Council Conference Room, 8101 Ralston Road

Question Deadline: 09/20/2019 4:00 p.m. local time
Questions and responses will be posted on BidnetDirect.com

Qualifications Due By: **10/04/2019 1:00 p.m. local time**

Electronic Submissions must be submitted online at BidNetDirect.com by the above date and time.

Limit the # of separate submission documents, preferably to 1, and the company name must start the uploaded file name as these will be moved to a shared Team Drive for evaluation.

Late responses will not be considered.

For additional information, contact: Nancy Allen, nallen@arvada.org

Contact with the requesting department may result in Contractor disqualification.

Arvada Vision: We dream big and deliver.

Mission: We are dedicated to delivering superior services to enhance the lives of everyone in our community.

Values:

Innovation – We excel in creativity, flexibility and the use of best practices while valuing diverse backgrounds, ideas and perspectives.

Passion – We are a high performing, inclusive team inspiring each other to pursue excellence.

Opportunity – We value our diversity, embrace possibilities, face challenges, persevere and take action to deliver quality results.

Documents included in this Request:

Cover Page	page 1
General Terms and Conditions	page 2
Special Terms and Conditions	page 5
Insurance Requirements	page 6
Administrative Information	page 7
Scope of Work/Evaluation Criteria/Appendices	page 8-35
Submittal Forms and Checklist	page 36-39

GENERAL TERMS AND CONDITIONS

1. PAYMENTS TO CONSTITUTE CURRENT EXPENDITURES. Financial obligations of the City of Arvada, if any, after the current fiscal year are contingent on funds for that purpose being appropriated, budgeted and otherwise made available by the City Council for the City of Arvada. The City of Arvada's obligations under the Agreement shall be from year to year only and shall not constitute a multiple-fiscal year direct or indirect debt or other financial obligation of the City of Arvada within the meaning of Article X, Section 20 of the Colorado Constitution.

2. TAXES. The City of Arvada is not subject to taxation. Contractor shall not invoice Arvada for any state, federal or local taxes whatsoever. Upon written notification by the City of Arvada, Contractor shall reimburse the City of Arvada in a timely manner for any taxes erroneously paid by the City of Arvada. The Colorado Department of Revenue, Certification of Exemption for Colorado State Sales/Use Tax account number for the City of Arvada is 98-01789-0000. An exemption certificate will be provided, where applicable, upon request.

3. NO INDEMNIFICATION BY ARVADA. The City of Arvada is prohibited by Article XI, Section 1, Colorado Constitution, from indemnifying anyone. Therefore, notwithstanding any provision in the response to solicitation or proposed contract, lease, escrow agreement or any other type of agreement to the contrary, the City of Arvada does not indemnify Contractor or anyone else under this Agreement.

4. INDEMNIFICATION OF CITY.

A. Contractor: Notwithstanding any provision in the response to solicitation or proposed contract, lease, escrow agreement or any other type of agreement to the contrary, Contractor agrees to investigate, defend, indemnify and hold harmless Arvada, its elected officials, officers, employees, agents, insurers, and representatives from and against any claims, costs, losses, expenses, demands, actions, or causes of action, including reasonable attorney fees and other costs and expenses of litigation, which may be asserted against or incurred by Arvada or for which Arvada may be liable, arising from the negligence, willful misconduct, or other fault of Contractor or its employees, agents, or subcontractors in performance of the Agreement. Nothing herein is intended to constitute a covenant, promise, or agreement to indemnify and hold harmless Arvada from any liability or damages directly caused by or attributable to Arvada's own negligence. Nothing herein intended to be nor may be construed as a waiver of the immunities, protections, or limitations on damages provided to Arvada by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101 *et seq.*, as it may from time to time be amended.

(or)

B. Architect, Engineer, Surveyor Services for Public Works Construction: Contractor agrees to hold harmless and indemnify Arvada, its officers and employees, from and against any liability or any claims, suits, or actions arising out of, made, or asserted for any damage to persons or property resulting from errors, omissions or fault of Contractor in connection with the performance by Contractor of obligations under this solicitation and any subsequent Agreement with Arvada. Nothing herein is intended to constitute a covenant, promise, or agreement to indemnify and hold harmless Arvada from any liability or damages directly caused by or attributable to Arvada's own negligence. Nothing herein is intended to be nor construed as a waiver of the immunities, protections, or limitations on damages provided to Arvada by the Colorado Governmental Immunity Act, C.R.S. §§24-10-101 *et seq.*, as it may from time to time be amended.

5. NO OPINION OF COUNSEL LETTERS. Pursuant to Section 8.1 of the Arvada City Charter, the City Attorney provides advice to the City Council and City Officials in matters relating to their official powers and duties, and will perform such other duties as City Council may prescribe by ordinance or resolution. The City Attorney will not issue opinion of counsel letters, memoranda or statements to third parties, including, but not limited to that any contract or lease is binding on the public entity, enforceable, etc.

6. OPEN RECORD REQUESTS. Notwithstanding any provision in the response to solicitation or proposed contract, lease, escrow agreement or any other type of agreement to the contrary, the City of Arvada is obligated to comply with the Colorado Open Records Act (C.R.S. §§24-72-101 *et seq.*), which may require the City of Arvada to disclose all or a portion of communications relating to the Agreement, or terms of same, or of any transaction under the Agreement, and other related matters. Contractor has been advised to familiarize itself with the Colorado Open Records Act. Therefore, any confidentiality provisions in the contract, lease, escrow agreement or any other type of agreement are subject to the provisions of the Act.

7. OWNERSHIP OF WORK PRODUCT. The originals of all plans, reports, studies, data, or other materials or information relating to the Work that are produced by Contractor shall be delivered to and become the property of Arvada. Contractor may retain copies of any originals; however, no plans, reports, studies, data, or other materials or information relating to the Work shall be released to any person or entity without the prior written consent of Arvada. Nothing in this clause is intended to affect Contractor's right to use generic know-how learned in the course of providing services under the Agreement for the future benefit of the City of Arvada or others.

8. ASSIGNMENT. Contractor shall not assign the Agreement without the prior written consent of the City of Arvada, which will not be unreasonably withheld, conditioned, or delayed. Contractor may assign the Agreement to any successor to the business of the party by merger, consolidation, or sale of assets. No assignment shall be permitted that enlarges any duty, responsibility or obligation of the City of Arvada, or that limits, curtails, or diminishes any right or privilege of the City of Arvada without the City of Arvada's express written consent.

9. NO THIRD PARTY BENEFICIARIES. It is expressly understood and agreed that enforcement of the terms and conditions of the Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to Arvada and Contractor and nothing contained in the Agreement shall give or allow any such claim or right of action to any other third party on the Agreement. It is the express intention of Arvada and Contractor that any person other than Arvada or Contractor receiving services or benefits under the Agreement shall be deemed to be an incidental beneficiary only.

10. INDEPENDENT CONTRACTOR. Contractor and Arvada hereby represent that Contractor is an independent contractor for all purposes hereunder. As such, Contractor is not covered by any worker's compensation insurance or any other insurance maintained by Arvada except as would apply to members of the general public. Contractor shall not create any indebtedness on behalf of Arvada.

11. SUBCONTRACTING. Contractor shall not subcontract any of its responsibilities without Arvada's prior written approval, which will not be unreasonably withheld, conditioned, or delayed. Contractor shall be responsible for any failure by any subcontractor or subcontractor personnel to perform in accordance with the Agreement or to comply with any duties or obligations imposed on Contractor under the Agreement to the same extent as if such failure to perform or comply was committed by Contractor or Contractor's personnel. Contractor shall be Arvada's sole point of contact regarding the services, including with respect to payment.

12. ILLEGAL ALIENS; PUBLIC CONTRACTS FOR SERVICES. To the extent that obligations and responsibilities may be established by C.R.S. §§8-17.5-101 *et seq*., (as amended) (the "Act"), with respect to certain public entities and those contracting therewith as to the procurement of services:

A. Successful Contractor shall not knowingly employ or contract with an illegal alien to perform work under the Agreement or enter into a contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under the Agreement. Contractor confirms the employment eligibility of all employees who are newly hired for employment to perform work under this public contract for services through participation in either the E-Verify Program or Department Program (the "Program").
B. Contractor is prohibited from using Program procedures to undertake pre-employment screening of job applicants while the Agreement is being performed.
C. If Contractor obtains actual knowledge that a subcontractor performing work under the Agreement knowingly employs or contracts with an illegal alien, Contractor shall be required to:
   (i). Notify the subcontractor and the City of Arvada within three (3) days that Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and
   (ii). Terminate the subcontract with the subcontractor if within three (3) days of receiving the above notice the subcontractor does not stop employing or contracting with the illegal alien; except that Contractor shall not terminate the subcontract if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.
D. Contractor shall comply with any reasonable request by the Colorado Department of Labor and Employment made in the course of an investigation that the department is undertaking pursuant to the authority established in the Act.
E. Any provision of the Agreement to the contrary notwithstanding, if Contractor violates any provision of this Section, the City of Arvada may terminate the Agreement, without breach or default by the City of Arvada, and Contractor shall be liable for actual and consequential damages to the City of Arvada arising out of such violation.
F. Contractor represents that, prior to executing the Agreement, Contractor has certified that at the time of the certification, Contractor does not knowingly employ or contract with an illegal alien who will perform work under this public contract for services and Contractor will participate in either the E-Verify Program or Department Program in order to confirm the employment eligibility of all employees who are newly hired for employment to perform work under this public contract for services. By execution of this Agreement, Contractor shall be deemed to have renewed such certification.
G. Contractor acknowledges its responsibility to comply with the certification requirement pursuant to C.R.S. §8-17.5-102(2)(b)(I) (as amended).

13. NO WAIVER OF GOVERNMENTAL IMMUNITY. Nothing contained in this or any of the exhibits attached thereto shall be construed as a waiver of any of the immunities, limitations, privileges, rights, procedures, or requirements contained in the Colorado Governmental Immunity Act, C.R.S. §§24-10-101 *et seq.*

14. RIGHT TO TERMINATE. The City of Arvada shall have the right to terminate, without cause, the Agreement. Any such termination shall not be considered a breach of the Agreement or any extension thereof. In the event of termination by the City of Arvada for convenience, Contractor will be paid for requested work performed up until the time of termination by the City of Arvada, not to exceed the total amount of the contract price agreed upon by the parties.

15. COMPLIANCE WITH ALL LAWS. All of the services performed under this Agreement by Contractor shall comply with all applicable laws, rules, regulations and codes of the United States and State of Colorado, and with the charter, ordinances, rules and regulations of the City of Arvada.

16. WAIVER OF BREACH. A waiver by any party to the Agreement or the breach of any term or provision of the Agreement shall not operate or be construed as a waiver of any subsequent breach by either party.

17. GOVERNING LAW AND VENUE. Notwithstanding any provision in the response to solicitation or proposed contract, lease, escrow agreement or any other type of agreement to the contrary, the Agreement shall be governed by the laws of the State of Colorado. Venue for any action arising under the Agreement or for the enforcement of the Agreement shall be in the appropriate court for Jefferson County, Colorado.

18. FORCE MAJEURE. Any delays in or failure of performance by any party of his or its obligations under the Agreement shall be excused if such delays or failure are a result of acts of God, fires, floods, strikes, labor disputes, accidents, regulations or orders of civil or military authorities, shortages of labor or materials, or other causes, similar or dissimilar, which are beyond the control of such party.

19. BINDING ARBITRATION PROHIBITED. The City of Arvada does not agree to binding arbitration by any extra-judicial body or person. Any provision to the contrary in response to the solicitation, or incorporated by reference, shall be null and void.

20. PARAGRAPH CAPTIONS. The paragraph captions in this solicitation or in the Agreement are set forth only for the convenience and reference of the parties and are not intended in any way to define, limit or describe the scope or intent of the Agreement.

21. BINDING AUTHORITY. Contractor represents and affirms that the signature page hereof accurately states the full legal name of Contractor (whether as a corporation, partnership, limited liability company, sole proprietorship, or other), contains all requisite signature(s) on behalf of Contractor, has been properly acknowledged by attestation, notary acknowledgment, or both, and in all other respects is effective to bind Contractor, in accordance with all applicable statutes, regulations, resolutions, rules, bylaws, agreements, or similar sources of authority or limitation.

22. EQUAL EMPLOYMENT OPPORTUNITY. Contractor shall not refuse to hire, discharge, promote or demote, or discriminate in matters of compensation against any person otherwise qualified solely because of race, creed, sex, color, national origin or ancestry, religion, disability, age, sexual orientation, gender identity, veteran status, or any other basis prohibited by federal, state, or local law.

23. PREFERENCES IN EMPLOYMENT OF COLORADO LABOR. To the extent that obligations and responsibilities may be established by C.R.S. § 8-17-101 *et seq.,* as amended, with respect to certain public entities and those contracting therewith as to the procurement of services:

a. Colorado labor shall be employed to perform eighty percent (80%) of the work.
b. Any waiver of this requirement must comply with C.R.S. § 8-17-101 *et seq.,* as amended.

24. RETAINAGE REQUIREMENTS. Contractor agrees to submit monthly invoices together with any retainage requirements as prescribed by Colorado state statutes (*see e.g.,* C.R.S. §§24-91-101 *et seq.*). Payment from Arvada will traditionally be paid NET (15) days but no later than NET thirty (30) days. Invoices will accurately reflect actual work completed by Contractor.

SPECIAL TERMS AND CONDITIONS

1. TERM OF CONTRACT. The contract shall commence on the date determined in the final negotiated agreement. The Contract may also include the option for contract renewals following the initial one (1) year period, up to five (5). Continuation of the contract beyond the initial period is a City prerogative and not a right of the Contractor. Unless otherwise notified in writing, the option period shall become automatic at the end of the original period. The prices or discounts quoted in this Solicitation shall prevail for one year from the effective date of the contract. During the option period(s), the City may consider an adjustment to pricing. For consideration, the Contractor must document that it was subject to a price adjustment by the product manufacturer or a direct wholesale supplier. Any price adjustments shall not exceed the amount being passed on.

2. CONTENTS OF OFFER. Contractors are required to submit offers with the following conditions:
1) Contractors shall make all investigations necessary to inform themselves of the facilities affected by the delivery of products and services required by the Solicitation.
2) Any official interpretation of the Solicitation may only be issued by an authorized agent of the City. The City shall not be responsible for other interpretations offered by employees not authorized.
3) The City shall issue Addenda if substantial changes are required which may impact the content and submission of Offers. A copy of such addenda will be publicly posted with the original RFQ posting.
4) The apparent silence or omissions within this Solicitation regarding a detailed description of the materials or services shall be interpreted to mean that only the best commercial practices are to prevail and that only materials and workmanship of first quality are to be provided.

3. CLARIFICATION AND MODIFICATIONS. The contract resulting from this solicitation will be subject to the Solicitation materials, City Ordinance, State and Federal Statutes. When conflicts occur, the highest authority shall prevail. Contractors are required to indicate any variances to the terms, conditions, requirements and specifications of this Solicitation; no matter how slight. If variations are not stated in the Contractor's Offer, it shall be agreed that the Contractor's Offer fully complies with all conditions identified in this Solicitation.

4. CONFIDENTIAL DOCUMENTS. Contractors may designate specific pages or sections within their submission as trade secret or confidential commercial information or as otherwise protected by law ("Confidential Information"). Documents and data that are considered Confidential Information shall be clearly marked as such and separated from the rest of the solicitation submission documents. Comingling is not acceptable. The City does not favor blanket assertions of Confidential Information. Please note that blanket assertions that merely classify and/or broadly claim information is confidential are insufficient as a matter of law. *See, International Brotherhood of Electrical Workers Local 68 v. Denver Metropolitan Major League Baseball Stadium District,* 880 P.2d 160 (Colo.App. 1994). Any information that will be included in any resulting contract cannot be considered Confidential. Under no circumstances may submission pricing information be considered Confidential. In the event a formal contract is entered into with the City and a portion of the Proposal/Response carries a designation indicating the Contractor believes it is Confidential Information, then the City agrees that it will use its best efforts to forward any request for the disclosure of the Confidential Information to the Contractor. By its submission of the Proposal/Response, Contractor agrees to promptly respond to the request for disclosure with any objections and reasons therefor in accordance with the Colorado Open Records Act C.R.S. §§24-72-101 *et seq.* and any other applicable law. Further, Contractor agrees to assume the obligation to defend, hold harmless, and indemnify the City in any legal proceeding that arises from non-disclosure of documents or data pursuant to the Contractor's objection.

5. ORGANIZATIONAL CONFLICTS AND INELIGIBLE FIRMS. The Contractor will include a full disclosure of all potential organizational conflicts of interest in the SOQ. By submitting its SOQ, the Contractor agrees that, if an organizational conflict of interest is thereafter discovered, the Contractor will make an immediate and full written disclosure to the Owner that includes a description of the action that the Contractor has taken or proposes to take to avoid or mitigate such conflicts. If an organizational conflict of interest is determined to exist, the Owner may at its discretion, cancel the contract.

If the Contractor was aware of an organizational conflict of interest prior to the contract and did not disclose the conflict to the Owner, the Owner may terminate the contract for default. No firm that is ineligible for Federal or State contracts may be part of any team. Each Contractor is responsible for determining eligibility of its team members.

INSURANCE REQUIREMENTS

The following listed insurance requirements shall be carried by the selected Contractor for the preconstruction phase of the contract - additional insurance requirements will be required for the construction phase of the contract. Applicable requirements for this solicitation are identified by completed check boxes.

1. ☒ **Commercial General Liability**, written on an occurrence form, for limits not less than $1,000,000 for bodily injury and property damage for each occurrence and not less than $2,000,000 aggregate. Coverage shall include premises and operations liability, blanket contractual, broad form property damage, products and completed operations and personal injury endorsements.

2. ☒ **Workers' Compensation and Employers Liability** as required by statute. Employers Liability coverage is to be carried for a minimum limit of $100,000 each accident/disease and $500,000 aggregate.

3. ☒ **Automobile Liability** for limits not less than $1,000,000 combined single limit for bodily injury and property damage for each occurrence. Coverage shall include owned, non-owned and hired automobiles.

4. ☒ **Umbrella Liability** of $5,000,000, following form to the Commercial General Liability.

5. ☐ **Builders Risk or Course of Construction** Purchased by contractor to cover physical damage to property in construction or rehab. Contractors will ensure that City and subcontractors will be covered as additional insureds, excluding their own machinery, tools and equipment.

6. ☐ **Professional Liability** Professional Liability insurance in an amount of not less than One Million Dollars and No cents ($1,000,000.oo) per occurrence, covering the professional work contemplated under this proposal. The coverage shall have an extended reporting period of three (3) years following the date of substantial completion of the work for reporting of claims.

7. ☐ **Pollution Legal Liability Insurance** for limits not less than $1,000,000 per occurrence (or claims made) and not less than $1,000,000 aggregate for bodily Injury, personal Injury and property Damage.

8. ☐ **Privacy/Network/Cyber Liability Insurance f**or limits not less than $1,000,000 for any firm providing product or services associated with IT, software, communication, or network.

Additional Insurance Requirements:

- Contractor will be required to, at its own expense, keep in full force and effect during the term of the Agreement, and during the term of any extension or amendment of the Agreement, insurance reasonably sufficient to insure against the liability assumed by Contractor pursuant to the provisions of the solicitation sent by the City of Arvada or as determined by the City of Arvada Risk Manager.

- Issuance of a Purchase Order/Contract is contingent upon the receipt of the insurance documents. Work shall not commence before this requirement is met. If the Contractor fails to submit the required insurance documents within fifteen (15) calendar days after notice to submit such policies is given to the Contractor by a City representative, the Contractor may be in default.

- Except for Workers Compensation, Employer's Liability insurance, Automobile Liability and Professional Liability insurance, the City of Arvada must be endorsed as an additional insured on a Certificate of Insurance.

- All coverage must be written with carriers holding a minimum A.M. Best rating of A-:VII, and authorized to do business in Colorado. Coverage shall be primary, and any insurance held by the City of Arvada is excess and non-contributory.

- The City, through its Risk Manager, reserves the right to require additional insurance coverage and other requirements.

ADMINISTRATIVE INFORMATION

1. PURPOSE - TO ESTABLISH A CONTRACT:

The purpose of this Request for Qualifications is to provide Contractors with sufficient information regarding the City's needs in order to establish a contract with the City. RFQ documents must be received by the date and time established in this solicitation. Once the deadline has passed, documents will not be accepted and will be returned to the Contractor. Submitted documents are proprietary working documents offered by prospective Contractors and, as such, are not subject to public inspections until an award is made.

2. PREPARATION AND SUBMISSION

A. Offers will be prepared as follow:

1) Contractors will not knowingly participate in solicitations where there exists a conflict of interest with their firm and a member of City staff or their immediate family.

2) The only authorized version of this Solicitation and addenda is available at WWW.BIDNETDIRECT.COM. Registration is available to receive email notification of new solicitations, addenda and communications.

3. REJECTION OF OFFERS

A. The City may reject an offer, in whole or in part, for reasons including, but not be limited to:

1) The Contractor misstates or conceals any material fact in its SOQ;
2) The Contractor's Offer does not strictly conform to the law or requirements of the Solicitation;
3) The Offer expressly requires or implies a conditional award that conflicts with the method of award stipulated in the Special Conditions;
4) The Offer does not include documents which are required for submission with the Offer; or
5) The Offer has not been executed by the Contractor through an authorized signature.

B. The City may, at its sole and absolute discretion:

1) Reject all or parts of Offers submitted by prospective Contractors;
2) Re-advertise this Solicitation;
3) Postpone or cancel the Solicitation;
4) An Offer may not be accepted from, nor any contract be awarded to, any person or firm which
   a) is in arrears to the City for any debt or Contract, or is a defaulter as surety for any obligation to the City.
   b) has failed to perform faithfully any previous contract with the City, State or Federal governmental for a minimum period of one (1) year after this previous Contract was terminated for cause.
   c) has pending litigation against the City on the date and time that the Solicitation is due.

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1. SCOPE OF WORK AND PROJECT INFORMATION

1.1. GLOSSARY OF TERMS

Construction Agreed Price (CAP): The maximum amount for which all Work required for each Construction Phase shall be accomplished (including the CMGC Management Price Percentage).

Contractor's CMGC Preconstruction Services Fee: The lump sum amount to be paid by the Owner to the Contractor for work performed by the Contractor through the Design Phase, which is equal to the amount of the fees and costs for administrative costs, overhead and profit, including, but not limited to, all resources needed to perform the duties described in the RFQ.

CMGC Management Price Percentage: The fee percentage to be applied to all long lead time procurement CAP and construction CAP proposals equal to the amount of profit, overhead, and construction general conditions.

Design Consultant: Muller Engineering Company, Inc. and its team of subconsultants.

Fixed Limit of Construction Cost: The dollar amount available for the total cost for performance of all CAPs as designed or specified by the Owner.

Independent Cost Estimator (ICE): The designee of the Owner tasked to perform the independent check of unit prices and overall construction costs at each design milestone.

Opinion of Probable Construction Cost (OPCC): The cost to complete the Work for a long lead time procurement or a Construction Phase. This cost includes all labor, materials, equipment, bond premiums, and actual costs of procurement or construction that the Contractor will use for the duration of such long lead time procurement or Construction Phase to complete the Work. Each OPCC shall be produced in an open book process throughout the Design Phase of the Project so that the Owner, the Design Consultant, and the ICE can make accurate assumptions, calculate prices, and determine the amount of risk in the Project.

Owner: City of Arvada and/or its designee (Owner's Representative)

Risk Register: A listing of risks and opportunities, risk assessments, and an evaluation of mitigation and responsibility for those risks.

Rough Order of Magnitude (ROM): An estimation of a project's level of effort and cost to complete. A ROM estimate takes place very early in a project's life cycle and is used to validate design decisions and decide between various design options.

1.2. SCOPE OF THIS RFQ FOR CMGC SERVICES

The City of Arvada (the "Owner") is soliciting CMGC preconstruction services for the reconstruction of West 72nd Avenue – Kipling Street to Simms Street (the "Project"). The Project includes a grade separated crossing of the Union Pacific Railroad (UPRR). The Contractor will provide preconstruction phase Construction Management (CM) services and will have the opportunity to be the General Contractor (GC) during the construction phase. However, the construction phase contract is not necessarily guaranteed, and is dependent on a successful CAP negotiation.

The current scope of work reflects an approach based on the known Project goals and risks. One selection factor used in determining the successful Contractor will be their ability to analyze Project goals, evaluate work elements, assist in risk management, and formulate a Statement of Qualifications. This process may produce new approaches or modify the Project work elements. The final scope of work for the Project will evolve based on input from various sources including the Owner, Consultants, Contractor, and stakeholders.

The Contractor will partner with the Design Consultant, the Independent Cost Estimator (ICE), and the Owner as a member of the integrated design team. The Contractor will provide input on schedule,

construction phasing, constructability, risk, and construction cost throughout the preconstruction phase of the Project.

The Contractor's tasks during the preconstruction phase include, but are not limited to:

- Participate in a project open house – anticipated to be held in mid-November 2019
- Review the current set of 30% design plans and other documents and reports, and provide feedback based on parameters listed below
- Participate in the planning design and construction schedule to meet the project goals in section 1.2
- Provide constructability and construction schedule feedback at each milestone deliverable. Those deliverables are as follows:
    - 60% Railroad plans
    - 90% Design and railroad plans and spec package
    - 100% Design and railroad plans and spec package

Design Review:

- Thoroughly review all current plans, specifications, reports, diagrams, shop drawings, as-built plans, site conditions, utilities, and all other necessary project documentation to provide design validation from a construction expertise perspective.
- The Design Consultant, ICE, and Contractor shall independently calculate quantities for verification purposes of construction packages. Final quantities will be determined based on an analysis of Contractor and ICE estimates.
- Provide constructability input on all facets of the Project including, but not limited to:
    - Groundwater control and dewatering
    - Accelerated bridge construction techniques
    - Bridge types and retaining wall types
    - Pavement recommendations to get the best value, maximize scope and for traffic control/phasing. Review pavement design reports and perform life cycle cost analysis for alternative pavement designs.
    - Construction phasing approach and methods of handling traffic
    - Providing feedback on schedule and accelerated project construction spending to meet the Owner's bond requirements
- Provide written reviews of reports and details/redlines of the Project plans and specification packages at Project milestones. Review comments should be related to constructability; traffic phasing; clarifications; design plan and specification errors, omissions or conflicts; effect on schedule; effect on cost; risk identification; or value engineering suggestions and recommendations.
- Work with design team to make determinations if early procurement (long lead-time procurement (LLTP)) packages for materials are viable and cost effective, have the potential to reduce the construction schedule and provide an overall benefit to the Project. Procurement of these materials may be by the Owner or the Contractor ahead of construction.
- Work with the design team to make determinations if early construction packages are viable, cost effective, have the potential to reduce the construction schedule and overall provide a benefit to the Project.
- Provide feedback for appropriate level of plan detailing to complete construction.
- Actively participate in discussions to study and recommend ideas for design options as it pertains to constructability, innovation, value and quality.
- Given that Right-of-Way (ROW) acquisition will likely be a critical path item, work has already begun to acquire ROW at unavoidable parcels. However, the Owner will be looking for feedback from the Contractor to identify any other strategic properties, ROW or easements that might further benefit the project. Provide feedback on strategic locations for stockpiling and staging areas based on construction phasing, work areas, and construction packaging.
- Based on construction package complexity, additional milestone reviews may be required.
- Feedback from design reviews should be provided within two weeks of a submittal. There will be other feedback on design during the course of the preconstruction phase that will also require response feedback in order to keep items moving.

Cost Estimating:

- Ongoing Tasks
  - To help inform decisions, the Contractor shall provide real-time rough order of magnitude (ROM) cost estimating as design concepts are being developed and evaluated throughout the CMGC process. This may include:
    - Evaluating means and method of various construction techniques that may influence design solutions with considerations of cost and schedule impacts.
    - Evaluating industry standard operating and maintenance costs to determine life-cycle costs.
- Tasks at Milestones
  - Provide construction cost estimates at milestones that include the following activities:
    - Item identification that is compatible with City of Arvada and Colorado Department of Transportation's (CDOT's) cost estimating, standards, and specifications.
    - The Contractor shall submit an Opinion of Probable Construction Cost (OPCC) at 30% (the current design level at the time of this RFQ), 60%, and 90% milestones for each package. Additional OPCCs may be required at the request of the Owner if package complexity indicates an added benefit, or work is added to the Project. An additional OPCC may also be required before the CAP if the Project team agrees on its necessity before the CAP proposal request. Analysis should include availability of labor, equipment, and materials. To facilitate comparisons with ICE estimates, both Contractor and subcontractors cost estimates will be included in an open book review.
    - The Contractor shall submit a CAP proposal when both the Contractor and the Owner agree the design has progressed to the appropriate level, typically at 90%.
      - Quantity reconciliation will be required with the Design Consultant and the Owner. This may include verification of means and methods between Owner, Design Consultant, and ICE.
      - The Contractor shall submit CAP proposals and Electronic Bid Submittals (EBS) once a CAP has been accepted.
      - The Owner may request the Contractor submit a CAP on early construction packages or for the procurement of long lead-time procurement items.

Schedule:

- Provide continuous schedule validation for construction package schedules, overall Project schedule, and schedule analysis for impacts of concurrent construction packages (if proposed).
- Prepare preliminary construction schedules and phasing alternatives at each preconstruction milestone to validate deadlines and help develop Project delivery strategies.
- Continually compare and validate construction schedules with ICE.

Risk:

- Lead quantitative and qualitative risk management discussions with the Project team to identify risks, develop mitigation strategies, and assign risk responsibility.
- Set risk meeting frequency and prepare and update the Project Risk Register.
- Collaborate with the Project Team to develop a Risk Management Plan, perform risk assessments, and prepare and update the Risk Register.

Meetings:

- Participate in the Project Scoping Workshop, Project Milestone Meetings, CAP negotiations (LLTP and Construction), recurring Project level status meetings (assume bi-weekly), and any other meetings throughout preconstruction as agreed upon.
- The Project Scoping Workshop will cover at a minimum the following items:
  - Introduction to the Project, CMGC partnering session, Project stakeholder engagement, roles and responsibilities identification. Subcontractors performing major and high-risk work items should be in attendance.
  - Team will review Project status, goals, objectives, funding, preliminary preconstruction schedule, etc.

  - Contractor to bring an Initial Schedule to review and at a minimum include the following milestones: 30%, 60%, 90%, design review meeting dates, cost model review meeting, and CAP negotiation dates.
  - Review and finalize scope of work and schedule for the potential early construction package.
  - Contractor to provide initial cost model and development of risk register for team to work with Contractor to continue development of Project risk table and plan.
  - Review of relevant plans, specifications, and reports.
  - Set up Project Level Status Meeting frequencies and initiate working groups (if needed) for various elements of the Project, i.e., bridge working group.
    - Progress meetings may include project management meetings, design meetings, discipline/specialty meetings, stakeholder meetings, and public meetings.
  - Collaborate to establish a Project Document Control Plan.
  - Develop Communication Plan and Escalation Ladder.
  - Team may choose to visit Project site.
- The Contractor should be prepared to participate in Value Engineering (VE) throughout the project, as well as at agreed upon milestones deliverables. At the VE workshop(s) the Contractor will coordinate estimating tasks; and bring in multidiscipline cost/construction experts to evaluate alternative designs, systems, and materials.
- The Contractor will participate in Project Goals and Tracking Meetings to analyze how Project progress and decisions are aligning and tracking with Project goals. Items of focus include priorities, commitments, approach, scope, schedule (including long lead items, permits, ROW acquisition, phasing, etc.), risk, and cost reasonableness.

Deliverables:
The Contractor will develop and produce the following deliverables:
- Subcontractor Selection Plan
- Quality Control Plan
- Material Sourcing Plan
- Worker and Public Safety Plan
- Risk Management Plan
- Innovation Tracking and Performance Report
- Procurement Review Report for each LLTP CAP if required.
- Provide monthly invoices and project reports to support payment of preconstruction CM services.
- Provide a list and narrative of value added items that the Contractor has contributed by performing this Project under the CMGC process prior to each CAP negotiation.

The Contractor shall ensure all environmental, safety, and permit commitments that are specified in the plans, specifications, and contract documents are implemented during construction if CAP proposals are accepted by the Owner.

If negotiations for a final construction price and the schedule are not successful, the Owner reserves the right to advertise the Project for open bid. In this case, the Contractor shall be compensated for its pre-construction services up to this point per the CMGC services contract and the Owner will have no further contractual obligations to the Contractor.

1.3. PROJECT GOALS

This project will:

- Need to create a project approach to expend 85% allocated funding by February 26, 2022.
- Provide strong communication and public outreach for upcoming and ongoing construction activities. Being respectful of traveling public and broader community is a high priority for the City of Arvada.
- Commit to the CMGC process by engaging the right team members at the right time to proactively problem solve, reduce risk, streamline design, and construct a successful Project.
- Create a collaborative and transparent team culture that engages in open conversation regarding project delivery (i.e. risk, constructability, reviews, material procurement, cost model, ROW acquisition, schedule, and third-party issues) throughout preconstruction and construction.

- Strategically phase work by identifying work areas and construction packages to minimize disruption to the traveling public, while balancing schedule and cost.
- Utilize innovation to maximize scope, provide best value, and not exceed the Fixed Limit of Construction cost.

1.4. PROJECT DESCRIPTION/SCOPE OF WORK

Project Background:

W. 72nd Avenue is a major east-west arterial in the City of Arvada carrying over 15,000 vehicles per day at the current at-grade railroad crossing. Over the last two decades the majority of W. 72nd Avenue has been widened to a median-separated four-lane roadway. The City's Transportation Plan calls for a four-lane roadway from McIntyre Street east to the City of Westminster. One of the primary constraints to the completion of this roadway is the at-grade crossing at the UPRR, approximately 0.3 mile west of Kipling Street. The purpose of this project is to design and construct the improvements on W. 72nd Avenue between Kipling Street and Simms Street, including a new grade separated crossing (underpass) of the UPRR. The roadway template consists of a four-lane arterial parkway roadway template according to the City of Arvada Engineering Code of Standards and Specifications and consistent with the existing roadway template to the east of Kipling Street.

The project limits are from approximately Swadley Court to Kipling Street, a distance of about 6,100 feet or 1.16 miles. Full-width improvements are anticipated between Simms Street and Kipling Street. On the west end of the project, a width transition to the existing two-lane section will occur between Swadley Court and Simms Street. On the east end, a transition will occur between Lee Court and Kipling Street to match the full W. 72nd Avenue section at Kipling Street. The project also includes improvements to Oak Street from W. 72nd Avenue south to Parfet Street, closure of Miller Street north of W. 72nd Avenue, and modifications to the intersections at W. 70th Drive, Quail Street, Simms Street, Pierson Court and Lee Court.

Numerous utilities will be impacted by the project, including storm sewer, sanitary sewer, water lines, gas lines, irrigation ditch laterals, overhead electric, potential underground electric, and multiple communications lines. Relocation and/or replacement of existing wet utilities are included as part of the project, and relocation of dry utilities will be coordinated with and performed by the respective utility owner, including conversion of overhead utilities to underground.

The UPRR portion of the project will include final design and construction of a new bridge over depressed W. 72nd Avenue (and associated retaining walls) and a temporary railroad shoofly within the existing railroad right-of-way from approximately 1,200 feet southeasterly of 72nd Avenue to 1,200 feet northwesterly of 72nd Avenue (measured along the railroad alignment). Preliminary plans were completed in November of 2017 by Muller Engineering Company for W. 72nd Avenue between approximately Kipling Street and Oak Street. At that time the project did not have funding to complete the design and construction for the corridor. In 2018 City Council approved the project to be added to the November 2018 ballot for approval by the Citizens to bond the design and construction of the corridor between Kipling Street and Simms Street. This bond measure was approved by the voters in 2018.

Project risks have been identified as:

- Schedule and substantial completion - expend 85% of allocated funding by approximately February 26, 2022
- Construction cost fluctuation
- Project duration uncertainty
- Traffic phasing
- Environmental clearance
- Floodplain impacts at Leyden Creek
- Water control and dewatering
- Coordination and railroad work with the UPRR
- Approval time frames

- Design changes to bridge that would increase approval time frames
- Shoofly construction
- Associated permits and clearances related to the UPRR
- Right-of-way acquisition
- Utilities
- Storm sewer construction and water quality location from the location of the proposed underpass
- Coordination with other major projects and stakeholders
- Industry resource availability

1.5. PROJECT FUNDING

The source of funding for this Project is a bond measure that was approved by City of Arvada voters in November 2018. This bond measure secured funding for the full scope of this project, including design, right-of-way acquisition and construction.

1.6. PROJECT DURATION

As previously outlined, 85% of the bond funding must be allocated by February 26, 2022. The entire project, including design and construction, requires completion by approximately February 2024. The current preconstruction design schedule shows construction beginning in 2020; however, this may vary depending on the Contractor's input on phasing of design and construction.

1.7. PROJECT ADMINISTRATION

City of Arvada Primary Point of Contact and Project Manager:

Derek T. Webb, P.E.
Civil Engineer IV
8101 Ralston Road
Arvada, CO 80002
720-898-7746
dwebb@arvada.org

1.8. PROJECT COORDINATION

Routine Working Contact:

The routine working contact will be between the Owner, Design Consultant, and CM staff. The Owner will have a Construction Manager that will work closely with the Contractor's PM.

Project Manager Correspondence/Communication Requirements:

Project Managers are expected to communicate relevant contacts, coordination efforts, conversations, and emails where important Project information is discussed.

Coordination

- The Contractor shall partner with the Design Consultant and the Owner's project manager as part of the design team. The Owner's Project Manager shall be included in all coordination.
- The following groups will be part of a partnership for the project and will be required to coordinate with each other:
- Project Design Consultant and any Sub consultants
- CMGC Contractor and any Subcontractors
- Independent Cost Estimator
- Stakeholders or Stakeholder Groups
    - Arvada Police Department
    - Arvada Fire Protection District

  - Ditch Companies, including the Farmers' High Line Canal and Reservoir Company and its laterals/users
  - Potential land developers within the project corridor
  - Jefferson County Public Schools
    - Oberon Middle School
    - Lincoln Academy Charter School
  - Union Pacific Railroad
- U.S. Army Corps of Engineers (USACE)
- Colorado Parks and Wildlife (CPW)
- U.S. Fish and Wildlife Service (USFWS)
- Colorado Department of Public Health and Environment (CDPHE)
- Union Pacific Railroad
- Utility Providers
  - City of Arvada
  - Jefferson County Public Schools
  - Xcel Energy
  - CenturyLink
  - Comcast
  - MCI
  - Zayo

1.9. FIXED LIMIT OF CONSTRUCTION COST

The Fixed Limit of Construction Cost is the estimated portion of the Project budget allocated for the construction phase of the Project that includes all construction contract amounts for all construction packages for the Project. Each construction contract amount includes the total actual price of construction, the CMGC Management Price Percentage applied to each construction item, and all Contractor indirect, force accounts, and risk pools that are associated with the construction of all elements of the work designed or specified by the Design Consultant.

The CMGC Management Price Percentage is defined in Section 2.9. The Fixed Limit of Construction Cost for this Project to be paid to the Contractor is up to **$52,720,000.**

1.10. PROJECT CONSTRUCTION SCHEDULE

Project Milestones are shown below:

- The Owner understands that it may be advantageous to develop multiple separate construction packages in order to complete construction in the corridor. Specific limits of construction or scope of these packages is not currently known, but will be developed in collaboration with the Owner, Contractor and Design Consultant.

- Each construction package will be severable; will have specific beginning and end points; and will have independent overhead, mobilization, traffic control, and project costs. Each package will include provisions for liquidated damages, incentive/disincentive, and roadway users costs as appropriate.

The Contractor must work and communicate with Project stakeholders before and during construction. Impacts to traveling public must be minimized and is a high priority consideration in determining daily working time schedules that may be allowed.

Notable construction constraints to be considered for the Project:

Utility Relocation

- Relocation of electric feeder and distribution overhead electric lines will be required along the corridor. These lines are to be relocated underground by Xcel Energy. It is anticipated that individual overhead electric services will not be undergrounded as part of this project, and poles for overhead services may need to be reset or replaced.

- Multiple fiber optic facilities, cable and telephone lines on the overhead poles will need to be relocated and undergrounded by the utility companies.
- The City of Arvada has fiber optic conduit that currently terminates near Routt Street that will need to be extended east to the terminus of another conduit at Lee Court.
- Irrigation Ditches – Laterals off the Farmers' High Line Canal will be rerouted and piped.
- The City of Arvada has waterlines throughout the corridor that may be impacted as part of construction.
- The City of Arvada has a sanitary sewer lines throughout the corridor that may be impacted as part of construction.
- Xcel has a 6" gas line that will have various impacts throughout the project and will need to be relocated outside the area of the proposed underpass.

Right-of-Way Acquisition

- There are a large number of properties along the project corridor that front or back W. 72nd Avenue. Approximately 80 parcels, most of which are residential and some commercial, will require fee simple, temporary construction easement, and/or permanent easement acquisitions as part of the project.
- Right-of-way acquisition has already begun with several key properties along the corridor. Structures on several of these properties will be demolished prior to construction under a separate contract. These key properties include the following:
  - 10355 W. 72nd Avenue: Full acquisition, structure demolition
  - 10325 W. 72nd Avenue: Full acquisition, structure demolition
  - 10255 W. 72nd Avenue: Partial acquisition
  - 10225 W. 72nd Avenue: Partial acquisition; Temporary Construction Easement
  - 10101 W. 72nd Avenue: Partial acquisition; Temporary Construction Easement
- A major stakeholder along the project is the Union Pacific Railroad. Work in their property will require a completed construction maintenance agreement.

Floodplain Permitting

- There is work on the west side of the project within the Leyden Creek floodplain boundary; however, this work is not assumed to require a CLOMR.
- If a CLOMR becomes required, this can take up to 6 months to a year to complete.

Upon contract award, the Contractor will create a construction Baseline Schedule based on the most current documents available with input from the Owner and the Design Consultant. The Contractor may elect to use Microsoft Project or Primavera at their discretion so long as the schedule is maintained in the same format throughout the duration of the Project by the Contractor. After the Baseline Schedule is created, the Contractor will be required to submit updated schedules monthly, after any significant change to the Project, and otherwise as directed by the Owner.

1.11. PRELIMINARY DOCUMENTS AND DRAWINGS

This RFQ will contain all plans and reports that are currently available for this project. Many of these documents are at a Draft or Preliminary level of development. The use of these files is purely at your own risk and for your own benefits and is not presented by the Design Consultant or the Owner with any warranty towards any accuracy or quality.

1.12. SPECIFICATIONS

The Owner and Design Consultant will identify the specifications that will govern each component of the project. The Project team will develop the project special and standard special provisions that will take precedence over any standard specifications and the plans. The specifications may include a combination of the current City of Arvada Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements, the current CDOT Standard Specifications for Road and Bridge Construction and any applicable railroad specifications.

1.13. REQUIRED PERCENTAGE OF WORK

The Contractor must perform the preconstruction CM services work valued at not less than 75% of the total work, excluding specialized services, with its own staff. Specialized services are those services or items that are not usually furnished by a contractor or Joint Venture performing the particular type of service contained in this RFQ.

For any awarded construction, the Contractor must perform work consistent with the requirements of the Owner and the UPRR.

1.14. PROJECT COMPUTER SOFTWARE REQUIRED

The Contractor shall utilize the most recent Owner adopted software. Latest version is defined as the version in use and agreed upon at the beginning of the Project. The version may not need to be upgraded during the Project duration. The primary software used by the Owner and its design consultant team is as follows:

- Estimating: Microsoft Excel
- Scheduling: Microsoft Project or *Primavera* (latest version)
- Specifications: Microsoft Word
- File Sharing: ProjectWise (latest version) if the project team decides to utilize this software - Design Consultant will host.
- CADD: MicroStation and InRoads (latest version). The Owner uses AutoCAD Civil 3D. All files will need to be saved down following final deliverables.

1.15. REQUIRED AVAILABILITY OF KEY PERSONNEL

Listed Key Personnel in the Project Management Team / Contractor Capability section of the SOQ constitutes an agreement by the Contractor to make the personnel available to complete work on the contract at whatever level the Project requires. Modifications to the Contractor's Team or Key Individuals and other personnel listed in the Contractor's Project Management Team shall be approved by the Owner's Project Manager. If a Key Person is to leave the team, resumes for a minimum of three replacement candidates must be provided to the Owner's Project Manager for review and selection; the Owner reserves the right to interview the replacement candidate(s). Examples of possible justification for modification of the Key personnel include changes in employment status, bankruptcy, inability to perform, organizational conflict of interest, or other such significant cause.

In order to secure the Owner's approval prior to the contract, a written request shall be forwarded to the Owner's Project Manager. The request shall include a) the nature of the desired change, b) the reason for the desired change, and c) a statement of how the desired change will meet the required qualifications for the position/responsibility. No such modification will be made without prior written approval from the Owner's Project Manager.

1.16. COMPENSATION FOR CMGC PRECONSTRUCTION SERVICES

The Contractor will be paid a total lump sum amount of **$530,000** for CMGC Preconstruction Services during the Preconstruction Phase. Monthly payments will be paid per invoice as work progresses based on percent of preconstruction completion with agreement of the Owner's Project Manager. Scope for these services is outlined in this RFQ and includes but is not limited to deliverables, innovations, meetings, scheduling, cost estimating, and risk registers. If additional services are requested, additional fee could be negotiated to minimize Contractor and Owner risk, including but not limited to geotechnical investigations, survey, test sections, utility test holes, etc.

1.17. EXPLANATION OF CONSTRUCTION AGREED PRICE (CAP)

The Construction Agreed Price (CAP) is the amount that will be incorporated into the standard GC Construction Project Contract for Construction Services.

The CAP is the sum of the direct Cost of Construction and the CMGC Management Price Percentage for a specific construction package. The Owner and the Contractor will refine the Cost Model, consisting of bid items, quantities, risks and assumptions for the construction package, through a series of Cost Model meetings.

The Contractor will propose a CAP and if necessary, the Owner and the Contractor will negotiate the direct Cost of Construction for that package to agree on a final CAP. Payment for the construction of the Project will be based on a Schedule of Bid items as per the CDOT Standard Specifications for Road and Bridge Construction (latest version).

The Owner anticipates requesting CAP proposals when both the Contractor and the Owner agree the design has progressed to the appropriate level, typically at 90%. The Contractor shall submit CAP proposals and Electronic Bid Submittals (EBS) once a CAP has been accepted. Multiple CAPs may be developed and accepted during the design and construction phases of this Project. The Owner reserves the right not to award any parts(s) or all of the Construction Services and bid/award some or all of the construction work separately. The Contractor shall deliver to the Owner a proposed CAP and CAP Supporting Documents at any appropriate milestones identified at the Project Scoping Workshop for an appropriate LLTP or construction phase.

Except for change orders, agreed overrun items and agreed upon risk pool items approved by the Owner, a CAP will not be increased. The Contractor assumes all risk with performance of the bid items, including management of its subcontractors, suppliers, and any associated cost impacts over and above a CAP not listed as overrun items in the construction specifications or agreed to as risk pool items in the executed Risk Register. A CAP proposal can be offered and negotiated three times. After the third and final attempt at a CAP negotiation, the Owner reserves the right to prepare the plans, specifications, and estimate package for advertisement for bids to other contractors. The Contractor will not be allowed to bid.

The Contractor will be expected to develop a baseline cost where risk will then be assigned and identified to determine an appropriate risk pool. The Owner will then review and accept the risk and shared risk contingency pools with the Contractor during the preconstruction phase that, if adopted, would be incorporated into a negotiated CAP. The purpose of the contingency risk-sharing pool is to develop a budget for items foreseen at the time of negotiating a CAP, but not detailed enough for itemized pricing. Any and all items fitting this category will be identified separately in a CAP and will be monitored for progress and cost. The actual process will be negotiated as part of the CMGC construction contract. If the risk is not realized, and the team is performing well, the risk pool may be repurposed to add scope (possibly in another package) to the Project, not to exceed the Fixed Limit of Construction.

In developing this shared risk contingency pool, the Owner may agree to share cost savings in construction (not attributed to any reduction in the scope of work or reduction in operating performance for the corridor) that may occur after a CAP has been negotiated with the Contractor and as agreed to in the executed Project Risk Register.

1.18. PUBLIC INFORMATION

The W. 72nd Avenue corridor is a highly traveled route not only within the City of Arvada, but to several connecting Cities. Commuters, the residents, and businesses in the corridor have a vested interest in the construction impacts of the Project. The Contractor's Public Information Manager (PIM) will be expected to execute communication needs for this Project with a variety of audiences in the corridor including the Owner's Communication Manager, residents, business owners, the traveling public, tourists and others.

The Owner will be responsible for the Public Information Officer (PIO) from design through the completion of CAP negotiations; the Contractor will be responsible for PIO once CAP negotiations are complete through the duration of construction. This work consists of providing regular and continuous communications services throughout the duration of the Project including community and stakeholder outreach as well as media support.

2. CMGC STATEMENT OF QUALIFICATIONS REQUIREMENTS AND INSTRUCTIONS

2.1. STATEMENT OF QUALIFICATIONS GENERAL INFORMATION

This RFQ is a three-phase procurement that includes a Statement of Qualifications, a short listing of contractors by the Selection Panel, and an interview. The Owner intends to shortlist a maximum of three Contractors; however, this may vary at the discretion of the Owner if the preliminary results warrant. At the interview, contractors will be required to submit a CMGC Management Price Proposal.

Contractors interested in submitting SOQ packages to Arvada are requested to submit one package that is inclusive of pre-construction CM services, with the option of performing as GC if Arvada accepts construction CAP proposal(s). Selection will be on a best value basis in accordance with the evaluation criteria set forth in Section 3 Statement of Qualifications Content and Evaluation Criteria.

All respondents accept the conditions of this RFQ, including, but not limited to, the following:

- Multiple SOQs from a single contractor will not be considered.
- No reimbursement will be made by the Owner for any costs related to the preparation of the qualifications package, required documentation, interviews, presentations, discussions, the selection process, the contract negotiation process, and/or any related activities. These costs are the sole responsibility of the Contractor.
- The Contractor will include a full disclosure of all potential organizational conflicts of interest.
- No late SOQs will be accepted. Any SOQs received by the Owner after the time specified in Section 2.3 shall be considered late and shall be returned unopened to the Contractor.
- The selected Contractor will be contracted for design services and is expected to be contracted for construction services for this Project. However, the Contractor is not guaranteed to receive a Notice to Proceed to perform construction work if services are terminated at the completion of the preconstruction phase due to lack of construction funding or failure to reach a CAP.
- If the Owner and the Contractor fail to reach a CAP and the Owner chooses to advertise this Project for bids, the Contractor will not be permitted to submit a bid.

2.2. MINIMUM REQUIREMENTS

As indicated in this RFQ, notice is hereby given to all interested parties that all contractors will be required to meet minimum requirements to be considered for this project. To be considered as qualified, interested contractors shall have, as a minimum:

- Demonstrated a bonding capability up to $60M for an individual project along with current and anticipated workloads. Provided a letter from a surety company indicating that the Contractor is capable of obtaining Payment and Performance Bonds covering the project for at least $60M. The surety submitting the letter must be a surety company or companies licensed by the State of Colorado and listed in the current United States Department of the Treasury Circular 570 as acceptable sureties for the bond amount on Federal Bonds. Letters indicating “unlimited” bonding/security capability are not acceptable. Performance and Payment Bonds will be required at the time the Construction Agreed Price is accepted. The final value of the Bonds will equal the final construction contract amount.
- Met all the Submittal requirements of Section 2.7.

2.3. KEY EVENTS SCHEDULE AND RFQ DATES

Contractors are required to meet the dates set forth in this RFQ. Contractors are also required to meet the information submittal dates outlined in the summary below. Failure to meet these dates will result in the SOQ being considered non-responsive. Key dates are outlined in the following Key Events Schedule. Specific time-critical key dates and times are identified on the first page of this RFQ.

Advertisement Phase	Date
Advertisement / Request for Qualifications (RFQ)	9/06/2019
Informational Meeting	9/20/2019
Final RFQ Questions or Comments Due	9/20/2019
Short List Phase	**Date**
Submittal of SOQ	10/04/2019
Short List Approval	10/11/2019
Notification of Short List Candidates	10/14/2019
Selection Phase	**Date**
Oral Interviews	10/24-25/2019
CMGC Management Price Percentage Proposals Submitted (during Interviews)	10/24-25/2019
Owner Selection Approval	10/28/2019
Contractor Notification	10/28/2019
Contract Execution / Notice to Proceed	11/18/2019

2.4. INFORMATIONAL MEETING

An informational meeting will be held as per Section 2.3 at City of Arvada Engineering Division, 8101 Ralston Road, Arvada, CO 80002. This meeting will introduce all prospective contractors to the Project as scoped, give an overview of the CMGC contract delivery method, and enable prospective contractors to ask questions about the Project and CMGC process. The Owner's Project Management Team for the Project will be present to answer questions. This meeting is anticipated to last approximately one to two hours long. Attendance at this meeting is encouraged, but not required.

2.5. QUESTIONS AND CHANGES TO THE RFQ

- The Owner reserves the right to make changes to the RFQ. Changes to the RFQ generally consist of Clarifications, Scope Changes, or Time and/or Date Changes. All changes to the RFQ prior to the receipt of SOQs shall be made by an addendum to the RFQ, which shall be made available to all prospective Contractors. Following receipt of SOQs, any changes to the RFQ will be conveyed in writing to those Contractors determined to have met the minimum qualifications.
- Contractors may submit questions, request clarification, or request a change to the RFQ by submitting a written request to the Owner at the email set forth above. The request shall specify the provision and section of the RFQ in question, and, if a change is requested, contain an explanation for the requested change. The Owner will not respond to questions or change requests received after time specified in Section 2.3. If the requested change is to Section 1 Scope of Work the request must be received by the Owner no later than the date as per Section 2.3.
- The Owner will evaluate any questions and/or requests submitted, but reserves the right to determine whether to respond or accept the requested change. All questions not deemed proprietary will be posted on the Project advertisement site in Q & A form. The Owner's PM will determine whether a question is proprietary.
- Contractors shall not rely on oral or written instructions regarding this RFQ, unless issued in writing as an addendum by the Owner and posted on the Project advertisement site.
- Contractors must acknowledge all issued addenda in their Statement of Qualifications submittal.

2.6. AWARD OF CONTRACT

The Owner intends to evaluate, select, and award one CMGC contract to the top ranked Contractor based on a Best Value Selection with City Council approval. The selected Contractor will be awarded a contract for Pre-Construction CM Services.

The Selection Panel will complete a short list evaluation of the Contractor's submitted SOQ based on criteria in Section 3.2.

Numerical Ranking and selection of the most qualified Contractors is detailed in Appendix A.

Award and contract will be contingent on the availability of proposed Key Personnel and subcontractors.

Upon successful negotiation of the CAP, a Construction Contract will be drafted, signed, and executed.

All negotiations shall be open book. The Owner shall have access to all CAP proposal documents, quotations, takeoffs, and other construction cost estimates, including those for subcontractors, during negotiations. Issuance of the Construction Contract will be subject to the Contractor posting 100% performance and payment bonds and being compliant with the Owner's procurement policies. The Contractor will competitively procure and award subcontractors in accordance with their proposed subcontracting plan, as described in Section 2 and Section 3 of this RFQ.

2.7. STATEMENT OF QUALIFICATIONS SUBMITTAL – STEP 1

Contractor must comply with the following items. Should it be judged to be in the best interest of the Owner, the Owner retains the right to waive any minor irregularity or requirement. (Please note that the primary focus of this evaluation will be the Contractor's capabilities and qualifications).

- SOQ Format:
  - Submittals shall be formatted and tabbed in the exact form and alphanumeric sequence of the Scoring Form A-1: Statement of Qualifications Evaluation Form in Appendix A. Additional information, if provided, shall appear at the end of the submittal under its own tab(s).
  - All submittals shall use maximum font size of 11 Times New Roman and minimum font size of 10 Time New Roman on charts, graphs, and figures.
  - Cover or Introductory Letter (1-page limit on 8-1/2"x11" paper)
  - SOQ Section (25-page limit on 8-1/2"x11" paper, and up to 5 of the 25 pages can be on 11"x17" paper)
  - Appendix Section (10-page limit, and up to 5 of the 10 pages can be on 11"x17" paper)
- Submittals shall be evaluated in accordance with criteria as indicated in Section 3.2 and ranked on the corresponding evaluation form in Appendix A.
- Responses to all items shall be complete; Contractors are encouraged to cross-reference to other sections of their SOQ where applicable.
- All references shall be current (within the last 5 calendar years) and relevant.
- An appendix section will be included as part of the SOQ and will include resumes, Surety Letters, and evidence of insurability. Resumes and references for team members should be limited up to the seven primary members of the Contractor's team.
- Tabs, covers, and table of contents pages do not count against the page count.

2.8. ORAL INTERVIEWS – STEP 2

Short List
From the SOQs received, a short list of qualified Contractors will be identified using the scoring indicated on the enclosed **Scoring Form A-1: Statement of Qualifications Evaluation Form** in Appendix A.

Oral Interview
Mandatory oral interviews will be conducted for the short-listed Contractors only. Interview times and location will be arranged by the Owner and all short-listed Contractors will be notified in advance. Oral

interviews will be evaluated on the enclosed **Scoring Form A-2: Oral Interview Evaluation Form** in Appendix A.

2.9. SEALED CMGC MANAGEMENT PRICE PERCENTAGE – STEP 3

Sealed CMGC Management Price Percentage Proposals will not be submitted with the initial Statement of Qualifications, but are only required to be submitted by the short listed contractors at the oral interviews using the enclosed **Scoring Form A-3: CMGC Management Price Percentage Proposal Form** in Appendix A.

Only one copy of Scoring Form A-3 is required on the scheduled submission date. The CMGC Management Price Percentage Proposal will remain sealed until after the Oral Interviews have been completed and after the qualitative scoring has been completed. The CMGC Management Price Percentage Proposal will be scored in a blind evaluation, separate from the technical proposal and oral interview.

The CMGC Management Price Percentage Proposal will then be given a point score in accordance with Section 3.4. CMGC Management Price Percentage Proposals shall be submitted on the Scoring Form A-3 provided in Appendix A without modification.

The CMGC Management Price Percentage Proposals shall include a summary of information used in establishing the CMGC Management Price Percentage. The evaluation criteria for the CMGC Management Price Percentage Proposal can be found in Section 3.4. Other indirect and non-reimbursable costs outlined in Appendix B must be integrated into the CMGC Management Price Percentage Proposal narrative.

The CMGC Management Price Percentage is a percentage which will be applied to all Construction Phase CAP Proposals based on the Fixed Limit of Construction Cost. The CMGC Management Price Percentage shall include all profit and indirects as defined in Appendix B. Summaries must include the line items detailed in Appendix B.

CMGC Management Price Percentage Proposal Format:

Submittals shall be formatted and tabbed in the exact form and alphanumeric sequence to include the following:

- CMGC Management Price Percentage Proposal Form A-3 (one page – Appendix A)
- CMGC Management Price Percentage Summary Information (two-page limit – summary page)
- Proposal must be on 8-1/2”x11” paper, and shall use a minimum font size of 11 Times Roman.
- CMGC Management Price Percentage Proposal Form (Scoring Form A-3) from Appendix A must be filled out in its entirety.
- All content, as required in Section 3.4, must be integrated into a narrative and into sheets as instructed. These items can be found on the Construction General Conditions in Appendix B.

Any submitted CMGC Management Price Percentage Proposal lower than 7% will be rejected.

3. STATEMENT OF QUALIFICATIONS CONTENT AND EVALUATION CRITERIA

3.1. METHOD OF SELECTION AND AWARD

The Selection Panel shall complete a short list evaluation on the Contractor submitted Statement of Qualifications based on criteria in Section 3.2. A maximum of three short listed Contractors will be invited to Oral Interview meetings with the Selection Panel and further evaluated based on criteria in Section 3.3; however, this may vary at the discretion of the Owner if the preliminary results warrant. At the Oral Interview meeting, short listed Contractors shall be required to submit a sealed CMGC Management Price Proposal that will be evaluated based on criteria in Section 3.4.

Numerical ranking and selection of the most qualified contractor will occur on the corresponding evaluation forms in Appendix A. The CMGC Management Price Percentage Proposals will be opened after all numerical rankings are finalized.

Award and contract will be contingent on the availability of Key Personnel and subcontractors.

Each separate section will be ranked with a maximum score as shown in Appendix A.

3.2. EVALUATION CRITERIA FOR STATEMENT OF QUALIFICATIONS (45 Points Possible)

Proposal Evaluation Criteria

3.2.1. Project Management Team (10 Points)

Composition and Commitment of the Project Management Team

- Provide a description of the composition of your Project Management Team. If your team is a Joint Venture or association, indicate specific responsibilities of each member and firm of the team.
- Provide, identify and discuss the qualifications of the Key Personnel. Include the following for each member of the proposer's team:
    - Provide job descriptions, responsibilities, and authority for each team member.
    - Provide a list of concurrent projects, responsibilities, and commitments during the duration of the Project.
    - Current home office location.
    - Qualifications and past construction experience relevant to this Project, in addition to the length of time performing those job duties.
    - Unique knowledge of team members related to the project.
    - Length of time with the firm for each key team member and length of time for overall experience pertinent to the scope.
    - Experience on similar projects working with other proposed team members.
    - Provide resumes and two current references for the Key Personnel in an appendix to the SOQ. References will be considered current if the party's name, current position/title, and position/title held at the time for which the recommendation is being sought are provided; telephone numbers must be current as of SOQ due date.

Project Manager

One staff member should comprise the Project Manager role as a Key Person for the Project, and should have the following skills, experience, and knowledge

- This person serves as overall PM for both the preconstruction services and the construction services and will be the main point of communication to the Project team.
- This person shall remain in this role for the duration of the project.
- This person should have a minimum of 10 years of experience managing projects and a history of performing preconstruction input and analysis.
- Anticipated time commitment: 100% throughout the duration of the Project.

The contractor should provide a recommendation for staffing of additional Key Personnel and their anticipated level of commitment that can provide the following skills, experience, and knowledge:

- Constructability Expertise
    - Responsible for providing construction expertise and innovation during preconstruction services.
- Cost Estimation
    - Responsible for providing ROM cost estimates and OPCCs during preconstruction services.

- Project Controls
  - Responsible for managing cost estimates, the Project schedule, Project risk, and Project quality.
- Construction Management
  - Each construction package will have a designated Construction Manager.
  - The required skill set of the Construction Manager will depend on the complexity, size, and scope of the associated construction package.
  - For purposes of the SOQ, only one example Construction Manager should be proposed on the submitted Organization Chart as this position is subject to change.

Key personnel are expected to have a reasonable level of decision-making authority on behalf of the Contractor.

Technical Experts may be required throughout the duration of the project. These staff members would not have an anticipated level of commitment, but could be asked to provide specific feedback on the following skillsets, knowledge, and experience:

- Schedule Support
- Risk Support
- Structural Expertise
- Material Expertise
- Quality Control
- Traffic Phasing
- Utilities
- Survey
- Intelligent Transportation Systems
- Public Information
- Safety
- Roadway
- Drainage
- Environmental

Provide a separate graphic showing organizational structure chart, complete with specific names, working titles, and subcontractors for the team during the preconstruction phase. Provide an explanation of any variation to the anticipated Key Personnel time commitments stated above.

- Identify and explain the need for any additional Key Personnel necessary to the success of the Project.
- Provide a narrative describing succession planning for team stability and planning for any member of the Project team and subcontractors that leaves during design or construction. Plans for Project ramp-up and ramp-down periods should be discussed as well as handling the possible five-year duration of the Project.

<u>Safety Record and Performance:</u>

- Provide a narrative of the Contractor's safety programs, processes, and initiatives that demonstrate a record of safety performance.
- Provide the following information for each entity involved, covering the last 4 years (2015-2018).
  - Experience Modification Rates (EMR)
  - OSHA Reportable Incident Statistics

3.2.2. Contractor Capability (5 Points)

Prior Project Experience/Performance/References

- Provide a summary of previous experience relevant to the general scope of work for this Project. Provide three or more relevant projects/programs that demonstrate the Contractor's

ability to be successful on this Project. For each listed project or experience please include Owner and architect/engineer references and contract information. The Owner may at its discretion contact references and/or conduct independent performance analysis on projects on which the firm has worked. Provide at a minimum:

- The project/contract name and location
- Project delivery method
- Description of services provided
- Overall construction cost of project, as applicable, including initial contract value and change orders, including reasons for change orders
- Description of project schedule performance, including initial schedule, and reasons for schedule change
- Key assigned in-house staff and their level of involvement
- Subcontracts (service) used in the performance of the contract
- Reference(s) for Owner and Design Consultants
- Coordination with stakeholders, if any

- All references submitted shall be current for relevant projects. References will be considered current if the party's name, current position/title, and position/title held at the time for which the recommendation is being sought are provided; telephone numbers must be current as of SOQ due date.

3.2.3. Strategic Project Approach (10 Points)

Provide your Strategic Project Approach summary for the Project including the following:

Preconstruction Services:
To aid in describing the means and methods that will be used to support the design development and decision-making process, please discuss the following:

- Discuss your approach to providing successful Construction Management services based on prior experience and how it applies to maximizing the Owner's Project goals.
- Discuss your approach to overall Project phasing and individual construction package phasing. Include: recommended construction packages, specific phasing concerns, phasing of work based on acquired right-of-way, etc.
- Discuss your approach to reviewing design; providing real-time constructability feedback; ongoing value engineering input as it relates to innovation, resources, packaging, traffic phasing, right-of-way, utilities, critical path, etc.
- Discuss your approach to the design effort to help to improve quality, reduce errors and omissions, and to achieve the best value in construction.
- Discuss how technology (i.e. Bluebeam, PlanGrid, Aconex, general e-construction methodology, 3D modeling) will be utilized for quality control, document control, plan review, field quantities tracking, etc.
- Describe additional unique resources and capabilities that your company will bring to preconstruction and how these unique resources and capabilities will be beneficial in achieving the Project goals.
- Describe your approach to submitting OPCC at required milestones and at CAP.

Construction Services:
In an attempt to describe the means and methods that will be used to support the construction and decision-making process please discuss the following:

- Provide a description of the major Project features the Contractor plans to self-perform, including qualifications to do such. Provide your subcontractors for major work and high-risk items (structures, paving, earthwork, traffic control, etc.).
- Discuss your approach and anticipated level of involvement to changes in site conditions, field fitting, and problem solving during active construction; describe the role the Contractor plays within the Project team in situations that require a change in approach and/or a different method of construction.

- Explain how the Contractor will be flexible and adaptable in allowing for single or multiple construction packages and CAPs.
- Describe your approach to subcontractor management by describing your business process for the below-mentioned items.
    - Identify elements of work for subcontracting opportunities, work elements that will allow for equal opportunity and types of outreach programs you will use to include small and disadvantaged businesses for this Project.
    - Discuss how you will enforce procedures and protocols that ensure compliance and quality with Project Plans and Specifications.
    - Discuss how you will ensure your subcontractors are capable and will provide work that is within schedule, high quality workmanship, and adheres to your safety standards.
    - Describe how you deal with subcontractors that are underperforming or not operating in a safe manner.
    - Discuss what mechanisms you will use to solicit best value subcontractors, lock in item costs for CAP and in the event additional work is needed during construction.
- Describe additional unique resources and capabilities that your company will bring to construction and how these unique resources and capabilities will be beneficial in achieving the Project goals.
- Discuss how technology will be utilized during construction and what tools will be supplied to staff.

<u>General Project Services:</u>

- Describe any Project challenges that are anticipated by your company and how you plan to mitigate the risk of these challenges. Include in the description plans to address constraints.
- Discuss your approach to safety during the design and construction phases that will keep the traveling public and workers safe.
- Describe your approach to tracking and documenting value added through CMGC to the Project.

3.2.4. Project Innovations (10 Points)

In conjunction with your team's Project Approach, your team may have some innovative ideas that may or may not meet the requirements of the RFQ that could increase the likelihood for Project success. The Selection Panel will consider how well your innovative ideas help balance the Project goals. Any innovations proposed need to be practical and implementable.

The Owner has identified some areas where innovation should be explored. Provide a narrative that describes how your approach to integrating innovation would apply to these areas, give examples of ideas that would result in a more efficient and effective Project.

- Approach to eliminate or minimize any long-term closures of W. 72nd Avenue during construction and ideas to mitigate impacts to the travelling public and adjacent residents and businesses
- Alternative or accelerated construction methods or structure types for the railroad grade separation, adjacent structures and other retaining systems
- Early relocation of utilities to facilitate uninterrupted construction of the railroad grade separation and adjacent retaining systems
- Construction phasing and methods of handing traffic related to the intersection improvements, in particular at Simms Street, and the temporary roadway crossing of the railroad
- One additional unique idea developed by the Contractor that could be implemented on this project

Please discuss these further as follows:

- Describe specific technical or production innovations related to design or construction that may further improve reaching Project goals.
- Describe impacts of the innovation(s) on time, cost, quality, and safety.

3.2.5. Approach to Risk, Schedule, and Price (10 Points)

As each OPCC or CAP is developed, risk, schedule, and major assumptions need to be evaluated and discussed. How and when the Contractor communicates these items to the Owner is critical for a successful CMGC project.

The following salient features of work will be major factors in the success of this Project:

- Railroad Grade Separation Construction
- Traffic Control and Phasing
- Utility Coordination and Relocation
- Public Information and Communication

For Each Salient Feature provide a discussion of the following:

Cost Model Approach

- Demonstrate how your and your subcontractors' cost models were developed, the basis of assumptions, and how they communicate information necessary for decision making.
- Provide a description of your approach discussing the following, at a minimum:
    - Assumptions, risk, opportunities, innovation, market conditions, limited or significant market competition, subcontracting opportunities, means and methods, and potential challenges in the current design or feature that could impact schedule and cost.
    - Innovative cost savings, opportunities, and value to the Project.
    - Use of CDOT bid items and cost data for cost evaluation and comparison.
    - Approach to the development of estimate factors such as escalation factors, fuel pricing, material sources, labor rates, craft labor agreements, availability of skilled craftsman.
    - Approach to equipment availability and rental rates.
    - Approach to developing production rates.
    - Approach to developing baseline cost where risk will then be assigned and identified to determine an appropriate risk pool.

Schedule Approach

- Discuss what design aspects you would recommend to the designers that would reduce schedule or add benefit to the Project.
- Discuss what construction elements or features your team will use to reduce schedule or provide added benefit to the Project.
- Discuss factors that would affect schedule such as outside constraints, seasonal work, materials, equipment and labor availability, etc.

Risk

- Discuss your risk management process that will be used to identify risks, assign costs to each risk, determine probability of said risk, and provide recommendations to reduce or eliminate the risk. Describe any technology you will utilize to organize the risk management process.
- Provide a sample risk assessment and quantitative risk register identifying three to five major risks for each salient feature. Be sure to include:
    - Risk magnitude, mitigations and their associated cost and schedule impacts.
    - Assignment of risk responsibility and approach to shared and Owner risk pools.
    - Analysis of the risk and its respective impacts to cost, quality, and schedule.

Quality and Safety

- Discuss your approach to addressing quality control and safety for each salient feature.

3.3. EVALUATION CRITERIA FOR ORAL INTERVIEW (45 Points Possible)

An oral interview will be a mandatory part of the selection process after the Selection Panel determines a short list of contractors. It is expected that subcontractors playing a major role on the Contractor's team be present at the interview.

The structure of the oral interview will be as follows:

3.3.1. Short Presentation (10 Points)

Summarize the SOQ and describe the Contractor's Innovative Ideas and Unique Resources (15 Minutes). The Contractor needs to communicate to the Selection Panel why they should be chosen for this project. What strategies and abilities does the Contractor bring to this CMGC Project to distinguish them from the other shortlisted candidates and why they will bring success to the Project? Limit the presentation to the most critical points of the SOQ and focus on what your team can bring to the table and why.

3.3.2. Team Challenge (15 Points)

The Contractor will be given a written challenge to review and propose a course of action to address the elements in the problem. The Contractor will be given 15 minutes to prepare a response or solution and 5 minutes to present a formal response or solution to the Selection Panel. This challenge scoring will be determined by the following criteria:

- Challenge Understanding
- Recognition of Key Points and Ideas
- Team Collaboration
- Communication Skills
- Understanding of CMGC Delivery Method, Context Sensitive Solutions, and Environmental Commitments
- Understanding of Project Goals

3.3.3. Question and Answer Session (20 Points)

The questions asked in this session will be the same for each Contractor, but any follow-up questions by the Selection Panel to clarify Contractor answers will be allowed. The interview presentation and question & answer scoring will be based on the following criteria:

- Project Understanding
- Project Approach
- Project Innovation
- Communication Skills
- Understanding of CMGC Delivery Method

3.4. EVALUATION CRITERIA FOR CMGC MANAGEMENT PRICE PERCENTAGE PROPOSAL (10 Points Possible)

3.4.1. CMGC Management Price Percentage (10 Points)

Contractor shall state their proposed CMGC Management Price Percentage, carried out to four decimal points (e.g. 0.0000%), which will be applied to all construction packages. The CMGC Management Price Percentage shall include all profit, general and administrative costs, regional and home office overhead, and non-reimbursable costs identified in Appendix B. The CMGC Management Price Percentage shall not change regardless of the final, negotiated amount of the CAP for Construction Phases.

The CMGC Management Price Percentage breakdown shall show the breakdown of all components used in establishing the percentage. The intent of the CMGC Management Price Percentage is to define the cost and level of effort for the CMGC to deliver the Project within the CAP. The CMGC Management Price Percentage shall exclude all Contractor costs for risk related to performance of

the construction work. Risk will be priced into subcontracted amounts and negotiated into self-performed work, as part of the overall direct cost of the work.

The CMGC Management Price Percentage score will be determined by comparing each firm's sealed CMGC Management Price Percentage with the lowest CMGC Management Price Percentage being equivalent to the maximum score of 10 points. To score each price percentage, the Selection Panel will use the following example formula:

Scoring of the CMGC Management Price Percentage:

Example: Assume the lowest CMGC Management Price Percentage of 7%.

FIRM A:	$\frac{7\%}{7.0000\%}$	X 10 points = 10 points
FIRM B:	$\frac{7\%}{8.0000\%}$	X 10 points = 8.75 points
FIRM C:	$\frac{7\%}{9.0000\%}$	X 10 points = 7.78 points

The resulting score will be added to the individual Contractor's CMGC Management Price Percentage Proposal Form A-3 that will be included in the sealed submittal.

APPENDICES

APPENDIX A:
EVALUATION AND CMGC MANAGEMENT PRICE PERCENTAGE PROPOSAL FORMS

STATEMENT OF QUALIFICATIONS, ORAL INTERVIEW EVALUATION SCORING NOTES:

I. The Owner has developed a CMGC Selection Panel Scoring Guide to promote objectivity and transparency. Selection Panel members are required to read and follow all scoring guidelines.
II. Weights are to be assigned prior to evaluation and are to be consistent on all evaluation forms. Comments by Selection Panel members are required on all scoring forms so that all Proposers may receive constructive feedback on their proposals and performance.
III. Selection Panel scoring values will be only numbers in whole, half, or quarter-number increments (i.e. 2.25, 3.50, 4.00.). Scoring for the SOQ and Oral Interview criteria form will be based on the following Qualitative Assessment Guidelines, which will be applied to all sections except the CMGC Management Price Percentage.

Qualitative Assessment Guidelines	
Selection Panel members will individually review and score each SOQ category according to the criteria set forth in the RFQ. Team members will evaluate each category sub-factor listed in this Evaluation Manual and assign those sub-factors a Qualitative Assessment Percentage according to the scoring range listed below:	
5	The Contractor demonstrates a complete understanding of the subject and an approach that significantly exceeds the stated requirements and objectives of this scoring category. The SOQ communicates an outstanding level of quality. The Contractor's qualifications are exceptional. SOQ shows no weaknesses or deficiencies for this scoring category.
4	The Contractor demonstrates a strong understanding and has a strong approach to the scoring category. The SOQ communicates a high level of quality and the SOQ exceeds the stated requirements of the RFQ. The SOQ shows few weaknesses or deficiencies for this scoring category.
3	The Contractor demonstrates a general understanding of the project and an approach containing some weaknesses/deficiencies regarding the stated requirements and objectives of this project. The SOQ communicates an average level of quality and meets the stated requirements of the RFQ.
2	The Contractor has demonstrated a below average understanding of this scoring category and their response contains significant weaknesses and deficiencies. The SOQ communicates a below-average level of quality. The Contractor's qualifications raise questions about the Contractor's ability to successfully meet the project goals.
1	The Contractor has demonstrated a minimal understanding of this scoring category and their response contains numerous weaknesses and deficiencies. The SOQ demonstrates little or no level of quality or value. The Contractor's qualifications raise questions about the Contractor's ability to successfully meet the project goals.

CMGC MANAGEMENT PRICE PERCENTAGE PROPOSAL EVALUATION SCORING NOTES:

I. Determine score for each firm's sealed CMGC Management Price Percentage Proposal. The maximum point total for this section is 10 points.
   a. CMGC Management Price Percentage 10 Points Maximum
      i. Must include all supporting information required in Section 3.4 and on Scoring Form A-3.
         1. CMGC Management Price Percentage Scoring information is described in Section 3.4 of this RFQ.

TOTAL SCORING EVALUATION SCORING NOTES:

I. The maximum point total for each of three evaluation sections is as follows:

Section:	Score:	
Statement of Qualifications	45pts	(Scoring Form A-1)
Oral Interview	45pts	(Scoring Form A-2)
CMGC Management Price Percentage Proposal	10pts	(Scoring Form A-3)

II. After the evaluation of the SOQ, the three (maximum) highest ranked contractors will be short listed and be invited to interview and submit sealed CMGC Management Price Percentage Proposals.

III. The contractor with the highest total score in all sections will be selected. The score from the qualitative evaluations from all Selection Panel members will be averaged to produce the total overall score for each Contractor.

CITY OF ARVADA
SCORING FORM A-1: STATEMENT OF QUALIFICATIONS EVALUATION FORM
CONSTRUCTION MANAGER/GENERAL CONTRACTOR SERVICES

Name of Firm: _____

Name of Project: _____

Evaluator No: _____

Date: _____

RFQ Reference: Meets Minimum Requirements YES ____ NO ____

If the minimum requirements (including letter from surety) have not been met, specify the reason(s):

_____
_____
_____

	Project Management Team / Contractor Capability: 15 Points Maximum						
1	**Project Management Team**	Rating		Weight		Score	
	Composition of Team/Location/Organization		x	0.45	=		
	Qualifications and Experience		x	0.45	=		
	Job Descriptions and Responsibilities		x	0.45	=		
	Team Building and Collaboration		x	0.45	=		
	Safety Performance		x	0.20	=		
2	**Project Team Capability**						
	Prior Experience/Performance/References		x	0.75	=		
	Project Background and Success		x	0.25	=		
3	**Strategic Project Approach: 10 Points Maximum**						
		Rating		Weight		Score	
	Firm Approach to Maximizing and Attaining Project Goals/Strategic Project Approach		x	2.00	=		
4	**Project Innovations: 10 Points Maximum**						
		Rating		Weight		Score	
			x	2.00	=		
5	**Approach to Risk, Schedule, and Price: 10 Points Maximum**						
		Rating		Weight		Score	
	Cost Estimating		x	0.67	=		
	Schedule		x	0.66	=		
	Risk Management		x	0.67	=		

TOTAL SCORE (45 Points Maximum): _____

CITY OF ARVADA
SCORING FORM A-2: ORAL INTERVIEW EVALUATION FORM
CONSTRUCTION MANAGER/GENERAL CONTRACTOR SERVICES

Name of Firm: _____

Name of Project: _____

Evaluator No: _____

Date: _____

Oral Interview Section: 45 Points Maximum

Oral Interview Scoring Criteria	Rating		Weight		Score
Short Presentation		x	2.00	=	
Team Challenge		x	3.00	=	
Question and Answer Session		x	4.00	=	

TOTAL SCORE (45 Points Maximum): _____

Team Project Challenge:

Questions Asked:

1.

2.

3.

4.

5.

6.

CITY OF ARVADA
SCORING FORM A-3: CMGC MANAGEMENT PRICE PERCENTAGE PROPOSAL FORM
CONSTRUCTION MANAGER/GENERAL CONTRACTOR SERVICES

_____	_____	_____
Date	Project / RFQ Number	Project Title

Name of Firm: _____

Acknowledge receipt of Addendums No. ____ No. ____ No. ____

CMGC Management Price Percentage Proposal Section: 10 Points Maximum

For instructions, requirements, and scoring for the CMGC Management Price Percentage see Section 3.4. This form only requires CMGC Management Price Percentage.

1 **CMGC Management Price Percentage (10 Point Maximum)** _____ %
(Contractor Required Input Above)

Normalized: _____ x 10 = _____

* Note: Scoring calculation will be conducted by the Selection Panel. See Section 3.4 for instructions.

TOTAL SCORE (10 Points Maximum): _____

_____

Applicant or Corporate Officer Signature Date Title

_____

Applicant or Corporate Officer Signature Date Title

_____

Applicant or Corporate Officer Signature Date Title

APPENDIX B:
CONSTRUCTION GENERAL CONDITIONS

	Costs NOT TO BE included in CMGC Management Price Percentage	Costs TO BE included in CMGC Management Price Percentage
Item	**Costs for the categories below will be negotiated and included in the direct "Cost of the Work"**	**Other indirect and non-reimbursable costs to be included in the CMGC Management Price Percentage are listed below**
B.1	Mobilization	Project Principal – all costs
B.2	Project Manager	Project Manager relocation, housing, and subsistence costs.
B.3	Construction Manager/Superintendent	Construction Manager/Superintendent relocation, housing, and subsistence costs.
B.4	All other on-site, construction management staff as approved by the Agency	Additional CMGC staff relocation, housing, and subsistence cost.
B.5	On-site administrative staff ,including clerical and secretarial staff	Home, branch and regional office administrative support staff and all related costs
B.6	All project direct costs related to Safety	Home, branch and regional office safety support staff and all related costs
B.7	All project direct costs related to Quality Control	Home, branch and regional office quality control support staff and all related costs
B.8	Project office costs for cleaning, set-up/demob., maintenance, security, utilities, rent/lease, equipment, and furniture	Profit
B.9	Materials and equipment handling, including shipping/transport to site and storage costs	
B.10	Costs to co-locate with Agency staff	
B.11	Job site temporary toilet facilities and maintenance	
B.12	Partnering workshops	
B.13	Construction rental equipment	
B.14	Actual cost of permits	
B.15	All project direct costs related to implementation of Agency-approved sustainable practices	
B.16	All project direct costs related to implementation of Agency-approved DBE/ESB program	
B.17	Construction equipment and vehicles at Proposer's internal cost rate, including costs of maintenance and fuel	
B.18	All costs related to cell phones, radios, fax machines, pagers, computers and software.	
B.19	All costs of capital and interest; licenses and taxes required by law.	
B.20	Miscellaneous project office costs, including but not limited to, drinking water, printing, reproduction, postage, delivery, and supplies	

REQUIRED VENDOR SUBMITTAL FORM

SUBMITTED BY:

Company Name: _____

Contact Names: Sales/Customer Service _____

Address: _____

Phone: (_____) _____ Email(s): _____

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the vendor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accepts and acknowledges this offer is consistent with the specifications and terms and conditions, unless specific variations have been clearly and expressly listed in the offer.
- The Offer is in all respects fair, without outside collusion or otherwise illegal action.

By:_____ _____ _____
Signature of Authorized Agent Date FEIN

_____ _____ _____
Typed/Printed Name of Agent Title of Agent Agent email

PAYMENT TERMS: If the vendor does not accept a percentage discount, the Owners standard is net thirty (30) days after the date that the Owner receives an accurate invoice and has accepted the product or service. Payment is the date of the check mailing or date of the credit card transaction.

Discount: ____% ____ Days, Net: 30___Days, Accept Visa without additional fee? _____

VARIATIONS: The vendor shall identify all variations and exceptions to any RFQ documents. Submittal of a Vendor Contract is considered excessive in Variations and may be cause for determining that the submission is non-responsive and ineligible for award. For each variation listed, reference the applicable section of the solicitation document as per the example below. If no variations are listed here, it is understood that the vendor's Offer fully complies with all terms and conditions. Attach additional Variation sheets in the same format as below after starting the first three on this page.

Page #:_____ Item # or Section: _____

Variance _____

_____

Page #:_____ Item # or Section: _____

Variance _____

_____

Page #:_____ Item # or Section: _____

Variance _____

_____

SUBMITTAL INSTRUCTIONS:

Qualifications must be submitted in the order listed below with each section clearly identified.

Submit ON-LINE **OR** one (1) unbound original proposal, X copies and one (1) copy on a flash drive.

Cover & Executive Summary.

Detail Firm's and employees' Capabilities, Experience, Licensing, and Compliance Status.

Details of Qualifications – products & services, implementation timeline and warrantees.

Completed Owner Submittal Forms including this sheet and all other attachments requested.

Pricing – All fee and costs associated with the offering.

Performance Measures Form, when this is for an applicable service.

Insurance – Checking this box accepts that the insurance requirements listed by the Owner are acceptable unless listed in the variations on the previous page.

CONFIDENTIAL information, if any, MUST be stamped as such on each page and submitted separately.

Please initial to acknowledge Addenda, if any:
#1 _____ #2 _____ #3 _____

REFERENCES:

Check here if Firm's standard reference sheet is attached, otherwise, use the space below.

Name: _____ Contact Person: _____

Address: _____

Telephone No: _____ Email: _____

Describe type of work/service performed or items supplied: _____

_____

Name: _____ Contact Person: _____

Address: _____

Telephone No: _____ Email: _____

Describe type of work/service performed or items supplied: _____

_____

Name: _____ Contact Person: _____

Address: _____

Telephone No: _____ Email: _____

Describe type of work/service performed or items supplied: _____

_____

PERFORMANCE MEASURES FORM INSTRUCTIONS:

The Owner has incorporated Performance Management into its organizational culture. When vendors submit offers to the Owner in response to solicitations for ***Services*** (not associated with the primary purchase of goods, supplies, or software), they shall identify the methods and goals by which they will monitor and report their performance providing those services to the Owner. Vendor's performance shall be documented as to (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation.

1. Vendor will define 1-2 measures for (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation, that follow S.M.A.R.T goals: Specific, Measurable, Achievable, Relevant, and Timely, per category.
2. The vendor will self-score their defined metrics within a score card emailed from purchasing 2 months prior to contract renewal. The department will review the vendor's self-scored measures.

SERVICES means: the furnishing of labor, time, effort, maintenance, etc., by a vendor/contractor/consultant, with an initial contract amount of more than $15,000.

(a) Price/Cost

Example Measure: Consultant will submit detailed invoices substantiating amounts requested.

1. _____
   _____
2. _____
   _____

(b) Punctuality/Responsiveness

Example Measure: Reporting of project status will occur monthly with the Owner and consultant's Project Manager.

1. _____
   _____
2. _____
   _____

(c) Quality/Reliability

Example Measure: Revisions are drafted within two weeks, and no more than 3 revisions prior to final draft.

1. _____
   _____
2. _____
   _____

(d) Sustainability and/or Innovation

Example Measure: Digital reports delivered to the Owner 95% to reduce use of paper.

1. _____
   _____
2. _____
   _____

Performance measures will be queried for every year of the contract. Performance measures reporting will partially inform re-contracting with or renewing a contract with a vendor.

PERFORMANCE AND PAYMENT BOND

Bond No._____

(Firm)_____

(Address)_____
(an Individual), (a Partnership), (a Corporation), hereinafter called Principal; and

(Firm)_____

(Address)_____
hereinafter called Surety, are held and firmly bound unto the Owner, a Colorado municipal corporation, 8101 Ralston Road, Arvada, Colorado 80002, hereinafter called the Owner, in the penal sum of , Dollars, , in lawful money of the United States, for the payment of such sum will and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION are such that the Principal entered into a certain Contract with the Owner, dated the day of , 20 , a copy of which is hereto attached and made a part hereof, for the performance of the Owners Project No.'s .

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without Notice to the surety and during the life of the guaranty period, and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the Owner from all cost and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, and if he shall promptly make payment to all persons, firms, subcontractors and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such Contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, repairs on machinery, equipment and tools, consumed, rented or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in three counterparts, each one of which shall be deemed an original, this the ___day of_____, 20 .

IN PRESENCE OF:

PRINCIPAL_____

By_____

Address _____

(Corporate Seal)

OTHER PARTNERS

(Surety Seal)

SURETY_____

Attorney_____ in _____ Fact _____

Address_____

Note: If Contractor is Partnership, all partners should execute Bond.

Important: Surety Company must be authorized to transact business in the State of Colorado and be acceptable to the City.

Exhibit 2.11.9

Contractor's Response to the RFQ and Proposal,
Advertisement for Bid, Bid Proposal, Bid Schedule, Bid Bond,
and Certificates of Insurance

EXHIBIT
2.11.9

October 4, 2019

prepared for

CITY OF ARVADA

submitted by

SEMA CONSTRUCTION

QUALIFICATIONS TO PROVIDE

CMGC Services for West 72nd Avenue – Kipling Street to Simms Street

CITY OF ARVADA | RFQ-19-W. 72ND AVE.-CMGC

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Appendix

- Key Personnel Resumes
- SEMA's Total Project Risk Assessment and Quantitative Risk Register (included in Proprietary Submittal #2)
- Sample Project Cost Model (included in Proprietary Submittal #2)
- Project Schedule (included in Proprietary Submittal #2)
- Surety Letter
- Evidence of Insurability
- Arvada Required Forms

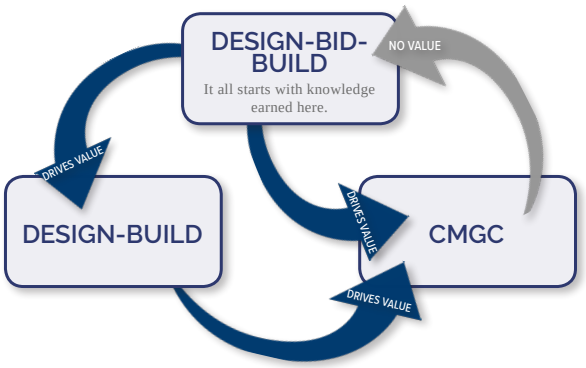
*Note that this proposal has been uploaded in two separate parts/submittals per Arvada's requirements. Items marked above have been removed from the main submittal (Submittal #1) and included as part of SEMA's proprietary submittal (Proprietary Submittal #2).

Derek T. Webb, PE
Civil Engineer IV
8101 Ralston Road
Arvada, CO 80002

Re: Cover Letter and Executive Summary
RFQ-19-W. 72nd Ave.-CMGC
CMGC Services for West 72nd Avenue – Kipling Street to Simms Street

Dear Mr. Webb,

SEMA Construction, Inc. (SEMA) is pleased to submit our proposal to provide Construction Manager/General Contractor (CMGC) services for the West 72nd Avenue Kipling Street to Simms Street Project (Project) to the City of Arvada (Arvada).



Why SEMA. SEMA has grown into one of the largest heavy civil contractors in the nation, offering clients something entirely unique in our industry. In addition to our 28-year tenure as a highly competitive low-bid contractor, we have also built an alternative delivery portfolio is valued at $1 billion. SEMA is uniquely positioned to collaborate with Arvada on this Project through our sophisticated preconstruction services providing constructability, value engineering, and innovative solutions. Coupled with that, our long history of design-bid-build work provides us with an acute understanding of local market conditions **unmatched by any other local contractor competing for this Project**. We are one of the only contractors that can compete in both the design-bid-build and alternate delivery arenas, enabling us to deliver best value and innovative solutions to Arvada.

SEMA has successfully delivered $2 billion in Colorado transportation projects, **$830 million in CMGC projects, and $350 million in rail projects.** This experience is unique and ensures Arvada a low-risk, best-value Project, delivered safely and with high-quality results, while exceeding all stated Project goals.

1 Maximize Funding

SEMA understands that 85% of Project funding must be allocated to construction by 2/26/22. Our approach includes completing preconstruction services and achieving final construction agreed price (CAP) no later than December 2020, which allows us to achieve this goal 14 months early. Additionally, we will cost load our schedule to provide the ongoing status of funding allocation to Arvada throughout the life of the Project.

2 Public Outreach

We understand how highly-visible this Project is, and it is our goal to safely deliver the highest-quality Project with the least amount of disruption to the community. To do this, we have supplemented our team with our in-house Strategic Communications Manager, Mia Migdall, to provide additional emphasis on communications, outreach, and stakeholder coordination. In this role, Mia will support Arvada's public information (PI) team starting immediately during preconstruction, and further coordinate those efforts with SEMA's PI Manager (PIM) CIG's CEO, Kristi Estes, during construction.

Mia and Kristi each bring 25 years of communications and PI experience to our team. Additionally, Kristi is a resident of Arvada, who drives the Project corridor on a daily basis. Her personal connection to the success of this Project and the effectiveness of our communications and PI program sets our team apart. Our approach to public outreach includes immediately immersing ourselves into the community of Arvada to promote the Project and foster engagement.

3 CMGC Commitment

SEMA is an alternate delivery trailblazer for clients including partnering with the City and County of Denver on their first innovative contracting initiatives, which included both their first CMGC and design-build transportation projects.

We bring a proven and cohesive team, built with the same key personnel who recently worked together on our 39th Avenue Greenway Design-Build project. Project Manager Larry Walsh brings 39 years of experience leading alternate delivery projects delivered with seamless integration between design and construction. Additionally, our team has worked together for an average of 15 years, bringing Arvada a proven approach and the continuity essential to exceeding the goals of this important Project.

Our commitment to the CMGC approach involves partnering with Arvada to mitigate issues early by **telling you what you need to know, not what you want to hear**. In our proposal you will see that we have already identified and categorized project-specific risks and innovations that we look forward to presenting to you with a menu of options and real-time information, fueled with cost and schedule implications to empower the most effective solutions.

4 Collaboration and Transparency

One of the most important keys of a successful CMGC process is to develop a collaboration plan between key team stakeholders including Arvada, Muller, Union Pacific Railroad (UPRR), and Arvada's Independent Cost Estimator (ICE). Upon notice of award, SEMA will promptly engage the team in a collaboration and partnering workshop that will define the goals, commitments, and responsibilities of each team member. The objective of the workshop is to develop a common and collaborative understanding of what defines Project success for all participating stakeholders. Weekly technical meetings and task force workshops will continue to foster critical thinking and collaboration throughout the Project.

Our commitment to transparency throughout the CMGC process is proven by our 100% success rate in negotiating a CAP. SEMA's cost comparison worksheets, in addition to subcontractor quotes received, will be incorporated into our open-book estimating process, ensuring full transparency and allowing Arvada and the ICE to participate in the best-value determination of vendor selection for each work scope.

5 Strategic Phasing

SEMA offers Arvada expertise in both roadway and railway construction phasing. Therefore we have developed an innovative phasing approach that minimizes disruption and efficiently addresses both vehicular maintenance of traffic (MOT) and the UPRR underpass phasing for the railway bridge. Our flexible and scalable approach accommodates the time-frame required for multiple UPRR agreements, while maximizing our ability to complete other phases of work. We have developed four distinct construction packages, including an early utility relocation package that allows us to begin construction in the Fall of 2020. We will complete preconstruction by December 2020 and proceed with construction to satisfy bond commitment funding milestones.

6 Innovation and Maximizing Scope

Our ability to maximize scope within budget comes from our 28-year history of reliable, competitive pricing, annually bidding $2.6 billion in this market, and self-performing $150 million in Colorado every year. Therefore, we are not simply a construction manager. Our single-source responsibility allows us to competitively bid and self-perform the work to effectively control all of the elements that impact cost and schedule—giving us the ability to maximize scope by providing innovation and cost savings throughout the life of the Project.

We are able to self-perform up to 75% of this workscope. In order to deliver the best-value to our Arvada, we remain flexible and approach this Project with a focus on the most successful delivery of the Project goals. If it delivers the best value to the Project, we will draw upon our well-established subcontractor and supplier network to complete the work. In addition, our unmatched local market knowledge enables us to procure long-lead and large-volume items in advance to take advantage of volume discounts and to protect clients from double mark-ups and pricing escalations. We have also developed a matrix of Project innovations in our proposal that deliver on best value.

Our successful history of integrated project delivery comes from our extraordinary collaboration, depth of resources, extensive CMGC experience, and competitive price certainty. We look forward the opportunity to further share with you our ideas, qualifications, and the value our team can bring to this Project. Thank you for the opportunity to pursue this Project, and for your consideration as you review our proposal.

Our main point of contact for this Project is Larry Walsh, Project Manager, P: 720.284.7870, lwalsh@semaconstruction.com.

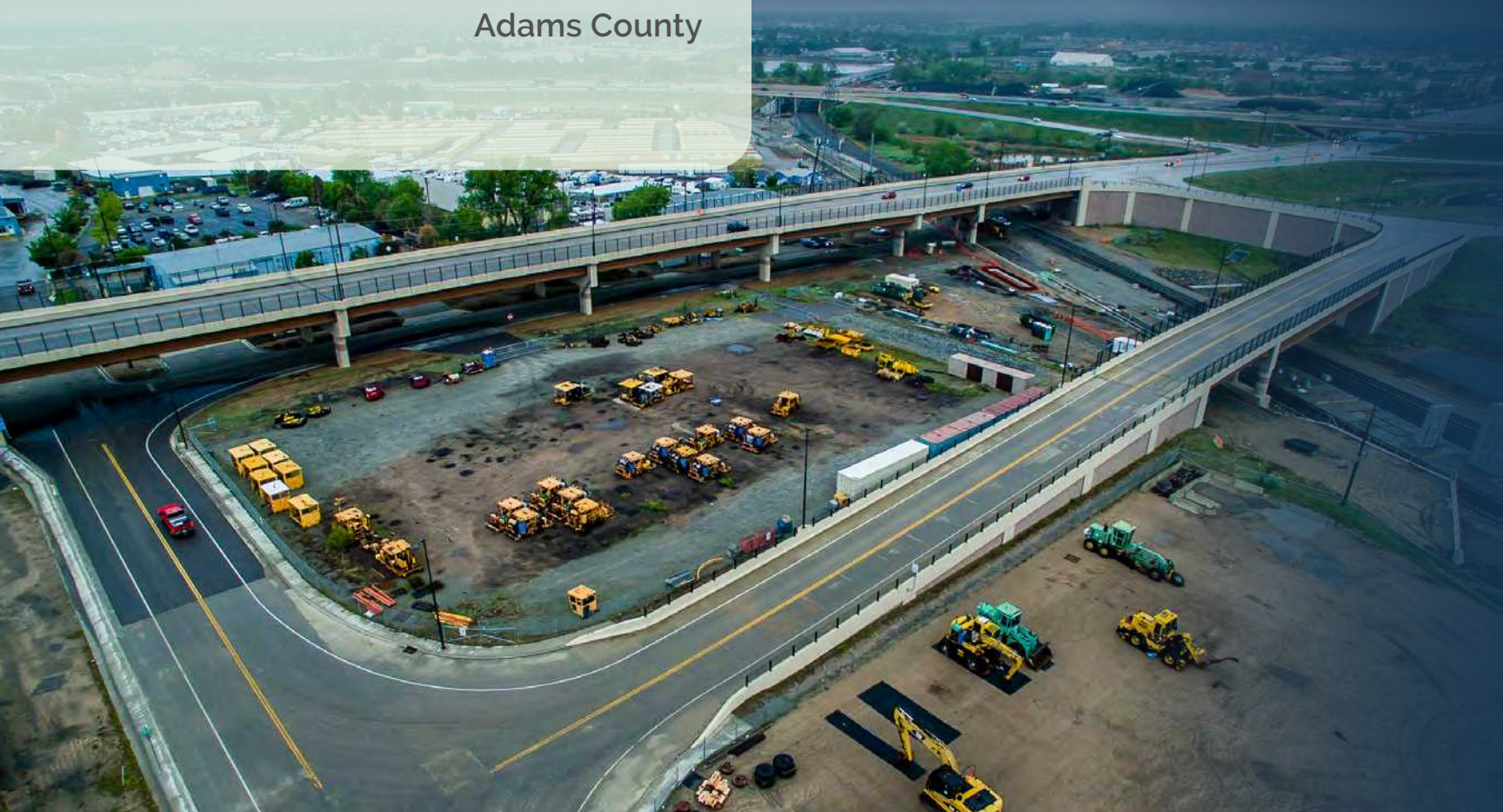
Sincerely,

Brett Ames, District President
SEMA CONSTRUCTION, INC.

Proposal Section

Pecos Street Grade Separation

Adams County



1. Project Management Team

39th Avenue Greenway Park Hill Detention Design-Build

City and County of Denver

*SEMA successfully managed relocation of 276 utilities.

1. PROJECT MANAGEMENT TEAM

Composition and Commitment of the Project Management Team

Project Management Team

As Arvada's first transportation CMGC contract, this Project will set the stage for future CMGCs. SEMA's team includes experts who have supported owners through the CMGC process, including collaborating with the City and County of Denver (CCD) on their first Public Works CMGC—Red Rocks Infrastructure Improvements. Our team will help Arvada navigate through the CMGC process to yield a Project that delivers on goals and expectations, while delivering a best-value approach.

We are pursuing this Project with a proven, innovative team that has recently collaborated on an $82M multi-faceted, alternate delivery project for CCD. Additionally, many of SEMA's management and craftspeople who constructed the previous phase of 72nd Avenue, east of the current Project still work for SEMA. This ensures Arvada absolute cohesion and a proven, seamless approach to this Project.

WHY SEMA?

28	Years of Improving Infrastructure in Colorado
147	Years of Industry Experience our Key Personnel Bring to this Project
15	Average Years our Key Personnel have Worked Together
$830M	CMGC Experience
$2B	Colorado Transportation Projects
$350M	Heavy Rail Experience
$2.6B	Competitively Bid in Colorado, Annually = Competitive Price Certainty
46	Awards for Quality and Safety in Roadway and Rail Over the Past Five Years

Key Personnel Qualifications

Brief biographies of our key personnel begin on this page, and an organizational chart for our team is included on page 7. **The key personnel we are proposing are available for the anticipated time commitment for their respective roles, and all have decision-making authority appropriate for their positions.** Our key personnel have worked together on recent and similar projects, as illustrated in Figure 1 on page 6.

PROJECT MANAGER LARRY WALSH brings nearly 40 years of relevant industry experience, with his entire career comprised of Colorado infrastructure and transportation projects. Delivering his first alternative delivery project in 1983, Larry brings unparalleled leadership and proven success to this Project. His unique hands-on approach in much of the detailed design process results in a highly-efficient, integrated, and responsive collaboration. Larry's proven understanding working with the public and stakeholders is a direct result of his own 20 years as a public agency representative, which offers Arvada heightened stakeholder support.

Job Description, Responsibilities, and Authority: Larry will be the focal point of contact and responsible for leading our team's achievement of the Project goals. Larry will participate in design coordination meetings to identify cost and schedule reduction ideas, lead the team in innovation, minimize risk, and review for constructability. He will coordinate all preconstruction tasks such as initiating and tracking of the risk mitigation matrix, tracking innovations, developing value engineering proposals, participating in design and constructability reviews, and developing a utility matrix to ensure mitigation of any utility conflicts. Larry will coordinate a seamless transition to construction where he will continue to lead overall management of the Project.

TIER I

Firm: SEMA • **Years of Experience/With Firm**: 39 / 14 • **Home Office**: Centennial, CO • **Concurrent Projects/Responsibilities**: Design-Build Manager, 39th Avenue Design-Build

CONSTRUCTABILITY EXPERT MARK BROOKS, PE, has more than 30 years of experience in both consulting engineering and civil construction. In 2018, Mark led SEMA's local estimating efforts valued at more than $2.1B. Mark has managed SEMA's preconstruction cost estimating services/constructability for more than $830M in CMGC projects, as well as participating as SEMA's estimating lead cost estimator/constructability expert for over $350M in design-build projects, and $800M in design-bid-build procurement awards.

Job Description, Responsibilities, and Authority: Mark's background as a design engineer combined with his experience leading preconstruction services as lead cost estimator, will ensure a technically sound and

strategic project delivery approach with a high-quality finished project. In leading constructability reviews and managing SEMA's team of field constructability experts, Mark will drive collaboration between the designers and field construction team by better defining the construction constraints and cost-effective means and methods of construction to the design team. A highly collaborative leader, Mark will drive ongoing cooperation and partnership between Arvada, the CMGC Design team, the ICE, and our team to ensure immediate decision-making and cohesion related to scope, budgets, and time lines.

TIER II

Firm: SEMA • **Years of Experience/With Firm**: 30 / 25 • **Home Office**: Centennial, CO • **Concurrent Projects/Responsibilities**: Constructability Expert, North I-25 Segments 5 and 6 CMGC

COST ESTIMATOR
JEFF MARKLE, PE, has more than 15 years of broad industry experience in project management, estimating, and construction engineering. Jeff's experience includes $790M in CMGC experience involving extensive preconstruction involvement, development of advanced technical concepts, value engineering, risk analysis, and project controls. Jeff has solid experience collaborating with owners to tailor risk allocation approaches and deliver project vision and goals.

Job Description, Responsibilities, and Authority:
Jeff will be responsible for leading the multi-disciplinary team efforts for Opinion of Probable Construction Cost (OPCC), milestone ROM estimates, and the development of a cost model that balances price, schedule, and risk that is easy to understand and compatible with Arvada's ICE. He will be involved during design team task force meetings to provide budgetary perspectives and review design and construction solutions in order to develop a transparent and acceptable CAP.

TIER II

Firm: SEMA • **Years of Experience/With Firm**: 15 / 3 • **Home Office**: Centennial, CO • **Concurrent Projects/Responsibilities**: Project Controls, North I-25 Segments 5 and 6 CMGC

PROJECT CONTROLS
DUSTIN MCKIE has a 29-year career comprised of both project management, scheduling, and project controls. Having scheduled SEMA's entire portfolio of CMGC projects, Dustin can be also credited for co-authoring and managing a project controls process that includes a fully-integrated CMGC schedule combining all design and construction elements including subcontractor scopes for CDOT's North I-25 Segments 5 and 6 CMGC.

Job Description, Responsibilities, and Authority:
During preconstruction, Dustin will coordinate with Arvada and other key stakeholders to develop a fully integrated schedule, cost estimates, and risk management plan in execution of Arvada's goals. During construction, Dustin will work directly with Arvada personnel to manage cost estimates, Project schedule, Project risk, and all aspects of project quality. Dustin will also work directly with Arvada project staff to provide monthly reports on all project control elements to Arvada and the CMGC Design team.

TIER II

Firm: SEMA • **Years of Experience/With Firm**: 29 / 10 • **Home Office**: Centennial, CO • **Concurrent Projects/Responsibilities**: Scheduler, North I-25 Segments 5 and 6 CMGC

CONSTRUCTION MANAGER
CHARLIE BISBEE has 12 years of relevant experience in civil construction and project management. Charlie has a project portfolio worth $500M including $90M in alternate delivery work. Working side-by-side with Project Manager Larry Walsh as the Deputy Project Manager on Denver's 39th Avenue Design-Build, Charlie brings cohesion, a proven approach, and tested best practices in managing highly complex, multi-scope projects, like this one.

Job Description, Responsibilities, and Authority:
As Construction Manager for the Project, will lead all field operations. Charlie will also evaluate the constructability of design, phasing, MOT planning, and innovations for iterative and milestone CAP estimates during preconstruction to pro-actively deliver impactful solutions that increase safety while maximizing scope, productivity, and quality. Charlie will be responsible for the day-to-day construction operations progress, quality, and safety during construction. Charlie will be flexible and respond to changes in scope and complexity, while providing leadership in communication between the field operations team, Arvada, and key stakeholders.

TIER II

Firm: SEMA • **Years of Experience/With Firm**: 12 / 9 • **Home Office**: Centennial, CO • **Concurrent Projects/Responsibilities**: Deputy Project Manager, 39th Avenue Design-Build

SAFETY MANAGER
ELVER BERNAL, CHST is a senior safety professional with 22 years of experience developing, implementing, and managing safety for more than $2 billion in construction, including more than 55 heavy rail projects worth $350 million. Elver has a thorough understanding of UPRR's safety policy requirements and will confirm the team is educated on safety compliance requirements and

expectations and oversee the safe operation of site coordination and construction activities. Elver will lead the effort in exceeding the safety goals for this Project.

Job Description, Responsibilities, and Authority: Elver will be responsible for the development of a project-specific, tailored construction safety action plan including job site safety audits, daily safety briefings, and task hazard analysis components. He will develop and implement all work site safety policies and procedures and be responsible for ongoing safety program administration. During preconstruction, Elver will be responsible for reviewing the design with a focus on identifying and resolving potential safety issues.

TIER II+

Firm: SEMA • **Years of Experience/With Firm**: 22 / 22 • **Home Office**: Centennial, CO • **Concurrent Projects/Responsibilities**: Safety, 39th Avenue Design-Build

PROJECT EXECUTIVE BRETT AMES brings 23 years of experience providing hands-on support, management, and guidance for SEMA's $2B alternate delivery portfolio, including direct participation in constructability and value-engineering solutions for all of SEMA's CMGC and design-build projects. Brett's hands-on project support fosters trust and collaboration in alternate delivery projects.

Job Description, Responsibilities, and Authority: Brett is locally-based and immediately available to provide the highest level of support to this Project, during both preconstruction and construction. Brett's hands-on involvement in the development of the OPCC and CAP will eliminate unnecessary time and red tape, optimizing and accelerating the CMGC process.

EXECUTIVE

Firm: SEMA • **Years of Experience/With Firm**: 23 / 23 • **Home Office**: Centennial, CO • **Concurrent Projects/Responsibilities**: CMGC Executive for SEMA's CMGC Projects

Key Personnel References and Resumes

We carefully selected each individual for our team to create a cohesive blend of CMGC and scope-related expertise, including railroad experience. Our key personnel all have relevant experience performing cost analyses, developing construction innovations, and completing highly complex projects. Complete resumes for our key personnel are included in the Appendix.

Need for Additional Key Personnel

SEMA's $350M in heavy rail experience gives us supreme knowledge of UPRR's construction standards and safety requirements. Supporting goals #3 and #4, we have supplemented our team with additional Tier III constructability support focused on the rail component of this Project. **Rail Constructability Expert Tony Swedin** is a heavy rail expert who has worked exclusively delivering successful heavy rail projects since 2011. Tony effectively coordinates with designers, owners, and operations departments to develop and implement construction phasing and constructability solutions that respond to operational needs as well as cost and schedule parameters. With 19 years of experience, his background

Value-Added Support: Public Information and Communication

Strategic Communications Support During Preconstruction: In support of goal #2, we have supplemented our team with our in-house Strategic Communications Manager Mia Migdall. In this role, Mia will support Arvada's public information (PI) team starting immediately during preconstruction, and further coordinate those efforts with SEMA's PI Manager (PIM) during construction. This approach allows our team to deliver thoughtfully timed and consistent messaging throughout the Project. This added support will ensure the broadest reach and strategic emphasis on stakeholder relations, keeping the community informed and supportive of the Project.

Construction Public Information Manager (PIM): Kristi Estes of CIG will lead our team's PI efforts during construction. Kristi is an infrastructure project communicator who has called Arvada home for 13 years. She has children who currently attend Oberon Middle School and Ralston Valley High School, play softball at Youth Memorial and dance at Move by Morelli. She walks her dogs at Standley Lake and meets up with friends at the Arvada Tavern. **To say that Kristi is personally invested in the success of this project is putting it mildly.**

Kristi brings more than 25 years of experience in public information, public involvement, and public relations—mostly on large transportation infrastructure projects for both roadway and rail. Kristi has worked on such transformational projects that have required extensive outreach, including the Transportation Expansion Project (T-REX), the Regional Transportation District's (RTD) FasTracks program and the North Metro Rail Line, the multimodal U.S. 36 Express Lanes Project, and the Central 70 Project.

Mia and Kristi have already conducted their first public information and communication innovations workshop and are eager to share their ideas with Arvada.

includes several multi-million-dollar mainline, structure, and at-grade projects valued at more than $200M. Tony is regarded as a trusted advisor in phasing and problem-solving construction techniques.

The heavy rail component of this Project, combined with adjacent schools within the Project site warrants a heightened focus on safety. Therefore, we have moved the Tier III Safety Manager role to an additional Tier II Key Personnel Role. Our senior safety professional, **Elver Bernal, CHST**, will fill this role. Responsible for leading SEMA's corporate safety program, Elver's ability to nurture a culture of safety on large, complex infrastructure projects will reduce risk and exceed the goals for this Project.

Succession Planning

Recognized as a Top Workplace by the *Denver Post*, we have very low staff turnover—our leaders, many of whom are on this Project team, have an average of 22 years of tenure at SEMA—being locally based makes us flexible and able to respond immediately to unforeseen changes during any phase of the Project. We purposefully did not place Tier II team members in additional Tier III roles in the event they need take on additional Project responsibilities. This provides Arvada with assurance that Project goals and milestones will never be hampered.

Figure 1. Experience Working Together

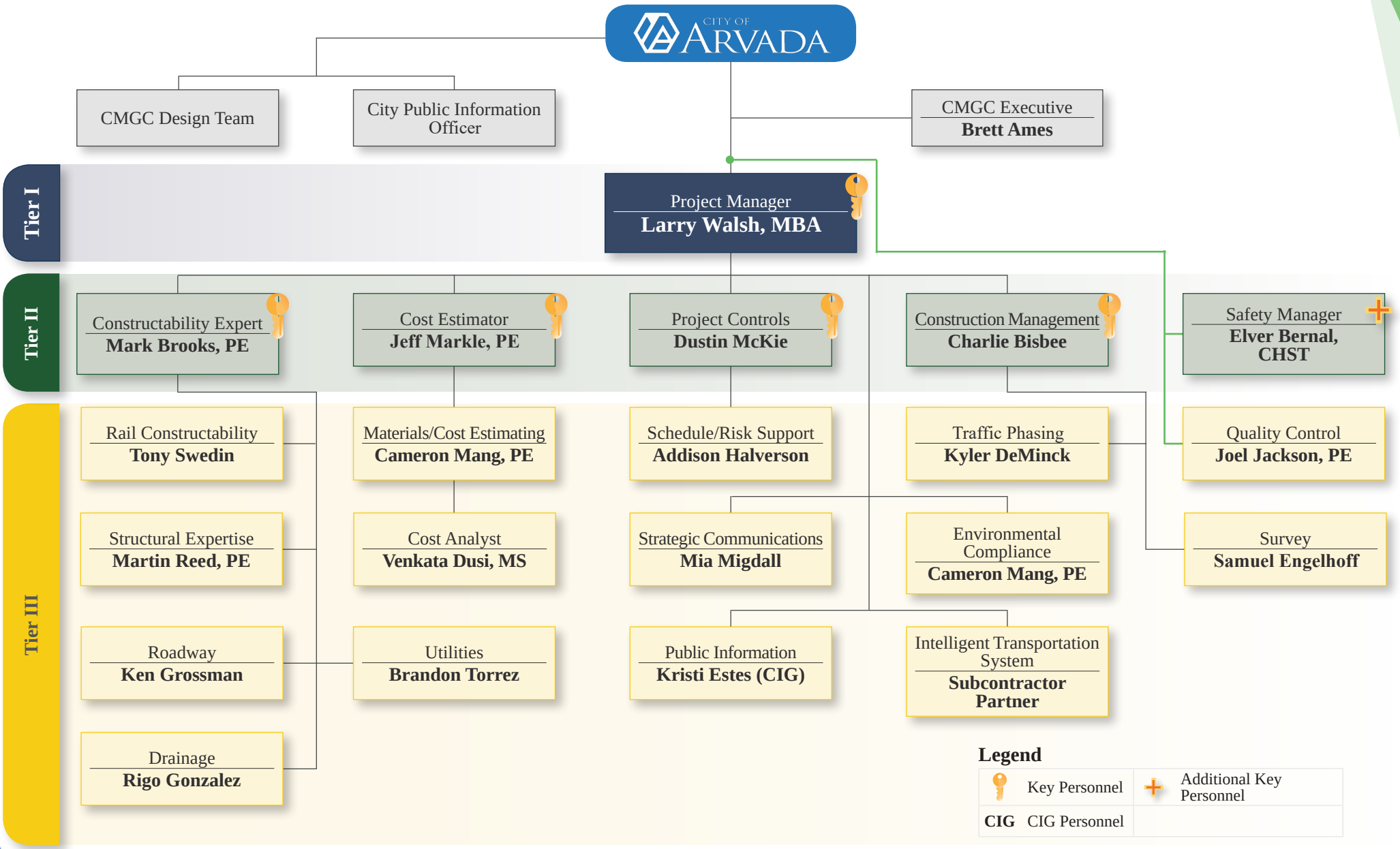
SEMA brings a proven, cohesive team! Our Key Personnel come to this Project with an average of 15 years of experience delivering successful projects together, including 39th Avenue D-B, and other similar projects involving significant heavy rail coordination.

Tier	Name/Role	39th Ave. Greenway D-B	Peoria Crossing Grade Separation D-B	E-470 Exp. Phase I CMGC	E-470 Exp. Phase II CMGC	BNSF Bradshaw to Aurora	BNSF Alliance Mainline #2 Relocation	UPRR Arvada Second Main Track	Pecos St. Grade Separation	Red Rocks CMGC Ph. I, II and III	Central Park and I-70 Interchange D-B
I	Larry Walsh – Project Manager	■	■								■
II	Mark Brooks, PE – Constructability	■	■	■	■	■	■	■	■	■	■
II	Jeff Markle, PE – Cost Estimator	■	■		■						
II	Dustin McKie – Project Controls	■	■	■	■	■	■	■	■	■	■
II	Charlie Bisbee – Construction Manager	■	■						■	■	■
II	Elver Bernal, CHST – Safety Manager	■	■	■	■	■	■	■	■	■	■
III	Mia Migdall – Strategic Communications	■	■		■					■	
III	Tony Swedin – Rail Constructability					■	■				
Exec.	Brett Ames – Project Executive	■	■	■	■	■	■	■	■	■	■

Availability and Commitment of Key Personnel

SEMA's 39th Avenue D-B project recently reached the 100% approved-design level, which frees up our key personnel to immediately begin preconstruction services on this Project. SEMA's resources are 100% available and committed to exceeding the goals of this Project.

Figure 2. Organizational Structure Chart



2. Contractor Capability

Peoria Crossing Grade Separation Design-Build

City and County of Denver

Safety Record and Performance

Safety Programs and Processes

Safety is owned by every individual on our team. Despite our impressive safety record, we understand these are minimum expectations we must exceed to be considered for your business. What sets our safety program apart is our relentless quest to promote safety to the next level by introducing innovations, such as wearable technologies, to advance safety standards to a higher level.

Our safety commitment begins by fortifying our team with a senior safety professional who brings 22 years of experience developing and executing successful safety programs for more than $2B in construction. **Safety Manager Elver Bernal, CHST**, will develop and oversee our prevention-based safety program to ensure everyone goes home safely.

Safety Risk: SEMA believes the biggest safety risk on this Project is construction zone safety, heightened by live rail activity and adjacent schools. We will address this by designing our phasing plans to improve safety during construction and by collaborating with Arvada to develop a Construction Work Zone Safety Awareness Program.

The foundation of this program includes SEMA's established safety approach and tactics:

- OSHA 30-level certifications for superintendents and 10-level for craft workers
- CDOT Traffic Supervisor training for foremen, superintendents, and project management staff
- Heavy rail-specific safety training for foremen, superintendents, and project management staff:
  - » eRailSafe Safety Awareness
  - » Roadway Worker Protection
  - » UPRR Safety Orientation
- Daily safety briefings and scope-specific "Toolbox Talks"
- Ongoing hazard evaluations and regular internal safety inspections
- Best-in-Class Prevention System. One of our most innovative safety solutions is our established SEMA Incident Level Classification System (SILCS) procedure. This is one of the best-in-class safety innovations as recognized by Arch Insurance. SILCS classifies an incident, based on its level of severity and outlines the course of action based on classification level. The SEMA Safety Advisory System (SSAS)

Excellence in Safety

2018 Platinum Safety Award, National Rail Construction and Maintenance Association

2018 Engineering News Record Safety Award of Merit for Alliance Rail Intermodal Facility Expansion, Phase II

2016 NRC Gold Safety Award, National Railroad Construction and Maintenance Association

2016 Liberty Mutual Gold Safety Award, U.S. 6 Design-Build in Denver, Colorado

2016 Colorado Contractors Association Project Management Safety Award, I-70 Vail Chain Stations

2016 Colorado Contractors Association Safety Award, Zero Incident Rate in Highway Construction

2015 Colorado Contractors Association Safety Award, Zero Incident Rate in Highway Construction

This program also includes Project-specific safety processes and initiatives, including:

Wearable/Asset Deployable Proximity Sensors: Personnel and fixed assets are tagged with sensors that sound an alarm warning heavy equipment operators of encroachment/potential collision hazards.

Traffic Incident Management Plan: Scalable incident management/response plan including first responder coordination and communication, towing/recovery resources, HAZMAT spill containment and clean-up, and incident tracking and reporting.

Safety Record

SEMA's safety performance is significantly lower than the industry average, including our 2019 0.55 EMR that ranks in the Top 1%!

Figure 3. SEMA's Safety Record

Year	EMR	TRIR	LWIR
2018	0.70	0.6	0.00
2017	0.81	1.20	0.60
2016	0.93	1.70	0.20
2015	0.96	0.96	0.50
Industry Avg	**1.0**	**3.2**	**1.1**

EMR: Experience Modifier Rate
TRIR: Total Recordable Incident Rate
LWIR: Lost Workdays Incident Rate

2. CONTRACTOR CAPABILITY

Over the past 28 years, we have proven to be large, fast, and flexible and have built a portfolio of projects ranging in size from $100,000 to $450M. With nearly 1,000 employees nationwide, we have a unique stronghold, constructing large projects with structure and systems that maximize productivity, fiscal efficiency, scheduling, and owner satisfaction. SEMA currently holds a MC-D General Municipal Contractor License with the City of Arvada.

Scope Expertise and CMGC Leadership

Currently ranked the 23rd largest transportation contractor in the nation by Engineering News-Record, SEMA is well-equipped to exceed Arvada's expectations for this Project. Our ability to successfully deliver goals #3, #4, #5, and #6 and what makes us unique is our **$350M in heavy rail experience** which we believe essential to the successful and safe delivery of this Project within funding and time-frame parameters. We have completed 21 grade separation projects like this one, and are one of the few contractors competing that comes with a portfolio of numerous rail underpass projects, positioning us as a leader in this scope of work.

SEMA has $830M of successful CMGC experience. Additionally, **we led CCD's first public works CMGC**, so we know how to guide process development and help build best practices for agencies like Arvada that are new to CMGC for civil infrastructure projects.

We will collaborate with Arvada to achieve critical completion milestones by implementing cost savings innovations and effectively phasing work based on logistical needs, available project funding resources, and constructability needs. Fueled by our 100% success rate in negotiating CAP, SEMA will develop a market-driven and reliable cost model to responsively identify the most effective approach to construction based on operational needs, cost concerns, and schedule constraints.

EXPERIENCE & PERFORMANCE

$830M	**Total Value of CMGC Projects**
$350M	**Value of Railroad Projects**
$150M	**Value of Railroad CMGC Projects**
31	**Number of Railroad Bridges Constructed**
25	**Total Grade Separation Projects**
17 / 11	**Rail Overpasses / Rail Underpasses**
100%	**Success Rate in Delivering a CAP Across All CMGC Projects**
Top 1%	**SEMA's 2019 0.55 EMR Ranking in the Construction Industry**

West 72nd Avenue Extension – Arvada, CO

SEMA completed previous improvements on 72nd from Kipling east to Wadsworth that included similar roadway capacity improvements consisting of new roadway construction, 4,000 linear feet of sound wall/retaining walls, utility relocation coordination, and 5,800 linear feet of water/sewer/storm piping.

Pecos Street Grade Separation – Adams County, CO

SEMA constructed this grade separation overpass bridge that included 1,100 feet in length, as well as 68,000 square feet of precast retaining walls with heights up to 30 feet to eliminate the at-grade crossing of Pecos Street from UPRR and BNSF Railway tracks near Utah Junction.

UPRR Second Main Track – Arvada, CO

SEMA's local railway project for the UPRR on the Moffat Tunnel Subdivision line involved the construction of a three-span steel girder railroad bridge over Clear Creek and underpass widening below Sheridan Boulevard.

Figure 4. SEMA's Grade Separation Experience

Name, Location	Value	Underpass	Overpass	Description
City of El Segundo, Douglas Street Gap Closure Railroad Grade Separation – El Segundo, CA	$22M	■	■	Construction of intermodal transit center, BNSF railroad grade separation, and pedestrian overcrossing structure.
City of Englewood, Oxford St. at Belleview – Englewood, CO	$9M	■		Construction of a new post-tensioned concrete box girder underpass bridge within the UPRR and BNSF Railroad ROW.
CDOT, Santa Fe and Belleview Phase I – Englewood, CO	$6M	■		Construction of a new post-tensioned concrete box girder underpass bridge within the BNSF Railroad ROW.
UPRR Utah Junction Flyover – Denver, CO	$5M	■	■	Construction of a double track flyover steel girder bridges over UPRR and Lipan Street underpass bridge.
Douglas County, Titan Road/UPRR Grade Separation – Douglas County, CO	$3M	■		Construction of a three-span cast-in-place bridge to carry UPRR's mainline tracks over the realigned Titan Road underpass.
New Mexico DOT, U.S. 56 Springer Colfax County – Springer, NM	$3M	■		Main Street construction including underpass widening and improvements under a UPRR railroad bridge.
UPRR Second Main Track – Arvada, CO	$2M	■		Construction of a new three-span steel girder bridge over Clear Creek and widening of the railroad overpass at Sheridan Blvd.
BNSF Pedestrian Underpass – Celina, Collin County, TX	$1.5M	■		Improvements at BNSF Railroad Tributary F and construction of the Cypress Creek Pass pedestrian underpass.
BNSF Alliance Mainline #2 Relocation	$38M	■		Project included improvements to three heavily-traveled grade crossings, including two railroad underpasses
BNSF Bradshaw to Aurora	$19M	■		Construction of a new grade separation bridge over Highway 14, which was completed in less than seven weeks
Village at Avon Infrastructure and Bridges – Avon, CO	$20M	■	■	Infrastructure improvements, including a bridge over the Eagle River and Avon Road underpass bridge below the UPRR.
CCD Peoria Crossing Grade Separation Design-Build	$21M		■	Construction of a grade-separated structure elevating Peoria Street over the UPRR yard and the future RTD East Rail Line.
CDOT, I-76 over UPRR, Bridge Replacements – Adams County, CO	$11M		■	Construction of a new three-span concrete girder bridge overpass over the UPRR and future RTD tracks at I-76.
BNSF Railway, Ft. Sumner to Agudo Pecos River Bridge – Ft. Sumner, NM	$27M		■	Construction of a 1,576-foot-long, 19-span bridge over the Pecos River. Two other bridges were also constructed including an eight-span bridge over Truchas Creek and a three-span bridge over Highway 60.
El Paso County Baptist Road West – Monument, CO	$9M		■	Construction of a new three-span concrete girder bridge over the UPRR tracks and Monument Creek.
Adams County, Pecos St. Grade Separation – Adams County, CO	$26M		■	Construction of the new eight-span Pecos Street bridge over UPRR, RTD, and BNSF Railway tracks and construction of a new single-span overpass bridge on Osage Street over RTD and BNSF Railway tracks.
City of Grand Junction, Riverside Parkway Phases I, II, and III – Grand Junction, CO	$55M		■	Phase II: Construction of two pedestrian steel truss bridges over the railroad. Phase III: Construction of a new three-span bridge over UPRR (North Fork Branch) and 4th Street.
CDOT COSMIX – Colorado Springs, CO	$143M		■	This design-build project built or expanded 20 bridge structures totaling 3,485 tons of reinforced bridge steel, including the replacement of the old Bijou Street Bridge and interchange which spanned Monument Creek, a busy UPRR railroad yard, and I-25.
Kansas Department of Transportation, K-18 Phase I – Manhattan, KS	$66M		■	Railroad relocation and upgrade improvements of K-18 and K-114, including overhead structures over the UPRR tracks and Seven Mile Creek.
City of Torrance, Del Amo Boulevard Extension – Torrance, CA	$11M		■	Construction of the Del Amo Boulevard Overhead bridge over the Harbor Subdivision tracks of BNSF and LA Metro transit rail.
CDOT, I-25 and Broadway Viaduct – Denver, CO	$11M		■	Construction of the nine-span I-25 viaduct over Broadway Ave, UPRR, BNSF Railway, and RTD rail lines.
Town of Castle Rock, Front Street Flyover – Denver, CO	$6M		■	Construction of a six-span concrete girder bridge over UPRR.
CDOT, U.S. 85 and Titan Road – Douglas County, CO	$9M		■	Roadway interchange construction, including three bridge structures over the UPRR and BNSF Railway and U.S. 85.
CDOT, SH 24 and 1-70 – Limon, CO	$7M		■	Roadway interchange reconstruction, including a bridge structure over the railroad and unnamed creek.
CDOT, Berthoud Bypass/U.S. 287 – Berthoud, CO	$30M		■	Construction of U.S. 287 single-span 100-foot-wide bridge over BNSF Railway.

Peoria Crossing Design-Build

Denver, CO ($21 million)

Description of Services: Denver's second transportation design-build project the award-winning Peoria Crossing, improved an important connection between Denver and Aurora that was hampered by the at-grade crossing of the UPRR tracks. SEMA's design-build team provided a best-value solution that involved the construction of a grade-separated structure elevating Peoria Street over the Union Pacific Railroad yard and the future Regional Transportation District's East Rail Line. This project received the Transportation Project of the Year award from the American Public Works Association and a Merit Award in Transportation from Engineering News-Record.

SEMA developed an accelerated time line to achieve substantial completion nine months early. Completion of the bridge was required by March 2015 to enable the Regional Transportation District to complete and begin testing of their new rail line across Peoria Street to Denver International Airport. SEMA completed the new bridge eight months early.

SEMA and Parsons Brinckerhoff developed 20 alternative technical concepts, of which 11 were approved. These resulted in savings to CCD of $3.6M.

The team designed a three-span, 560-foot bridge that included five girder lines of trapezoidal precast post-tensioned concrete U-girders. This design provided a center main span of 240 linear feet which placed all substructure elements out of UPRR's right of way. Because the team determined that girders smaller in depth than what was originally planned would meet the design requirements, the girder depth was reduced from 96 feet to 84 feet, which also reduced the embankment height. Innovations also included selecting concrete pavement over asphalt to provide a higher-quality product and reduce future maintenance costs.

Coordination with Stakeholders: UPRR, Regional Transportation District, Xcel Energy, CenturyLink, Aurora's Department of Water and Sewer, Conoco Phillips, Denver Water, Level 3

Project Delivery Method
Design-Build

Construction Cost
Initial: $21.7M
Final: $22M
Change Orders: Owner-initiated changes in scope

Schedule Performance
Initial: 1/13 (planned and actual)
Final: 6/15 (planned) 9/14 (actual)
Changes: SEMA accelerate critical path items in the schedule

Key Staff
Brett Ames (Project Executive), Larry Walsh (Project Manager, Mark Brooks, PE (Lead Cost Estimator/ Constructability), Charlie Bisbee (Project Engineer), Dustin McKie (Scheduling), Elver Bernal, CHST (Safety), CIG (PI)

Subcontracts
Concrete Pavement, Asphalt Pavement, Traffic Control, Landscaping, Lighting and Signalization

Warranty
3 years material/workmanship; 1 year landscape

References

Owner: Bret Banwart, Douglas County Construction Manager (formerly CCD Project Director), 303.660.7490

Designer: Paul Greco, Senior Technical Manager (formerly Bridge Group Manager, Parsons Brinckerhoff), Atkins, 303.475.7136

"Working with SEMA Construction was more than just a positive experience; it was an experience that laid a foundation for trust and a healthy relationship for future projects. With their high level of performance and as a leader in the industry, SEMA Construction serves as an example to the level of service and commitments essential for an on-time, under-budget and quality project."

Bret Banwart, PE, Former Peoria Crossing Project Manager, CCD

Relevancy

Design-Build/Integration between Construction and Design
At Grade Construction over UPRR Tracks
Bridge Construction
Traffic Phasing
Retaining Walls
ROW and Utility Coordination
Water, Sewer, and Storm Pipe Construction
Environmental
Stakeholder/Project Coordination

Project Video

Click the "play" button to watch the project video.

39th Avenue Greenway Park Hill Detention Design-Build

Denver, CO ($82 million)

Description of Services: The 39th Avenue Greenway/Park Hill Detention Design-Build project is the fourth design-build project in Denver's history, and the third design-build project for which SEMA was selected as design-build contractor by CCD. The SEMA design-build team was the only team able to deliver the project within CCD's allocated budget, compared to the other two competing teams that presented options $23M and $7M over CCD's budget respectively.

The project has two major segments—39th Avenue ($57M) and Park Hill ($24M)—and eight design packages which allowed for early release of construction and gave flexibility to the owner on final design. Although this project was procured under a design-build procurement concept, a CMGC-type concept was later implemented so design elements could be reviewed and redesigned if necessary to ensure CCD's and the community's visions were fulfilled. Initial Project Notice to Proceed was delayed two months; however, through schedule re-sequencing and collaboration, the original required completion dates were maintained. At the 90% design submittal/review level, CCD changed the vision and one of the major project elements. SEMA and the design-build partner collaborated closely with CCD to redesign the work and re-sequence the project to maintain the original contract schedule, despite adding significant workscope. Project requires highest-level project coordination Central 70, CCD Glo, and CCD Phase V.

Recognizing the importance of minimizing impacts to the surrounding residential communities and businesses along this project corridor, SEMA's design-build team has implemented an enhanced PI approach. It incorporates a "base" program enhanced with a supplemental outreach program led by Design-Build Project Manager Larry Walsh.

Coordination with Stakeholders: Mayor's Office, Denver Parks and Recreation, UPRR, Denver Stormwater Division, RTD, DTO, DTP, DTC, SHPO, numerous local neighborhoods and businesses

Project Delivery Method
Design-Build

Construction Cost
Initial: $78.2M
Final: $82M
Change Orders: Owner-initiated changes in scope

Schedule Performance
Initial: Start 1/18 – Completion 6/20
Final: Start (Phase I) 4/16 – Completion (Phase I) 12/17; Phase II: Preconstruction nearly complete
Changes: Early packages accelerated delivery of Phase I

Key Staff
Brett Ames (Project Executive), Larry Walsh (Project Manager, Mark Brooks, PE (Lead Cost Estimator/ Constructability), Charlie Bisbee (Deputy Project Manager), Dustin McKie (Scheduling), Jeff Markle, PE (Deputy Design-Build Project Manager), Joel Jackson, PE (QC), Elver Bernal, CHST (Safety), Cameron Mang, PE (Environmental)

Subcontracts
Amenities, Landscaping, Electrical, Concrete Flatwork, Asphalt, Rebar, Drilling, Bore/Tunnel/Jackpipe, Waterline, Asbestos Abatement, Irrigation

Warranty
3 years material/workmanship; 1 year landscape

References

Owner: Steve Coggins, CCD Program Manager, 720.865.3043

Designer: Pat Stein, PE, Felsberg, Holt & Ullevig Design Manager/Principal, 303.877.7687

Relevancy

100% of Key Personnel are the Same as this Project
Design-Build/CMGC Approach for Added Scope
Bridge Construction
Retaining Walls
ROW and Utility Coordination
Water Control/Dewatering
Water, Sewer, and Storm Pipe Construction
Rail Coordination
Environmental
Stakeholder /Project Coordination

"SEMA's team, led by Larry Walsh, consistently delivers Denver's design-build projects within or below budget, on time or early. By demonstrating an extraordinary commitment to safety, schedule, budget, scope, quality, public involvement, and stakeholder coordination—SEMA consistently exceeds expectations."

David Huntsinger, Director of Capital Projects Management, CCD

E-470 Expansion Parker to Quincy (Phase I) CMGC

Aurora, CO ($79 million)

Description of Services: SEMA assisted in providing CMGC services to widen and add a lane in each direction for 8 miles, with addition to roadway widening to allow for a future fourth lane. With a cost-focused approach, the purpose of this project was to maintain travel time reliability and avoid congestion delays. Construction consisted of widening 11 bridges, moving 1.1 million cubic yards of earthwork, and paving more than 200,000 tons of asphalt. This project received the CAPA 2017 Project Delivery Award.

To deliver the most cost effective project, our team implemented multiple Relevancy construction packages to start construction simultaneously with final design. An early construction package was incorporated that started widening structures and earthwork operations in May of 2016 while the rest of the roadway design was still in process. The result of this early package allowed asphalt paving on one-third of the project to immediately commence after the final design was completed in August of 2016. This approach accelerated asphalt paving into the 2016 paving season and ultimately reduced the overall project duration by one year.

In addition to accelerating the construction schedule, our early construction packages provided opportunities for intermediate milestones that provided early use benefits to the traveling public. The southbound additional lane from Gartrell Road to Parker Road was opened to the public only four months after completion of design. Not only did this additional lane increase travel time reliability in one of the most congested sections of the corridor early, but it provided positive public perception on the quickness of construction and project delivery.

During preconstruction and subsequent construction, we provided additional value to the Authority by providing:

- Traffic phasing and construction sequence that minimized inconvenience to the traveling public
- Earthwork modeling and mass haul analysis that optimized earthwork efficiency
- Technical bridge constructability analysis for widening of the post tensioned curved U-girder structure over Cherry Creek
- Asphalt joint density innovations to reduce long term maintenance

Coordination with Stakeholders: City of Aurora, Arapahoe County, Adams County, Town of Parker, U.S. Army Corps, SEMSWA MS-4, Aurora Water, Lowry Trust

References

Jim Brady, PE, E-470 Public Authority Project Manager Phase I and II, 303.537.3404

John Dibble, PE, Felsberg, Holt & Ullevig Transportation Engineer, 303.721.1440 x8948

Project Delivery Method
CMGC

Construction Cost
Initial: $79.1M
Final: $78M
Change Orders: None

Schedule Performance
Initial: 4/2016 (planned start), 12/2018 (planned construction completion)
Final: 4/2016 (project start), 12/2017 (actual construction completion)
Changes: Early packages accelerated delivery

Key Staff
Brett Ames (Project Executive), Mark Brooks, PE (CMGC Manager), Dustin McKie (Scheduling), Jeff Cameron Mang, PE (Cost Estimator and Environmental), Kyler DeMinck (Phasing), Elver Bernal, CHST (Safety)

Warranty
1 year

"I would like to commend SEMA for their involvement and collaboration in preconstruction and construction services provided for two widening projects delivered under the CMGC process. To date, SEMA has been a dedicated partner to the E-470 Public Highway Authority in achieving the project goals and expectations related ensuring project safety, quality, and budget adherence throughout the CMGC process."

James R. Brady, PE, Construction Manager, E-470 Public Highway Authority

Relevancy

- CMGC
- Bridge Construction
- Roadway Widening
- Traffic Phasing
- Retaining Walls
- ROW and Utility Coordination
- Water Control/Dewatering
- Storm Sewer Drainage Piping
- Environmental
- Stakeholder Coordination

E-470 Expansion Quincy to I-70 (Phase II) CMGC

Aurora, CO ($90 million)

Description of Services: Success of Phase I of this CMGC project led to the selection of SEMA and their joint venture partner for a separate $90M CMGC contract to continue the expansion of this corridor. Construction consists of widening 11 bridges, moving 1.1 million cubic yards of earthwork, paving more than 75,000 tons of asphalt, 17 miles of toll road, and sound wall mitigation.

This CMGC involves 8.1 miles of roadway widening along the E-470 corridor. This phase is currently in preconstruction for two of the three construction packages, with pricing on one of these two packages already finalized. The largest construction package consisting of widening four bridges and the bulk of the project earthwork (approximately 700,000 cubic yards), has been released for construction and is currently underway. To maximize scope within budget, our team was able to deliver multiple construction packages to start construction simultaneously with final design.

Coordination with Stakeholders: City of Aurora, Arapahoe County, Adams County, Town of Parker, U.S. Army Corps, SEMSWA MS-4, Aurora Water, Lowry Trust, local homeowners associations

References

Jim Brady, PE, E-470 Public Authority Project Manager, Phases I and II, 303.537.3404

John Dibble, PE, Felsberg, Holt & Ullevig Transportation Engineer, 303.721.1440 x8948

Relevancy

- CMGC
- Bridge Widening over UPRR
- Roadway Widening
- Traffic Phasing
- Retaining Walls
- ROW and Utility Coordination
- Water Control/Dewatering
- Storm Drainage Piping
- Environmental
- Stakeholder Coordination

Project Delivery Method
CMGC

Construction Cost
Initial: $90M
Final: In process
Change Orders: None

Schedule Performance
Initial: 6/15/19
Final: Anticipated Fall 2020

Key Staff
Brett Ames (Project Executive), Mark Brooks, PE (CMGC Manager), Dustin McKie (Scheduling), Jeff Markle, PE (Structures Cost Estimator/ Preconstruction), Cameron Mang, PE (Cost Estimator and Environmental), Kyler DeMinck (Phasing), Elver Bernal, CHST (Safety)

Subcontracts
Asphalt Paving, CTS Subgrade, Traffic Control, Fencing, Guardrail, Pavement Marking, Landscape

Warranty
1 year

"The preconstruction team provided a transparent and collaborat ive interface between the Authority and the ICE in the progressive and successful development of the CAP... Mark [Brooks'] knowledge of construction means and methods has been helpful in developing best-value construction approaches for the Authority, especially as it relates to geotechnical/earthwork and drainage disciplines."

James R. Brady, PE, Construction Manager, E-470 Public Highway Authority

BNSF Railway Bradshaw to Aurora

Aurora, NE ($19 million)

Description of Services: This project involved the construction of a 12.7-mile double-track segment between Bradshaw and Aurora, the improvement of 13 crossings at grade level, and the construction of a new bridge over Highway 14, which was completed in less than seven weeks. This project received ENR's 2016 Top Industrial Project Award.

The project was designed in two phases to accommodate the need for constructing as quickly as possible prior to acquisition of adjacent ROW, utility relocations, and Section 404 permitting. The first phase allowed for sufficient grade to be built so that BNSF's track-laying machine could install the proposed track while using temporary drainage and grading to avoid property, utility, and stream/wetland constraints. The second phase provided for permanent drainage to be constructed as soon as project constraints were cleared.

Innovative construction techniques were immediately required as this project mandated an immediate start, before the total proposed ROW necessary for this expansion was in place, utilities engagements had been completed, or wetland mitigation had been finalized. This overall access constraint created a challenge for construction, requiring flexibility, innovative solutions, strong teamwork, and a reorder of the usual construction flow. When the construction team began working on the project, they had to move the dirt with them, to avoid encroaching upon private property since the additional ROW was not yet in place. This meant constructing within a 25-foot-wide section versus the ideal 100-foot-wide section. The ROW was finalized in stages, with the final ROW completely in place by mid-February. As the ROW was established, and the utilities and wetlands matters were resolved, the team could then go back and complete the drainage, embankment, and ditch work within the full 100-foot range. SEMA introduced innovative construction techniques that elevated industry standards, and could be modeled for future projects. Soil stabilization operations were conducted from November to February, when the temperature range was 5° to -25°. To warm the ground enough to incorporate materials into the subgrade, SEMA developed an innovative solution to employ the use of Dustrol's custom-made propane-fueled ground heaters to warm the subgrade enough for material incorporation required for soil stabilization.

Project Delivery Method
Design-Bid-Build

Construction Cost
Initial: $13.3M
Final: $19.2M
Change Orders: Premium change orders to accommodate winter construction

Schedule Performance
Initial: 11/14
Final: 3/16 (planned); 1/16 (actual)
Changes: SEMA accelerated critical path items by adding 24-hour-a-day shifts

Key Staff
Brett Ames (Project Executive), Dustin McKie (Scheduling), Elver Bernal, CHST (Safety)

Subcontracts
Waterproofing, Erosion Control, Jack and Bore Culverts, Asphalt Paving, Crane, Survey

Warranty
1 year

Coordination with Stakeholders: City of Aurora, Hamilton County

References

Owner: Trent Hudak, BNSF Director of Engineering Services, 913.551.4435

Designer: Jamie Hamm, TranSystems Project Engineer, 913.915.7138

Relevancy

- Grade Separation Bridge
- Bridge Construction
- Retaining Walls
- ROW and Utility Coordination
- Water Control/Dewatering
- Drainage Piping
- Rail Coordination
- Environmental
- Stakeholder Coordination

Project Video
Click the "play" button to watch the project video.

BSNF Railway Alliance Mainline #2 Relocation

Haslet, TX ($38.5 million)

Description of Services: SEMA partnered with BNSF Railway to realign this section of the Alliance Mainline #2 to clear the way for the Alliance Airport expansion. Highlights of this project include more than 12 miles of mainline track relocation and new connector track in and around the Alliance Intermodal Facility. This 18-month project included the removal of more than 700,000 cubic yards of dirt and rock for excavation and embankment; construction of nine bridges over roadways and rivers; and placement of 100,000 cubic yards of subballast prior to BNSF Railway track installation. Several soil nail and MSE walls were built for bridge abutments and, due to ROW constraints, and there were 35 culverts including metal pipes, jack-and-bore steel pipes, and precast and cast-in-place box culverts. Several precast box culverts needed to be installed under tight track outage windows.

Elements relevant to this Project included improvements to three heavily-traveled grade crossings, including two underpasses:

- The FM-156 bridge and MSE walls featured 180,000-pound steel girders
- A 175,000-cubic-yard embankment fill including a 2,850-cubic-yard cast-in-place concrete box culvert providing grade separation for the Barnwood bridge

SEMA collaborated with BNSF Railway on accelerating this project to allow track to be placed three months early, enabling the track-laying machine to be available for work elsewhere. One factor in this was SEMA's ability to excavate a 137,000-cubic-yard rock cut in only four weeks. Tony Swedin collaborated with BNSF Railway on a cost savings alternative to use a culvert in lieu of a bridge, saving the project $300,000.

Coordination with Stakeholders: City of Fort Worth

Project Delivery Method
Design-Bid-Build

Construction Cost
Initial: $36.2M
Final: $38.5M
Change Orders: Quantity overruns

Schedule Performance
Initial: 12/13
Final: 3/16 (planned); 12/15 (actual)
Changes: SEMA accelerated critical path scope elements

Key Staff
Brett Ames (Project Executive), Tony Swedin (Project Manager), Dustin McKie (Scheduling), Elver Bernal, CHST (Safety)

Subcontracts
Waterproofing, Shoring, QA/QC, Asphalt Paving, Caisson, Jack and Bore Culverts, Erosion Control, Blasting, Traffic Control, Welding, Haul Aggregates

Warranty
1 year landscape

References

Owner: Brian Large, BNSF Railway Director of Engineering Services, 817.352.2905

Designer: Leo Craig, Multatech Project Engineer, 817.907.5026

Relevancy

- Two Grade Separation Bridges
- Shoofly Construction
- Bridge Construction
- Retaining Walls
- ROW and Utility Coordination
- Water Control/Dewatering
- Storm, Drainage, and Piping
- Rail Coordination
- Environmental
- Stakeholder Coordination

Project Video

Click the "play" button to watch the project video.

3. Strategic Project Approach

Bradshaw to Aurora

BNSF Railway

SECTION 3: STRATEGIC PROJECT APPROACH

HAS BEEN REMOVED FROM THIS SUBMITTAL #1 AND CAN BE FOUND AS PART OF SEMA'S PROPRIETARY SUBMITTAL #2

4. Project Innovations

West 72nd Avenue Extension

City of Arvada

SECTION 4: PROJECT INNOVATIONS

HAS BEEN REMOVED FROM THIS SUBMITTAL #1 AND CAN BE FOUND AS PART OF SEMA'S PROPRIETARY SUBMITTAL #2

5. Approach to Risk, Schedule, and Price

Alliance Mainline #2 Relocation

BNSF Railway

SECTION 5:APPROACH TO RISK, SCHEDULE, AND PRICE

HAS BEEN REMOVED FROM THIS SUBMITTAL #1 AND CAN BE FOUND AS PART OF SEMA'S PROPRIETARY SUBMITTAL #2

Appendix Section

Arvada Second Main Track Overpass

Union Pacific Railroad

Larry Walsh, MBA

Project Manager

OVERVIEW

A senior construction professional with 39 years of infrastructure experience and 37 years leading design-build projects in Colorado, Larry brings special expertise in coordinating and integrating design and construction teams on large, complex projects involving highway construction/ reconstruction, structures, and phasing. Larry has a career history of identifying opportunities for cost savings through innovative value engineering, as well as a proven track record of minimizing risk and delivering high-quality projects on time and within budget.

Larry has spent his career working collaboratively with designers and owners to develop technical approaches that exceeded the project requirements and provided mobility throughout all the preconstruction/design and construction phases of the project. Larry's active leadership of the design and construction team will lead to innovative design and construction solutions that will ensure safer and improved MOT, innovative bridge construction, and accelerated project delivery. Larry's 39 years of experience in working with CDOT speaks loudly to his expertise in managing key stakeholders, subcontractors, and local/community representatives while developing a partnership between all parties involved. A former mayor and city council member of Loveland, Larry also understands the sensitivities involved in high-visibility and politically-sensitive public projects and is renowned for his ability to effectively manage individual perspectives from multiple stakeholders.

PROJECT EXPERIENCE

CCD 39th Avenue Greenway Park Hill Detention Design-Build, Denver, CO: As Design-Build Project Manager on this $82 million project, Larry successfully maintained the original schedule, despite a significant increase in scope, by redesigning the work and re-sequencing the project at the 90% design submittal/review level when CCD changed vision and one of the major project elements. Under Larry's leadership, more than $4.3M in cost savings were brought about by innovative solutions in structures, drainage solutions, underground utilities, and self-performance. Larry also provides oversight to ensure that the IGA is met. This highly-visible, multi-stakeholder project Larry assisted in the development of a project design that used a community-focused approach that successfully provided flood protection and improved the quality of stormwater entering the South Platte River.

CDOT North I-25 Segments 5 and 6 CMGC, Longmont, CO: As Scope Manager for this $450M CMGC, Larry led a unified coordination with CDOT, CMGC project management personnel, and the stakeholders for the project ensure the delivery of the project goals. Larry has resided in the project area for 35 years, served on the city council, and is the former mayor of Loveland. His public agency experience provides a deep understanding of all stakeholders and a big-picture perspective of how to unify various groups toward common goals.

CCD Peoria Crossing Design-Build, Denver, CO: As Design-Build Manager on Denver's second transportation design-build project, Larry played a key role in developing several value-added solutions that resulted in savings to CCD of more than $3.6M and completion of the project nine months early. This $22M project included construction of a grade-separated structure elevating Peoria Street over the Union Pacific Railroad yard and the future RTD East Rail Line. This project received the American Public Works Association's Best Transportation Project Award.

City and County of Denver (CCD) Central Park Boulevard and I-70 Interchange Design-Build, Denver, CO: As Design-Build Project Manager on Denver's first transportation design-build project, Larry and his team reduced life-cycle costs and maintenance and the amount of import material for earthwork, including proposing concrete pavement for the interchange ramps instead of hot bituminous pavement and by eliminating retaining walls from the owner's design. This $33M project involved extensive stakeholder coordination and included a new interchange at I-70 in the Stapleton area with braided ramps, three new bridges, retaining walls, drainage, and paving. The

Education

Executive MBA, Business Administration, University of Colorado
BS, Construction Engineering, Iowa State University

Offices Held

Mayor of Loveland, CO (4 years)
City Council Member of Loveland, CO (10 years)
Chairman Loveland Planning Commission 7 Years
Colorado Contractors Association, Board of Directors 2011-2018; President 2017

References

Lesley Thomas, CCD City Engineer/ Deputy Director Public Works,720.865.8719
Steve Coggins, CCD Project Director, 720. 865.3043

> "Under Larry's leadership on the Peoria Crossing Design-Build project, working with SEMA Construction was more than just a positive experience; it was an experience that laid a foundation for trust and a healthy relationship for future projects. With their high level of performance and as a leader in the industry, SEMA Construction serves as an example to the level of service and commitments essential for an on-time, under-budget and quality project."
>
> *Bret Banwart, PE, Peoria Crossing Project Manager, CCD*

Larry Walsh, MBA

Project Manager

project received ENR's Best Highways and Bridges Award and the American Concrete and Pavement Association's Excellence in Concrete Pavement Award.

CDOT 4th Lane at Farmington Hill (U.S. 550/160) Interchange Design-Build, Durango, CO: As Design-Build Project Manager, Larry offered solutions to enhance corridor aesthetics, including the construction of one of the first major cast-in-place, post-tensioned, concrete bridge structures to blend into the environment and create an aesthetic gateway into Durango. This design conformed with the natural contours of the existing topography and resulted in minimal impact to the existing views.

City of Riverside Parkway Phases I, II, and III, Riverside, CO: Project Manager for Phases I, II, and III of this award-winning $67.8M urban infrastructure project involving four miles of new and reconstructed major arterial roadway, utility replacement, vehicle and pedestrian bridges, retaining walls, concrete box culverts, and landscaping. Larry partnered with the City during Phase II of construction for early release and award of the Phase III project, resulting in completion of the entire corridor 24 months ahead of schedule and ensuring no cost escalation risk to the City.

SH 9 Iron Springs Realignment, Frisco, CO: Lead Estimator on this $16 million multi-modal horizontal construction project involved the realignment of SH 9 in Summit County including earthwork, four-lane roadway construction on virgin alignment, three large culvert underpasses, retaining walls, and pedestrian bike path.

104th Avenue Improvements Phases 2 and 3 Design-Build, Commerce City, CO: Project Manager for CDOT's roadway and bridge improvements project located on 104th Avenue from SH 2 to Landmark Drive. The scope of work for this 2.5-mile-long design-build project included concrete and asphalt paving, flatwork, earthwork, pond excavation, landscaping, and bridge and utility improvements.

U.S. 24/SH 67 Design-Build Bridge Replacements Design-Build, El Paso & Teller County, CO: Design-Build Project Manager for the design and management of construction on this CDOT design-build project including two bridge superstructures on U.S. 24 and one bridge structure on SH 67 near Woodland Park.

Notable Qualifications

- 39 years of Colorado alternate delivery experience.
- Led three of Denver's four transportation design-build projects (including their first two) and helped develop means and methods for future success.
- Larry's public agency experience will benefit stakeholder relations, communication, and collaboration throughout the Project.

Larry Walsh was Denver's design-build Project Manager on the Peoria Crossing Design-Build project which received the 2015 Top Transportation Award from the American Public Works Association, and Engineering-News Record's Merit Award in Highways/Bridges.

Uniquely Qualified

Larry's proven understanding of working with community members and public agencies to develop public projects is a direct result of his public agency experience including serving seven years as chairman of the City of Loveland Planning Commission, 10 years on the Loveland city council and four years as Loveland's mayor. He understands the process, how to collaborate with city staff and the importance of project delivery to community stakeholders.

Mark Brooks, PE

Constructabity Expert

OVERVIEW

For 25 years, Mark has been responsible for leading SEMA's Preconstruction Services Department, Earthwork, and Utility Infrastructure Divisions. Mark is deeply involved in all project phases including preconstruction, administration of engineering, estimating, constructability, permitting, quality control, and construction planning activities from the procurement phase through project completion. A licensed professional engineer who also holds general contractor licenses in several states, Mark has led preconstruction efforts for SEMA's entire CMGC portfolio.

In 2018, Mark led estimating efforts valued at more than $2.1B in SEMA's Rocky Mountain District. Mark has managed SEMA's constructability and cost-estimating services for more than $830M in CMGC projects, acted as key participant in $380M in design-build projects, and $800M in design-bid-build procurement awards. In his leadership role, Mark fosters partnerships with Owners and designers to ensure successful project delivery and attainment of project goals focused on safety, quality, constructability, and technical compliance.

Mark's 30 years of experience in both consulting engineering and the construction industry offers owners a depth of technical understanding of key project engineering, geotechnical, environmental, and construction factors, and allows him to translate designs to the construction team for seamless integration. This makes Mark an invaluable asset to lead constructability and cost estimation for this Project.

PROJECT EXPERIENCE

CCD 39th Avenue Greenway Park Hill Detention Design-Build, Denver, CO: As Lead Cost Estimator on this $82 million project, Mark provided all cost estimating and constructability support for the eight separate design packages as well as for Owner-initiated scope changes.

E-470 Expansion Phase I and II CMGC, Aurora, CO: As Preconstruction Services Manager, Mark leads the CMGC preconstruction process, providing support in all phases of cost estimating, constructability reviews, value engineering, and procurement. Mark leads all package estimates and the development of a cost model shared openly with the owner for seamless cost negotiations and a best value approach. This two-phased $170 million CMGC project includes 17 miles of roadway, 18 bridges, more than 1 million cubic yards of earthmoving, drainage, and HMA.

CCD Peoria Crossing Grade Separation Design-Build: Lead Cost Estimator on this $21 million project, Denver's second transportation design-build project. Mark played a key constructability role in the innovative solution the team developed for the grade separated structure to elevate Peoria Street over UPRR and future RTD East Rail Line. Mark and the design-build team innovated a three-span, 560-foot bridge comprised of five girder lines of trapezoidal precast post-tensioned concrete U-girders. This design provided a center main span of 240 linear feet, which placed all substructure elements out of UPRR ROW. This project received the American Public Works Association's Best Transportation Project Award.

CDOT North I-25 Segments 5 and 6 CMGC, Longmont, CO: As Lead Cost Estimator/ Preconstruction Services Manager, Mark is responsible for the oversight of the multi-disciplinary team efforts for constructability, opinion of probable construction cost (OPCC), milestone ROM estimates, and the development of a cost model that balances price, schedule and risk that is easy to understand and compatible with CDOT's Independent Cost Estimator (ICE). This $450M contract includes CMGC services for North I-25 from SH 66 to SH 402. Scope of work includes roadway reconstruction, frontage road resurfacing and reconstruction, construction of CBCs under I-25, 12 bridges, pedestrian crossing, and retaining walls. Scope similarities include: three major interchange reconstruction: SH 56, SH 60, LCR 16; ITS and tolling; frontage road configuration; pavement section; major utilities; ROW acquisition; and environmental.

Education

M.S., Civil Engineering, University of Arizona
B.S., Geological Engineering, Colorado School of Mines

Registrations

Licensed Professional Engineer

Trainings/ Certifications/ Affiliations

OSHA 30-Hour
Groundwater Dewatering Training
Arvada Storm Management and Erosion Control Training
American Society of Civil Engineers, Rocky Mountain, Geoconference Treasurer (1992-2018)
Colorado Association of Geotechnical Engineers

References

James Brady, PE, E-470 Public Highway Authority Construction Manager, 303.537.3711
Benjamin Rowles, Arvada North I-25 Segment 5 & 6 Construction Manager, 970.405.3602

> "Mark Brooks...has been instrumental in design reviews, providing constructability input, and responsively developing OPCC/CAP estimates for the project. Mark's knowledge of construction means and methods has been helpful in developing best-value construction approaches for the Authority, especially as it relates to geotechnical/earthwork and drainage disciplines."
>
> *James R. Brady, PE, Construction Manager, E-470 Public Highway Authority*

Mark Brooks, PE

Constructability Expertise

BNSF Emporia Second Main Track CMGC, Emporia, KS: Mark leads the CMGC preconstruction process and constructability reviews, and collaborates with BNSF and Wilson & Company to jointly develop a design that provides the highest level of constructability and the lowest level of risk, thereby providing the maximum scope for the minimum cost. This $150M CMGC project consists of the construction of approximately 60 miles of second main track for BNSF Railway between on the Emporia Subdivision between Mulvane and Ellinor in Kansas. Design and construction involves 20 bridges, three retaining walls, and 80 box culverts.

CCD Red Rocks Horizontal Infrastructure Improvements Phases I, II, and III CMGC, Denver, CO: Preconstruction Manager and Lead Cost Estimator for all three phases of this three-year CMGC project for Denver. All work was coordinated around events mandating winter-only construction. Mark worked with Denver to develop a value engineering alternative for decorative chip seal compliant with Red Rocks' aesthetic color standards. He implemented the same process for developing the guaranteed maximum price (GMP) in both phases and applied excess funds from the first phase to maximize the scope of work for the second phase. This project involved a diverse group of stakeholders including Denver Arts, Denver Parks and Recreation, City of Morrison, and community members. Project scope included intersection reconfiguration, road realignment, extensive lot reconfiguration to improve traffic management and storm drainage, and construction of a 350,000-gallon underground stormwater retention system with passive water quality improvement structures. This project received Engineering-News Record's Best Landscape/Urban Development Award.

Riverside Parkway, Grand Junction, CO: Lead cost Estimator and Constructability Expert for Phases I, II, and III of this $67.8M bridge and roadway expansion project. This large-scale urban infrastructure project involved 4 miles of new and reconstructed major arterial roadway, utility replacement, vehicle and pedestrian bridges, retaining walls, concrete box culverts, and landscaping. This project won the Silver Hard Hat Award for Outstanding Heavy Highway Project from Mountain States Construction Magazine.

Notable Qualifications

- Licensed Professional Engineer with a dynamic background of design engineering and construction
- 30 years of cost estimating/constructability experience includes 80 Arvada projects
- Led cost estimation and preconstruction services for SEMA's entire $830 million CMGC portfolio

Other Colorado Alternate Delivery Projects:

- CCD Peoria Crossing Design-Build – $21M
- CCD I-70 Interchange & Central Park Boulevard Design-Build – $33 million
- CDOT U.S. 6 Bridges Design-Build – $98M
- CDOT U.S. 160 and U.S. 550 Interchange Design-Build, Colorado – $29M
- CDOT North I-25 Express Lanes Segs. 7 & 8 – $260M

Other Relevant Colorado Grade Separation and Related Projects:

- UPRR Second Main Track
- Adams County, Pecos St. Grade Separation
- UPRR Utah Junction Flyover
- City of Arvada 72nd Street Expansion
- Douglas County, Titan Road / UPRR Grade Separation
- CDOT, Santa Fe and Belleview Ph. I
- CDOT I-76 over Union Pacific Railroad, Bridge Replacements
- El Paso County Baptist Road West
- City of Grand Junction, Riverside Parkway Phases I, II, and III

> "SEMA brought ideas to the City about construction methods that could save money. The most significant change was the processing of pit run material from a City-owned borrow site into aggregate base course for the roadway."
>
> *Jim Shanks, PE, Deputy Director Public Works & Planning, City of Grand Junction – Riverside Parkway Project*

Mark Brooks, PE, was Lead Cost Estimator and Constructibility Expert on the Denver's very first public works CMGC, Red Rock Infrastructure Improvements Phases I, II, and III. In this role, Mark collaborated with Denver to establish CMGC processes and best practices. This project received Engineer News-Record's 2017 Best Landscape/Urban Development Award.

Jeff Markle, PE

Cost Estimator

OVERVIEW

Jeff Markle, PE, has more than 15 years of experience in heavy civil construction with a dynamic background that includes project management, estimating, quality, and risk management. With a highly collaborative approach, Jeff manages the vision and profitability for multi-million-dollar projects, while ensuring construction quality, schedule, and safety goals are met. Jeff's project participation begins at the pursuit stage, continues with preconstruction and design, and extends throughout project close-out. Jeff has experience with projects ranging in size from $2M to $1.2B.

Jeff's broad industry experience includes traditional design-bid-build, design-build, and CMGC. Jeff has $790M in CMGC experience that includes extensive preconstruction involvement, development of advanced technical concepts, constructability, value engineering, risk analysis, and project controls.

As a licensed professional engineer, Jeff brings invaluable big-picture knowledge and expertise to manage this Project's vision and ensure Project goals are met. Jeff's dynamic background provides him with a strategic view to analyze plans, avoid errors, overruns, and cost impacts to the Project.

PROJECT EXPERIENCE

CCD 39th Avenue Greenway Park Hill Detention Design-Build, Denver, CO: As Deputy Design-Build Manager, Jeff was intricately involved with owner and designer during preconstruction services for eight design packages across this large-scale, multi-scope project. Jeff provided constructability, risk and schedule management, and extensive coordination with designer throughout design progression to ensure that project vision and goals were met and that quantities stayed within budget to mitigate scope creep. Jeff was co-leader of all design task force meetings and over-the-shoulder design meetings for the 26 stakeholder project team (more than 200 meetings in seven months). This $82M project represents a unique collaboration of Denver's Public Works and Parks and Recreation to bring an integrated drainage system providing flood protection and a greenway with modern amenities, public plazas, and urban public life concepts.

CDOT North I-25 Segments 5 and 6 CMGC, Loveland, CO: As Project Controls Manager, Jeff provides the CMGC team with ongoing profitability, schedule, and risk while ensuring adherence to quality and other project goals. Serving as a main point of communication for project controls and risk management during preconstruction, Jeff plays an integral role for CDOT and Muller. This $450M contract includes CMGC services for North I-25 from SH 66 to SH 402. The focus area of the project is anticipated to include improvements from SH 56 to SH 402. Scope of work includes roadway reconstruction, frontage road resurfacing and reconstruction, construction of CBCs under I-25, 12 bridges, pedestrian crossing, and retaining walls. Scope includes: three major interchange reconstruction: SH 56, SH 60, LCR 16; ITS and tolling; wetland mitigation; frontage road configuration; pavement section; major utilities; row acquisition; and environmental.

BNSF Emporia Second Main Track CMGC, Emporia, KS: As Project Controls Manager, Jeff provides an integrated approach for cost and schedule risk mitigation during preconstruction and construction to ensure adherence of scope and budget goals. Jeff created a sophisticated risk register and employed innovative communication tools, including interactive Bluebeam studio plan reviews and comment resolution processes, to identify, mitigate, and allocate risks and remove risks from contractor pricing. This $150 million CMGC project consists of the construction of approximately 60 miles of second main track for BNSF Railway between on the Emporia Subdivision between Mulvane and Ellinor in Kansas. Design and construction involves 20 bridges, three retaining walls, and 80 box culverts.

E-470 Expansion Phase I and II CMGC, Aurora, CO: Structures Estimator for this $170M CMGC.

Education
BS, Civil Engineering, Cornell University

Registrations
Licensed Professional Engineer

Trainings and Certifications
OSHA 30-Hour Construction Safety
BNSF Awareness
eRailsafe Safety Awareness
Roadway Worker Protection
UPRR Safety Orientation
Design-Build Professional Certification (DBIA)
Colorado Contractors Association Emerging Leaders Council
U.S. Army Corps of Engineers Quality Control Certification

References
Abra Geissler, PE, Arvada Project Director, 303.995.3008
Stephen Harris, PE, Atkins Project Manager, 720.646.1929

"Jeff...has demonstrated professional competency and dedication over the past six months, bringing not only a strong technical background, but also sound communication skills that have encouraged a united work environment. Jeff immediately formed strong partnerships with Arvada, Muller, and a host of consultants that helped blur the lines of individual entities and transformed them into one team."

Abra Geissler, PE Arvada Project Director North I-25 Segments 5 and 6 – SH 66 to SH 402

Dustin McKie

Project Controls

OVERVIEW

Dustin has more than 29 years of experience with scheduling, project controls, and project management for complex, multi-modal construction projects. As a Project Controls Expert and Lead Scheduler, Dustin develops comprehensive, integrated schedules for large, complex infrastructure projects involving utility relocations, environmental permitting, stream restoration, roadway and highway elements, and bridge and wall structures. Dustin has scheduled more than 35 CDOT projects, six design-build projects, and SEMA's entire portfolio of CMGC projects, valued at more than $800M.

Dustin can be credited for co-authoring and managing a project controls process that includes a fully integrated CMGC schedule combining all design and construction elements, including subcontractor scopes, for CDOT's North I-25 Segments 5 and 6 CMGC. Dustin is a natural collaborator and is exceptionally skilled at developing risk mitigation options and work-around solutions when issues arise that threaten the budget or the schedule.

Dustin plays a critical role with SEMA's Preconstruction Services and Project Management team, SEMA's Cost Estimator, CDOT, the design team, and the ICE—bringing all parties on the same page with respect to the cost, schedule, quality, and risk.

PROJECT EXPERIENCE

CCD 39th Avenue Greenway Park Hill Detention Design-Build, Denver, CO: As Lead Scheduler, Dustin built and managed the fully integrated, cost-loaded design-build schedule for this complex, multi-modal project that involves eight design packages. Dustin's role involved close collaboration with CCD, FHU, and the 26 stakeholder project team for this $82M project.

E-470 Expansion Phase I and II CMGC, Aurora, CO: As Lead Scheduler, Dustin collaborated with E-470, design partner FHU, and the CMGC team with the creation, maintenance, and logical preparation of the project-wide schedule to effectively manage ongoing changes in scope, timing, and project expectations. This two-phased $170 million CMGC project includes 17 miles or roadway, 18 bridges, more than 1 million cubic yards of earthmoving, drainage, and HMA.

CDOT North I-25 Segments 5 and 6 CMGC, Loveland, CO: As Lead Scheduler, Dustin provides the CMGC team with an integrated approach for cost and schedule risk mitigation during preconstruction and construction. This $450M contract includes CMGC services for North I-25 from SH 66 to SH 402. Dustin performed multiple schedule scenarios to determine optimal phasing to minimize time, traffic impacts, and cost relative to major interchange construction.

BNSF Emporia Second Main Track CMGC, Emporia, KS: As Lead Scheduler, Dustin was responsible for the creation, maintenance, and analysis of the fully integrated CMGC project schedule. Collaborating with the CMGC team, including BNSF, Wilson & Company, the ICE, and other stakeholders, Dustin developed a comprehensive and integrated project schedule that includes all elements from design through construction and project close out.

Lead Scheduler for Related Projects:

- CCD Peoria Crossing Grade Separation Design-Build
- CCD Red Rocks Phases I, II, and III CMGC
- El Paso County Baptist Road West
- BNSF Alliance Mainline #2 Relocation
- BNSF Bradshaw to Aurora Grade Separation
- CCD I-70 Interchange and Central Park Boulevard Design-Build
- UPRR Second Main Track
- Adams County, Pecos St. Grade Separation
- UPRR Utah Junction Flyover
- Douglas County, Titan Road / UPRR Grade Separation CDOT, Santa Fe and Belleview Ph. I

Education

BS, Construction Management, Colorado State University

Trainings and Certifications

OSHA 10-Hour Construction Safety
Primavera Scheduling Software
BNSF Awareness
eRailsafe Safety Awareness
Union Pacific Railroad Safety Orientation

References

Jess E. Hastings, P.E., Project Manager, Alfred Benesch & Company. 303.345.7929
Curtis Gemaehlich, P.E., Senior Construction Engineer Stanley Consultants, 303.944.6332

"Developed by Dustin McKie, SEMA's schedule process is thorough. I have actually incorporated SEMA's schedule narrative into [CDOT's] own schedule training."

Jeffery L Hampton, PE, Arvada Project Engineer, West Program – Table Mountain Residency

Charlie Bisbee

Construction Management

OVERVIEW

Charlie Bisbee has more than 12 years of experience in heavy civil project and construction management, Charlie successfully manages project-wide scope, cost, schedule, and budget control for diverse civil infrastructure projects, ranging in size from $2M to $82M. With $93M of recent alternate delivery experience, Charlie has comprehensive experience coordinating with public and private Owners, designers, diverse groups of stakeholders, subcontractors, and suppliers to achieve project objectives. Charlie's project portfolio includes 14 CDOT projects.

Charlie's project management expertise includes project controls and administration, schedule, budget, production management, client management, and project team coordination. These management objectives focus on planning, project-wide decision making, risk management, design and construction, coordinating with surrounding/concurrent operations, stakeholder mission alignment, and performance analysis. Charlie has a consistent record of exceeding Owner expectations by prioritizing transparency in his project management approach and implements innovative means and methods to save owners money, and by making safety and quality leading priorities.

PROJECT EXPERIENCE

CCD 39th Avenue Greenway Park Hill Detention Design-Build, Denver, CO: Deputy Design-Build Project Manager for Denver's $82M infrastructure project involving floodwater conveyance to the outfall at Globeville Landing Park and the installation of 3 miles of water, sewage, and drainage utility infrastructure, with depths of up to 25 feet underground. Charlie works directly with Larry Walsh managing day-to-day project administration and supports Denver's executive team by providing hands-on management for public information on this highly visible project involving hundreds of stakeholders.

Red Rocks Horizontal Infrastructure Improvements CMGC, Phases I, II, and III, Denver, CO: As Project Manager for all three phases of Denver's first public works CMGC, Charlie's responsibilities included managing cost, schedule, and project scope which comprised intersection reconfiguration, road realignment, extensive lot reconfiguration to improve traffic management and storm drainage, and construction of a 350,000-gallon underground stormwater retention system with passive water quality improvement structures. All work had to be coordinated around events, mandating winter-only construction and three-year phased project. Charlie was instrumental in partnering with Denver to develop value engineering alternatives that brought about excess funds used in subsequent phases of the project. This project involved coordination among a diverse group of stakeholders and received ENR's Best Environmental/Urban Development Award.

Adams County Pecos Street Separation, Adams County, CO: As Project Manager for this $26M project that involved roadway grade separation over multiple rail lines by bridge overpass. Work included two cast-in-place concrete segmental bridges, a 4-lane roadway along the present Pecos Street horizontal alignment with a new bridge and MSE retaining walls, and a 2-lane roadway connecting 62nd Parkway with a new bridge and MSE walls, all constructed with aesthetics in mind. Charlie led extensive stakeholder and rail coordination efforts for this project that was located within UPRR and BNSF ROW. Charlie was also engaged in the heightened PI efforts on this project due to it's high visibility in the adjacent community.

Jefferson County Waterton/Wadsworth Intersection Improvements. Jefferson County, CO: As Project Manager on this safety and capacity improvement project, Charlie, working with Jud Barlow, led this project to on-time completion and delivered this project $450,000 under budget. By accelerating construction to begin during winter months, the team could capitalize on low-flows in Brush Creek for culvert construction. Charlie implemented heightened coordination with adjacent Stakeholder, Lockheed Martin, to manage construction activities to allow 24/7 access for shipments to/from their facility maintained. Charlie and his team payed extensive attention to MOT to safely accommodate a rapid rise in traffic due to an unexpected increase in local residential development. This project received APWA's National 2018 Project of the Year Award.

Education

BS Construction Management, Colorado State University

Trainings and Certifications

OSHA 10-Hour Construction Safety
CDOT Erosion Control Supervisor
CDOT Traffic Control Supervisor
BNSF Awareness
eRailsafe Safety Awareness
Roadway Worker Protection
UPRR Safety Orientation

References

Grant Anderson, PE, Arvada Resident Engineer – Mountain Residency, 720.505.1793
Chris Pacheco, PE, Deputy Director, City and County of Denver Mayors Office of the North Denver Cornerstone Collaborative, 720. 560.0689

"SEMA completed this project on time and under budget, while providing a high-quality finished product...SEMA and Jefferson County representatives effectively resolved issues that came up on this project by taking a teamwork approach."

Gary Campbell, PE, Project Engineer, Jefferson County – Wadsworth-Waterton Intersections Improvement Project

Elver Bernal

Safety

OVERVIEW

Elver Bernal brings 22 years of experience to this Project as SEMA's Corporate Safety Director and EEO Officer. Elver provides coordination and oversight of the health, safety, and security plans for all of SEMA's projects in SEMA's Rocky Mountain District. Elver's has a wealth of safety experience, valued at $1 billion, and has successfully led SEMA's safety program to top 1% industry performance, as evidenced by our 2019 0.55 EMR.

Having worked for SEMA for 22 years in both the Construction and Precast Divisions, Elver has received extensive OSHA safety certifications including the coveted OSHA 500 Occupational Safety and Health Trainer Certification. Elver's daily responsibilities developing, implementing, and managing SEMA's safety policies and procedures keeps him busy in the field. He coordinates the delivery of occupational safety and health trainings in both English and Spanish, and conducts worksite and process inspections for safety hazards.

Elver has experience on more than 60 heavy rail projects and a thorough understanding of UPRR's Safety Policy requirements and will confirm the team is educated on safety compliance requirements and expectations and oversee the safe operation of site coordination and construction activities. He will lead the effort in meeting Arvada's and UPRR's safety goals for the project. Skilled at nurturing a culture of safety on large, complex infrastructure projects, Elver will collaborate with Project Manager Larry Walsh, Construction Manager Charlie Bisbee, field operations leaders, and construction crews to ensure safe operations at all times. He will engage team members while using potential safety concerns as teachable moments to build the overall success of the safety program.

PROJECT EXPERIENCE

Alternate Delivery:

- CCD 39th Ave Greenway & Park Hill Detention Design-Build – $82 million
- CCD Peoria Crossing Grade Separation Design-Build – $21 million
- E-470 Expansion Parker to Quincy (Phase I) CM/GC – $90 million
- E-470 Expansion Quincy to I-70 (Phase II) CM/GC – $80 million
- CDOT North I-25 Express Lanes Design-Build – $200 million
- CDOT North I-25 Segments 5 & 6 CM/GC – $450 million
- CCD Red Rocks Stormwater & Infrastructure Improvements, Phases I, II, III CM/GC – $7.1 million
- CCD I-70 & Central Park Blvd Interchange Design-Build – $33 million

Grade Separation & Heavy Rail:

- BNSF Alliance Mainline #2 Relocation
- BNSF Bradshaw to Aurora Grade Separation
- UPRR Second Main Track
- El Paso County Baptist Road West
- Adams County, Pecos St. Grade Separation
- UPRR Utah Junction Flyover
- Douglas County, Titan Road / UPRR Grade Separation CDOT, Santa Fe and Belleview Ph. I
- City of El Segundo, Douglas St. Gap Closure Railroad Grade Separation – El Segundo, CA
- UPRR Utah Junction Flyover – Denver, CO
- Douglas County, Titan Road / UPRR Grade Separation – Douglas Country, CO
- CDOT, Santa Fe and Belleview Ph. I – Englewood, CO
- CDOT I-76 over Union Pacific Railroad, Bridge Replacements – Adams County, CO
- BNSF Fort Sumner to Agudo Pecos River Bridge – Ft. Sumner, NM
- City of Grand Junction, Riverside Parkway Phases I, II, III – Grand Junction, CO
- CDOT COSMIX Colorado Springs, CO
- KDOT K-18 Phase I – Manhatten, KS
- CDOT, I-25 and Broadway Viaduct – Denver, CO
- City of Castle Rock, Front Street Flyover – Denver, CO
- CDOT, U.S. 85 and Titan Road – Douglas County, CO
- CDOT, Limon U.S. 24/40 – Limon, CO

Trainings and Certifications

Bureau of Certified Safety Professionals – Construction Health & Safety Technician Certification
40 Hour OSHA Training
40 Hour HAZWOPER

Trainings and Certifications

Certified OSHA 30- and 40-Hour Trainer
Certified BNSF Railway and Union Pacific Railroad (UPRR) Safety Trainer
Certified OSHA Aerial Lifts Trainer
OSHA Certified Fall Protection Trainer
Certified OSHA Forklift Trainer
Certified OSHA Rigging Trainer
Certified OSHA Signal Person Training (Trainer)

References

Mark Semonisck, CDOT Deputy Risk Manager, Loss Control Supervisor, 303.588.6950
Gregory Stefan, Arch Insurance Vice President Risk Control, 404.682.4320

ZURICH®

Zurich North America Surety
5445 DTC Parkway, Suite 100
Greenwood Village, CO 50111
Phone (800) 987-3373
Fax (877) 962-2567

September 12, 2019

City of Arvada
8101 Ralston Road
Arvada, CO 80002

Re: SEMA Construction, Inc.
RFQ-19-W. 72nd Ave.-CMGC
Construction Manager/General Contractor Services for West 72nd Avenue – Kipling Street to Simms Street

To Whom It May Concern:

Fidelity Deposit Company of Maryland and Zurich American Insurance Company acts as surety for SEMA Construction, Inc. in its contracting matters. Fidelity Deposit Company of Maryland and Zurich American Insurance Company is a major provider of contract surety bonds, is listed in the Federal Register as a surety acceptable for Federal projects and is licensed in the State of Colorado. Fidelity Deposit Company of Maryland and Zurich American Insurance Company both have an AM Best Rating of A+, XV.

We currently extend to SEMA Construction, Inc., bonding capacity in the amount of $130,000,000 single/$600,000,000 aggregate. Based upon our knowledge of SEMA Construction Inc.'s management, construction expertise and current financial condition, we have every confidence in their abilities to successfully undertake, manage and complete projects within its areas of expertise.

We will favorably consider a request from SEMA Construction, Inc. to provide the required performance and payment bonds associated with this project. However, such consideration and subsequent approval is subject to review and approval of the contract terms and conditions (including bond forms), confirmation of full project financing and other underwriting criteria which we deem relevant at the time of such request.

Please understand that this letter is not an assumption of liability, nor is it a commitment to approve and provide bonds. This letter is offered as a bonding reference at the request of our client.

Sincerely,

Angela M. Tindol
Attorney-in-Fact for
Fidelity and Deposit Company of Maryland and
Zurich American Insurance Company

Cc: SEMA Construction, Inc.
Alliant Insurance Services, Inc.

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by **ROBERT D. MURRAY, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Anuj JAIN, Angela M. TINDOL, Judith MUNSON, Stephnie LOGAN and Mona D.WEAVER, all of GREENWOOD VILLAGE, Colorado, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND**, this 6th day of August, A.D. 2019.

ATTEST:

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: _____
Assistant Secretary
Dawn E. Brown

_____
Vice President
Robert D. Murray

State of Maryland
County of Baltimore

On this 6th day of August, A.D. 2019, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **ROBERT D. MURRAY, Vice President, and DAWN E. BROWN, Assistant Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2023

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 12th day of September, 2019.

Brian M. Hodges, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

Client#: 1481884 SEMACON

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 9/17/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Client Manager	
USI Insurance Services, LLC P.O. Box 7050 Englewood, CO 80155 800 873-8500	PHONE (A/C, No, Ext): 800 873-8500	FAX (A/C, No): 303-831-5295
	E-MAIL ADDRESS: den.contractors@usi.com	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Greenwich Insurance Company	22322
INSURER B : National Fire & Marine Insurance Co.	20079
INSURER C : XL Specialty Insurance Company	37885
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
SEMA Construction, Inc.
7353 S. Eagle St.
Centennial, CO 80112

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / X PRO-JECT / X LOC OTHER:	X	X	CGD7409823	04/01/2019	04/01/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $300,000 $10,000 $2,000,000 $4,000,000 $4,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY	X	X	CAS7409824	04/01/2019	04/01/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$2,000,000 $ $ $
B	X UMBRELLA LIAB / X OCCUR EXCESS LIAB / CLAIMS-MADE DED / RETENTION $	X	X	42XSF30239404	04/01/2019	04/01/2020	EACH OCCURRENCE AGGREGATE	$25,000,000 $25,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	X	CWD7409822	04/01/2019	04/01/2020	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: RFQ-19-W. 72nd Ave.-CMGC

As required by written contract or written agreement, City of Arvada is included as Additional Insured as respects General Liability but only as respects work performed on behalf of the named insured.

CERTIFICATE HOLDER

City of Arvada
8101 Ralston Road
Arvada, CO 80001-8101

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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REQUIRED VENDOR SUBMITTAL FORM

SUBMITTED BY:

Company Name: SEMA Construction, Inc.

Contact Names: Sales/Customer Service Larry Walsh

Address: 7353 S. Eagle Street, Centennial, CO 80112

Phone: (303) 627-2600 Email(s): lwalsh@semaconstruction.com

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the vendor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accepts and acknowledges this offer is consistent with the specifications and terms and conditions, unless specific variations have been clearly and expressly listed in the offer.
- The Offer is in all respects fair, without outside collusion or otherwise illegal action.

By: _____	10/04/19	84-1163868
Signature of Authorized Agent	Date	FEIN
T. Brett Ames	Vice President	bames@semaconstruction.com
Typed/Printed Name of Agent	Title of Agent	Agent email

PAYMENT TERMS: If the vendor does not accept a percentage discount, the Owners standard is net thirty (30) days after the date that the Owner receives an accurate invoice and has accepted the product or service. Payment is the date of the check mailing or date of the credit card transaction.

Discount: ____% ____ Days, Net: 30 Days, Accept Visa without additional fee? _____

VARIATIONS: The vendor shall identify all variations and exceptions to any RFQ documents. Submittal of a Vendor Contract is considered excessive in Variations and may be cause for determining that the submission is non-responsive and ineligible for award. For each variation listed, reference the applicable section of the solicitation document as per the example below. If no variations are listed here, it is understood that the vendor's Offer fully complies with all terms and conditions. Attach additional Variation sheets in the same format as below after starting the first three on this page.

Page #:_____ Item # or Section: _____

Variance _____

_____

Page #:_____ Item # or Section: _____

Variance _____

_____

Page #:_____ Item # or Section: _____

Variance _____

_____

SUBMITTAL INSTRUCTIONS:

Qualifications must be submitted in the order listed below with each section clearly identified.

Submit ON-LINE **OR** one (1) unbound original proposal, X copies and one (1) copy on a flash drive.

Cover & Executive Summary.

Detail Firm's and employees' Capabilities, Experience, Licensing, and Compliance Status.

Details of Qualifications – products & services, implementation timeline and warrantees.

Completed Owner Submittal Forms including this sheet and all other attachments requested.

Pricing – All fee and costs associated with the offering.

Performance Measures Form, when this is for an applicable service.

✓ Insurance – Checking this box accepts that the insurance requirements listed by the Owner are acceptable unless listed in the variations on the previous page.

CONFIDENTIAL information, if any, MUST be stamped as such on each page and submitted separately.

Please initial to acknowledge Addenda, if any:
#1 TBA #2 TBA #3 TBA

REFERENCES:

Check here if Firm's standard reference sheet is attached, otherwise, use the space below.

Name: Alliant Insurance Services, Inc. Contact Person: AJ Jain

Address: 6312 S Fiddlers Green Cir., Ste. 300E, Greenwood Village, CO 80111

Telephone No: (303) 917-4141 Email: aj.jain@alliant.com

Describe type of work/service performed or items supplied: Surety and insurance broker for SEMA

Name: City and County of Denver Contact Person: David Huntsinger, PE

Address: 201 W. Colfax Ave., Denver, CO 80204

Telephone No: (720) 913-8822 Email: david.huntsinger@denvergov.org

Describe type of work/service performed or items supplied: Director of Public Works, Infrastructure Project Management

Name: BNSF Railway Company Contact Person: Brian Large

Address: 5800 N. Main Street, Fort Worth, TX 76179

Telephone No: (817) 371-5931 Email: brian.large@bnsf.com

Describe type of work/service performed or items supplied: BNSF Railway Engineering

PERFORMANCE MEASURES FORM INSTRUCTIONS:

The Owner has incorporated Performance Management into its organizational culture. When vendors submit offers to the Owner in response to solicitations for ***Services*** (not associated with the primary purchase of goods, supplies, or software), they shall identify the methods and goals by which they will monitor and report their performance providing those services to the Owner. Vendor's performance shall be documented as to (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation.

1. Vendor will define 1-2 measures for (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation, that follow S.M.A.R.T goals: Specific, Measurable, Achievable, Relevant, and Timely, per category.
2. The vendor will self-score their defined metrics within a score card emailed from purchasing 2 months prior to contract renewal. The department will review the vendor's self-scored measures.

SERVICES means: the furnishing of labor, time, effort, maintenance, etc., by a vendor/contractor/consultant, with an initial contract amount of more than $15,000.

(a) Price/Cost

Example Measure: Consultant will submit detailed invoices substantiating amounts requested.

1. SEMA will provide monthly invoices & project reports to support payment of Preconstruction Services.
2. SEMA will develop and submit an Opinion of Probable Cost (OPCC) at 30%, 60%, and 90% design milestones for each construction package.

(b) Punctuality/Responsiveness

Example Measure: Reporting of project status will occur monthly with the Owner and consultant's Project Manager.

1. SEMA will prepare an integrated design & construction CPM schedule that is updated on a monthly basis.
2. SEMA will hold weekly meetings with Owner to review 3-week look ahead schedule, project status, utilities, safety, etc.

(c) Quality/Reliability

Example Measure: Revisions are drafted within two weeks, and no more than 3 revisions prior to final draft.

1. SEMA will develop and submit a Quality Control Plan for the project.
2. SEMA will hold weekly quality control meetings with owner to address project quality.

(d) Sustainability and/or Innovation

Example Measure: Digital reports delivered to the Owner 95% to reduce use of paper.

1. SEMA will develop with owner a Risk Management Plan.
2. SEMA will lead discussions for proposed innovations to mitigate impacts, accelerate construction, early relocation of utilities, and construction phasing.

Performance measures will be queried for every year of the contract. Performance measures reporting will partially inform re-contracting with or renewing a contract with a vendor.

APPENDIX ITEMS: COST MODEL, PROJECT RISK MATRIX, AND PRELIMINARY PROJECT SCHEDULE

HAVE BEEN REMOVED FROM THIS SUBMITTAL #1 AND CAN BE FOUND AS PART OF SEMA'S PROPRIETARY SUBMITTAL #2

TOP WORK PLACES 2018 THE DENVER POST

TOP WORK PLACES 2019 THE DENVER POST

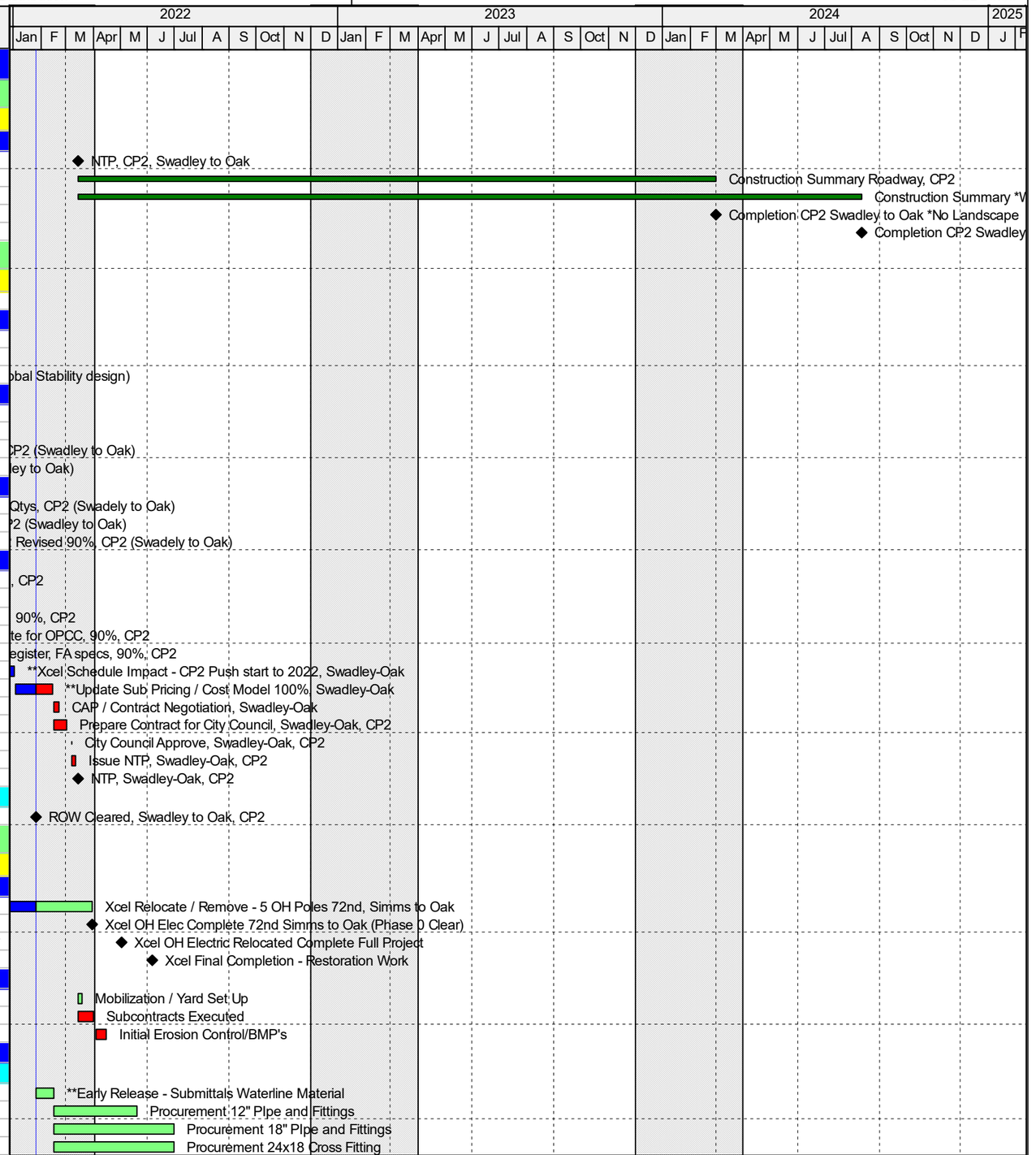
SEMA CONSTRUCTION

SEMA Construction has been named a 2019 and 2018 Top Workplace by the Denver Post. This prestigious award, based solely on employee feedback, recognizes SEMA's strong workplace culture, alignment, execution, and connection—driving increased client attention.

Exhibit 2.11.10

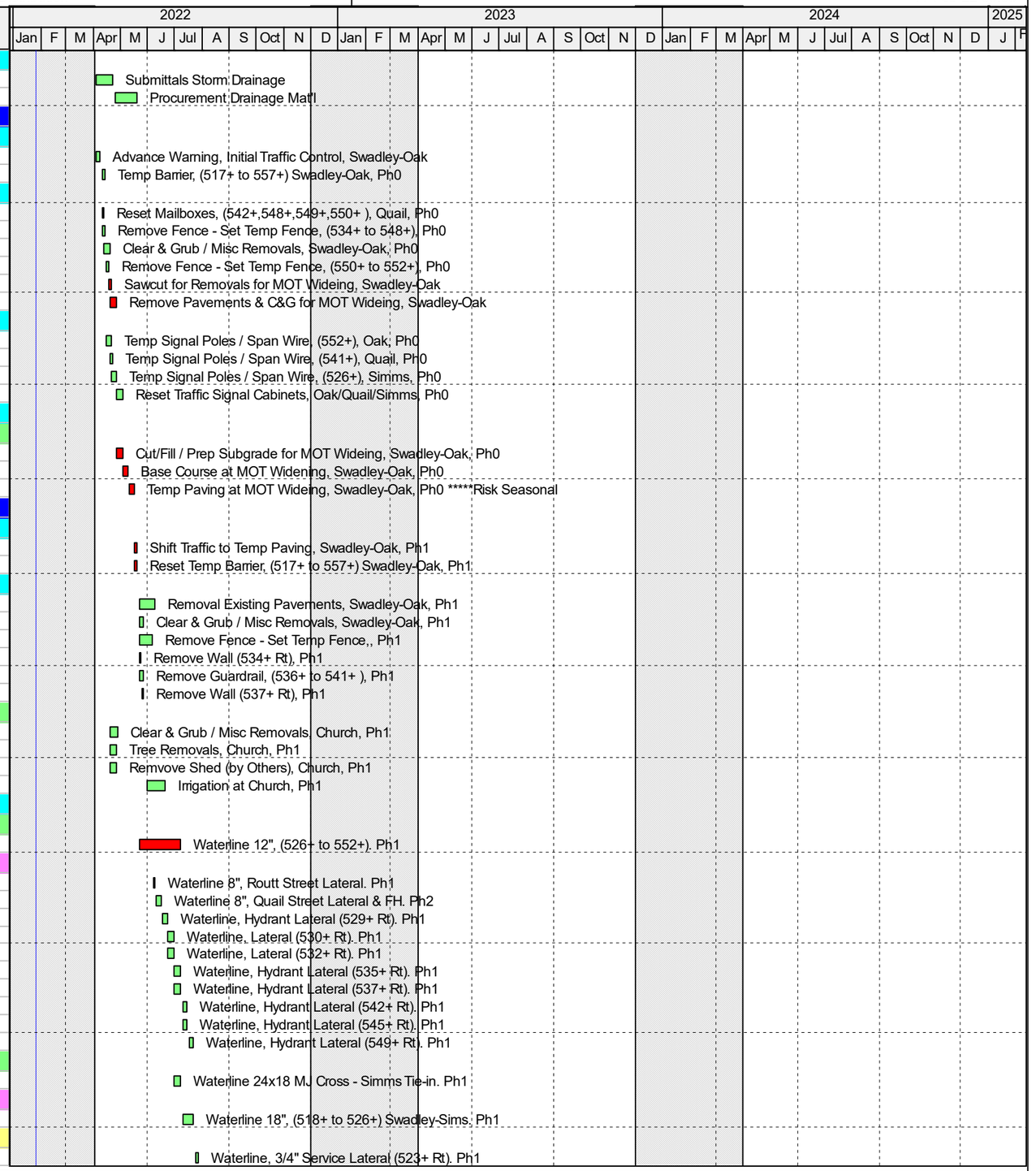
Contractor’s Baseline Schedule Documents

Activity ID	Activity Name	Orig Dur	Qty	Unit	Total Float	Start	Finish
101915 Arvada CMGC; West 72nd Ave - Kipling to Simms - S		1075			0	23-Jan-20 A	12-Aug-24
Contract / Key Dates and Milestones		577			0	14-Mar-22	12-Aug-24
Milestones		577			0	14-Mar-22	12-Aug-24
CP2 - Swadley to Oak Milestones / Key Dates		577			0	14-Mar-22	12-Aug-24
NTP CP2	NTP, CP2, Swadley to Oak	0			46		14-Mar-22
CP2_CON_SUM	Construction Summary Roadway, CP2	718		cd	165	14-Mar-22	29-Feb-24
CP2_CON_SUM	Construction Summary *With Landscape, CP2 (Contract Time)	883		cd	0	14-Mar-22	12-Aug-24
END CP2	Completion CP2 Swadley to Oak *No Landscape	0		wd	115		29-Feb-24
END CP12	Completion CP2 Swadley to Oak *With Landscape	0		wd	0		12-Aug-24
Design / OPCC / CAP		498			577	23-Jan-20	14-Mar-22
CP2 - Swadley to Oak (Muller)		498			577	23-Jan-20	14-Mar-22
CP2_DES_130	VE/Alternative Design Vetting, Swadley-Oak, CP2	30		wd		23-Jan-20	12-Mar-20
Geotechnical Design (Shannon & Wilson)		213				30-Apr-20	26-Feb-21
CP2_DES_220	Potholing *** COVID-19 Delay	12		wd		30-Apr-20	13-May-20
CP2_DES_110	Wall Design/Global Stability **by the 26th	26		wd		01-Jan-21	26-Feb-21
CP2_DES_290	Decision COA - Fencing on Walls / Type (for Global Stability design)	26		wd		21-May-20	05-Feb-21
FOR (90%) Design CP2 (Swadley to Oak)		35				01-Apr-20	25-Mar-21
CP2_DES_150	Design, 90%, CP2 (Swadley to Oak)	35		wd		01-Apr-20	26-Feb-21
CP2_DES_310	Phasing Workshop, 90%, CP2 (Swadley to Oak)	35		wd		20-Jan-21	20-Jan-21
CP2_DES_320	Plan Review Session Bluebeam, 90%, CP2 (Swadley to Oak)	10		wd		26-Feb-21	22-Mar-21
CP2_DES_330	Plan Review Meeting, 90%, CP2 (Swadley to Oak)	1		wd		25-Mar-21	25-Mar-21
Final Plan Revisions and Comment Resolution		62				25-Mar-21	15-Jun-21
CP2_DES_260	Address 90% Comments and Qtys, CP2 (Swadely to Oak)	15		wd		25-Mar-21	26-May-21
CP2_DES_340	Assemble Final RFC Plans, CP2 (Swadley to Oak)	15		wd		26-May-21	26-May-21
CP2_DES_350	Plan Review Session Part 2 Revised 90%, CP2 (Swadely to Oak)	10		wd		26-May-21	15-Jun-21
OPCC/CAP/NTP, Swadley to Oak		338			577	05-Jun-20	14-Mar-22
CP2_CAP_110	OPCC Meeting, 90%, CP2	1		wd		28-Jul-21 A	28-Jul-21 A
CP2_CAP_100	OPCC, 30%-60%, Swadley-Oak	15		wd		05-Jun-20	26-Jun-20
CP2_CAP_170	Qty Reconciliation Meeting, 90%, CP2	1		wd		16-Jun-21	16-Jun-21
CP2_CAP_180	Subs/Suppliers/Estimate for OPCC, 90%, CP2	76		wd		16-Jun-21	16-Jul-21 A
CP2_CAP_190	Negotiations, Risk Register, FA specs, 90%, CP2	10		wd		28-Jul-21 A	02-Aug-21
CP2_CAP_200	**Xcel Schedule Impact - CP2 Push start to 2022, Swadley-Oak	5		wd		02-Aug-21	02-Jan-22
CP2_CAP_210	**Update Sub Pricing / Cost Model 100%, Swadley-Oak	14		wd	3	03-Jan-22	14-Feb-22
CP2_CAP_120	CAP / Contract Negotiation, Swadley-Oak	5		wd	3	15-Feb-22	21-Feb-22
CP2_CAP_160	Prepare Contract for City Council, Swadley-Oak, CP2	11		wd	3	15-Feb-22	01-Mar-22
CP2_CAP_150	City Council Approve, Swadley-Oak, CP2	1		mon	0	07-Mar-22*	07-Mar-22
CP2_CAP_130	Issue NTP, Swadley-Oak, CP2	5		cd	65	08-Mar-22	12-Mar-22
CP2_CAP_140	NTP, Swadley-Oak, CP2	0		wd	46		14-Mar-22
Milestones for NTP, Swadely to Oak		0			648	26-Jan-22	26-Jan-22
CP2_M_ROW1	ROW Cleared, Swadley to Oak, CP2	0		wd	648		26-Jan-22
Construction		624			0	17-Dec-21	12-Aug-24
Construction Package CP2, Swadley to Oak		624			0	17-Dec-21	12-Aug-24
Xcel Milestones to Prevent Further Delays		119			0	17-Dec-21	06-Jun-22
CP1_CON_1340	Xcel Relocate / Remove - 5 OH Poles 72nd, Simms to Oak	72		wd	0	17-Dec-21	30-Mar-22
CP2_MS10	Xcel OH Elec Complete 72nd Simms to Oak (Phase 0 Clear)	0			0		30-Mar-22*
CP2_MS	Xcel OH Electric Relocated Complete Full Project	0			0		02-May-22*
CP2_MS20	Xcel Final Completion - Restoration Work	0			0		06-Jun-22*
Administrative / Mobilization		25			46	14-Mar-22	15-Apr-22
CP1_CON_1120	Mobilization / Yard Set Up	5		wd	56	14-Mar-22	18-Mar-22
CP1_CON_1130	Subcontracts Executed	15		wd	46	14-Mar-22	01-Apr-22
CP1_CON_1470	Initial Erosion Control/BMP's	10		wd	46	04-Apr-22	15-Apr-22
Submittals / Procurement		102			94	26-Jan-22	30-Jun-22
Waterline Materials		102			94	26-Jan-22	30-Jun-22
CP1_CON_140	**Early Release - Submittals Waterline Material	15		wd	49	26-Jan-22	15-Feb-22
CP1_CON_141	Procurement 12" Pipe and Fittings	93	3 mos	cd	69	16-Feb-22	19-May-22
CP1_CON_142	Procurement 18" Pipe and Fittings	135	Sept?	cd	108	16-Feb-22	30-Jun-22
CP1_CON_146	Procurement 24x18 Cross Fitting	135	32 wks	cd	136	16-Feb-22	30-Jun-22



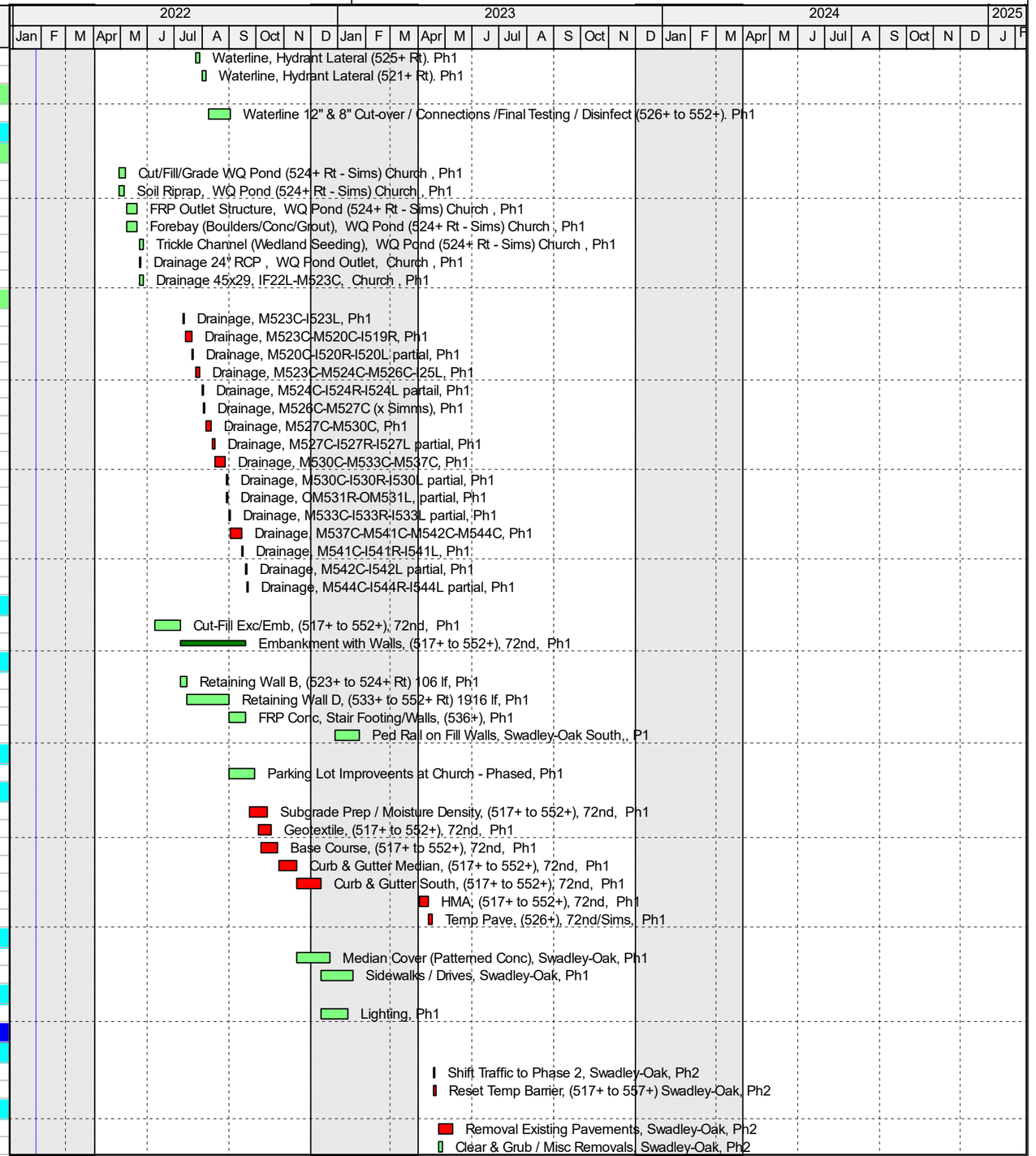
Remaining Level of Effort | Remaining...
Actual Level of Effort | Critical Re...
Actual Work | Milestone

Activity ID	Activity Name	Orig Dur	Qty	Unit	Total Float	Start	Finish
Storm Drainage		35			75	04-Apr-22	20-May-22
CP1_CON_143	Submittals Storm Drainage	15	3 wks	wd	75	04-Apr-22	22-Apr-22
CP1_CON_144	Procurement Drainage Mat'l	20	4 wks	wd	75	25-Apr-22	20-May-22
Phase 0 - Swadley to Oak		31			533	04-Apr-22	16-May-22
MOT		9			49	04-Apr-22	14-Apr-22
CP2_CON_200	Advance Warning, Initial Traffic Control, Swadley-Oak	5			49	04-Apr-22	08-Apr-22
CP2_CON_247	Temp Barrier, (517+ to 557+) Swadley-Oak, Ph0	4	3800+	lf	49	11-Apr-22	14-Apr-22
Removals / Clearing		12			583	11-Apr-22	26-Apr-22
CP2_CON_248	Reset Mailboxes, (542+,548+,549+,550+), Quail, Ph0	2	4+	ea	593	11-Apr-22	12-Apr-22
CP2_CON_250	Remove Fence - Set Temp Fence, (534+ to 548+), Ph0	4	400	lf	52	11-Apr-22	14-Apr-22
CP2_CON_249	Clear & Grub / Misc Removals, Swadley-Oak, Ph0	5	3800+	lf	51	13-Apr-22	19-Apr-22
CP2_CON_251	Remove Fence - Set Temp Fence, (550+ to 552+), Ph0	2	200	lf	52	15-Apr-22	18-Apr-22
CP2_CON_242	Sawcut for Removals for MOT Wideing, Swadley-Oak	4	3800+	lf	46	18-Apr-22	21-Apr-22
CP2_CON_246	Remove Pavements & C&G for MOT Wideing, Swadley-Oak	5	3800+	lf	46	20-Apr-22	26-Apr-22
Temp Signalization		13			49	15-Apr-22	03-May-22
CP2_CON_255	Temp Signal Poles / Span Wire, (552+), Oak, Ph0	4	4	ea	49	15-Apr-22	20-Apr-22
CP2_CON_254	Temp Signal Poles / Span Wire, (541+), Quail, Ph0	4	4	ea	49	19-Apr-22	22-Apr-22
CP2_CON_253	Temp Signal Poles / Span Wire, (526+), Simms, Ph0	4	4	ea	49	21-Apr-22	26-Apr-22
CP2_CON_256	Reset Traffic Signal Cabinets, Oak/Quail/Simms, Ph0	5	3	ea	49	27-Apr-22	03-May-22
Roadway Section		14			46	27-Apr-22	16-May-22
Temporary Construction		14			46	27-Apr-22	16-May-22
CP2_CON_23	Cut/Fill / Prep Subgrade for MOT Wideing, Swadley-Oak, Ph0	5	8700	sy	46	27-Apr-22	03-May-22
CP2_CON_20	Base Course at MOT Widening, Swadley-Oak, Ph0	5	8700	sy	46	04-May-22	10-May-22
CP2_CON_25	Temp Paving at MOT Wideing, Swadley-Oak, Ph0 *****Risk Seasonal	4	2900	ton	46	11-May-22	16-May-22
Phase 1 - Swadley to Oak		234			318	20-Apr-22	17-Apr-23
MOT		4			46	17-May-22	20-May-22
CP2_CON_206	Shift Traffic to Temp Paving, Swadley-Oak, Ph1	4			46	17-May-22	20-May-22
CP2_CON_257	Reset Temp Barrier, (517+ to 557+) Swadley-Oak, Ph1	4	3800+	lf	46	17-May-22	20-May-22
Removals / Clearing		43			509	20-Apr-22	20-Jun-22
CP2_CON_235	Removal Existing Pavements, Swadley-Oak, Ph1	12	12000+/-		66	23-May-22	08-Jun-22
CP2_CON_258	Clear & Grub / Misc Removals, Swadley-Oak, Ph1	5	3800+	lf	73	23-May-22	27-May-22
CP2_CON_259	Remove Fence - Set Temp Fence,, Ph1	10	tbd	lf	68	23-May-22	06-Jun-22
CP2_CON_260	Remove Wall (534+ Rt), Ph1	2	90+/-	lf	74	23-May-22	24-May-22
CP2_CON_261	Remove Guardrail, (536+ to 541+), Ph1	5	500+/-	lf	73	23-May-22	27-May-22
CP2_CON_262	Remove Wall (537+ Rt), Ph1	2	70+/-	lf	74	25-May-22	26-May-22
First United Church - Clearing/Removals/Resets		43			509	20-Apr-22	20-Jun-22
CP2_CON_26	Clear & Grub / Misc Removals, Church, Ph1	7	1	ls	85	20-Apr-22	28-Apr-22
CP2_CON_26	Tree Removals, Church, Ph1	5	6+	ls	87	20-Apr-22	26-Apr-22
CP2_CON_26	Remvove Shed (by Others), Church, Ph1	5	1	ea	87	20-Apr-22	26-Apr-22
CP2_CON_30	Irrigation at Church, Ph1	15	tbd		509	31-May-22	20-Jun-22
Waterline		73			456	23-May-22	02-Sep-22
12" Waterline		43			89	23-May-22	22-Jul-22
CP2_CON_28	Waterline 12", (526+ to 552+). Ph1	33	2618+	lf	46	23-May-22	08-Jul-22
Laterals from 12"		33			89	07-Jun-22	22-Jul-22
CP2_CON_2	Waterline 8", Routt Street Lateral. Ph1	3	58	lf	89	07-Jun-22	09-Jun-22
CP2_CON_2	Waterline 8", Quail Street Lateral & FH. Ph2	5	175	lf	89	10-Jun-22	16-Jun-22
CP2_CON_2	Waterline, Hydrant Lateral (529+ Rt). Ph1	5	36+	lf	89	17-Jun-22	23-Jun-22
CP2_CON_2	Waterline, Lateral (530+ Rt). Ph1	5	tbd	lf	89	24-Jun-22	30-Jun-22
CP2_CON_2	Waterline, Lateral (532+ Rt). Ph1	5	tbd	lf	89	24-Jun-22	30-Jun-22
CP2_CON_2	Waterline, Hydrant Lateral (535+ Rt). Ph1	5	21+	lf	89	01-Jul-22	08-Jul-22
CP2_CON_2	Waterline, Hydrant Lateral (537+ Rt). Ph1	5	21+	lf	89	01-Jul-22	08-Jul-22
CP2_CON_2	Waterline, Hydrant Lateral (542+ Rt). Ph1	5	22+	lf	89	11-Jul-22	15-Jul-22
CP2_CON_3	Waterline, Hydrant Lateral (545+ Rt). Ph1	5	22+	lf	89	11-Jul-22	15-Jul-22
CP2_CON_3	Waterline, Hydrant Lateral (549+ Rt). Ph1	5	24+	lf	89	18-Jul-22	22-Jul-22
24x18 Cross / Simms Tie-in Point to Existing		25			476	01-Jul-22	05-Aug-22
CP2_CON_35	Waterline 24x18 MJ Cross - Simms Tie-in. Ph1	5	1	ls	94	01-Jul-22	08-Jul-22
18" Waterline		20			476	11-Jul-22	05-Aug-22
CP2_CON_2	Waterline 18", (518+ to 526+) Swadley-Sims. Ph1	10	767+	lf	69	11-Jul-22	22-Jul-22
Laterals from 18"		10			476	25-Jul-22	05-Aug-22
CP2_CON_	Waterline, 3/4" Service Lateral (523+ Rt). Ph1	4	95	lf	482	25-Jul-22	28-Jul-22



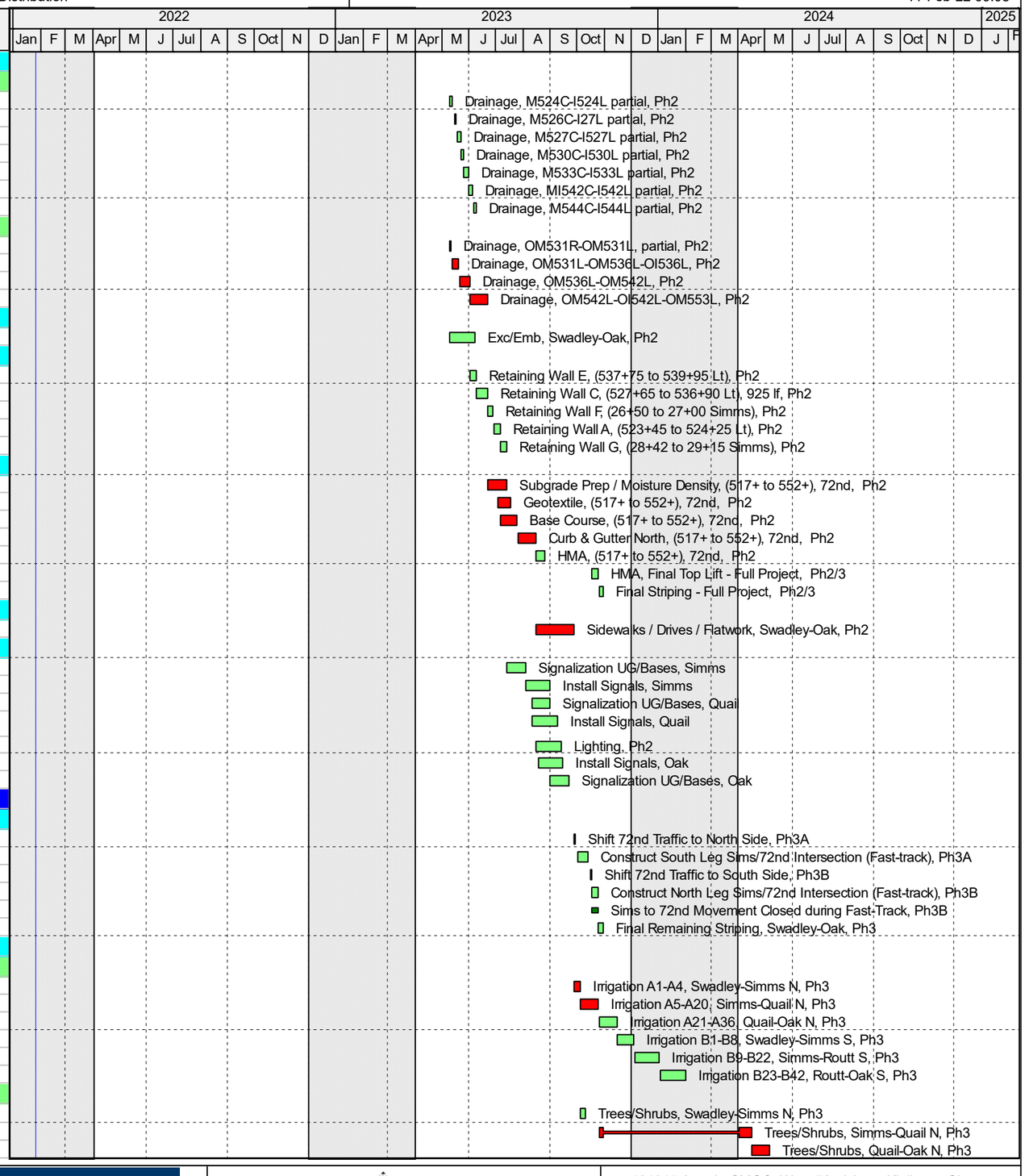
Remaining Level of Effort | Remaining...
Actual Level of Effort | Critical Re...
Actual Work | Milestone

Activity ID	Activity Name	Orig Dur	Qty	Unit	Total Float	Start	Finish
CP2_CON_2	Waterline, Hydrant Lateral (525+ Rt). Ph1	5	48+	lf	481	25-Jul-22	29-Jul-22
CP2_CON_2	Waterline, Hydrant Lateral (521+ Rt). Ph1	5	40	lf	69	01-Aug-22	05-Aug-22
Final Tie-Ins / Testing / Disinfecting		20			69	08-Aug-22	02-Sep-22
CP2_CON_30	Waterline 12" & 8" Cut-over / Connections /Final Testing / Disinfect (5	20	1	la	69	08-Aug-22	02-Sep-22
Drainage		102			443	29-Apr-22	22-Sep-22
Water Quality Pond / Outfall - First United Church		21			524	29-Apr-22	27-May-22
CP2_CON_26	Cut/Fill/Grade WQ Pond (524+ Rt - Sims) Church , Ph1	6	1	ls	85	29-Apr-22	06-May-22
CP2_CON_27	Soil Riprap, WQ Pond (524+ Rt - Sims) Church , Ph1	5	1	ls	520	29-Apr-22	05-May-22
CP2_CON_26	FRP Outlet Structure, WQ Pond (524+ Rt - Sims) Church , Ph1	10	1	ls	509	09-May-22	20-May-22
CP2_CON_26	Forebay (Boulders/Conc/Grout), WQ Pond (524+ Rt - Sims) Church	10	1	ls	85	09-May-22	20-May-22
CP2_CON_26	Trickle Channel (Wedland Seeding), WQ Pond (524+ Rt - Sims) Chu	5	1	ls	509	23-May-22	27-May-22
CP2_CON_27	Drainage 24" RCP , WQ Pond Outlet, Church , Ph1	2	20+/-	lf	527	23-May-22	24-May-22
CP2_CON_27	Drainage 45x29, IF22L-M523C, Church , Ph1	4	338	lf	75	23-May-22	26-May-22
72nd Drainage		53			46	11-Jul-22	22-Sep-22
CP2_CON_27	Drainage, M523C-I523L, Ph1	2	26	lf	46	11-Jul-22	12-Jul-22
CP2_CON_27	Drainage, M523C-M520C-I519R, Ph1	6	416+	lf	46	13-Jul-22	20-Jul-22
CP2_CON_27	Drainage, M520C-I520R-I520L partial, Ph1	2	20+	lf	46	21-Jul-22	22-Jul-22
CP2_CON_27	Drainage, M523C-M524C-M526C-I25L, Ph1	5	331	lf	46	25-Jul-22	29-Jul-22
CP2_CON_27	Drainage, M524C-I524R-I524L partail, Ph1	2	25+	lf	46	01-Aug-22	02-Aug-22
CP2_CON_27	Drainage, M526C-M527C (x Simms), Ph1	2	103	lf	46	03-Aug-22	04-Aug-22
CP2_CON_27	Drainage, M527C-M530C, Ph1	5	334	lf	46	05-Aug-22	11-Aug-22
CP2_CON_28	Drainage, M527C-I527R-I527L partial, Ph1	2	25+	lf	46	12-Aug-22	15-Aug-22
CP2_CON_28	Drainage, M530C-M533C-M537C, Ph1	9	652	lf	46	16-Aug-22	26-Aug-22
CP2_CON_28	Drainage, M530C-I530R-I530L partial, Ph1	2	25+	lf	46	29-Aug-22	30-Aug-22
CP2_CON_31	Drainage, OM531R-OM531L, partial, Ph1	2	50+	lf	48	29-Aug-22	30-Aug-22
CP2_CON_28	Drainage, M533C-I533R-I533L partial, Ph1	2	25+	lf	46	31-Aug-22	01-Sep-22
CP2_CON_28	Drainage, M537C-M541C-M542C-M544C, Ph1	8	729	lf	46	02-Sep-22	14-Sep-22
CP2_CON_28	Drainage, M541C-I541R-I541L, Ph1	2	31	lf	46	15-Sep-22	16-Sep-22
CP2_CON_28	Drainage, M542C-I542L partial, Ph1	2	31+	lf	46	19-Sep-22	20-Sep-22
CP2_CON_28	Drainage, M544C-I544R-I544L partial, Ph1	2	35+	lf	46	21-Sep-22	22-Sep-22
Earthwork / Grading		71			110	09-Jun-22	19-Sep-22
CP2_CON_204	Cut-Fill Exc/Emb, (517+ to 552+), 72nd, Ph1	20	tbd		66	09-Jun-22	07-Jul-22
CP2_CON_305	Embankment with Walls, (517+ to 552+), 72nd, Ph1	51	tbd		110	08-Jul-22	19-Sep-22
Retaining Walls		131			48	08-Jul-22	25-Jan-23
CP2_CON_207	Retaining Wall B, (523+ to 524+ Rt) 106 lf, Ph1	5	369	sf	66	08-Jul-22	14-Jul-22
CP2_CON_243	Retaining Wall D, (533+ to 552+ Rt) 1916 lf, Ph1	34	13208	sf	66	15-Jul-22	31-Aug-22
CP2_CON_332	FRP Conc, Stair Footing/Walls, (536+), Ph1	12	1	ls	110	01-Sep-22	19-Sep-22
CP2_CON_214	Ped Rail on Fill Walls, Swadley-Oak South,, P1	20	1700+/-	lf	58	28-Dec-22	25-Jan-23
First United Church Improvements		20			120	01-Sep-22	29-Sep-22
CP2_CON_355	Parking Lot Improveents at Church - Phased, Ph1	20	tbd		120	01-Sep-22	29-Sep-22
Roadway		125			0	23-Sep-22	17-Apr-23
CP2_CON_210	Subgrade Prep / Moisture Density, (517+ to 552+), 72nd, Ph1	15	15000	sy	46	23-Sep-22	13-Oct-22
CP2_CON_304	Geotextile, (517+ to 552+), 72nd, Ph1	10	15000	sy	46	04-Oct-22	17-Oct-22
CP2_CON_211	Base Course, (517+ to 552+), 72nd, Ph1	14	8000+	tn	46	06-Oct-22	25-Oct-22
CP2_CON_212	Curb & Gutter Median, (517+ to 552+), 72nd, Ph1	15	4500	lf	46	26-Oct-22	15-Nov-22
CP2_CON_244	Curb & Gutter South, (517+ to 552+), 72nd, Ph1	15	4500	lf	46	16-Nov-22	12-Dec-22
CP2_CON_215	HMA, (517+ to 552+), 72nd, Ph1	8	4000+	tn	0	03-Apr-23	12-Apr-23
CP2_CON_217	Temp Pave, (526+), 72nd/Sims, Ph1	3	tbd	lf	0	13-Apr-23	17-Apr-23
Sidewalk / Drives / Flatwork		42			63	16-Nov-22	18-Jan-23
CP2_CON_245	Median Cover (Patterned Conc), Swadley-Oak, Ph1	25	9292	sf	80	16-Nov-22	22-Dec-22
CP2_CON_213	Sidewalks / Drives, Swadley-Oak, Ph1	25	6000+	sy	58	13-Dec-22	18-Jan-23
Lighting / Electric / Signalization (LES)		20			68	13-Dec-22	11-Jan-23
CP2_CON_351	Lighting, Ph1	20	15	ea	68	13-Dec-22	11-Jan-23
Swadley to Oak - Phase 2		137			181	18-Apr-23	30-Oct-23
MOT		4			0	18-Apr-23	21-Apr-23
CP2_CON_218	Shift Traffic to Phase 2, Swadley-Oak, Ph2	2			0	18-Apr-23	19-Apr-23
CP2_CON_306	Reset Temp Barrier, (517+ to 557+) Swadley-Oak, Ph2	4	3800+	lf	0	18-Apr-23	21-Apr-23
Removals / Clearing		12			302	24-Apr-23	09-May-23
CP2_CON_307	Removal Existing Pavements, Swadley-Oak, Ph2	12	12000+/-		0	24-Apr-23	09-May-23
CP2_CON_308	Clear & Grub / Misc Removals, Swadley-Oak, Ph2	5	3800+	lf	309	24-Apr-23	28-Apr-23



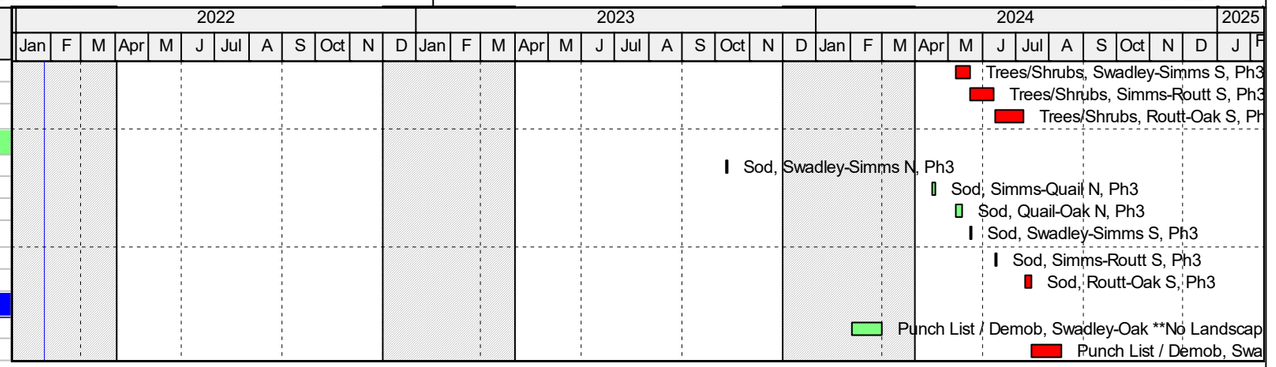
Remaining Level of Effort | Remaining...
Actual Level of Effort | Critical Re...
Actual Work | Milestone

Activity ID	Activity Name	Orig Dur	Qty	Unit	Total Float	Start	Finish
Drainage		30			10	10-May-23	21-Jun-23
On-Site Leyden System		21			19	10-May-23	08-Jun-23
CP2_CON_30	Drainage, M524C-I524L partial, Ph2	3	100+	lf	12	10-May-23	12-May-23
CP2_CON_31	Drainage, M526C-I27L partial, Ph2	3	100+	lf	12	15-May-23	17-May-23
CP2_CON_31	Drainage, M527C-I527L partial, Ph2	3	100+	lf	12	18-May-23	22-May-23
CP2_CON_31	Drainage, M530C-I530L partial, Ph2	3	60+	lf	12	23-May-23	25-May-23
CP2_CON_31	Drainage, M533C-I533L partial, Ph2	3	60+	lf	19	26-May-23	31-May-23
CP2_CON_31	Drainage, MI542C-I542L partial, Ph2	3	60+	lf	19	01-Jun-23	05-Jun-23
CP2_CON_31	Drainage, M544C-I544L partial, Ph2	3	60+	lf	19	06-Jun-23	08-Jun-23
Mapleleaf Off-Site System		30			0	10-May-23	21-Jun-23
CP2_CON_31	Drainage, OM531R-OM531L, partial, Ph2	2	50+	lf	0	10-May-23	11-May-23
CP2_CON_31	Drainage, OM531L-OM536L-OI536L, Ph2	6	437	lf	0	12-May-23	19-May-23
CP2_CON_31	Drainage, OM536L-OM542L, Ph2	8	603	lf	0	22-May-23	01-Jun-23
CP2_CON_32	Drainage, OM542L-OI542L-OM553L, Ph2	14	1119	lf	0	02-Jun-23	21-Jun-23
Earthwork / Grading		20			71	10-May-23	07-Jun-23
CP2_CON_222	Exc/Emb, Swadley-Oak, Ph2	20	tbd		71	10-May-23	07-Jun-23
Retaining Walls		29			8	02-Jun-23	13-Jul-23
CP2_CON_321	Retaining Wall E, (537+75 to 539+95 Lt), Ph2	5	881	sf	3	02-Jun-23	08-Jun-23
CP2_CON_322	Retaining Wall C, (527+65 to 536+90 Lt), 925 lf, Ph2	9	3015	sf	3	09-Jun-23	21-Jun-23
CP2_CON_323	Retaining Wall F, (26+50 to 27+00 Simms), Ph2	5	200	sf	3	22-Jun-23	28-Jun-23
CP2_CON_324	Retaining Wall A, (523+45 to 524+25 Lt), Ph2	5	242	sf	3	29-Jun-23	06-Jul-23
CP2_CON_325	Retaining Wall G, (28+42 to 29+15 Simms), Ph2	5	184	sf	8	07-Jul-23	13-Jul-23
Roadway		91			161	22-Jun-23	30-Oct-23
CP2_CON_326	Subgrade Prep / Moisture Density, (517+ to 552+), 72nd, Ph2	15	15000	sy	0	22-Jun-23	13-Jul-23
CP2_CON_327	Geotextile, (517+ to 552+), 72nd, Ph2	10	15000	sy	0	03-Jul-23	17-Jul-23
CP2_CON_328	Base Course, (517+ to 552+), 72nd, Ph2	14	8000+	tn	0	06-Jul-23	25-Jul-23
CP2_CON_330	Curb & Gutter North, (517+ to 552+), 72nd, Ph2	15	4500	lf	0	26-Jul-23	15-Aug-23
CP2_CON_331	HMA, (517+ to 552+), 72nd, Ph2	8	4000+	tn	40	16-Aug-23	25-Aug-23
CP2_CON_357	HMA, Final Top Lift - Full Project, Ph2/3	6	na	tn	75	18-Oct-23	25-Oct-23
CP2_CON_358	Final Striping - Full Project, Ph2/3	3	na	day	75	26-Oct-23	30-Oct-23
Sidewalk / Drives		30			0	16-Aug-23	27-Sep-23
CP2_CON_229	Sidewalks / Drives / Flatwork, Swadley-Oak, Ph2	30	2000+	lf	0	16-Aug-23	27-Sep-23
Lighting / Electric / Signalization (LES)		50			225	14-Jul-23	22-Sep-23
CP2_CON_201	Signalization UG/Bases, Simms	15			31	14-Jul-23	03-Aug-23
CP2_CON_216	Install Signals, Simms	20			31	04-Aug-23	31-Aug-23
CP2_CON_205	Signalization UG/Bases, Quail	15			225	11-Aug-23	31-Aug-23
CP2_CON_220	Install Signals, Quail	20			31	11-Aug-23	08-Sep-23
CP2_CON_352	Lighting, Ph2	20	16+	ea	28	16-Aug-23	13-Sep-23
CP2_CON_354	Install Signals, Oak	20			230	18-Aug-23	15-Sep-23
CP2_CON_353	Signalization UG/Bases, Oak	15			225	01-Sep-23	22-Sep-23
Phase 3		184			0	28-Sep-23	15-Jul-24
Roadway Section - Simms Fast-Track		24			104	28-Sep-23	31-Oct-23
CP2_CON_236	Shift 72nd Traffic to North Side, Ph3A	2			18	28-Sep-23	29-Sep-23
CP2_CON_237	Construct South Leg Sims/72nd Intersection (Fast-track), Ph3A	10			18	02-Oct-23	13-Oct-23
CP2_CON_238	Shift 72nd Traffic to South Side, Ph3B	2			18	16-Oct-23	17-Oct-23
CP2_CON_239	Construct North Leg Sims/72nd Intersection (Fast-track), Ph3B	5			18	18-Oct-23	24-Oct-23
CP2_CON_240	Sims to 72nd Movement Closed during Fast-Track, Ph3B	7			176	18-Oct-23	24-Oct-23
CP2_CON_231	Final Remaining Striping, Swadley-Oak, Ph3	5			104	25-Oct-23	31-Oct-23
Landscape / Irrigation / Final Stablization		184			0	28-Sep-23	15-Jul-24
Irrigation / Controllers		78			83	28-Sep-23	01-Feb-24
CP2_CON_33	Irrigation A1-A4, Swadley-Simms N, Ph3	5			0	28-Sep-23	04-Oct-23
CP2_CON_33	Irrigation A5-A20, Simms-Quail N, Ph3	15			0	05-Oct-23	25-Oct-23
CP2_CON_33	Irrigation A21-A36, Quail-Oak N, Ph3	15			83	26-Oct-23	15-Nov-23
CP2_CON_33	Irrigation B1-B8, Swadley-Simms S, Ph3	10			83	16-Nov-23	04-Dec-23
CP2_CON_33	Irrigation B9-B22, Simms-Routt S, Ph3	15			83	05-Dec-23	02-Jan-24
CP2_CON_33	Irrigation B23-B42, Routt-Oak S, Ph3	18			83	03-Jan-24	01-Feb-24
Plantings - Trees / Shrubs		88			0	05-Oct-23	08-Jul-24
CP2_CON_33	Trees/Shrubs, Swadley-Simms N, Ph3	4			11	05-Oct-23	10-Oct-23
CP2_CON_34	Trees/Shrubs, Simms-Quail N, Ph3	15			0	26-Oct-23	15-Apr-24
CP2_CON_34	Trees/Shrubs, Quail-Oak N, Ph3	15			0	16-Apr-24	06-May-24



Remaining Level of Effort | Remaining...
Actual Level of Effort | Critical Re...
Actual Work | Milestone

Activity ID	Activity Name	Orig Dur	Qty	Unit	Total Float	Start	Finish
CP2_CON_34	Trees/Shrubs, Swadley-Simms S, Ph3	10			0	07-May-24	20-May-24
CP2_CON_34	Trees/Shrubs, Simms-Routt S, Ph3	15			0	21-May-24	11-Jun-24
CP2_CON_34	Trees/Shrubs, Routt-Oak S, Ph3	18			0	12-Jun-24	08-Jul-24
Plantings - Sod		89			0	11-Oct-23	15-Jul-24
CP2_CON_34	Sod, Swadley-Simms N, Ph3	2			68	11-Oct-23	12-Oct-23
CP2_CON_34	Sod, Simms-Quail N, Ph3	4			44	16-Apr-24	19-Apr-24
CP2_CON_34	Sod, Quail-Oak N, Ph3	5			33	07-May-24	13-May-24
CP2_CON_34	Sod, Swadley-Simms S, Ph3	2			28	21-May-24	22-May-24
CP2_CON_34	Sod, Simms-Routt S, Ph3	3			15	12-Jun-24	14-Jun-24
CP2_CON_35	Sod, Routt-Oak S, Ph3	5			0	09-Jul-24	15-Jul-24
Punch List / Closeout		135			0	02-Feb-24	12-Aug-24
CP2_CON_2320	Punch List / Demob, Swadley-Oak **No Landscape	20	4	wks	115	02-Feb-24	29-Feb-24
CP2_CON_3590	Punch List / Demob, Swadley-Oak **After Landscape Landscape	20	4	wks	0	16-Jul-24	12-Aug-24



Remaining Level of Effort | Remaining...
Actual Level of Effort | Critical Re...
Actual Work | Milestone

Exhibit 2.11.11

Conditional Right-of-way Certification

CITY OF ARVADA
RIGHT OF WAY CERTIFICATION
FOR DESIGN BID BUILD, DESIGN BUILD, AND CONSTRUCTION MANAGER/GENERAL CONTRACTOR PROJECTS

To: Mark Deven (Check One: City Engineer FHWA City Manager)

From: Engineering Department	**Date: 2/11/2022**	**Advertisement Date: N/A**

Project Number: 18-ST-30

Location: W. 72nd Avenue from Simms Street to Kipling Street

Project Engineer/Manager: R. Britton Thomas	**City Engineer: Jacqueline Rhoades**

Signature: **Date:**

This is to certify that all right of way acquisition and/or relocation for the above project meet the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, in accordance with approved procedures. See details below:

Conditional ROW Clearance Approved by:

Signature: _____ **Date:**
City Manager

Signature: _____ **Date:**
City Attorney

CONSTRUCTION FUNDING
(Check all that applicable)

- [X] City
- [ ] State
- [ ] Federal – *Right of way meets the requirements of 23 CFR, Subpart C-Physical Construction Authorization, §635.309(b)(c)(g)(h)and (p) and/or §710.313 (a) Design build projects, if applicable.*

CONSTRUCTION TYPE
(Complete Area A, B, **OR** C Only)

- [ ] A. **Typical (Design/Bid/Build)**
- [ ] **B. Design/Build**
- [X] **C. Construction Manager/General Contractor**

A. Typical (Design/Bid/Build) - Status of Right of Way

(Select One)

No additional right of way was required for this construction project. *(Print page 1)*

or

All right of way acquisition and/or relocation necessary for this construction project have been accomplished. The state has legal and physical possession of all property. *(Print page 1 and Relocation Assistance, if applicable)*

or

The acquisition of right of way and/or relocations is ongoing. The state has legal and physical possession of all property except for the parcels identified under *Project Exceptions*.

B. Design/Build - Status of Right of Way

(Select One)

No additional right of way appears necessary for this construction project.

However, additional right of way and/or relocation may become necessary as a result of final design. If needed, arrangements will be made for the completion of the right of way acquisition and/or relocation pursuant to approved procedures. *(Print pages 1 and 2 only)*

or

All anticipated right of way acquisition and/or relocations necessary for this construction project have been completed. The state has legal and physical possession of all required property.

However, additional right of way and/or relocation may become necessary as a result of final design. If needed, arrangements will be made for the completion of the right of way acquisition and/or relocation pursuant to approved procedures.

or

The acquisition of right of way and/or relocation is ongoing. The city has legal and physical possession of all required property except for the parcels identified under *Project Exceptions*.

However, additional right of way and/or relocation may become necessary as a result of final design. If needed, arrangements will be made for the completion of right of way acquisition and/or relocation pursuant to approved procedures. *The general contractor may be required to obtain legal possession of any additional parcels needed.*

C. Construction Manager/General Contractor - STATUS OF RIGHT OF WAY (Select One)

No additional right of way appears necessary for this construction project.

However, additional right of way and/or relocation may become necessary as a result of final design. If needed, arrangements will be made for the completion of the right of way acquisition and/or relocation pursuant to approved procedures.

or

All anticipated right of way acquisition and/or relocations necessary for this construction project have been completed. The city has legal and physical possession of all required property.

However, additional right of way and/or relocation may become necessary as a result of final design. If needed, arrangements will be made for the completion of the right of way acquisition and/or relocation pursuant to approved procedures.

or

The acquisition of right of way and/or relocation is ongoing. The city has legal and physical possession of all required property except for the parcels identified under *Project Exceptions*.

However, additional right of way and/or relocation may become necessary as a result of final design. If needed, arrangements will be made for the completion of right of way acquisition and/or relocation pursuant to approved procedures.

Exhibit 2.11.12

Notice of Award

Exhibit 2.11.13

Performance and Payment Bond

Exhibit 2.11.14

Notice to Proceed

Exhibit 2.11.15

Change Orders (if any)

CITY OF ARVADA

REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM 8.B.1.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: R22-017, A Resolution Reviving and Approving the First Amendment to an Intergovernmental Agreement By and Between the City of Arvada, The County of Jefferson, and the City of Lakewood Authorizing the Severe Weather Shelter Network (SWSN) to be a Subrecipient of Community Development Block Grant (CDBG) Funds for Emergency Overnight Shelter Services, CFDA #14.218

Report in Brief

On December 28, 2020, the City of Arvada entered into an intergovernmental agreement with the County of Jefferson and City of Lakewood to provide Community Development Block Grant CARES funding to the Severe Weather Shelter Network (SWSN) for 2021. The SWSN provides emergency overnight shelter services in the form of motel vouchers for people experiencing homelessness during severe weather. The SWSN needs continued funding and the City of Arvada, County of Jefferson and the City of Lakewood wish to extend the previous intergovernmental agreement and extend funding to the SWSN through December 31, 2022.

The Arvada team recommends that the City Council approve R22-017, A Resolution Reviving and Approving the First Amendment to an Intergovernmental Agreement By and Between the City of Arvada, The County of Jefferson, and the City of Lakewood Authorizing the Severe Weather Shelter Network (SWSN) to be a Subrecipient of Community Development Block Grant (CDBG) Funds for Emergency Overnight Shelter Services, CFDA #14.218.

Financial Impact

The total amount approved in the agreement to be provided to the Severe Weather Shelter Network is $508,000. Of that amount, Arvada's 2022 contribution is $75,000 which is the same as the City's 2021 contribution. This amount will be paid using CDBG CARES funding.

Background

The Severe Weather Shelter Network (SWSN) provides shelter to people experiencing homelessness during cold weather nights. Historically, sheltering took place in churches; however, due to the COVID-19 pandemic, the SWSN adjusted its model to offer non-congregate sheltering in the form of motel rooms. The cost of renting motel rooms far exceeds the cost of providing shelter in churches. The City of Arvada, the City of Lakewood and Jefferson County are partnering to provide financial support to the SWSN to allow the Network to continue operating through 2022.

Discussion

Continuation of the SWSN services through 2022 is considered a high priority of the regional homeless program at the present time. While much more costly than congregate sheltering, the adjustment to non-congregate sheltering was a necessary response to the pandemic as transmission of infectious disease is common among homeless individuals.

Public Contact

Posting of the City Council agenda

Commission Recommendation

N/A

Strategic Alignment

Approval of this resolution authorizing an Intergovernmental Agreement with the City of Lakewood, Jefferson County and the Severe Weather Shelter Network aligns with the Vibrant Community and Neighborhoods Priority Area within the City Council Strategic Plan. This action supports the following Principle stated within the VCN Priority Area:

Improves access to quality housing that is affordable for a broad range of income levels and provides resources, housing and neighborhood assistance services for Arvada residents, neighborhoods, property owners, and stakeholders.

Alternative Courses of Action

N/A

Recommendation for Action

The Arvada team recommends that the City Council approve R22-017, A Resolution Reviving and Approving the First Amendment to an Intergovernmental Agreement By and Between the City of Arvada, The County of Jefferson, and the City of Lakewood Authorizing the Severe Weather Shelter Network (SWSN) to be a Subrecipient of Community Development Block Grant (CDBG) Funds for Emergency Overnight Shelter Services, CFDA #14.218.

Suggested Motion:

I move that R22-017, A Resolution Reviving and Approving the First Amendment to an Intergovernmental Agreement By and Between the City of Arvada, The County of Jefferson, and the City of Lakewood Authorizing the Severe Weather Shelter Network (SWSN) to be a Subrecipient of Community Development Block Grant (CDBG) Funds for Emergency Overnight Shelter Services, CFDA #14.218, be (approved) (rejected).

Prepared by:
Carrie Espinosa, Manager of Housing Preservation and Resources

Reviewed by:

Approved by:

Bryan Archer, Director of Finance	2/24/2022
Gail Walker, Legal Specialist-Contracts	2/24/2022
Kylie Justus, Assistant City Attorney	2/24/2022
Rachel Morris, City Attorney	2/24/2022
Lorie Gillis, Deputy City Manager	2/24/2022

Mark Deven, City Manager 2/24/2022

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R22-017

A RESOLUTION REVIVING AND APPROVING THE FIRST AMENDMENT TO AN INTERGOVERNMENTAL AGREEMENT BY AND BETWEEN THE CITY OF ARVADA, THE COUNTY OF JEFFERSON, AND THE CITY OF LAKEWOOD AUTHORIZING THE SEVERE WEATHER SHELTER NETWORK (SWSN) TO BE A SUBRECIPIENT OF COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG) FUNDS FOR EMERGENCY OVERNIGHT SHELTER SERVICES
CFDA # 14.218

WHEREAS, on December 28, 2020, the City of Arvada entered into an Intergovernmental Agreement with the County of Jefferson and the City of Lakewood, to carry out the CDBG program by awarding the SWSN subrecipient funds to support emergency overnight shelter services; and

WHEREAS, the SWSN needs continued funding to be able to supply vouchers to people experiencing homelessness during severe weather occurrences; and

WHEREAS, Arvada, the City of Lakewood, and the County of Jefferson agree it is best continue the previous intergovernmental agreement and extend funding to the SWSN through December 31, 2022; and

WHEREAS, Arvada agrees to supply $75,000.00 of 2022 CDBG funds to support SWSN in 2022 for a total contribution of $150,000.00 over the life of the contract (2021-2022); and

WHEREAS, the agreement supports the Vibrant Community and Neighborhoods strategic result to improve access to quality housing affordable for a broad range of income levels.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is authorized to sign and the City Clerk to attest, in a form approved by the City Attorney, an Amendment to an Agreement, which is in substantially the same form as the attached.

Section 2. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 7th day of March, 2022.

_____
Marc Williams, Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

Rachel A. Morris, City Attorney

By: _____

Exhibit 2-A: Project Budget

Contractor: Severe Weather Health Network
Funding Source: Jefferson County, Lakewood and Arvada CDBG-CV funds
Funding Year: 2021-2022

Community Development Block Grant **BUDGET** *List budget items and amounts to be paid for with the awarded CDBG funds.*	
Budget Item	**CDBG Amount**
Personnel (Personnel & Mileage (Applies only to earnings of staff performing direct project delivery and shall not exceed 20% of CDBG program budget. Salary reimbursements and only be paid if salary rates are approved in writing by the County Representative prior to program start.)	
	$ -
Staff time providing Services	$ 248,500.00
	$ -
TOTAL Personnel	$ 248,500.00
Travel (Applies only to mileage of direct project delivery staff, at current federal rate.)	
	$ -
	$ -
TOTAL Travel	$ -
Project/Operating Costs	
Motel Voucher Payments	$ 259,500.00
	$ -
TOTAL Project	$ 259,500.00
TOTAL CDBG-CV BUDGET	$ 508,000.00

Total Activity/Project Budget **BUDGET** *Provide overview of entire activity/project.*		
Type of Funds		**Amount**
CDBG-CV Funds		$ 508,000.00
Other Federal Funds		$ -
Other Public Funds (State/Local/Tax Exempt Bonds)		$ -
Private Funds		
Other (Please Identify): ESG-CV2 funds for 2020-2021		$ -
TOTAL ACTIVITY/PROJECT FUNDS		$ 508,000.00
CDBG SHARE	100%	$ 508,000.00
OTHER FUNDS SHARE	0%	$ -

Exhibit 1-A
Community Development Block Grant
Scope of Services and Schedule of Completion

A. Service Description

Severe Weather Shelter Network (the "Subrecipient") shall use the CDBG-CV Contract funds to provide emergency overnight shelter on severe cold weather nights and life-threatening winter nights for individuals living on the streets. The COVID-19 pandemic created a need to move from a congregate shelter model to a non-congregate model - both for preventing the spread of COVID in a congregate setting and the need for paid staff as opposed to volunteers. During the term of this Contract, services (the "Services") shall include but not be limited to:

(1) Assisting in providing transportation of individuals via Metro Taxi and/or RTD bus service to a designated motel;

(2) Facilitating motel services to house individuals needing shelter in Jefferson County (including Arvada and Lakewood, the North and Central regions of the shelter network). In accordance with CDBG regulations, all motel voucher payments shall be made directly to the motel providers;

(3) Provide a Regional Coordinator to assist in the implementation, management, and reporting for all motel voucher use;

(4) Provide registration & voucher staff to assist in the intake and distribution of all motel vouchers through designated partner locations on designated shelter days; and

(5) Provide staff to assist with providing congregate shelter placements for individuals living on the streets, to the extent that the Subrecipient begins offering congregate shelter during the term of the Contract.

Severe cold weather exists (a) during wet weather when overnight temperatures are predicted to be 32 degrees or colder; and (b) during dry weather when overnight temperatures are predicted to be 20 degrees or colder.

The Subrecipient will perform its obligations described herein for the public benefit in compliance with all applicable Federal, state, and local rules and regulations governing these funds under 24 CFR 570 and 2 CFR 200, and in a manner satisfactory to the County. These Services meet the CDBG National Objective of benefiting low- and moderate-income persons.

B. Eligibility

Individuals experiencing homelessness are deemed to meet the income and residency eligibility requirements for CDBG.

C. Reimbursement of Eligible Costs

The Subrecipient may seek reimbursement for the following expenses incurred in accordance with the terms of this Contract up to the dollar amount listed in Exhibit 2:

(1) Motel voucher payments made on behalf of individuals experiencing homelessness; and
(2) Staff time incurred in the performance of the Services identified above.

The Subrecipient will submit monthly reimbursement draw requests from the County for allowable costs incurred in the performance of the Services. The County shall be responsible for up to $208,000.00 of the Contract Price. Lakewood and Arvada shall each be responsible for up to $150,000.00 of the Contract Price. Upon receipt of each draw request, the County will collaborate with Lakewood and Arvada to

properly allocate allowable expenses among one another, and each party will make payment directly to the Subrecipient for their respective portion.

The Subrecipient shall maintain program and financial records documenting all Subrecipient expenses for which reimbursement is sought through this Contract in accordance with the requirements below.

D. Additional Requirements

The Subrecipient agrees to the following additional requirements:

(1) COVID testing is prohibited as a condition for accessing non-congregate shelter;

(2) The Subrecipient agrees to hold monthly meetings with the County, Arvada and Lakewood; and

(3) The Subrecipient shall implement a protocol (which must be approved by the County, Arvada and Lakewood) for handling confirmed or suspected COVID cases among persons receiving shelter under this Contract.

E. Outcome Measures

The Subrecipient shall provide Services to approximately: (1) 115 persons per night for 34 nights from January to April 2021; (2) 115 guests per night for 31 nights from October to December 2021; (3) 115 persons per night for 34 nights from January to April 2022; and (4) 115 guests per night for 31 nights from October to December 2022.

F. Reporting Requirements

The Subrecipient shall provide quarterly performance reports through the Homeless Management Information System ("HMIS") addressing the numbers of persons served, the numbers of vouchers provided, the demographic information required by HMIS, the reimbursement draws submitted and such other information as is requested by the County. Quarterly reports shall be due following the eight periods: (1) Q1, January 1 to March 31, 2021; (2) Q2, April 1 to June 30, 2021; (3) Q3, July 1 to September 30, 2021; (4) Q4, October 1 to December 31; 2021 (5) Q5, January 1 to March 31; 2022 (6) Q6, April 1 to June 30; 2022 (7) Q7, July 1 to September 30, 2022; and (8) Q8, October 1 to December 31, 2022.

REVIVAL AND FIRST AMENDMENT TO CONTRACT FOR
EMERGENCY OVERNIGHT SHELTER SERVICES

THIS REVIVAL AND FIRST AMENDMENT TO CONTRACT FOR EMERGENCY OVERNIGHT SHELTER SERVICES (this "First Amendment"), dated for reference purposes only February 8, 2022, is made and entered into by and among the **COUNTY OF JEFFERSON, STATE OF COLORADO**, a body politic and corporate (the "County"), the **CITY OF ARVADA**, a body politic and corporate ("Arvada"), the **CITY OF LAKEWOOD**, a body politic and corporate ("Lakewood"), and **SEVERE WEATHER SHELTER NETWORK,** a Colorado nonprofit corporation (the "Subrecipient").

RECITALS

A. The parties entered into a contract dated December 28, 2020 (the "Contract"), pursuant to which the County, Lakewood and Arvada made a total of $250,000.00 in Community Development Block Grant CARES Act funding available to the Subrecipient to provide emergency overnight shelter services in 2021.

B. The Contract expired by its terms on December 31, 2021, and was extended by the County Representative through January 31, 2022.

C. The parties now desire to revive the Contract and amend the Contract to further extend its term, add additional funding, and update the scope of services, as set forth herein.

D. Capitalized terms not otherwise defined herein shall have the meaning set forth in the Contract.

AGREEMENT

In consideration of the covenants and conditions set forth herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the County, Arvada, Lakewood and the Subrecipient agree as follows:

1. The Contract shall be revived effective February 1, 2022, and any performance by the parties on or after February 1, 2022, is hereby ratified.

2. The Contract term shall be extended through December 31, 2022.

3. The Contract Price shall be increased to a not-to-exceed amount of $508,000.00.

4. Exhibit 1 to the Contract (Scope of Services and Schedule of Completion) is hereby deleted in its entirety and replaced by Exhibit 1-A attached hereto and incorporated herein.

5. Exhibit 2 to the Contract (Project Budget) is hereby deleted in its entirety and replaced by Exhibit 2-A attached hereto and incorporated herein.

6. Except as amended herein, the Contract shall remain in full force and effect.

7. This First Amendment may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument. The parties approve the use of electronic signatures for execution of this First Amendment. All use of electronic signatures shall be governed by the Uniform Electronic Transactions Act, C.R.S. §§24-71.3-101 to -121.

The parties hereto have caused this First Amendment to be executed.

THE SUBRECIPIENT:

SEVERE WEATHER SHELTER NETWORK, a Colorado nonprofit corporation

By: _____
Lynn Ann Huizingh, Executive Director

Date: _____

CITY OF ARVADA, STATE OF COLORADO

By: _____
Mark Deven, City Manager

Date: _____

ATTEST:

_____ _____
City Clerk Attestation Date

Approved as to form by:

_____
For Rachel Morris, City Attorney

Decision of City Manager Approving Agreement ratified:

By: _____
Marc Williams, Mayor of the City of Arvada

Date: _____

CITY OF LAKEWOOD, STATE OF COLORADO

_____
Kathleen E. Hodgson, City Manager

ATTEST:

_____
Michele Millard, Interim City Clerk

_____
Attestation Date

Approved as to form:

_____
Gregory D. Graham, Deputy City Attorney

Recommended and approved as to content:

_____
Travis Parker, Director
Planning Department

_____
Amy DeKnikker
Principal Planner/CDBG Prgm Mgr.

Approved as to funding (if $5,000 or greater):

_____
Holly Björklund, Chief Financial Officer

COUNTY OF JEFFERSON, STATE OF COLORADO

By: _____
Mary C. Berg, Executive Director
Department of Human Services

Date: _____

APPROVED AS TO FORM:

_____
Jean R. Biondi
Assistant County Attorney

DocuSign Envelope ID: 9CB2A079-CF4D-475A-93C3-F3609379B808

JEFFERSON COUNTY, COLORADO
Department of Human Services
Community & Workforce Development
3500 Illinois Street
Golden, Colorado 80401

CDBG AGREEMENT

For the Performance of Community Development Block Grant Activity - CFDA # 14.218

Project:

Project: Emergency overnight shelter services Reference Date: 12/28/2020
Source of Funds: Community Development Block Grant CARES Act ("CDBG-CV") Funding Year (s): 2021

Subrecipient:

Subrecipient (Full Legal Name): Severe Weather Shelter Network
Subrecipient Form of Entity: Nonprofit corporation Tax ID No. 81-3289994
Subrecipient Representative: Lynn Ann Huizingh
E-mail Address: lynnann@swshelternetwork.com
Mailing Address: PO Box 620546
Telephone No.: 720-515-9313 Fax No.:

County Representative:

County Representative: Director of Workforce and Community Development Email Address: kdouglas@jeffco.us
Mailing Address: 3500 Illinois St., Golden, CO 80401
Telephone No.: 303-271-8372 Fax No.: 303-271-4708

Key Notices: (To be completed for sending Key Notices as provided in paragraph 7 of the Contract)

The Subrecipient:	The County:
Contact Name: Lynn Ann Huizingh	Division/Department: Community and Workforce Development
Address: PO Box 620546	Address: 3500 Illinois St.
Address: Littleton, CO 80162	Address: Golden, CO 80401
Telephone No.: 720-515-9313	Telephone No.: 303-271-8372
Email Address: lynnann@swshelternetwork.com	Email Address: kdouglas@jeffco.us

Contract Price:

Not-to-Exceed Amount: $250,000.00

Term:

Date by which all Project services will be completed (Completion Date): December 31, 2021

Period of Completion shall be from the date of execution by the County (Effective Date) through the Completion Date. Contract termination date shall be determined as provided in Section 4.

Attachments:

- [x] Scope of Services and Schedule of Completion of Services, Exhibit 1
- [x] Project Budget, Exhibit 2
- [x] Insurance, Exhibit 3
- [x] Federal, State and County Statutory and Regulatory Provisions, Exhibit 4
- [ ] Income Guidelines, Exhibit 5
- [x] Grants, Expenditure Authorizations/Award Letters: (list): Funding Approval Agreement between U.S. Housing and Urban Development (HUD) and Jefferson County for Funding Years identified above ("Funding Approval Agreement") incorporated herein whether or not attached hereto,
- [ ] Other Attachments, Exhibit _____
- [ ] Other: _____

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This Contract is made and entered into by and between THE COUNTY OF JEFFERSON, STATE OF COLORADO, a body politic and corporate, (the "County"), THE CITY OF LAKEWOOD ("Lakewood"), THE CITY OF ARVADA ("Arvada"), and the party identified on page 1 of this Contract as the Subrecipient (the "Subrecipient"), and

WHEREAS, the parties wish to enter into this Contract to carry out a Community Development Block Grant ("CDBG") activity.

NOW, THEREFORE, for and in consideration of the monies to be received, covenants and conditions set forth herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows:

1. SCOPE OF SERVICES/SCHEDULE OF COMPLETION/NATIONAL OBJECTIVE. The Subrecipient shall expeditiously do, perform, and carry out, in a satisfactory and proper manner, all of its obligations and responsibilities described or reasonably implied in this Contract and in Exhibit 1, the "Scope of Services and Schedule of Completion" (the "Project"), which performance shall not extend beyond the end of the Period of Completion, and shall provide the services and personnel, and furnish all related materials, equipment and supplies necessary to accomplish the Project in a manner satisfactory to the County and in accordance with the terms, conditions and other provisions of this Contract. As a part of such performance, the Subrecipient shall substantially adhere to the terms of Exhibit 1, which is attached hereto and incorporated herein by reference. The Project shall meet a National Objective as required by Federal laws and regulations. This National Objective shall be set forth in Exhibit 1.

2. PROJECT BUDGET.

   A. The County, Lakewood and Arvada shall provide funds to the Subrecipient in an amount not to exceed the Contract Price set forth on page 1 of this Contract. This is a fixed cost agreement, and the amount set forth above shall cover all direct costs, services, materials, equipment, and supplies used or expended pursuant to this Contract. CDBG funds may not be used for indirect costs.

   B. Funds under this Contract shall be spent as set forth in the "Project Budget," which is attached hereto as Exhibit 2 and incorporated herein by reference.

   C. The Subrecipient shall adhere to the Project Budget to the fullest practicable extent, but the Subrecipient is not precluded from making minor changes within the Scope of Services and Project Budget as necessary, when preapproved by the County in the manner set forth in the section titled Amendments.

   D. The Subrecipient will not be reimbursed for costs incurred prior to the Effective Date of this Contract and, if applicable to the Project, prior to receiving written confirmation from County that the necessary environmental reviews have been completed. The County may, however, pay for costs incurred prior to the Effective Date of this Contract if costs are incurred after the date funds may begin to be used as provided in the applicable Funding Approval Agreement between the County and HUD, the costs were incurred after any necessary environmental review is complete, the costs are in conformance with HUD regulations, and the costs were approved in writing by the County Representative.

   E. Environmental Review Procedures - Funds shall not be obligated or utilized for any activities requiring a release of funds by the County and United States Department of Housing and Urban Development ("HUD") under the Environmental Review Procedures for the CDBG program at 24 CFR Part 58 until such release is issued in writing by the County and HUD. Administrative costs, reasonable engineering and design costs, and costs of other exempt activities identified in 24 CFR § 58.34(a)(1) through (10) do not require a release of funds by HUD. For categorically excluded activities listed in 24 CFR § 58.35(a), the Subrecipient must collaborate with the County to make and document a determination that the activities are exempt because there are no circumstances which require compliance with any other Federal laws and authorities as cited at 24 CFR § 58.5 prior to the Subrecipient incurring costs for such activities. For projects not exempt under 24 CFR § 58.34 or categorically excluded under 24 CFR § 58.35, the Subrecipient must collaborate with the County to prepare an Environmental Assessment and make a finding as described in 24 CFR §§ 58.36 through 58.45. The finding must be published and disseminated to the public prior to the Subrecipient incurring costs for such projects. If applicable, no funds shall be distributed under this Contract until a finding of no significant impact is established.

   F. The Subrecipient agrees to utilize funds available under this Contract to supplement rather than to replace funds otherwise available.

   G. If Program Income, as defined at 24 CFR § 570.500(a), is generated from this Project ("Program Income"), the Subrecipient shall comply with all terms of this Contract applicable to Program Income and all terms of the current Program Income Reuse Plan between the County and the Subrecipient, the terms of which are incorporated into this Contract by reference.

   H. If Program Income is generated from the Project and remitted to the County, the County may allow the Subrecipient,

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as provided in the Scope of Services or at the County's discretion, to apply for reimbursement from the Program Income held by the County to pay for services rendered by the Subrecipient that are the same type of services described in the Scope of Services. To request reimbursement from Program Income, the Subrecipient will be required to submit drawdown requests in conformance with all federal rules and regulations and the Jefferson County Community Development Reimbursement Request Requirements Policy established by the Community Development Director which is currently in effect or as it is amended in the future.

3. PERIOD OF COMPLETION. The Period of Completion for the Project shall be the time period set forth on page 1 of this Contract and in the Schedule of Completion set forth in Exhibit 1 (the "Period of Completion").

4. TERM OF CONTRACT. The term of this Contract shall be effective from the date of execution by all parties (the "Effective Date"). Work performed, or costs incurred by the Subrecipient prior to the Effective Date shall not be reimbursed by the County except as permitted by Section 2(D) of this Contract. The term of this Contract and all provisions herein shall terminate upon the Completion Date set forth on page 1 of this Contract unless sooner terminated as provided in this Contract, except that the Contract and its terms shall be automatically extended to and cover any additional time period during which the Subrecipient remains in control of CDBG funds or other assets, including Program Income. If the Subrecipient receives Program Income after the Completion Date, the terms of this Contract shall continue in effect during the time period that the Subrecipient continues to perform services funded by Program Income. Further, the term of this Contract and all provisions herein shall also be extended until such time as any real property which is acquired or improved in whole or in part with CDBG and Program Income funds in excess of $25,000.00 has begun to meet the CDBG National Objective identified in Exhibit 1 and met the CDBG National Objective for a period of five (5) years (or longer if the Scope of Services or Program Income Reuse Plan provide a longer period), unless sooner terminated as provided in this Contract.

   If the Subrecipient fails to substantially adhere to the Scope of Services and Schedule for Completion of Services set forth in Exhibit 1, the County shall have the right to terminate this Contract, and the Subrecipient shall thereupon forfeit any unexpended Project funds, unless it is determined by a court of competent jurisdiction that there were extenuating circumstances beyond the control of the Subrecipient and the goals or purposes of the Project can still reasonably be accomplished.

5. SUBRECIPIENT DEFINITION. For the purposes of this Contract, the term "Subrecipient" shall mean: a public or private nonprofit agency, authority or organization receiving CDBG funds from the County to undertake activities described herein.

6. ACTIVITY RESPONSIBILITY, REPRESENTATIVES, AND COMMUNICATION. The individuals identified on page 1 of this Contract are designated for the purposes of this Contract as the County Representative and the Subrecipient's representative (or their successors or assigns). Lakewood designates Amy DeKnikker, CDBG Program Manager, as its representative for the purposes of this Contract. Arvada designates Carrie Espinosa, Manager of Housing Preservation and Resources, caespinosa@arvada.org, as its representative for this Contract. All applicable invoices, statements, inquiries, and replies between the parties' representatives shall be addressed and served upon the respective representatives at their respective addresses. Key Notices, as defined below, shall be sent in accordance with the following section.

7. Key Notices.

   A. "Key Notices" under this Contract are notices regarding any Contract default, Contract dispute, termination of the Contract, or changes in a party's representative or the representative's address or the notice address. Key Notices shall be given in writing and shall be deemed received if given by: (i) confirmed electronic transmission (as defined in subsection (B) below) when transmitted, if transmitted on a business day and during normal business hours of the recipient, and otherwise on the next business day following transmission, (ii) certified mail, return receipt requested, postage prepaid, three (3) business days after being deposited in the United States mail, or (iii) overnight carrier service or personal delivery, when received. For Key Notices, the parties will follow up any electronic transmission with a hard copy of the communication by the means described in subsection (A)(ii) or (A)(iii) above. All other daily communications or notices between the parties that are not Key Notices may be done via electronic transmission. Notice shall be given to the parties at the addresses specified on page 1 under the Key Notices Section or below, as appropriate. The parties shall give written notice of any change of address in accordance with this section. All Key Notices to the County shall include a reference to the Contract, including the Subrecipient's name and the date of the Contract and a copy of any Key Notice shall also be sent to the Jefferson County Attorney as follows:

      Jefferson County Attorney
      100 Jefferson County Parkway, #5500
      Golden, Colorado 80419

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Tele: (303)-271-8900
Email: CAOContracts@jeffco.us

Key Notices to Lakewood shall be sent to the following address:

Amy DeKnikker, CDBG Program Manager
City of Lakewood
480 S. Allison Pkwy.
Lakewood, CO 80226
amydek@lakewood.org.

Key Notices to Arvada shall be sent to the following address:

Mark G. Deven, City Manager
City of Arvada
8101 Ralston Road
Arvada, CO 80001
mdeven@arvada.org

With a copy to:
Rachel A. Morris, City Attorney
City of Arvada
8101 Ralston Road
Arvada, CO 80001
rmorris@arvada.org

B. Electronic Transmissions. The parties agree that: (i) any notice or communication transmitted by electronic transmission, as defined below, shall be treated in all manner and respects as an original written document; (ii) any such notice or communication shall be considered to have the same binding and legal effect as an original document; and (iii) at the request of either party, any such notice or communication shall be re-delivered or re-executed, as appropriate, by the party in its original form. The parties further agree that they shall not raise the transmission of a notice or communication, except for Key Notices, by electronic transmission as a defense in any proceeding or action in which the validity of such notice or communication is at issue and hereby forever waive such defense. For purposes of this Contract, the term "electronic transmission" means any form of communication not directly involving the physical transmission of paper that creates a record that may be retained, retrieved and reviewed by a recipient thereof, and that may be directly reproduced in paper form by such a recipient through an automated process, but specifically excluding facsimile transmissions and texts.

The parties may change their representative or their representative's address at any time by written notice to the other party.

8. METHOD OF PAYMENT.

A. The Subrecipient shall request reimbursement either on the basis of a lump sum payment upon completion of the Project or on the basis of periodic payments during the course of the Project as the work progresses.

B. Requests for periodic reimbursements shall be in a form acceptable to the County and shall be submitted to the County Representative for review and approval. Requests for periodic, partial reimbursements shall not be submitted more frequently than two times per month and shall be supported and documented on the basis of costs actually incurred by the Subrecipient on the Project during the period for which reimbursement is requested. The Subrecipient shall provide all supporting documentation to verify expenditures as specified or requested by the County and/or required by current audit practices or County or HUD policies.

C. In no event shall the County, Lakewood or Arvada be liable for or pay any extra costs, overruns or additional amounts in excess of the Contract Price; provided, however, that this provision shall not prevent the Contract Price from being increased or decreased by an amendment to this Contract or by requests for reimbursement from Program Income generated by the Project and previously paid to the County by the Subrecipient.

D. The County agrees to pay the Subrecipient only from those CDBG funds paid to the County by HUD pursuant to the Funding Approval Agreement between the County and HUD for the funding years set forth on page 1 of this Contract or from Program Income as provided in this Contract. The Subrecipient shall be subject to the terms and conditions of said Funding Approval Agreement.

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E. The Subrecipient shall submit all invoices and requests for reimbursements for compensation due under this Contract no later than forty-five (45) days after the end of the applicable Period of Completion or after termination of this Contract, whichever event occurs first. All invoices and requests for reimbursements shall be for work performed in the performance of the Project or services performed under the provisions of a Program Income Reuse Plan within the applicable Period of Completion or as thereafter amended. All Project work or services not conducted within the applicable Period of Completion shall not be eligible for reimbursement under this Contract. Any request for payment made after the applicable forty-five (45) day periods described herein shall be considered untimely and may be denied, unless arrangements for additional days have been requested by the Subrecipient and approved by the County in advance of the termination of this Contract. Such approval by the County shall not be unreasonably withheld. The Subrecipient hereby waives all rights, interests or claims to any funds or compensation from the County for services rendered or costs incurred under this Contract not invoiced or requested for reimbursement and made in writing to the County before the end of the 45-day periods described herein or termination, whichever event occurs first.

F. The County Representative shall have the authority to pay CDBG funds in advance of expenditure by the Subrecipient, at the sole discretion of the County Representative, when Project completion may be jeopardized due to unforeseen circumstances of the Subrecipient and the Project is deemed necessary to meeting the goals of the County's Consolidated Plan.

G. Contractor's Settlement. If the Project involves construction or rehabilitation and CDBG funds are used for the construction or rehabilitation on any one property in excess of Fifty Thousand Dollars ($50,000.00), final payment shall not be made to contractors until the Subrecipient has approved the payment and a notice of contractor's settlement has been published in accordance with Colorado Revised Statutes (C.R.S.) § 38-26-107. The County will condition the award upon receipt of any duly executed approvals of the corporate surety or sureties issuing the bonds required hereunder. Such final settlement shall be published as provided by statute at least twice, the last publication appearing at least ten (10) days prior to the date of final settlement. On the date of final settlement (or such later date as may be permitted by statute if claims are asserted or litigation is commenced alleging nonpayment of funds due for labor, materials, supplies, etc.), payment and settlement shall be made in full (the "Final Acceptance").

If the Project involves construction or rehabilitation and the cost of construction for any property is Fifty Thousand Dollars ($50,000.00) or less, the Subrecipient shall ensure that lien waivers are obtained from all contractors, suppliers and subcontractors who provide materials or labor for the Project on such property prior to final payment to each contractor, supplier and subcontractor and prior to payment or reimbursement by the County for such costs.

9. HUD FUNDS. The County's obligation to make payment to the Subrecipient pursuant to this Contract is contingent upon CDBG funds for that purpose being paid to the County by HUD. If such CDBG funds are not paid to the County by HUD, this Contract shall terminate. The Subrecipient agrees that it will include in every contract into which it enters and agrees to pay CDBG monies that it relies on CDBG monies for funding. The Subrecipient shall also include in such contracts a clause that will protect itself and the County from any liability or responsibility or any suit which might result from the discontinuance of CDBG funding for any reason.

10. INSURANCE BOND GUARANTY AND SUBCONTRACTORS.

A. The Subrecipient shall procure and maintain insurance coverage from an insurer licensed to do business in Colorado in the types and amounts set forth on Exhibit 3, which is attached hereto and incorporated herein by this reference. Any deviations below such insurance requirements must be approved by the County's Safety & Compliance division. The Subrecipient shall furnish the County with copies of certificates of all required insurance prior to commencing the Project. The certificates shall identify this Contract. The County reserves the right to reject any insurer it deems not financially acceptable based on insurance industry resources.

During the term of this Contract the Subrecipient shall provide the County written evidence of continuing insurance coverage within three (3) business days of a request from the County. The Subrecipient shall provide the County no less than thirty (30) days' prior written notice of any proposed change to, or cancellation of the insurance coverage. Any proposed change to the insurance coverage shall comply with the terms of this Contract. If requested by the County, the Subrecipient shall request from its insurance company an endorsement to the insurance policy for this Contract which will require the insurance company to provide the County with notice of cancellation of the policy. The Subrecipient shall promptly comply with all terms of the endorsement and shall pay the cost of the endorsement.

B. Performance and Labor and Materials Bond. If the Project involves construction or rehabilitation, and the cost for such construction or rehabilitation on any one property exceeds Fifty Thousand Dollars ($50,000.00), the Subrecipient shall ensure that its contractors furnish, at the contractors' expense, a separate performance bond and a labor and materials bond, each for an amount not less than 100% of the Contract Price. The bonds shall be issued by a qualified corporate surety licensed to transact business in Colorado. If at any time during performance of the Project the surety

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on the bonds is disqualified from doing business in Colorado, or becomes insolvent or otherwise impaired, the Subrecipient's contractors shall furnish bonds from an alternate surety acceptable to the County and the Subrecipient. The bonds shall be delivered to the County Representative prior to the commencement of work and shall remain in effect until Final Acceptance, including completion of all warranty and guaranty work. The contractors shall secure an increase in the bonds in an amount equal to the cost of any additional work authorized pursuant to a duly executed change order or Contract amendment or Program Income Reuse Plan. If the Project involves construction or rehabilitation and the cost of construction for any property is Fifty Thousand Dollars ($50,000.00) or less, the Subrecipient shall ensure that lien waivers are obtained from all contractors, suppliers and subcontractors who provide materials or labor for the Project on such property prior to final payment to each contractor, supplier and subcontractor and prior to payment or reimbursement by the County for such costs.

C. Guarantee. If the Project involves construction or rehabilitation, the Subrecipient shall ensure that its contractors will guarantee the Project work against defects in workmanship and materials for a period of one (1) year commencing on Final Acceptance or upon issuance (the "Guarantee Period"). The Subrecipient's contractors shall also assign to the County and the Subrecipient any longer-term guarantee of materials used by any contractors as may be provided by the manufacturer. The Subrecipient shall ensure that its contractors promptly replace any materials or re-perform any portion of the work found to be defective within the Guarantee Period in accordance with the Contract and without expense to the County or the Subrecipient. If contractors fail to proceed promptly in accordance with these guarantees, the County or the Subrecipient may have the work performed at the expense of the contractor.

D. Subcontractor/Indemnification. The Subrecipient shall include a clause in all their subcontracts for projects involving construction or rehabilitation which states that "The Contractor shall promptly pay all subcontractors, material suppliers, laborers and employees, and shall require all subcontractors to do likewise and shall keep the property free from all liens, claims or judgments, and shall indemnify, defend, and hold harmless the property owner, the County of Jefferson, Federal Government, and the Subrecipient from and against any and all such liens, claims or judgments and from and against any and all suits, actions or proceedings and costs, including attorneys' fees for defending such suits, actions or proceedings." Further, the Subrecipient agrees to indemnify, defend, and hold harmless the County, the federal government and any homeowner whose property is encumbered by a lien from a contract entered into by the Subrecipient for labor or materials for said homeowner's property, from and against any and all such liens, claims or judgments and from and against all suits, actions or proceedings and costs, including attorneys' fees for defending such suits, actions or proceedings. If any lien, claim or judgment is filed against the property and such lien, judgment or claim is not cleared from the property records of Jefferson County, the Subrecipient shall either pay such lien, claim or judgment or cause such lien, claim or judgment to be released from the property records for such property.

11. INDEPENDENT CONTRACTOR. In performing the Project work or services, the Subrecipient acts as an independent contractor responsible for calculating, withholding, and paying all Federal and State taxes and for obtaining necessary and adequate workers' compensation insurance, general liability insurance and any other insurance required under this Contract. The Subrecipient's employees are not and shall not become employees, agents or servants of the County hereunder. The Subrecipient and the Subrecipient's employees are not entitled to unemployment insurance benefits unless unemployment compensation coverage is provided by the Subrecipient or some other entity and the Subrecipient is obligated to pay Federal and State income tax on any monies paid pursuant to this Contract.

12. SUBRECIPIENT AND INDEMNIFICATION. The Subrecipient agrees to and does indemnify, defend, and hold the County, Lakewood, Arvada, and their respective officials, agents and employees harmless from and against any and all claims, losses, damages, injuries and expenses (including attorneys' fees) relating to or arising out of the acts or omissions of the Subrecipient or its officers, employees, agents or subcontractors in connection with this Contract. This indemnification and hold harmless provision shall survive completion of the Project and termination of this Contract. Nothing herein shall be construed as a waiver of defenses available to the County, Lakewood or Arvada under the Governmental Immunity Act.

13. COMPLIANCE WITH LOCAL, STATE AND FEDERAL LAWS AND INDEMNIFICATION WITH RESPECT THERETO. The Subrecipient specifically agrees to comply in the performance hereof with all of the requirements set forth in Exhibit 4, which is attached hereto and incorporated herein, and with all local, State and Federal ordinances, codes, laws, rules, regulations, orders, and guidelines that are referenced herein and applicable to the Scope of Services or that may be or become applicable to the Project even though not stated herein. The Federal regulations located in 2 CFR Part 200, as modified by 24 CFR Part 570, are hereby incorporated into this Contract.

    In addition, performance of work involving any physical construction or improvements shall conform to applicable building permit and inspection requirements of the County or the applicable jurisdiction. The Subrecipient does hereby agree to indemnify, defend, and hold the County harmless from any fine, penalty, loss, damage or liability the County may

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incur or suffer, including attorneys' fees, arising from the performance of the Contract by the Subrecipient or its subcontractors, officers, employees or agents.

14. QUARTERLY PERFORMANCE REPORT. The Subrecipient shall prepare and submit to the County at least every three (3) months a detailed Quarterly Performance Report no later than fifteen (15) days after the end of each quarter beginning upon Contract execution and lasting until the Project is completed, the Subrecipient no longer remains in control of any Program Income, the Subrecipient no longer intends to apply for reimbursement from Program Income or until all real property acquired with CDBG funds has met the CDBG National Objective as required by this Contract and HUD regulations, whichever period is greater. Said report shall be in a format approved by the County and shall be directly related to the Project and Project Budget. The contents of the report shall provide data and information to County to be used for coordinating, monitoring and evaluating the Project to its completion and the tracking of Program Income. Failure to submit said report may constitute grounds for withholding compensation.

15. ADVERTISEMENT AND PUBLIC NOTICES. The Subrecipient shall ensure that any radio or television announcements, newspaper advertisements, press releases, pamphlets, mail campaigns, or any other method advising the public of their program that is funded with CDBG funds or Program Income includes the following statement: “The funding source for this activity is Community Development Block Grant Funds made available through the Community Development Program of Jefferson County, Colorado.”

16. TERMINATION AND EXCUSABLE DELAYS.

    A. Termination for Cause. If, for any reason, the Subrecipient shall fail to substantially perform the work required by the Scope of Services under this Contract or fails to ensure the performance of the work called for herein, by legal means if necessary, with such diligence as will ensure its completion within the Period of Completion of this Contract or as the period may have been amended, or materially fails to comply with any of the terms, conditions, or other provisions of this Contract which shall constitute a violation or breach of this Contract, the County may, for cause, terminate this Contract in advance of the end of the stated Period of Completion by giving written notice to the Subrecipient at least 5 working days in advance of the effective termination date and shall state in the notice the reason or reasons for the termination. In the event of termination under this subparagraph, the Subrecipient shall be paid for all work satisfactorily completed in accordance with the terms of this Contract and all applicable laws and regulations and commensurate with the amount of work done on the Scope of Services up to the date of termination less all amounts previously paid; provided, however, that the Subrecipient shall not be paid nor be considered eligible for payment of termination expenses, incidental, direct or consequential costs or damages or loss of profits due to the termination or for any expenses for real estate acquisition, development, construction, repair, remodel or related expenses if such expenses are for a real property that will not be used to meet a National Objective as required by this Contract.

    The County may terminate or suspend this Contract for cause if Subrecipient fails to comply with any terms of this Contract, which include, but are not limited to, the following:

    (1) Failure to comply with any of the rules, regulations or provisions referred to herein, or such statutes, regulations, executive orders, and HUD guidelines, policies or directives as may become applicable at any time;

    (2) Failure, for any reason, of the Subrecipient to fulfill in a timely and proper manner its obligations under this Contract;

    (3) Ineffective or improper use of funds provided under this Contract; or

    (4) Submission by the Subrecipient to the County reports that are incorrect or incomplete in any material respect.

    In addition to the other remedies available to it, in the event the County terminates this Contract due to the Subrecipient's failure to cure any default as provided herein above or due to the Subrecipient's breach or violation of any covenant, agreement or assurance herein, the County retains the right and may, at its option, make written demand for repayment of, and the Subrecipient shall immediately upon receipt of such written demand of the County, repay all sums received by the Subrecipient from the County under this Contract as of the date of said demand, plus interest thereon at the legal rate plus all expenses incurred by the County, including reasonable attorney's fees incurred in recovering said sums, except that Subrecipient may retain amounts which reflect payment for work satisfactorily completed in accordance with the terms of this Contract and all applicable regulations for expenditure of CDBG funds if such amounts are not for any expenses for real estate acquisition, development, construction, repair, remodel or related expenses if such expenses are for a real property that will not be used to meet a National Objective as required by this Contract. Any payments to the Subrecipient upon termination shall only be from CDBG funds received by the County and payments shall only be made if approved for payment by HUD.

    B. Termination for the Convenience of the County. This Contract may be terminated by the County at any time. In such event, the County shall give notice thereof to the Subrecipient as provided in subparagraph A above, and the Subrecipient shall be paid for all work satisfactorily completed commensurate with the amount of work done on the

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Project up to the date of termination less all amounts previously paid and except that no payment shall be made for any expenses for real estate acquisition, development, construction, repair, remodel or related expenses if such expenses are for a real property that will not be used to meet a National Objective as required by this Contract. Except as provided above, the Subrecipient shall be paid any other amount as mutually agreed upon by the parties for the documented direct and incidental termination expenses due to the termination. The payments to the Subrecipient upon termination shall only be from CDBG funds received by the County and payments shall only be made if approved for payment by HUD.

C. Records and Subcontracts. Upon any termination of this Contract in advance of its expiration date and at the discretion of the County, all undelivered documents, maps, models, photographs, reports or copies thereof, materials, equipment, supplies or other items prepared by the Subrecipient or its subcontractors for use in the Contract work, shall be delivered to the County in their state of preparation at the time of termination subject to the provisions of any termination agreement or order providing otherwise. The Subrecipient shall also immediately notify the County of all subcontracts, purchase orders or other commitments of the Subrecipient which shall be outstanding on the termination date and shall take such action with respect thereto as the parties hereto shall mutually determine. No termination hereunder shall relieve the Subrecipient of its responsibilities to maintain Project records in accordance with this Contract.

D. Reversion of Assets. Upon the termination of this Contract the Subrecipient shall transfer to the County any CDBG or Program Income funds on hand at the time of termination and any accounts receivable attributable to the use of CDBG or Program Income funds. Any real property that was acquired or improved in whole or in part with CDBG or Program Income funds in excess of $25,000.00 shall upon the termination of the Contract either meet a CDBG National Objective for at least five years thereafter (or longer if the Scope of Service or Program Income Reuse Plan provide a longer period) or the Subrecipient shall pay to the County an amount equal to the current market value of the property less any portion of the value attributable to expenditures of non-CDBG funds for the acquisition of, or improvement to, the property. The Subrecipient shall not change the use of any such property from that for which the acquisition was made unless affected citizens have been provided with reasonable notice of and opportunity to comment on any proposed change, the County has approved such change of use and the change in use has met all applicable Federal laws and regulations. The provisions of this section shall survive termination of this Contract.

E. Termination Hearings and Appeals. Prior to any termination, the Subrecipient retains the right to such hearing, appeal, or other administrative proceeding as the Subrecipient is entitled to under applicable statutes or regulations.

F. Reallocation. Upon termination of this Contract for any reason or expiration of the Period of Completion, the County shall be entitled to allocate to other qualifying entities and projects any CDBG funds not utilized by the Subrecipient for the Project and services described in Exhibit 1 or any assets which reverted to the County pursuant to subparagraph D above.

17. CLOSE-OUTS. The Subrecipient's obligations to the County under the terms of this Contract shall not end until all close-out requirements are completed as determined by the County and HUD for the Project or any additional services provided under a Program Income Reuse Plan. Activities during this close-out period shall include, but are not limited to: making final payments, disposing of program assets (including the return of all unused materials, equipment, unspent cash advances, Program Income balances, copies of transferred records, and receivable accounts to County upon closeout or upon the County's request), and determining the custodianship of records.

18. VIOLATIONS AND BREACHES OF CONTRACT. Notwithstanding any provision appearing to the contrary, the County may take any or all of the following actions when the Subrecipient fails to comply with any applicable Federal law or regulation, including all HUD requirements applicable to the Project, or any provision found in this Contract:

    A. The County may impose additional conditions on the Subrecipient, as provided in 2 CFR § 200.207 and 2 CFR § 200.338.

    B. The County may withhold payments or disbursements under this Contract to the Subrecipient.

    C. The County may recommend to HUD suspension or debarment proceedings for the Subrecipient.

    D. The County may pursue all other remedies legally available to it.

    E. The Subrecipient shall not be relieved of liability to the County for damages sustained by the County by virtue of any breach of this Contract by the Subrecipient. The County may withhold payment of compensation to the Subrecipient for the purpose of setoff until such time as the exact amount of damage incurred by the County which would be due from the Subrecipient is determined and paid. Such damages may include funds that the County must return to HUD because of HUD's disqualification of any or all of the services described in the Scope of Services.

19. AMENDMENTS.

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A. Any party to this Contract may request amendments to this Contract at any time, but no amendment shall be binding unless it is mutually agreed upon by the parties to this Contract in a properly executed document. All amendments shall be properly authorized and executed prior to any work being performed thereon. This section notwithstanding, extensions of the Period of Completion may be made in accordance with the provisions of subsection B below; minor modifications may be made in accordance with the provisions in subsection C below if approved by the County at the County's sole discretion; and amendments resulting from changes in laws, rules or regulations may occur in accordance with subsection D below.

B. The County Representative is hereby delegated the authority to grant extensions of the Completion Date in writing when such extensions are determined by the County Representative, in his or her sole discretion, to be necessary for the satisfactory completion of the Project. All requests by the Subrecipient to extend the Completion Date shall be submitted in writing to the County Representative for review. If such extension is approved, the County Representative shall endorse the Subrecipient's request accordingly for and on behalf of the County, and it shall thereupon be appended to this Contract and become an amendment hereof.

C. The Subrecipient shall adhere to the Scope of Services and the Project Budget as set forth in Exhibit 1 and 2, respectively, but the Subrecipient may request minor changes to the Scope of Services and Project Budget as necessary for the satisfactory completion of the Project, which requests may be approved in writing by the County Representative as provided herein or as provided in any current or future policy adopted by the Board of County Commissioners. The County Representative may approve written requests for adjustments in budget line items as determined necessary by the County Representative provided the change does not exceed the total amount awarded. The County Representative may approve written requests for minor Project modifications affecting less than $10,000 of the Project award amount, if the modification is determined by the County Representative to be necessary for the satisfactory completion of the Project and would not change the National Objective or activity category as designated for the original Project. Such minor modifications, however, may only be approved by the County Representative if the total award amount would not change, and if the modification would not result in expenditures that are ineligible for reimbursement.

D. Any change in or new Federal, State or local law, rule, Executive Order, OMB circular, or other regulation, which applies to projects funded by CDBG funds, shall be deemed to be incorporated into this Contract.

20. INTEGRATED DOCUMENT. This Contract including all exhibits embodies the entire understanding between the County and the Subrecipient for the Scope of Services and their terms and conditions. No verbal agreements or conversation with any officer, agent or employee of the County or Subrecipient prior to or subsequent to the execution of this Contract shall affect or modify any of the terms or obligations contained in any documents comprising this Contract.

21. NON-ASSIGNABILITY. The Subrecipient's rights and responsibilities under this Contract shall not be assigned or transferred by the Subrecipient without the prior, written consent of the County. This Contract is voidable by the County if assigned by the Subrecipient without the prior written consent of the County. Subcontracts or purchase orders for equipment, materials or supplies, or for assistance in the performance hereof, are permissible where undertaken in accordance with applicable Federal procurement requirements.

22. SUCCESSORS. Except as herein otherwise provided, this Contract shall take effect to the benefit of and be binding upon the parties, or any contractors, subcontractors, representatives or agents hereto, and their respective successors and assigns.

23. JURISDICTION. This Contract and the rights and duties of the parties hereunder shall be interpreted in accordance with the laws of the State of Colorado applicable to contracts made and to be performed entirely within such state, and the courts of such state shall have sole and exclusive jurisdiction of disputes or litigation arising hereunder.

24. VENUE. Venue for any and all legal actions arising hereunder shall live in the District Court in and for the County of Jefferson, State of Colorado.

25. INCORPORATION BY REFERENCE. All of the parts of this Contract and those which may become properly appended hereto, and all applicable Federal, State, and local laws, rules, regulations, circulars, and Executive Orders pertaining to the Community Development Block Grant Program and this Project, and the Funding Approval Agreement executed by the United States Department of Housing and Urban Development and the County and any other document referenced for incorporation are incorporated herein by this reference.

26. SEVERABILITY CLAUSE. The declaration by any court or other binding legal authority that any provision of this Contract is illegal and void shall not affect the legality and enforceability of any other provision of this Contract unless said provisions are mutually dependent.

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27. SURVIVAL OF TERMS. Notwithstanding anything herein to the contrary, the parties understand and agree that all terms and conditions of this Contract, and the exhibits and attachments hereto, which may require continued performance or compliance beyond the Completion Date or the termination of this Contract shall survive such termination and Completion Date and shall be enforceable as provided herein in the event of a failure to perform or comply by a party to this Contract.

28. AUTHORIZATION TO WORK. If the Subrecipient has any employees or subcontractors, the Subrecipient shall comply with C.R.S. §8-17.5-101, et seq., regarding Illegal Aliens - Public Contracts for Services, and this Contract. By execution of this Contract, the Subrecipient certifies that it does not knowingly employ or contract with an illegal alien who will perform work under this Contract and that the Subrecipient will participate in either the E-Verify Program or Department Program (as those terms are defined in C.R.S. §8-17.5-101) in order to confirm the eligibility of all employees who are newly hired for employment to perform work under this Contract.

    A. The Subrecipient shall not:

        (1) Knowingly employ or contract with an illegal alien to perform work under this Contract; or

        (2) Enter into a contract with a subcontractor that fails to certify to the Subrecipient that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract.

    B. The Subrecipient has confirmed the employment eligibility of all employees who are newly hired for employment to perform Services under this Contract through participation in either the E-Verify Program or Department Program.

    C. The Subrecipient shall not use either the E-Verify Program or Department Program to undertake pre-employment screening of job applicants while this Contract is in effect.

    D. If the Subrecipient obtains actual knowledge that a subcontractor performing work under this Contract knowingly employs or contracts with an illegal alien, the Subrecipient shall:

        (1) Notify the subcontractor and the County within three days that the Subrecipient has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and

        (2) Terminate the subcontract with the subcontractor if within three days of receiving the notice required pursuant to the preceding sub-subparagraph of this subparagraph, the subcontractor does not stop employing or contracting with the illegal alien; except that the Subrecipient shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

    E. The Subrecipient shall comply with any reasonable request by the Department of Labor and Employment made in the course of an investigation that the Department is undertaking pursuant to the authority established in C.R.S. §8-17.5-102(5).

    F. If the Subrecipient violates this provision of this Contract, the County may terminate the Contract for a breach of contract. If the Subrecipient is so terminated, the Subrecipient shall be liable for actual and consequential damages to the County as required by law.

    G. The County will notify the Office of the Secretary of State if the Subrecipient violates this provision of this Contract and the County terminates the Contract for such breach.

29. REPRESENTATION - PARTIES AUTHORIZED TO SIGN. The parties hereby stipulate and represent that all procedures necessary to authorize the execution of this Contract have been performed and that the persons signing for each of the parties have been authorized to do so.

30. DELEGATION. The County Representative or her appointed designee is hereby authorized to execute on behalf of the County any documents necessitated by this Contract, but which do not alter the terms of this Contract. Such documents shall include, but not be limited to, collateral assignments, subordination agreements and releases of deeds of trust or other collateral.

31. WAIVER. The County's failure to act with respect to a breach by the Subrecipient does not waive its right to act with respect to subsequent or similar breaches. The failure of the County to exercise or enforce any right or provision shall not constitute a waiver of such right or provision.

32. ELECTRONIC SIGNATURES. This Contract may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same instrument. The parties approve the use of electronic signatures for execution of this Contract. All documents must be properly notarized, if applicable. All use of electronic signatures shall be governed by the Uniform Electronic Transactions Act, C.R.S. §§24-71.3-101 to -121.

SIGNATURE PAGE FOLLOWS

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IN WITNESS WHEREOF, the parties have caused this Contract to be duly executed on the day, month and year below.

SUBRECIPIENT:
SEVERE WEATHER SHELTER NETWORK, A COLORADO NONPROFIT CORPORATION

By: Lynn Ann Huizingh
Lynn Ann Huizingh, Executive Director

Date: 2/24/2021

STATE OF COLORADO
COUNTY OF Jefferson

The foregoing Contract was acknowledged before me this 24th day of February, 2021, by Lynn Ann Huizingh, as Executive Director of Severe Weather Shelter Network, the Subrecipient herein named.

ALAKSANDRA SEVIER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20194045193
MY COMMISSION EXPIRES DECEMBER 5, 2023

Notary's official signature
DAN#20194045193-094115

CITY OF ARVADA, STATE OF COLORADO

By: _____
Mark Deven, City Manager - with authority granted pursuant Sec. 26-38 for temporary emergency authority due to the COVID-19 Pandemic

Date: 3-18-21

ATTEST:

_____
City Clerk

3/18/2021
Attestation Date

CITY OF ARVADA ★ SEAL ★ COLORADO

Approved as to form by:

_____
For Rachel Morris, City Attorney

Decision of City Manager Approving Agreement ratified:

By: Marc Williams
Marc Williams, Mayor of the City of Arvada

Date: 4/20/2021

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IN WITNESS WHEREOF, the parties have caused this Contract to be duly executed on the day, month and year below.

CITY OF LAKEWOOD, STATE OF COLORADO

Kathleen E. Hodgson, City Manager

ATTEST:

Bruce Roome, City Clerk

3/9/2021

Attestation Date

Approved as to form:

Gregory D. Graham, Deputy City Attorney

Recommended and approved as to content:

Travis Parker, Director
Planning Department

Amy DeKnikker, Principal Planner/CDBG Prgm Mgr.

Approved as to funding (if $5,000 or greater):

Holly Björklund, Chief Financial Officer

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IN WITNESS WHEREOF, the parties have caused this Contract to be duly executed on the day, month and year below.

COUNTY OF JEFFERSON,
STATE OF COLORADO

By: Mary Berg
Mary C. Berg, Executive Director
Department of Human Services

Date: 3/23/2021

STATE OF COLORADO
COUNTY OF JEFFERSON

The foregoing Contract was acknowledged before me this 23rd day of March, 2021, by Mary C. Berg, as Executive Director of the Department of Human Services of Jefferson County, Colorado.

DocuSigned by:
A9ACAEF9EDEC4DE...
Notary's official signature

DAN# 20194045193-122797

ALAKSANDRA SEVIER
NOTARY PUBLIC
STATE OF COLORADO
Notary ID: 20194045193
My commission expires 12/5/2023

APPROVED AS TO FORM:

Jean Biondi
Digitally signed by Jean Biondi
DN: cn=Jean Biondi, o=Jefferson County, ou=County Attorney's Office, email=jbiondi@jeffco.us, c=US
Date: 2021.03.22 11:18:41 -06'00'

Jean R. Biondi
Assistant County Attorney

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Exhibit 1
Community Development Block Grant
Scope of Services and Schedule of Completion

A. Service Description

Severe Weather Shelter Network (the "Subrecipient") shall use the CDBG-CV Contract funds to provide emergency overnight shelter on severe cold weather nights and life-threatening winter nights for individuals living on the streets. The COVID-19 pandemic created a need to move from a congregate shelter model to a non-congregate model - both for preventing the spread of COVID in a congregate setting and the need for paid staff as opposed to volunteers. During the term of this Contract, services (the "Services") shall include but not be limited to:

(1) Assisting in providing transportation of individuals via Metro Taxi and/or RTD bus service to a designated motel;

(2) Facilitating motel services to house individuals needing shelter in Jefferson County (including Arvada and Lakewood, the North and Central regions of the shelter network). In accordance with CDBG regulations, all motel voucher payments shall be made directly to the motel providers;

(3) Provide a Regional Coordinator to assist in the implementation, management, and reporting for all motel voucher use; and

(4) Provide registration & voucher staff to assist in the intake and distribution of all motel vouchers through designated partner locations on designated shelter days.

Severe cold weather exists (a) during wet weather when overnight temperatures are predicted to be 32 degrees or colder; and (b) during dry weather when overnight temperatures are predicted to be 20 degrees or colder.

The Subrecipient will perform its obligations described herein for the public benefit in compliance with all applicable Federal, state, and local rules and regulations governing these funds under 24 CFR 570 and 2 CFR 200, and in a manner satisfactory to the County. These Services meet the CDBG National Objective of benefiting low- and moderate-income persons.

B. Eligibility

Individuals experiencing homelessness are deemed to meet the income and residency eligibility requirements for CDBG.

C. Reimbursement of Eligible Costs

The Subrecipient may seek reimbursement for the following expenses incurred in accordance with the terms of this Contract up to the dollar amount listed in Exhibit 2:

1. Motel voucher payments made on behalf of individuals experiencing homelessness; and
2. Staff time incurred in the performance of the Services identified above.

The Subrecipient will submit monthly reimbursement draw requests from the County for allowable costs incurred in the performance of the Services. The County shall be responsible for up to $100,000.00 of the Contract Price. Lakewood and Arvada shall each be responsible for up to $75,000.00 of the Contract Price. Upon receipt of each draw request, the County will collaborate with Lakewood and Arvada to properly allocate allowable expenses among one another, and each party will make payment directly to the Subrecipient for their respective portion.

The Subrecipient shall maintain program and financial records documenting all Subrecipient expenses for which reimbursement is sought through this Contract in accordance with the requirements below.

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D. Outcome Measures

The Subrecipient shall provide Services to approximately 115 persons per night for 34 nights from January to April 2021 and 115 guests per night for 31 nights from October to December 2021.

E. Reporting Requirements

The Subrecipient shall provide quarterly performance reports through the Homeless Management Information System ("HMIS") addressing the numbers of persons served, the numbers of vouchers provided, the demographic information required by HMIS, the reimbursement draws submitted and such other information as is requested by the County. Quarterly reports shall be due following the four periods: (1) Q1, January 1 to March 31; (2) Q2, April 1 to June 30; (3) Q3, July 1 to September 30; and (4) Q4, October 1 to December 31.

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Exhibit 2: Project Budget

Contractor: Severe Weather Health Network
Funding Source: Jefferson County, Lakewood and Arvada CDBG-CV funds
Funding Year: 2021

Community Development Block Grant BUDGET *List budget items and amounts to be paid for with the awarded CDBG funds.*	
Budget Item	**CDBG Amount**
Personnel (Personnel & Mileage (Applies only to earnings of staff performing direct project delivery and shall not exceed 20% of CDBG program budget. Salary reimbursements and only be paid if salary rates are approved in writing by the County Representative prior to program start.)	
	$ -
Staff time providing Services	$ 140,500.00
	$ -
TOTAL Personnel	$ 140,500.00
Travel (Applies only to mileage of direct project delivery staff, at current federal rate.)	
	$ -
	$ -
TOTAL Travel	$ -
Project/Operating Costs	
Motel Voucher Payments	$ 109,500.00
	$ -
TOTAL Project	$ 109,500.00
TOTAL CDBG/HOME BUDGET	$ 250,000.00

Total Activity/Project Budget BUDGET *Provide overview of entire activity/project.*		
Type of Funds		**Amount**
CDBG/HOME Funds		$ 250,000.00
Other Federal Funds		$ -
Other Public Funds (State/Local/Tax Exempt Bonds)		$ -
Private Funds		
Other (Please Identify): ESG-CV2 funds for 2020-2021		$ -
TOTAL ACTIVITY/PROJECT FUNDS		$ 250,000.00
CDBG SHARE	100%	$ 250,000.00
OTHER FUNDS SHARE	0%	$ -

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EXHIBIT 3
INSURANCE

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	INSURANCE REQUIREMENTS –	**GENERAL**
I	**Prior to the commencement of any work the vendor shall register with Jefferson County's certificate compliance system. You will be receiving a registration e-mail from certificatecompliance@imacorp.com.**	Required
II	**Certificate Holder must be:** Jefferson County, Colorado. c/o IMA Certificate Compliance 1705 17th Street, Suite 200 Denver, CO 80202	Required
III	**Jefferson County must be added as an additional insured to general liability, auto liability, and excess liability policies.**	Required
IV	**All policies as required shall provide a waiver of subrogation in favor of Jefferson County**	Required
V	Insurance Requirements	
	Workers compensation - statutory limits provided by an insurance carrier that is licensed to do business in Colorado. The policy shall contain a Waiver of Subrogation on behalf of Jefferson County. Employer's liability - $100,000 each accident $500,000 disease policy limit $100,000 disease each employee	Required, Unless sole proprietorship
	Commercial General Liability - **(on form CG 00 01 04 13 or its functional equivalent)**: If applicable to the scope of work, the following shall be included: - No exclusion for abuse or molestation - No exclusion for assault and battery - Liquor Liability	Required $1M ea occurrence $2M general aggregate $1M Personal Injury $2M products and competed operations aggregate
	Commercial automobile liability insurance – including owned, hired, and non-owned vehicles. (If autos are used in the performance of work under this agreement). Combined single limit for bodily injury and property damage.	Required $1M CSL per accident
	Excess/Umbrella Liability	$2M ea occurrence $2M aggregate
	All deductibles or self-insured retentions (SIRs) in excess of $5,000 must be listed on the certificate of insurance.	Required
	The insurance requirements specified by the county shall remain in effect for the full term of the contract and/or agreement and any extension thereof. Updated Certificates of Insurance shall be sent to the county during the full term of the contract and/or agreement and any extension thereof.	Required
	The county reserves the right to reject any insurer it deems not financially acceptable on insurance industry resources. Property and liability insurance companies shall be licensed to do business in Colorado and shall have an A.M. Best rating of not less than A- and/or VII. Additionally, the county reserves the right to reject any insurance with relatively large deductibles or self-insured retentions	Required

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	(SIRs), deemed by the county to pose too high a risk based on the size of the contractor, financial status or rating of the contractor, or based on the size or type of the project and the exposure.	
	Any deviations below the standards given above must be approved by Jefferson County Safety and Compliance.	Required
	Any subcontractors must meet the same insurance requirements for the contract or purchase order unless Safety and Compliance has approved a deviation.	**Required**

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EXHIBIT 4
FEDERAL AND COUNTY STATUTORY AND REGULATORY PROVISIONS

PURPOSE: The work to be performed under this Agreement is on an activity funded all or in part with Federal Community Development Block Grant (CDBG) funds and is subject to applicable Federal laws and regulations. This Exhibit contains applicable Federal laws and regulations. This Exhibit is made a part of the Agreement. In the event of any conflict in the provisions of this Exhibit and any other provision not found in this Exhibit, without specific statement or supersedure, the provisions of this Exhibit shall apply.

1. HUD REGULATIONS AND REQUIREMENTS. This Agreement is made pursuant to the authority of Title 1 of the Housing and Community Development Act of 1974, as amended, (42 USC 5301 et seq.). The HUD regulations at 24 CFR Part 570 (as now in effect and as may be amended from time to time) constitute part of this Agreement. The Subrecipient agrees to comply with all applicable regulations and requirements of HUD now or hereafter in effect.

2. ACTIVITY RECORDS.

a. Records to be Maintained. The Subrecipient shall maintain all records required by the Federal regulations specified in 24 CFR Section 570.506 and that are pertinent to the activities to be funded under this Agreement. Such records shall include but not be limited to:

1) Records providing a full description of each activity undertaken;

2) Records demonstrating that each activity undertaken meets one of the National Objectives of the CDBG program;

3) Records required to determine the eligibility of activities;

4) Records required to document the acquisition, improvement, use or disposition of real property acquired or improved with CDBG assistance;

5) Records documenting compliance with the fair housing and equal opportunity components of the CDBG program;

6) Financial records as required by 24 CFR Section 570.502 and 2 CFR 200.328 subsections (a) and (e).

7) Other records necessary to document compliance with Subpart K of 24 CFR Part 570.

b. Retention. The Subrecipient shall retain all records pertinent to expenditures incurred under this Agreement for a period of four (4) years after the termination of all activities funded under this Agreement, after County's submission of the County's annual performance and evaluation report to HUD in which the activities assisted under the Agreement are reported on for the final time, or after resolution of any litigation, claims, audits, negotiations or other actions that involve the said records, whichever date occurs later. Records for non-expendable property acquired with funds under this Agreement shall be retained for four (4) years after final disposition of such property. Records for any displaced person must be kept for four (4) years after he/she has received final payment.

c. Client Data. The Subrecipient shall maintain client data demonstrating client eligibility for services provided. Such data shall include, but not be limited to, client name, address, income level or other basis for determining eligibility, and description of service provided. Such information shall be made available to County monitors or their designees for review upon request. Client data pertaining to loans generating program income will also be transferred, along with the assets securing the loan, to the County upon project closeout.

d. Disclosure. The Subrecipient understands that client information collected under this contract is private and the use or disclosure of such information, when not directly connected with the administration of the County's or Subrecipient's responsibilities with respect to services provided under this contract, is prohibited unless written consent is obtained from such persons receiving the service and, in the case of a minor, that of a responsible parent/guardian, or unless disclosure is required by the Public Records Law.

e. Property Records. The Subrecipient shall maintain real property inventory records, which clearly identify properties purchased, improved or sold. Properties purchased with these CDBG funds and retained by the Subrecipient shall continue to meet eligibility criteria and shall conform with the "changes in use" restrictions specified in 24 CFR Section 570.503(b)(7).

f. Source Documentation. All Subrecipient costs, expenditures and obligations hereunder must be supported by such source documentation as canceled checks, paid bills, payrolls, time and attendance records, contract and subgrant award documents or other documents showing in detail the nature of such costs and obligations.

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g. Record Accessibility. Any pertinent books, documents, papers, or other records pertaining in whole or in part to this Agreement shall be clearly identified and be made readily accessible to the County, HUD, and Comptroller General of the U.S., or any of their duly authorized representatives, upon request, for the purpose of making audits, examinations, excerpts and transcriptions. At such times and in such form as may be required, the Subrecipient shall furnish to the County, HUD, or the Comptroller General of the U.S., any of the records, reports, data, information or other documents enumerated in this paragraph at no cost to the requesting agency, unless the volume requested would place a hardship upon the Subrecipient.

3. ACCOUNTING AND FINANCIAL MANAGEMENT.

a. Bonding Requirements. The Subrecipient shall follow its own bonding requirements for bid guarantees, performance bonds, and payment bonds. For all agreements involving construction work exceeding $50,000, in addition to the Subrecipient's requirements, the following items shall be required as a minimum to be submitted by the Subrecipient to the County as a condition of the execution of this Agreement: a bid guarantee equivalent to 5% of the bid price, a performance bond for 100% of the Agreement Price, and a payment bond for 100% of the Agreement Price.

b. Independent Audits. Where work performed under this Agreement is undertaken by a Subrecipient, an audit shall be conducted and submitted to the County in accordance with the applicable requirements of 2 CFR Part 200 Subpart F. If an audit is not required in accordance with 2 CFR 200.501, the Subrecipient shall provide year-end financial information for each fiscal year in which the Subrecipient has received funding from the County for this project.

c. Indirect Costs Prohibition. All costs to be reimbursed by the County to the Subrecipient shall be direct costs. Such direct costs shall be identified in the Activity Budget spelling out in detail the specific sources and uses of any funds to be expended under this Agreement. No indirect costs (activities that are incurred for a common or joint purpose benefiting more than one cost objective and not readily assignable to the cost objectives specifically benefited, without effort disproportionate to the results achieved) shall be eligible for reimbursement unless the Subrecipient already has a cost allocation plan meeting the requirements of 2 CFR Part 200 Subpart E, which plan is attached hereto and incorporated herein by reference, and written documentation that the plan has been approved by HUD and by the County which shall also be incorporated herein by reference.

d. Administrative Requirements, Cost Principles and Audit Requirements. The Subrecipient shall comply with the requirements and standards of 24 CFR Section 570.502 and 2 CFR Part 200 Subpart E, or 48 CFR Part 31 for for-profit organizations, and Appendix II to 2 CFR Part 200, as applicable.

e. Accountability and Transparency. The Subrecipient shall comply and require its subcontractors to comply with requirements established by Office of Management and Budget (OMB) concerning the Dun and Bradstreet Data Universal Numbering System (DUNS), the Central Contractor Registration (CCR) database, and the Federal Funding Accountability and Transparency Act, including Appendix A to Part 25 of the Financial Assistance Use of Universal Identifier and Central Contractor Registration, 75 Fed. Reg. 55671 (Sept 14, 2010) (to be codified at 2 CFR part 25) and Appendix A to Part 170 of the Requirements for Federal Funding Accountability and Transparency Act Implementation, 75 Fed. Reg. 55663 (Sept. 14, 2010) (in Appendix A to 2 CFR part 170).

f. Program Income. The Subrecipient shall comply with program income requirements set forth in 24 CFR Sections 570.500(a) and 570.504, incorporated herein by reference. Program Income on hand at the time of closeout shall continue to be subject to the eligibility requirements and all other applicable Federal regulations until it is remitted to County.

g. Travel. The Subrecipient shall obtain prior written approval from County for any travel outside the metropolitan area with funds provided under this Agreement.

4. COPYRIGHTS. The County and HUD reserve a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for County or Federal government purposes, the copyright in any work developed pursuant to this Agreement or subagreements, or which Subrecipient purchases with funds under this Agreement pursuant to 2 CFR 200.315(b), incorporated herein by this reference.

5. POLITICAL ACTIVITY AND LOBBYING.

a. The Subrecipient shall not use any CDBG funds to finance the use of facilities or equipment for political purposes or to engage in partisan political activities.

b. The Subrecipient certifies by execution of this Agreement that, to the best of its knowledge and belief:

1) No Federally appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

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2) If any funds other than Federally appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement (Agreement), the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions and which is available from the County Representative.

3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that the Subrecipient and all subawardees shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000.00.00 and not more than $100,000.00 for each such failure.

6. CONFLICTS OF INTEREST.

a. The Subrecipient and its employees, agent, consultant, officer, or appointed officer (except for the use of CDBG funds to pay salaries and other related administrative or personnel costs) who exercise or have exercised any functions or responsibilities with respect to the County's CDBG activities or who are in a position to participate in a decision making process or gain inside information with regard to such activities, may not obtain a financial interest in or benefit from this Agreement, or have an interest in any contract, subcontract or agreement with respect thereto, or the proceeds thereunder, either for themselves or those with whom they have family or business ties, during their tenure or for one year thereafter. Exceptions may only be made with written approval from the County and HUD pursuant to 24 CFR Section 570.611 incorporated herein by this reference.

b. The Subrecipient shall maintain written standards of conduct covering conflicts of interest, applicable to all employees engaged in the administration of this Agreement, in compliance with 2 CFR 200.318(c)(1) and (2).

7. ENVIRONMENTAL AND HEALTH/SAFETY CONDITIONS.

a. The Subrecipient agrees to comply with the Clean Water Act, 42 U.S.C. 1857 et seq. and the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., as amended.

b. Complying with Acts specified herein does not release the Subrecipient from complying with other Federal environmental laws and regulations, that were previously unknown or become applicable after the effective date of this Agreement.

c. National Flood Insurance Program. No funds shall be expended under this Agreement for the purpose of either acquisition or construction activities within a designated area having special flood hazards unless flood insurance has been obtained in accordance with section 102(a) of the Flood Disaster Protection Act of 1973 (42 U.S.C. 4001) as amended.

d. Lead-Based Paint. The Subrecipient shall comply with the Lead-Based Paint Poisoning Prevention Act of 1971 and the Residential Lead-Based Paint Hazard Reduction Act of 1992 and 24 CFR Part 35 and all other related Federal regulations. Compliance with Federal laws and regulations shall include, but not be limited to, notification of applicants for rehabilitation assistance of the hazard of lead-based paint for properties constructed prior to 1978 and inspections, required testing and elimination of any lead-based paint hazards for any residential structures constructed prior to 1978 that are to be rehabilitated, modernized or improved under this Agreement.

e. Asbestos. The Subrecipient where undertaking renovation, rehabilitation, or demolition actions shall follow the notification and strict work practices for asbestos handling, removal, storage and transport as required under 40 CFR Part 61, Subpart M and 40 CFR Part 763 as well as for worker protection standards and exposures as required under 29 CFR 1910.1001 (non-construction), 1926.58 (construction), 40 CFR Part 763, Subpart G, and any applicable local and Jefferson County Health Department regulations.

f. Clean Air and Water Standards. Where the total amount of this Agreement is greater than $100,000, the Subrecipient shall comply with all applicable standards, orders, or requirements issued under section 306 of the Clear Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15) which shall be incorporated herein by reference. The Subrecipient shall report all violations of this subparagraph to the County and applicable Federal agencies responsible for the administration of the provisions above.

g. Fire Prevention. Subrecipient will comply with the provisions of the Fire Administration Authorization Act of 1992 (Pub. L. 102-522) where applicable. Said Act requires multifamily properties constructed after October 26, 1992 for which housing assistance is used to be equipped during construction with automatic sprinklers and hard-wired smoke detectors; multifamily property rebuilt after October 1, 1994 for which housing assistance is used must comply with the Life Safety Code; any other dwelling unit for which housing assistance is provided must be equipped with a hard-wired or battery-operated smoke detector installed in accordance with NFPAS 74.

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h. Procurement of Recovered Materials. Subrecipient will comply with the provisions of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, with respect to the procurement of recovered materials where practicable, and solid waste management services that maximize energy and resource recovery.

8. PROHIBITION AGAINST DISCRIMINATION PROVISIONS. The Subrecipient shall ensure that no person in the United States shall on the ground of race, color, religion (in instances of fair housing), sex, national origin, disability (with respect to qualified individuals with disabilities), or familial status, be excluded from participation in, be denied the benefits of, or be subjected to discrimination in any program or activity conducted under this Agreement. The Subrecipient is subject to the discrimination prohibition requirements under the following laws and authorities, which are incorporated herein by reference:

a. Title VI of the Civil Rights Act of 1964 (Pub. L.88-352) and HUD regulations with respect thereto including the regulations under 24 CFR Part I. In addition, in sale, lease or other transfer of land acquired, cleared or improved under this Agreement, the Subrecipient shall cause or require a covenant running with the land to be inserted in the deed or lease for such transfer requiring compliance with applicable provisions of Title VI.

b. Section 109 of the Housing and Community Development Act of 1974, as amended, and 24 CFR Section 570.602.

c. Age Discrimination Act of 1975 and the implementing regulations found at 24 CFR Part 146, but with the exceptions permitted therein.

d. Section 504 of the Rehabilitation Act of 1973, as amended, and as implemented by 24 CFR Part 8, and the Americans with Disabilities Act, codified at 42 U.S.C. Section 12131. In addition, the Subrecipient is subject to the requirements of the Architectural Barriers Act of 1968, and implementing regulations, incorporated herein by reference, with respect to accommodations for the physically disabled. Design, construction, and alteration of public facilities shall be made in such manner so as to ensure that physically disabled persons will have ready access to and use of such buildings pursuant to the "Uniform Federal Accessibility Standards" as amended, which is incorporated herein by this reference.

e. Title VIII of the Civil Rights Act of 1968, as amended by the Fair Housing Amendments Act of 1988 (Fair Housing Act, 42 U.S.C. 3600-3620) and Executive Order 11063, as amended by Executive Order 12259 and the implementing regulations in 24 CFR Part 107.

9. SEPARATION OF CHURCH AND STATE PROHIBITIONS. The Subrecipient shall not obligate nor expend any funds under this Agreement that will be used for religious activities or provided to primarily religious entities for any activities, including secular activities, unless a written request is submitted to the Director of Workforce and Community Development and written approval is obtained from the County pursuant to 24 CFR Section 570.200 (j) which shall be incorporated herein by reference.

10. E.O. 11246 EQUAL EMPLOYMENT OPPORTUNITY AND AFFIRMATIVE ACTION STATEMENT. The Subrecipient agrees as follows:

a. The Subrecipient will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Subrecipient will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Subrecipient agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The Subrecipient shall submit a plan for an Affirmative Action Program for approval.

b. The Subrecipient will, in all solicitations or advertisements for employees placed by or on behalf of the Subrecipient, state that all qualified applicants will receive consideration for employment without regard to race, age, color, religion, sex, or national origin.

c. The Subrecipient will send to each labor union or representative of workers with which the Subrecipient has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the Subrecipient's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Subrecipient will comply with all provisions of Executive Order 11246 of September 24, 1965 as amended by Executive Orders 11375, 11478, 12086, and 12107, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The Subrecipient will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to the Subrecipient's books, records, and accounts by the Department and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

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f. In the event of the Subrecipient's noncompliance with the nondiscrimination clauses of this Agreement or with any of such rules, regulations, or orders, this Agreement may be canceled, terminated or suspended in whole or in part and the Subrecipient may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

g. The Subrecipient will include the provisions of paragraphs (a) through (g) in every subagreement or purchase order unless excepted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that each provision will be binding upon each subcontractor or vendor. The Subrecipient will take such action with respect to any subagreement or purchase order as the Department may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the Subrecipient becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the Department, the Subrecipient may request the United States to enter into such litigation to protect the interests of the United States.

h. The Subrecipient further agrees to complete and submit to the County, with its final invoice employment information during the performance period of this Agreement which covers the entire Period of Performance of this Agreement or from the beginning effective date to the successful completion of all activities under the Activity/Scope of Work of this Agreement, whichever length of time is shorter.

11. SECTION 3 CLAUSE. The Subrecipient shall incorporate, or cause to be incorporated, in all contracts for work in connection with a Section 3 covered project, as defined in 24 CFR Section 135.5(m), and shall be directly bound by the following clause (referred to as a Section 3 clause):

a. The work to be performed under this Agreement is on an activity assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (implemented at 24 CFR Part 135). Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the Section 3 covered area and contracts for work in connection with the activity be awarded to business concerns which are located in, or owned in substantial part by persons residing in the Section 3 covered area.

b. The parties to this Agreement will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR Part 135 and all applicable rules and orders of the Department issued thereunder prior to the execution of this Agreement. The parties to this Agreement certify and agree that they are under no contractual or other disability, which would prevent them from complying with these requirements.

c. The Subrecipient will send to each labor organization or representative of workers with which it has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of its commitments, under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

d. The Subrecipient will include this Section 3 clause in every subcontract for work in connection with the activity and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Part 135. The Subrecipient will not subcontract with any subcontractor where it has been found in violation of regulations under 24 CFR Part 135 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

e. Compliance with the provisions of Section 3 and the regulations set forth in 24 CFR Part 135 of the Department issued thereunder prior to the execution of the Agreement, shall be a condition of the Federal assistance provided to the activity, binding upon the applicant or recipient for such assistance, its successors, and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its successors, and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

f. In carrying out these provisions, the Subrecipient shall provide to the County evidence that it has made a good faith effort to comply with the requirements of Section 3, including the evidence set forth in 24 CFR Sections 135.50, 135.60, 135.70, or 135.75, as applicable.

12. MINORITY AND WOMEN BUSINESS ENTERPRISES. In complying with HUD instructions made pursuant to E.O. 11625, 12432 and 12138, incorporated herein by reference, to foster and promote minority and women's business enterprises and with 2 CFR 200.321 to award a fair share of contracts to small and minority and women's businesses, the Subrecipient shall maintain documentation of its efforts to assure small and minority and women's businesses are considered and used where possible as provided for under 2 CFR 200.321 which is incorporated herein by reference.

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13. ALIENS. The Subrecipient shall not provide direct benefits under this Agreement to newly legalized resident aliens as set forth in 24 CFR Section 570.613 which shall be incorporated herein by this reference.

14. RELOCATION AND REAL PROPERTY ACQUISITION. Where the Subrecipient uses funds under this Agreement to relocate or acquire real property, the Subrecipient shall be subject to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Pub. L. 91-646, 84 Stat. 1894, 42 U.S.C. 4601), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Title IV of Pub. L. 100-17, 101 Stat. 246-255, 42 U.S.C. 4601 note) and as set forth in 49 CFR Part 24, which provisions shall be incorporated herein by reference. The Subrecipient shall also follow the requirements set forth in 24 CFR Section 570.606.

15. DEBARRED OR SUSPENDED CONTRACTOR/SUBRECIPIENT. The Subrecipient shall not directly or indirectly use CDBG funds to employ, award contracts to, or otherwise engage the services of, or fund any contractor or Subrecipient during any period of debarment, suspension, or placement in ineligibility status under the provisions of 2 CFR 200.212 or E.O.12549, incorporated herein by reference. The Subrecipient shall submit to the County Subrecipient ownership information and shall submit to the County from any and all subcontractor's subcontractor ownership information within five (5) working days after an agreement or understanding has been executed or reached between the Subrecipient and subcontractor.

16. FOREIGN COUNTRY RESTRICTIONS. Subrecipient shall comply with the requirements of Section 109 of Public Law 100-202, which prohibits the awarding of certain contracts or subcontracts, to contractors or subcontractors from foreign countries listed by the United States Trade Representative.

17. FEDERAL LABOR STANDARDS. Where the Subrecipient shall perform work or subcontract work, as part of its performance under this Agreement, which entails construction work in excess of $2,000 (except with respect to the rehabilitation or construction of residential property containing less than eight (8) units), the Subrecipient shall comply with and have incorporated into any and all such subcontracts the "FEDERAL LABOR STANDARDS PROVISIONS" (HUD-4010). The Subrecipient agrees to comply with the requirements of the Secretary of Labor in accordance with the Davis-Bacon Act (40 U.S.C. 3141-3148), the Work Hours and Safety Standards Act (40 U.S.C. 327 et.seq.), the Copeland "Anti-Kickback" Act (18 U.S.C. 874 et.seq.), all as amended, and all other applicable Federal, State and local laws and regulations pertaining to labor standards insofar as those acts apply to the performance of this Agreement.

18. PROCUREMENT REQUIREMENTS. Subrecipient agrees to conform to all procurement requirements set forth in 2 CFR 200.318 to 200.326, including the requirement to maintain procurement records, limitations on time and materials contracts, and the requirement that its bid process be full and open and not restrict competition. The following procurement methods are required:

a. For purchases of less than $3,000.00, the Subrecipient shall obtain a reasonable price and, to the extent practicable, distribute such purchases equitably among qualified suppliers.

b. For purchases of less than $50,000.00, the Subrecipient may obtain either oral or written price quotations. The Subrecipient must document the receipt of an adequate number of price or rate quotations from qualified sources.

c. For purchases of $50.000.00 or more, competitive sealed bids as set forth in 2 CFR 200.320(c) shall be obtained unless Subrecipient receives prior approval from the County to use competitive proposals based on 2 CFR 200.320(d) or non-competitive/sole source procurement based on 2 CFR 200.320(f).

19. DRUG-FREE WORK PLACE ACT. Subrecipient shall comply with the Drug Free Work Place Act of 1988, as amended, and regulations promulgated thereunder.

20. EMINENT DOMAIN RESTRICTION. Subrecipient warrants that no CDBG funds will be used to support any Federal, State or local projects that seek to use or use the power of eminent domain, unless eminent domain is employed only for public use. For the purposes of this requirement, public use shall not be construed to include economic development that primarily benefits private entities. Any use of funds for mass transit, railroad, airport, seaport or highway projects as well as utility projects which benefit or serve the general public (including energy-related, communication-related, water-related and wastewater-related infrastructure), other structures designated for use by general public or which have other common-carrier or public-utility functions that serve the general public and are subject to regulation and oversight by the government, and projects for the removal of an immediate threat to public health and safety or brownsfield as defined in the Small Business Liability Relief and Brownsfield Revitalizations Act (Public Law 107-118) shall be considered a public use for purposes of eminent domain.

21. NO SALE OR TRANSFER OF CDBG FUNDS. Subrecipient shall not sell, trade, or otherwise transfer all or any portion of CDBG funds to another entity in exchange for any other funds, credits or non-Federal considerations, but must use such funds for activities eligible under title I of the Housing and Community Development Act of 1974.

22. COMPLIANCE WITH APPLICABLE LAWS. At all times during the performance of this Contract, the Recipient, contractors and any subcontracts shall strictly adhere to all applicable Federal and County laws, orders, and all applicable standards, regulations, interpretations or guidelines issued pursuant thereto. The applicable Federal laws and regulations include, but are not limited to, the following:

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a. National Environmental Policy Act of 1969, (42 USC 4321 et seq.), as amended, and the implementing regulations of HUD (24 CFR Part 58) and of the Council on Environmental Quality (40 CFR Parts 1500 - 1508) providing for establishment of national policy, goals, and procedures for protecting, restoring and enhancing environmental quality.

b. National Historic Preservation Act of 1966, (16 USC 470 et seq.), as amended, requiring consideration of the effect of a project on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places.

c. Executive Order 11593, Protection and Enhancement of the Cultural Environment, May 13, 1971 (36 FR 8921 et seq.) requiring that Federally-funded projects contribute to the preservation and enhancement of sites, structures and objects of historical, architectural or archaeological significance.

d. The Archaeological and Historical Data Preservation Act of 1974, amending the Reservoir Salvage Act of 1960 (16 USC 469 et seq.) providing for the preservation of historic and archaeological data that would be lost due to Federally funded development and construction activities.

e. Executive Order 11988, Floodplain Management, May 24, 1977 (42 FR 26951 et seq.) prohibits undertaking certain activities in flood plains unless it has been determined that there is no practical alternative, in which case notice of the action must be provided and the action must be designed or modified to minimize potential damage.

f. Executive Order 11990, Protection of Wetlands, May 24, 1977 (42 FR 26961 et seq.) requiring review of all actions proposed to be located in or appreciably affecting a wetland. Undertaking or assisting new construction located in wetlands must be avoided unless it is determined that there is no practical alternative to such construction and that the proposed action includes all practical measures to minimize potential damage.

g. Safe Drinking Water Act of 1974, (42 USC 201, 300 et seq., 7401 et seq.) as amended, prohibiting the commitment of Federal financial assistance for any project which the Environmental Protection Agency determines may contaminate an aquifer which is the sole or principal drinking water source for an area.

h. The Endangered Species Act of 1973, (16 USC 1531 et seq.) as amended, requiring that actions authorized, funded, or carried out by the Federal government do not jeopardize the continued existence of endangered and threatened species which is determined by the Department of the Interior, after consultation with the County, to be critical.

i. The Wild and Scenic Rivers Act of 1968, (16 USC 1271 et seq.) as amended, prohibiting Federal assistance in the construction of any water resources project that would have a direct and adverse affect on any river included in or designated for study or inclusion in the National Wild and Scenic Rivers System.

j. HUD Environmental Criteria and Standards, (24 CFR Part 51) providing national standards for noise abatement and control, acceptable separation distances from explosive or fire prone substances and suitable land uses for airport runway clear zones.

k. Executive Order 12372, Special Contract Condition Water or Sewer Facilities. Notwithstanding any other provision of this Agreement, no funds provided under this Agreement may be obligated or expended for the planning or construction of water or sewer facilities until receipt or written notification from HUD of the release of funds on completion of the review procedures required under Executive Order (E.O.) 12372, Intergovernmental Review of Federal Programs, and HUD's implementing regulations at 24 CFR Part 52. The County shall also complete the review procedures required under E.O. 12372 and 24 CFR Part 52 and receive written notification from HUD of the release of funds before obligating or expending any funds provided under this agreement for any new or revised activity for the planning or construction of water or sewer facilities not previously reviewed under E.O. 12372 and implementing regulations.

l. Reporting Subaward and Executive Compensation Information (2 CFR Part 170).

m. Universal Identifier and System of Award Management (2 CFR Part 25). The Subrecipient shall comply with the requirements established by the Office of Management and Budget (OMB) concerning the Universal Numbering System and System for Award Management (SAM) requirements in Appendix A to 2 CFR part 25. Subrecipient shall register itself and require all its subcontractors to register in the System for Award Management and comply with all SAM requirements.

CITY OF ARVADA

REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM 8.B.2.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: R22-018, A Resolution Approving the Contract to Buy Real Estate for the Properties Located at 6630 W 51st Avenue and 5045 Marshall Street, Arvada, CO 80002 for $2,750,000.000 Plus Closing Costs

Report in Brief

The City of Arvada, in collaboration with all other Jefferson County local governments, has informally agreed on a regional approach to coordinating homeless services. The desired outcome is to make homelessness in Jefferson County rare, brief, and non-recurring. One of the elements of this approach is to establish regional navigation centers that offer services to homeless individuals and families, in addition to permanent supportive housing and emergency shelter beds. The current plan is to locate two navigation centers in the northern and central areas within Jefferson County.

A site has been identified within Arvada that may be appropriate for this purpose. In order to complete the work necessary to determine whether or not this site could work as a navigation center, the City needs to gain site control by purchasing the property. A resolution approving the City's purchase of the property has been prepared for the City Council's consideration.

The Arvada team recommends that the City Council approve R22-018, A Resolution Approving the Contract to Buy Real Estate for the Properties Located at 6630 W. 51st Avenue and 5045 Marshall Street, Arvada, CO 80002 for $2,750,000.00 Plus Closing Costs.

Financial Impact

The sales price of $2,750,000 will be funded through either the American Rescue Plan (ARPA) funds or the 6% buyout of the Housing Authority’s interest associated with the Castlegate refinancing.

Background

On June 3, 2021, Jefferson County elected officials received a presentation from Jefferson County Human Services team members regarding the Jefferson County Homeless Action Plan and Homeless Gap Analysis. This presentation occurred during the Quarterly Commissioners and Municipalities meeting hosted by Arvada and facilitated by Mayor Williams.

The Jefferson County Homeless Action Plan was developed by Heading Home, which is a committee of Jeffco Connections. This group includes 26 partner organizations who strive to develop innovative and collaborative initiatives within the County to meet the needs of youth and families. Areas of focus include human trafficking, juvenile justice, mental health, education and housing. In recognition of the impacts associated with homelessness and in response to city and county elected officials who have identified homelessness as a regional priority, Jeffco Connections asked the Heading Home Committee to develop the Action Plan. The primary objectives associated with the Action Plan include:

- Optimizing the Housing Crisis Resolution System;
- Increasing Access to and Supply of Supportive Housing Units;
- Increasing System-Wide Data Collections and Data Sharing; and

- Increasing Community Involvement in Support of Homelessness Solutions.

The ultimate outcome is to make homelessness rare, brief and non-recurring in Jefferson County.

A summary of the Homeless Gap Analysis report was presented during the June 3 meeting by the Regional Homeless Coordinator in collaboration with the County Manager. The presentation reflected the collective work of city and county managers and team members directed by the elected officials to develop a regional approach to addressing the complex challenges associated with homelessness within Jefferson County. Arvada was represented by the City Manager and Housing Manager. This presentation concluded with a recommendation to develop two housing navigation centers in Jefferson County to address unmet needs of unhoused residents with the addition of 75 units of permanent, affordable supportive housing and 50-bed shelter at each location. The locations were planned for Central and North Jeffco.

Navigation centers combined with permanent supportive housing are intended to advance services from the current triage approach to stabilizing homeless individuals and utilizing supportive services to resolve the underlying issues that cause a person and/or a family to become homeless. These services will include mental health treatment, addiction treatment and employment readiness. An optimal housing response system includes a continuum of services designed to meet people wherever they are in a crisis and support them in finding pathways back to stability. In addition, the navigation centers include supportive housing units, provide more opportunities for collecting data and allow for data sharing. Finally, the navigation centers will increase community involvement in support of homeless solutions through the collaboration of the partner local governments, affordable housing developers and human services organizations that invest in the operation of the program.

As the Council is well aware, the current menu of services offered to homeless individuals and families at the present time falls well short of a comprehensive program. As a result, our Police Department, primarily through the Community Outreach, Resources and Enforcement (CORE) team, consistently responds to complaints associated with homeless individuals who are either victims or suspects associated with criminal activity or causing disturbances associated with mental health, use of illegal narcotics and/or other forms of disorderly behavior. In some cases, these behaviors occur because the current services fall short of stabilizing homeless persons. Most of these individuals gather near or within Olde Town Square, adjacent to the Library, and on the G-Line Station Platform. Many find shelter within the Transit Hub or under state highway bridges. Council members, citizens, business owners, and visitors constantly complain to the Police Department and the City Manager's Office regarding the impacts associated with homelessness.

The opportunities available through the current Federal funding and special grants associated with the American Rescue Plan, if leveraged with Low Income Housing Tax Credits, provide a path to creating the housing navigation centers. As expressed in the proposal summarized within the Homeless Gap Analysis Report presentation, all Jefferson County local governments would need to contribute resources necessary to develop the navigation centers and fund the ongoing operation. The availability of ARPA funds allows the local government partners to realistically consider this commitment.

Specifically to Arvada, the concept will support the relocation of homeless services away from Olde Town, which was identified as a Strategic Result in the updated City Council Strategic Plan. More specifically, if this effort is successful, the concept will help fulfill the Council's vision for the area within Olde Town near the Square, G-Line Station Platform, Transit Hub and the Library.

At the conclusion of the June 3 meeting, Mayor Williams asked the elected officials who attended the meeting if they felt that their respective councils could commit to the regional program described by the Regional Homeless Coordinator and the County Manager. Understanding that the commitment would not be binding, all elected officials expressed their consensus support for the recommendation stated in the presentation which essentially authorized the following actions:

- Empower managers to work with homeless service resources to further develop the proposal;
- Establish Jefferson County as the lead entity with specific responsibility to conduct the RFP process to solicit an affordable housing developer who would acquire land, housing tax credits and other resources necessary to develop the navigation centers and associated supportive housing; and

- Establish a site selection committee with representation from each stakeholder.

In late August, Jefferson County released the RFP to solicit an affordable housing developer. The release of the RFP was discussed as part of an update regarding the regional navigation centers during the September 2 Commissioners and Municipalities meeting. In November, the Arvada team announced the County's selection of BlueLine Development, Inc. as the affordable housing developer who would be engaged to develop the navigation centers. This Missoula, Montana, company has a strong track record of developing high-quality affordable housing units throughout the Mountain West, including Denver, Grand Junction, and Aurora. BlueLine also understands how to incorporate services provided by community-based organizations that will support housing clients and help them to transition out of homelessness.

Our team immediately engaged with BlueLine representatives through December and January to discuss their approach to working with the regional partners and learn how we can support their efforts. We shared with them a potential Arvada site at 5045 Marshall Street which was located in an area known as a Qualified Census Tract that would be eligible for Low Income Housing Tax Credit (LIHTC) financing. This site is located on the southeast corner of Marshall Street and W. 51st Avenue on property that accommodates a greenhouse formerly operated by a local business. The layout of the three-acre site appears to support development of a navigation center with offices and training rooms as well as approximately 75 units of permanent supportive housing and 50 emergency shelter beds.

The sales price of the property is $2.3 million with an additional $450,000 for the house. In order to fully develop the property as a navigation center, the entire property, including the house, would need to be purchased at a total cost of $2,750,000.

BlueLine contacted the broker and began efforts to acquire the property. Unfortunately, the terms and conditions that BlueLine could offer would require a nine-month timeframe in order to allow the time necessary to apply for and receive the LIHTC financing. As is the case with many affordable housing developers, BlueLine does not have the cash on hand to support the purchase of the property in advance of the LIHTC financing. The owner desires to sell the property to a buyer who can complete the acquisition of the property in a shorter timeframe.

All stakeholders agree that this property represents the best option for establishing a navigation center in order to support the regional homeless program discussed during the June 3 and September 2 Commissioners and Municipalities meetings. Therefore, the Arvada team believes consideration of purchasing this site in advance of BlueLine receiving the LIHTC financing is necessary. Otherwise, it is likely that this property will be acquired by another buyer and the opportunity to develop the navigation center will be lost or delayed.

In order to support the acquisition of this property, the Arvada team is proposing that the City utilize a combination of funding sources and work with BlueLine and the other regional partners to secure the financing and other resources necessary to develop the navigation center. Available funding sources include the ARPA funds and the 6% buyout of the Housing Authority's interest associated with the Castlegate refinancing.

As stated previously, the regional collaboration associated with the navigation centers includes financial contributions from the local government partners. While the financial contributions have not been precisely defined, the city and county managers recently met and reaffirmed their commitment to the agreement that was discussed by the elected officials on June 3, 2021. The combination of financial contributions from the cities and the County and LIHTC financing obtained by BlueLine should provide some amount of reimbursement to Arvada for the initial purchase of this site. In addition, the City of Lakewood is currently engaged in developing a second navigation center to serve the south/central part of Jefferson County.

Discussion

The major points of the contract to purchase the site include the following conditions:

Total Sale Price	$2,750,00.00
Earnest Money	$50,000.00

Type of Deed	Special Warranty Deed
Land area	5 parcels (4 land/1 with house)
Closing date	May 20, 2022 (100 days from acceptance deadline/ 74 days from March 7th Meeting)
Water Rights/Well Rights/Water Sewer Taps	None
Appraisal	
Inspection	Termination and Objection - 60 days after MEC Resolution – 70 days after MEC
Due Diligence	Delivery – 35 days after MEC Objection – 45 days after MEC Resolution – 50 days after MEC
Environmental Inspection (required by the Federal Gov. to use Fed. Funds)	60 days after MEC (If Phase II Required, will extend 30 days)
Title Company/Insurance	Selected and Paid for by Seller including OEC
Tax Certificate	Paid by Seller
Survey	City will pay for ILC if Title company requires
Closing Costs	Split 50/50 City/Seller
Offer Acceptance	February 9, 2022 by 5:00 p.m.
City's Buyer's Agent	West Peak Properties – Jay Peterson – 3% Fee

If the City is successful in acquiring the site, the Arvada team will work with BlueLine to develop the LIHTC application. A letter of intent is due on June 1 and the actual application is due on August 1. The actual Tax Credit award is scheduled for November.

As stated previously, if there is uncertainty associated with site control, the award of the very competitive tax credit financing by the Colorado Housing and Financing Authority (CHFA) would be unlikely. BlueLine would need to wait until 2023 to apply for the next round of LIHTC financing which would push back the scheduled completion and opening of the navigation center from December 2024 to a year later. Therefore, both BlueLine and the City team believe that the development of a navigation center as part of the regional program would be delayed by a minimum of one year if this site is not available. Please note that given the limited number of sites that can accommodate a navigation center, it is very likely that it would take longer to identify a site that would work.

Of equal importance is the Council's direction to relocate homeless services out of Olde Town. In order to accomplish this, we have discussed with BlueLine the use of the site to accommodate temporary buildings that would be used to relocate homeless services during the development and construction period before the permanent navigation center is completed. Without the use of this property, relocating homeless services from Olde Town would be delayed. The purchase of a site that could accommodate both short term and long term services for homeless individuals and families seems to make sense. Please note that more work would need to be done in order to develop the short-term use conceptual plan, including a site plan, service program, funding and related items.

Finally, it is important to note that establishing the navigation center with supportive housing should complement the planned and existing affordable housing units in the area. The Clear Creek Commons project, approved by the Council last year, plans to develop approximately 270 affordable housing rental units. Property owned by Family Tree near W. 56th Avenue and Marshall is planned for redevelopment in order to provide 70 affordable housing rental units. Family Tree selected BlueLine as the affordable housing developer for their project. The availability of affordable housing near the navigation center offers a continuum of housing options for some homeless individuals and families to move from the permanent supportive housing to

the independent affordable units after they are stabilized.

Moving this project forward will require approval of the LIHTC financing and completion of a development and operating plan that is acceptable to the community and the City Council. Should there be any conditions that cause this project to be infeasible, the City will retain the land which should increase in value over time. Therefore, if the project proposed herein cannot be completed, the City will be able to sell the land for potential redevelopment within the current Mixed Use zoning.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A.

Strategic Alignment

The recommended action supports completion of the following Strategic Result within the Organizational and Service Effectiveness Priority Area of the City Council Strategic Plan:

By 12/24, construct a regional navigation center to deliver coordinated homeless services located outside of Olde Town.

In association with this Strategic Result, the Council expressed the desire to relocate homeless services outside of Olde Town sooner than December 2024. Therefore, the Arvada team will explore the possible use of part of this site for a temporary navigation center.

Alternative Courses of Action

There are no alternatives to the recommended action that would support the Strategic Result as described herein.

Recommendation for Action

The Arvada team recommends that the City Council approve R22-018, A Resolution Approving the Contract to Buy Real Estate for the Properties Located at 6630 W. 51st Avenue and 5045 Marshall Street, Arvada, CO 80002 for $2,750,000.00 Plus Closing Costs.

Suggested Motion:

I move that R22-018, A Resolution Approving the Contract to Buy Real Estate for the Properties Located at 6630 W. 51st Avenue and 5045 Marshall Street, Arvada, CO 80002 for $2,750,000.00 Plus Closing Costs, be (approved) (rejected).

Prepared by:
Mark Deven, City Manager

Reviewed by:
Gail Walker, Legal Specialist-Contracts 2/17/2022

Approved by:

Carrie Espinosa, Manager of Housing Preservation and Resources	2/17/2022
Bryan Archer, Director of Finance	2/17/2022
Kylie Justus, Assistant City Attorney	2/17/2022
Rachel Morris, City Attorney	2/23/2022
Lorie Gillis, Deputy City Manager	2/23/2022
Mark Deven, City Manager	2/23/2022

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R22-018

A RESOLUTION APPROVING THE CONTRACT TO BUY REAL ESTATE FOR THE PROPERTIES LOCATED AT 6630 W 51ST AVENUE AND 5045 MARSHALL STREET ARVADA, CO 80002 FOR $2,750,000.00 PLUS CLOSING COSTS

WHEREAS, five parcels of land have been listed for sale in the area of 51st Avenue and Marshall Street for $2,750,000.00 (the "Property"); and

WHEREAS, the City of Arvada recognizes the value in obtaining the Property based on its location and size; and

WHEREAS, the Property may be appropriate for a homeless navigation center or other City use in the near future.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is authorized to sign and the City Clerk to attest, in a form approved by the City Attorney, the Contracts to Buy and Sell Real Estate, which are in substantially the same form as the attached, along with any other necessary closing documents.

Section 2. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 7th day of March, 2022.

_____
Marc Williams, Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

Rachel A. Morris, City Attorney

By: _____

JEFFERSON COUNTY HOMELESSNESS ACTION PLAN 2021-2023

Heading Home, A Committee of Jeffco Connections

HEADING HOME

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Executive Summary

Homelessness is a community-wide crisis requiring a community-wide solution. For this reason, the Heading Home group formed in 2006 to work toward ending homelessness in Jefferson County. As the crisis has grown over the years, Heading Home is now revising its plan to focus on the greatest needs of our unhoused neighbors. This Plan, driven by data and guiding principles outlined herein, will serve as a blueprint for the work of Heading Home over the next three years.

The vision of the Heading Home Collaborative is to implement a systemic response in Jefferson County that ensures homelessness is rare and prevented whenever possible and, when it cannot be prevented, it is a brief, and a one-time experience. Ensuring homelessness is a rare experience means that we build lasting systems, which include components that actively prevent housing crises that lead to homelessness. When homelessness cannot be prevented, the system is designed to ensure the experience is brief. This means at any given time we know who is experiencing homelessness in the community and ensure they are quickly engaged in a pathway to housing of their choice. Lastly, when homelessness does occur, the system is built to ensure it is a one-time only experience by connecting households with existing programs that support upward economic mobility through education, employment, and other essential services.

The Jeffco Homelessness Action Plan seeks to realize this vision by focusing on four primary objectives. A distinct workgroup will be structured around each objective.

As the Heading Home Committee moves towards a workgroup focused model, this document will serve as the roadmap and basis for accountability for each of the workgroups over the next three years. This document will be updated every three years in response to changing community needs and priorities.

Guiding Principles

Everyone has the right to live in safe, decent, affordable housing and to have access to services they need to survive and thrive. The following principles will guide the work of the Heading Home Committee:

Community-Level Approach

A community-wide problem necessitates a community-wide solution. The most effective and lasting solutions come when we bring our strengths as separate entities together to create collaborative solutions that put the best interests of those we serve first.

Housing First

Housing is ultimately the solution to homelessness. A successful and effective homelessness response system quickly connects families and individuals experiencing a housing crisis to permanent housing without preconditions or barriers and provides ongoing opportunities for engagement in services to support long-term stability.

Cultural Competence & Inclusivity

We develop and promote policies and interventions that respect the diverse cultures and beliefs of those we serve. We engage stakeholders from every sector, especially persons with lived experience of homelessness, in the development of solutions.

Self Determination

We treat all individuals and families experiencing homelessness with dignity and respect, promoting self-determination and personal choice about one's own life. We recognize that all persons are unique, and we must develop solutions driven by individual differences and needs rather than a one size fits all approach.

Data Driven Decisions

We promote robust systems for collecting, sharing, and integrating data among homeless service providers and other intersecting systems so that we can effectively measure the community's progress and adjust the approach as needed.

System Integration

We prevent and end homelessness by working collaboratively with other systems that impact our ability to end homelessness, including, but not limited to, health care, education, criminal justice, and the metro Denver Continuum of Care.

Racial Equity

We actively promote and implement antiracist policies and interventions that seek to resolve the racial and ethnic inequities experienced by persons of color who are disproportionately experiencing homelessness in Jefferson County.

Trauma Informed Care

We recognize the role and impact of high levels of trauma in the past and present condition of homelessness and seek to design interventions that provide safety and actively avoid re-traumatizing individuals.

Who is Experiencing Homelessness in Jefferson County?

Comprehensive Homeless Count Data August 2019

State of Homelessness in Jefferson County

The primary sources of data on homelessness in Jefferson County used to compile the data in this section are the 2019 Comprehensive Homeless Count ("Comprehensive Count") and the Point-in-Time Homeless Counts ("PIT Count"). These counts are both census events, which provide point-in-time snapshots of homelessness. Jefferson County is reliant on these census events due to current low utilization rates of the Homeless Management Information System (HMIS) database throughout the county. While census and outreach events can hold value in providing snapshot data, a dynamic and shared database is the most reliable way to know real-time data on the full nature and extent of homelessness. All data included in these counts is self-reported.

997 People experienced homelessness or lacked stable housing.

67% Of this group were literally homeless, which means they were living in a temporary shelter program or unsheltered.

77% Of those literally homeless were living outside or in another place not meant for human habitation.

Subpopulations

Of those experiencing homelessness and lacking stable housing, the following notable subpopulations were identified.

1%

Parenting Youth

4%

Unaccompanied Youth

15%

Fleeing domestic violence

7%

Veterans

Housing Status

Unstably housed refers to persons who were unable to sleep or stay in the same place for the next 14 days, could not pay for housing for the next 14 days, or had inconsistent housing for the last 60 days. Chronic homelessness is used to describe people who have experienced homelessness for at least a year, or repeatedly over several years, while struggling with a disabling condition such as a serious mental health disorder, substance use disorder, or physical disability

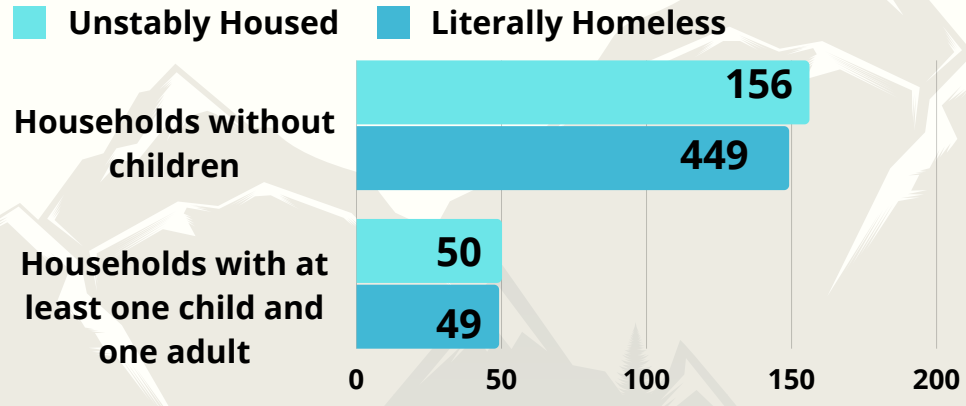
33%
Unstably Housed

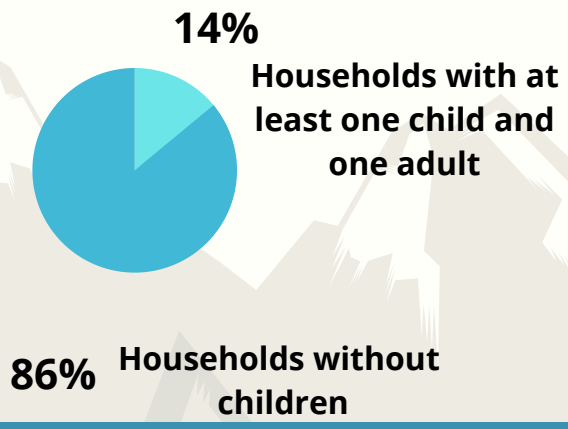
67%
Literally Homeless (excluding chronic)

21%
Chronically Homeless (subset of literal homelessness)

Household Type

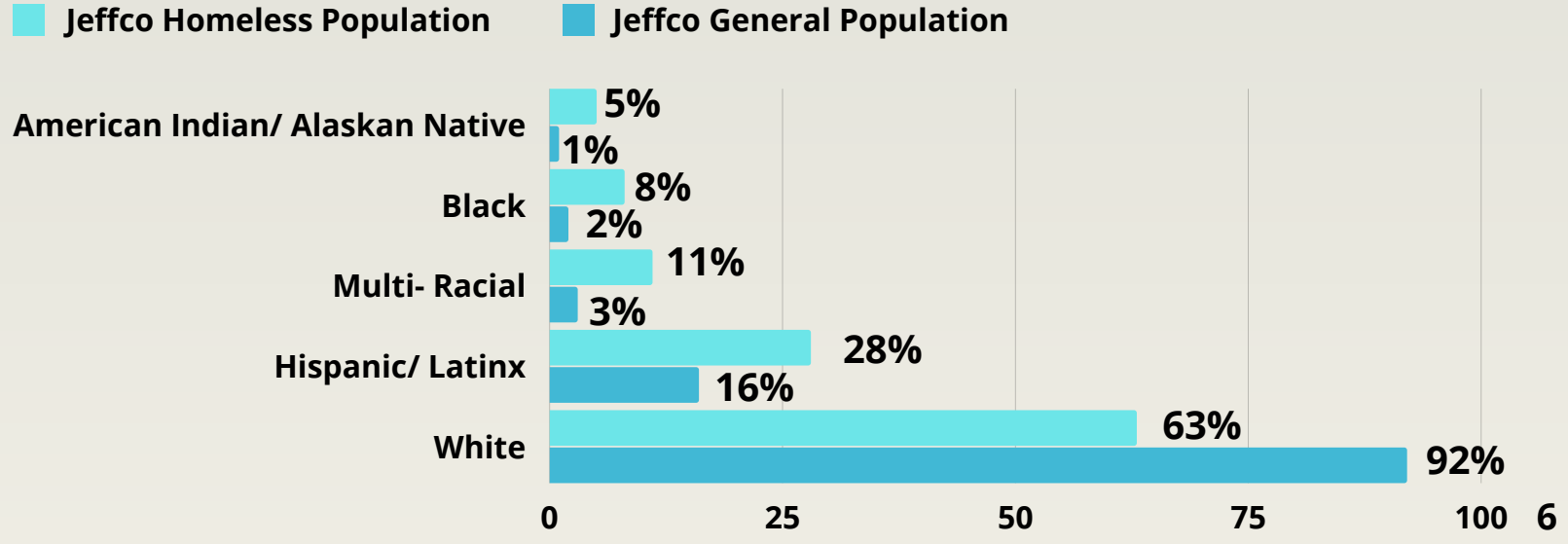
Households without children are significantly more likely to experience homelessness, more likely to lack stable housing and have a higher proportion of persons literally homeless than households with children.





Race & Ethnicity

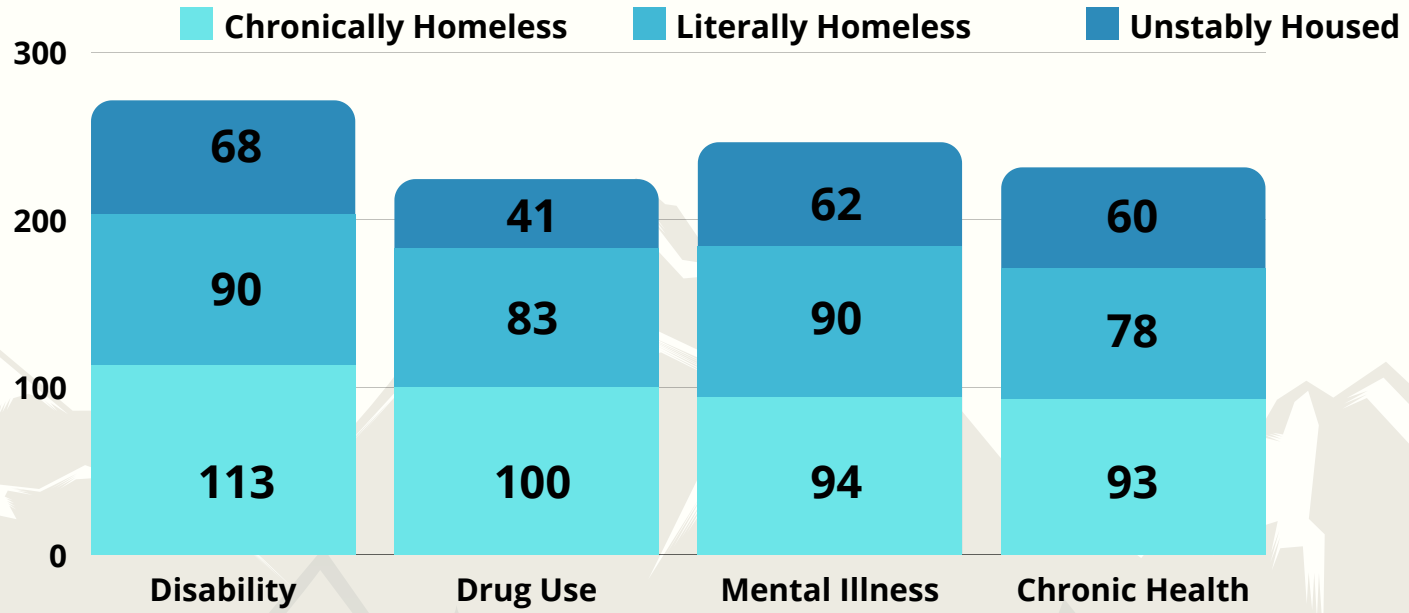
Homelessness disproportionately impacts persons of color in Jefferson County. Compared to the general population, persons experiencing homelessness were more likely to be persons of color.



Who is Experiencing Homelessness in Jefferson County?

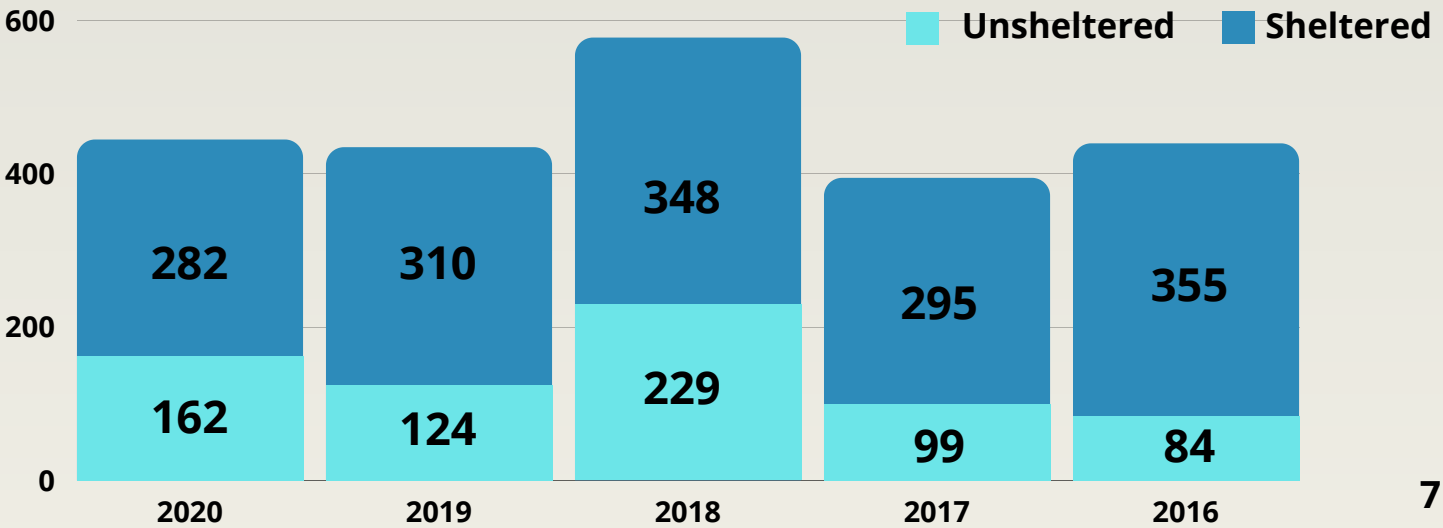
Health Conditions & Disabilities

Approximately two out of every three persons (62%) over 18 report having at least one disabling condition. Persons experiencing chronic homelessness are disproportionately afflicted with physical and behavioral health issues and disabilities. A disabling condition in this context is one that is expected to be long-continuing or indefinite duration, substantially impedes the person's ability to live independently; and could be improved by the provision of more suitable housing conditions.



Total Persons Literally Homeless – PIT Counts

Unlike the charts above, the following chart shows total persons counted in the PIT Counts over the past five years (2017-2020). The totals of the PIT counts are significantly lower than the totals reported in the Comprehensive Count data above because the PIT Count is a one-day event, while the Comprehensive Count was conducted over the course of a month.



Plan Objectives

The objectives of this Action Plan were identified using the results from the 2019 Comprehensive Count, 2020 PIT Count, a shelter gap and inventory analysis, 2020 Jefferson County Community Needs Assessment, the 2013 Heading Home Plan, and the 2015 Heading Home Collaborative Evaluation. Additionally, the authors reviewed similar plans from over 10 communities of various sizes and geographies. Key guiding framework documents also included the Jeffco Community Health Improvement Plan (CHIP), the Jeffco Bright Futures Roadmap, Focus Strategies' Housing Crisis Resolution System Briefs, and the United States Interagency Council on the Homeless' Federal Strategic Plan to Prevent and End Homelessness. From this guiding information, the Heading Home Governance Workgroup identified four primary objectives, which will focus and guide our efforts so that we can most effectively move Jefferson County towards its goals of ensuring homelessness is rare, brief, and one-time only.

Throughout Fall and Winter 2020, each workgroup completed a logic modeling exercise, which identified not only the vision for each objective, but also the concrete activities and expected outcomes for those activities. The activities describe what Heading Home will do to achieve the vision and the outcomes are the changes we expect to see because of the activities. The first action step for each workgroup involves assessing available data to identify more specific gaps and subsequent activities.The results of this activity will allow the group to set clear, measurable benchmarks for progress and be held accountable to those metrics.

Rare **Brief** **One-Time**

1) Optimize the Housing Crisis Resolution System
2) Increase Access to and Supply of Supportive Housing Units
3) Improve System-Wide Data Collection and Data Sharing
4) Increase Community Involvement in Support of Homelessness Solutions

OPTIMIZE THE HOUSING CRISIS RESOLUTION SYSTEM

A housing crisis resolution system responds to the needs of all persons who are experiencing a housing crisis in Jefferson County. In such a system, the programs and resources that serve persons in a housing crisis function together with a common set of goals and performance measures. The system's resources directly align with those goals. Effective housing resolution systems function similarly to an effective emergency department of a hospital by:

- Serving all persons who present with urgent needs,
- Assessing and prioritizing the most urgent needs,
- Providing immediate crisis relief where needed,
- Triaging to appropriate long-term services, and
- Coordinating with multiple departments and programs towards common goal of stabilization

The following vision, activities and outcomes aim to create a system that prevents homelessness whenever possible, ensures enough resources exist for persons seeking to resolve their immediate crisis, and connects all persons in crisis with a pathway to stable housing. The outcomes will be made measurable after the gaps analysis is completed and progress will be tracked towards the benchmarks set.

VISION

All agencies that serve persons experiencing homelessness are equipped and able to stabilize a housing crisis and facilitate a pathway to housing.

- Maintains real-time data that illustrates unmet need for sheltering options. Able to respond nimbly to changes in need over time.
- Sufficient temporary sheltering programs exist that operate low barrier, housing-focused programming for persons experiencing homelessness with greatest unmet need.
- Programs that provide direct services primarily to persons experiencing homelessness actively connect persons with housing and diversion services.
- A coordinated street outreach team conducts outreach several times per week, consistently engaging unsheltered persons and connecting them with housing and health services.

ACTIVITIES

- Complete shelter and services survey and gaps analysis.
- Create recommendations for integrated sheltering model(s) that provide a resource for residents to recover from and exit homelessness as quickly as possible and meet their basic health and hygiene needs.
- Conduct community meetings with residents experiencing homelessness to identify key causes of homelessness, barriers to exiting homelessness.
- Support organizations who seek to improve their capacity to connect persons with housing resources with training and technical assistance.
- Create a dynamic, hotspot map of unsheltered encampments and day sheltering locations.
- Launch coordinated street outreach team that provides connection to health, housing resources and mainstream benefits.

OUTCOMES

- Reduction in persons experiencing homelessness
- Reduction in persons experiencing unsheltered homelessness
- Increase in low barrier sheltering option(s) that serve population(s) with greatest unmet needs
- Increase in persons who have access to Jeffco sheltering options
- Increase permanent housing placements for residents experiencing homelessness
- Increased service and benefit connections for unsheltered residents

INCREASE ACCESS TO AND SUPPLY OF SUPPORTIVE HOUSING UNITS

Permanent supportive housing is a proven solution to resolve homelessness for persons experiencing chronic homelessness. It pairs housing with case management and supportive services so persons can achieve stability and health in that housing. A cost-effective solution, supportive housing has been shown to lower public costs associated with the use of crisis services such as shelters, hospitals, jails, and prisons.

By taking a collaborative approach to increasing the supply of this type of housing, we can provide safe, decent, and affordable housing for those with the greatest service needs while reducing costs to public systems. The outcomes will be made measurable after the various supportive housing related assessments are completed. Progress will be tracked towards the benchmarks set.

VISION

The system has sufficient access to and supply of supportive housing

- Maintains real-time data that shows unmet need for supportive housing and can respond nimbly to changing need over time.
- Local rental subsidy programs prioritize Jeffco residents experiencing homelessness. A variety of housing subsidy programs exist to meet the full spectrum of need including short-term term programs such as rapid rehousing and also long-term tenant and project based rental subsidies.
- All persons in need of permanent supportive housing (PSH) have access to supportive housing units.
- All programs serving persons experiencing literal homelessness actively enter eligible persons into the metro-wide Continuum of Care coordinated entry system (One Home).
- A collaborative group of service providers and housing developers provide leadership locally on understanding the gaps in supportive housing and developing and implementing County-wide supportive housing strategy to address these gaps.

ACTIVITIES

- Conduct assessment to:
  - Determine subpopulations with greatest unmet need for supportive housing,
  - Determine utilization rates of existing voucher programs and assess for barriers to lease-up.
  - Summarize current and potential One Home participation by Jeffco service providers
  - Assess move-on strategies occurring with supportive housing providers.
- Create, advocate for and act on recommendations for development of supportive housing to address the greatest unmet need.
- Provide support to organizations developing supportive housing on aspects such as, but not limited to, community engagement, site identification, partner identification and service provision.
- Partner with local Public Housing Agencies (PHA) to advocate for increased housing preferences for residents experiencing homelessness.
- Increase Jeffco service providers who enroll persons in One Home.

OUTCOMES

- Reduction in persons experiencing chronic homelessness in Jeffco
- Reduction in homeless Veterans (Built for Zero initiative activities aligned with this workgroup)
- Reduction in persons experiencing unsheltered homelessness
- Increase in One Home enrollments and housing placements of Jeffco residents.
- Increase HMIS participation in Jeffco
- Increase positive exits from supportive housing
- Increase number of tenant and project based supportive housing units dedicated for homeless households.

INCREASE SYSTEM-WIDE DATA COLLECTION AND DATA SHARING

What gets measured gets done. Without having more objective data about the extent and characteristics of persons experiencing homelessness, it is difficult to design effective interventions and solutions. It is also difficult to understand the impact of the interventions we do create and to continue to invest in solutions that work. To reduce homelessness, we also need to know who is actively experiencing it at any given point in time.

This objective focuses on expanding our County-wide data collection system beyond an annual point-in-time so that we can know who is experiencing homelessness at any given point in time. More specific outcome measures will be established once an initial HMIS participation assessment is completed.

VISION

A homeless response system that has access to real-time, comprehensive, and reliable data

- Homeless service programs use HMIS as a client database, and where not possible, programs partner to share basic data elements for use in aggregate, county-wide reporting.
- Dedicated team monitors HMIS coverage, identifies opportunities and strategies for increased use.
- At any given point-in-time, Heading Home has access to data reports with reliable data on persons experiencing homelessness as well as the causes and conditions of homelessness locally.
- Dedicated team regularly analyzes system-wide data to identify system gaps and trends, evaluates program and system effectiveness, uses data to revise strategy and responds to data requests.
- County-wide, real-time data on homelessness is posted publicly in data dashboard format.
- Homeless service providers and the broader community understand and value the importance of a robust data collection and sharing system.

ACTIVITIES

- Coordinate data sharing process with Built for Zero Improvement team, specifically with active by-name list data, dashboard data and HMIS participation rates.
- Create and maintain list of agencies actively using HMIS and identify possible areas of increased HMIS coverage. Create recommendations on strategies to increase HMIS coverage.
- Assess County-wide data collection on homelessness outside of HMIS. Identify what data is being collected, by whom and in what systems. Create recommendations to explore data sharing opportunities.
- Pilot data integration project with one agency in at least two distinct systems (e.g., hospital, jail, court, school).
- Explore feasibility and strategies for creating data dashboards with MDHI. Develop strategies for creation and management of County-level data dashboard on homelessness.

OUTCOMES

- Increase in permanent housing placements of Jeffco residents through One Home.
- Increased number of Jeffco providers that use HMIS and One Home.
- Increased enrollments of Jeffco residents in HMIS.
- Increased understanding of barriers and opportunities to expand data integration with multiple public systems.
- Increased data integration with at least two public systems that do not use HMIS reporting and using data on homelessness, including quarterly reporting on progress on goals set, demographics analysis, current gaps, unmet need, and trends identified.

INCREASE COMMUNITY INVOLVEMENT IN SUPPORT OF HOMELESSNESS SOLUTIONS

Community-wide solutions to homelessness require the coordination, participation and shared commitments of all corners of the community including local government, social service providers, faith partners, businesses, as well as community residents.

This objective seeks to bring more people with diverse experiences and expertise into Heading Home to participate in building the solutions necessary to reduce homelessness and the stigma surrounding it in Jefferson County.

VISION

A community that has productive collective conversations on the issue of homelessness, offers many opportunities for engagement and learning and is inclusive of people with lived experience in the development of the solutions

- A committed, active, and informed group unified in common purpose to end homelessness in Jefferson County works to increase public knowledge and compassion on this issue.
- Membership in quarterly meetings and workgroups represents the diverse demographics, life experiences and expertise of Jefferson County, including those with lived experience of homelessness.
- Community members have various means in which to obtain more accurate information on the issue of homelessness locally and have tangible opportunities to get involved in the solutions.

ACTIVITIES

- Research examples of effective community engagement strategies on homelessness and provide recommendations for activities for this workgroup.
- Engage elected officials and other leadership by educating on issues directly related to homelessness to enable them to better understand, promote and support effective solutions.
- Create education event series targeted for the public on the extent, causes and conditions of homelessness regionally and locally, effective interventions and opportunities for further involvement.
- Create opportunities for public to get involved in solutions to homelessness at various levels and capacities.
- Provide support and/or facilitation for public events that solicit feedback on various homelessness related initiatives.
- Assess semi-annually the Heading Home member list, attendance list and workgroup participant list to determine deficiencies in meeting diversity and inclusivity goals.
- Make recommendations and implement strategies to diversify membership and include the perspective of persons with lived experience of homelessness in Heading Home membership and workgroups.

OUTCOMES

- Increased public support of solutions
- Increase in number of persons of color, persons with lived experience of homelessness and persons from other underrepresented groups/sectors participating in the work of Heading Home.
- Increased knowledge and understanding of the problems and solutions needed to address homelessness.
- Increased solutions, programs, and interventions in place to effectively address homelessness in Jefferson County.

Action Plan in Motion...

Built For Zero

Community Solutions' Built for Zero initiative includes more than 70 communities across the country working to measurably and sustainably end chronic and Veteran homelessness. In late 2019, Kaiser Permanente Colorado, the state Division of Housing and the nonprofit Community Solutions announced the expansion in Colorado of the Built for Zero initiative. Metro Denver counties have ramped up a regional approach while a new cohort of five additional Colorado communities have signed up. Participating communities collaborate on building tailored plans to address homelessness in their specific community, adopt proven best practices, use data to improve homelessness plan performance, and share and deploy existing resources more efficiently based on an evidence-based process improvement framework.

Community Solutions also offers a useful definition of what it means to eliminate homelessness. It aims to reduce homelessness to "functional zero," meaning that the number of people experiencing homelessness is smaller than the number that are successfully placed in housing in the average month. Many communities have reached functional zero for certain populations, such as Veterans. This does not mean that no Veterans will ever again experience homelessness in those communities, but that the communities have the resources and procedures in place to ensure that it happens rarely and when it does occur, it is quickly resolved.

Jefferson County initiated its own team in Fall of 2020, creating a localized but collaborative team, while still gaining support where needed from the metro regional design team. The tasks of housing inventories, case conferencing, street outreach development and increasing HMIS participation will further bolster and lay the foundation for nearly all the objectives and activities of this plan.

Impact

Making Homelessness Rare, Brief and Non-recurring in Jefferson County

This Plan outlines some specific actions and outcomes we feel confident will make an impact on our larger desired impact of creating a system in Jefferson County where homelessness is a rare, brief, and non-recurring experience. While homelessness may seem an intractable problem to many, we know it has not always been this way. Many policies in health, housing and criminal justice systems have caused or contributed to this epidemic over the last several decades and it will require the same level of determination and decisions from these systems, residents, and leadership to reverse this trajectory.

We acknowledge Heading Home has influence over only a small portion of these systems, but we commit to serving as a catalyst and leader in the Jefferson County community to further conversations on and development of solutions to homelessness locally. With this plan as a roadmap, we hope to further realize Jefferson County's mission to promote the safety, health, and well-being of the entire Jefferson County community.

Heading Home
Jeffco Homelessness Response

June 3, 2021 – Municipalities Breakfast

Kelli Barker, Jeffco Regional Homeless Coordinator, Jefferson County Human Services

<u>Updates:</u>

1. Homelessness Action Plan & Gaps Analysis
2. Current Opportunity
3. Recommendations

Homelessness Action Plan

https://www.headinghomejeffco.com/
https://www.jeffersoncountycylc.com/

Four Objectives:

1. Optimize Housing Crisis Resolution System
2. Increase Access to and Supply of Supportive Housing
3. Increase Data Collection & Sharing System-wide
4. Increase Community Involvement in Support of Solutions

Unmet Needs / Service Gaps

1. Year-Round 24/7 Sheltering Options for adult-only households experiencing homelessness
2. Permanent housing units: workforce housing and permanent supportive housing (PSH)

Current Opportunity

- American Rescue Plan Act (ARPA) allocates Federal funds to reduce homelessness
- Low Income Housing Tax Credits (LIHTC) Program can be leveraged with Federal ARPA funds
- Existing collaboration between Jefferson County local governments - foundation for an innovative and advanced service model

Collaboration Partners Include:

- Jefferson County
- City of Lakewood
- City of Wheat Ridge
- City of Arvada
- City of Westminster
- City of Golden
- City of Edgewater

Proposed Model

Housing Navigation Centers (2)

- Central & North Jeffco locations
- **Components:**
  1. Housing Navigation Center (each serves 100/ppl/day)
  2. Shelter beds/ bridge housing (50 beds each)
  3. Affordable housing units: workforce housing and permanent supportive housing (75 units each: 35 workforce/affordable, 40 PSH)
- **Cost*** =$60.1m ($57.6m one-time, $2.5m annual)
- **Gap*=** $6.3m ($5.2 one-time, $1.1m annual)

***Costs are preliminary estimates and are subject to change**

Collaboration & Commitment

- Agreement to commit approved funding through ARPA funds, CDBG, LIHTC, etc.
- Agreement to commit annual allocation for funding facility operations and services
- Consideration of locations to serve north and south areas of Jefferson County
- Commitment to continually seek grant and other outside funding for long-term support
- Collaboration on safety & commitment towards required actions

Challenges

- Funding for capital and annual operational/service costs
- Identification/availability of sites
- Community acceptance and support

Targeted Timeline

June 2021	Publish Developer RFP
July 2021	Developer selected
Sept. 2021	Site identified & under lead entity's control (x2)
Before Aug. 2022	Re-Zoning Complete (x2) LIHTC Application Due (8/2)
Oct. 2022	Tax Credit Award Process
Oct. 2023	Closing – Construction Loan/Tax Credit/Ownership Transfer
Nov. 2024	Construction Complete

Recommendations

- Empower managers to work with homeless services resources to further develop the proposal
- Jefferson County is lead entity. Responsibilities include:
  - Lead & manage RFP process to start immediately (with input from collaborative group)
  - Acquire land/building, transfer ownership to developer at tax credit closing
- Site selection committee with representation from each stakeholder
- **Consensus to move forward with proposal with general commitment of support (financial, political, staff)**

West Peak Properties
Jay Peterson
jay@westpeakproperties.com
Ph: 303-779-7979
Fax: 720-210-9750

The printed portions of this form, except differentiated additions, have been approved by the Colorado Real Estate Commission. (CBS4-6-21) (Mandatory 1-22)

THIS FORM HAS IMPORTANT LEGAL CONSEQUENCES AND THE PARTIES SHOULD CONSULT LEGAL AND TAX OR OTHER COUNSEL BEFORE SIGNING.

CONTRACT TO BUY AND SELL REAL ESTATE
(LAND)
(☐ Property with No Residences)
(☒ Property with Residences-Residential Addendum Attached)

Date: ***2/8/2022***

AGREEMENT

1. AGREEMENT. Buyer agrees to buy and Seller agrees to sell the Property described below on the terms and conditions set forth in this contract (Contract).

2. PARTIES AND PROPERTY.

2.1. Buyer. ***City of Arvada*** (Buyer) will take title to the Property described below as ☐ **Joint Tenants** ☐ **Tenants In Common** ☒ **Other** ***Tenancy in Severalty***.

2.2. No Assignability. This Contract **IS NOT** assignable by Buyer unless otherwise specified in **Additional Provisions**.

2.3. Seller. ***Roxy F Vendena Entities*** (Seller) is the current owner of the Property described below.

2.4. Property. The Property is the following legally described real estate in the County of ***Jefferson***, Colorado (insert legal description):

See Legal Descriptions in Exhibit A

known as: ***6630 W 51st Avenue, Arvada, CO 80002***

together with the interests, easements, rights, benefits, improvements and attached fixtures appurtenant thereto and all interest of Seller in vacated streets and alleys adjacent thereto, except as herein excluded (Property).

2.5. Inclusions. The Purchase Price includes the following items (Inclusions):

2.5.1. Inclusions. The following items, whether fixtures or personal property, are included in the Purchase Price unless excluded under **Exclusions**:

If on the property when MEC occurs: lighting, heating, plumbing, ventilating and air conditioning units, TV antennas, inside telephone, network and coaxial (cable) wiring and connecting blocks/jacks, floor coverings, intercom systems, built-in kitchen appliances, sprinkler systems and controls, built-in vacuum systems (including accessories) and garage door openers (including remote controls). If any additional items are attached to the Property after the date of this Contract, such additional items are also included in the Purchase Price.

If any additional items are attached to the Property after the date of this Contract, such additional items are also included in the Purchase Price.

2.5.2. Encumbered Inclusions. Any Inclusions owned by Seller (i.e., owned solar panels) must be conveyed at Closing by Seller free and clear of all taxes (except personal property and general real estate taxes for the year of Closing), liens and encumbrances, except:

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n/a

2.5.3. Personal Property Conveyance. Conveyance of all personal property will be by bill of sale or other applicable legal instrument.

2.5.4. Leased Items. The following personal property is currently leased to Seller which will be transferred to Buyer at Closing (Leased Items):

n/a

2.6. Exclusions. The following items are excluded (Exclusions):

Seller`s personal property in home and on land, with the exception for those items of personal property listed above in Section 2.5.1, `Inclusions`

2.7. Water Rights, Well Rights, Water and Sewer Taps.

☐ **2.7.1. Deeded Water Rights.** The following legally described water rights:

n/a

Any deeded water rights will be conveyed by a good and sufficient ***n/a*** deed at Closing.

☐ **2.7.2. Other Rights Relating to Water.** The following rights relating to water not included in §§ 2.7.1., 2.7.3., 2.7.4. and 2.7.5., will be transferred to Buyer at Closing:

n/a

☐ **2.7.3. Well Rights.** Seller agrees to supply required information to Buyer about the well. Buyer understands that if the well to be transferred is a "Small Capacity Well" or a "Domestic Exempt Water Well" used for ordinary household purposes, Buyer must, prior to or at Closing, complete a Change in Ownership form for the well. If an existing well has not been registered with the Colorado Division of Water Resources in the Department of Natural Resources (Division), Buyer must complete a registration of existing well form for the well and pay the cost of registration. If no person will be providing a closing service in connection with the transaction, Buyer must file the form with the Division within sixty days after Closing. The Well Permit # is ***n/a***.

☐ **2.7.4. Water Stock Certificates.** The water stock certificates to be transferred at Closing are as follows:

n/a

2.7.5. Water and Sewer Taps. The parties agree that water and sewer taps listed below for the Property are being conveyed as part of the Purchase Price as follows:

n/a

If any water or sewer taps are included in the sale, Buyer is advised to obtain, from the provider, written confirmation of the amount remaining to be paid, if any, time and other restrictions for transfer and use of the taps.

2.7.6. Conveyance. If Buyer is to receive any rights to water pursuant to § 2.7.2. (Other Rights Relating to Water), § 2.7.3. (Well Rights), § 2.7.4. (Water Stock Certificates), or § 2.7.5. (Water and Sewer Taps), Seller agrees to convey such rights to Buyer by executing the applicable legal instrument at Closing.

2.7.7. Water Rights Review. Buyer ☐ **Does** ☐ **Does Not** have a Right to Terminate if examination of the Water Rights is unsatisfactory to Buyer on or before the **Water Rights Examination Deadline**.

2.8. Growing Crops. With respect to growing crops, Seller and Buyer agree as follows:

n/a

3. DATES, DEADLINES AND APPLICABILITY.

3.1. Dates and Deadlines.

Item No.	Reference	Event	Date or Deadline
1	§ 3	Time of Day Deadline	***n/a***
2	§ 4	Alternative Earnest Money Deadline	***3 Days After MEC***
		Title	
3	§ 8	Record Title Deadline (and Tax Certificate)	***15 Days After MEC***

4	§ 8	Record Title Objection Deadline	***35 Days After MEC***
5	§ 8	Off-Record Title Deadline	***15 Days After MEC***
6	§ 8	Off-Record Title Objection Deadline	***35 Days After MEC***
7	§ 8	Title Resolution Deadline	***40 Days After MEC***
8	§ 8	Third Party Right to Purchase/Approve Deadline	***n/a***
		Owners' Association	
9	§ 7	Association Documents Deadline	***n/a***
10	§ 7	Association Documents Termination Deadline	***n/a***
		Seller's Disclosures	
11	§ 10	Seller’s Property Disclosure Deadline	***10 Days After MEC***
12	§ 10	Lead-Based Paint Disclosure Deadline (if Residential Addendum attached)	***10 Days After MEC***
		Loan and Credit	
13	§ 5	New Loan Application Deadline	***n/a***
14	§ 5	New Loan Terms Deadline	***n/a***
15	§ 5	New Loan Availability Deadline	***n/a***
16	§ 5	Buyer’s Credit Information Deadline	***n/a***
17	§ 5	Disapproval of Buyer’s Credit Information Deadline	***n/a***
18	§ 5	Existing Loan Deadline	***n/a***
19	§ 5	Existing Loan Termination Deadline	***n/a***
20	§ 5	Loan Transfer Approval Deadline	***n/a***
21	§ 4	Seller or Private Financing Deadline	***n/a***
		Appraisal	
22	§ 6	Appraisal Deadline	***60 Days After MEC***
23	§ 6	Appraisal Objection Deadline	***65 Days After MEC***
24	§ 6	Appraisal Resolution Deadline	***70 Days After MEC***
		Survey	
25	§ 9	New ILC or New Survey Deadline	***45 Days After MEC***
26	§ 9	New ILC or New Survey Objection Deadline	***50 Days After MEC***
27	§ 9	New ILC or New Survey Resolution Deadline	***55 Days After MEC***
		Inspection and Due Dilligence	
28	§ 2	Water Rights Examination Deadline	***n/a***
29	§ 8	Mineral Rights Examination Deadline	***n/a***
30	§ 10	Inspection Termination Deadline	***60 Days After MEC***
31	§ 10	Inspection Objection Deadline	***60 Days After MEC***
32	§ 10	Inspection Resolution Deadline	***70 Days After MEC***
33	§ 10	Property Insurance Termination Deadline	***40 Days After MEC***
34	§ 10	Due Diligence Documents Delivery Deadline	***35 Days After MEC***
35	§ 10	Due Diligence Documents Objection Deadline	***45 Days After MEC***
36	§ 10	Due Diligence Documents Resolution Deadline	***50 Days After MEC***

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37	§ 10	Environmental Inspection Termination Deadline	***30 Days After MEC***
38	§ 10	ADA Evaluation Termination Deadline	***n/a***
39	§ 10	Conditional Sale Deadline	***n/a***
40	§ 10	Lead-Based Paint Termination Deadline (if Residential Addendum attached)	***15 Days After MEC***
41	§ 11	Estoppel Statements Deadline	***n/a***
42	§ 11	Estoppel Statements Termination Deadline	***n/a***
		Closing and Possession	
43	§ 12	Closing Date	***5/20/2022*** Friday
44	§ 17	Possession Date	***Upon Delivery of Deed***
45	§ 17	Possession Time	
46	§ 27	**Acceptance Deadline Date**	***2/9/2022*** Wednesday
47	§ 27	**Acceptance Deadline Time**	***5:00PM***
48	***n/a***	***n/a***	
49	***n/a***	***n/a***	

3.2. Applicability of Terms. If any deadline blank in § 3.1. (Dates and Deadlines) is left blank or completed with "N/A", or the word "Deleted," such deadline is not applicable and the corresponding provision containing the deadline is deleted. Any box checked in this Contract means the corresponding provision applies. If no box is checked in a provision that contains a selection of "None", such provision means that "None" applies.

The abbreviation "MEC" (mutual execution of this Contract) means the date upon which both parties have signed this Contract. The abbreviation "N/A" as used in this Contract means not applicable.

3.3. Day; Computation of Period of Days; Deadlines.

3.3.1. Day. As used in this Contract, the term "day" means the entire day ending at 11:59 p.m., United States Mountain Time (Standard or Daylight Savings, as applicable). Except however, if a **Time of Day Deadline** is specified in § 3.1. (Dates and Deadlines), all Objection Deadlines, Resolution Deadlines, Examination Deadlines and Termination Deadlines will end on the specified deadline date at the time of day specified in the **Time of Day Deadline**, United States Mountain Time. If **Time of Day Deadline** is left blank or "N/A" the deadlines will expire at 11:59 p.m., United States Mountain Time.

3.3.2. Computation of Period of Days. In computing a period of days (e.g., three days after MEC), when the ending date is not specified, the first day is excluded and the last day is included.

3.3.3. Deadlines. If any deadline falls on a Saturday, Sunday or federal or Colorado state holiday (Holiday), such deadline ☒ **Will** ☐ **Will Not** be extended to the next day that is not a Saturday, Sunday or Holiday. Should neither box be checked, the deadline will not be extended.

4. PURCHASE PRICE AND TERMS.

4.1. Price and Terms. The Purchase Price set forth below is payable in U.S. Dollars by Buyer as follows:

Item No.	Reference	Item	Amount	Amount
1	§ 4.1.	Purchase Price	$ ***2,750,000.00***	
2	§ 4.3.	Earnest Money		$ ***50,000.00***
3	§ 4.5.	New Loan		$
4	§ 4.6.	Assumption Balance		$
5	§ 4.7.	Private Financing		$

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6	§ 4.7.	Seller Financing		$
7	***n/a***	***n/a***		$
8	***n/a***	***n/a***		$
9	§ 4.4.	Cash at Closing		$ ***2,700,000.00***
10		**Total**	$ ***2,750,000.00***	$ ***2,750,000.00***

4.2. Seller Concession. At Closing, Seller will credit to Buyer $***0*** (Seller Concession). The Seller Concession may be used for any Buyer fee, cost, charge or expenditure to the extent the amount is allowed by the Buyer's lender and is included in the Closing Statement or Closing Disclosure at Closing. Examples of allowable items to be paid for by the Seller Concession include, but are not limited to: Buyer's closing costs, loan discount points, loan origination fees, prepaid items and any other fee, cost, charge, expense or expenditure. Seller Concession is in addition to any sum Seller has agreed to pay or credit Buyer elsewhere in this Contract.

4.3. Earnest Money. The Earnest Money set forth in this Section, in the form of a ***certified funds***, will be payable to and held by ***Land Title*** (Earnest Money Holder), in its trust account, on behalf of both Seller and Buyer. The Earnest Money deposit must be tendered, by Buyer, with this Contract unless the parties mutually agree to an **Alternative Earnest Money Deadline** for its payment. The parties authorize delivery of the Earnest Money deposit to the company conducting the Closing (Closing Company), if any, at or before Closing. In the event Earnest Money Holder has agreed to have interest on Earnest Money deposits transferred to a fund established for the purpose of providing affordable housing to Colorado residents, Seller and Buyer acknowledge and agree that any interest accruing on the Earnest Money deposited with the Earnest Money Holder in this transaction will be transferred to such fund.

4.3.1. Alternative Earnest Money Deadline. The deadline for delivering the Earnest Money, if other than at the time of tender of this Contract, is as set forth as the **Alternative Earnest Money Deadline**.

4.3.2. Disposition of Earnest Money. If Buyer has a Right to Terminate and timely terminates, Buyer is entitled to the return of Earnest Money as provided in this Contract. If this Contract is terminated as set forth in § 24 and, except as provided in § 23 (Earnest Money Dispute), if the Earnest Money has not already been returned following receipt of a Notice to Terminate, Seller agrees to execute and return to Buyer or Broker working with Buyer, written mutual instructions (e.g., Earnest Money Release form), within three days of Seller's receipt of such form. If Seller is entitled to the Earnest Money, and, except as provided in § 23 (Earnest Money Dispute), if the Earnest Money has not already been paid to Seller, following receipt of an Earnest Money Release form, Buyer agrees to execute and return to Seller or Broker working with Seller, written mutual instructions (e.g., Earnest Money Release form), within three days of Buyer's receipt.

4.3.2.1. Seller Failure to Timely Return Earnest Money. If Seller fails to timely execute and return the Earnest Money Release Form, or other written mutual instructions, Seller is in default and liable to Buyer as set forth in **"If Seller is in Default", § 20.2. and § 21,** unless Seller is entitled to the Earnest Money due to a Buyer default.

4.3.2.2. Buyer Failure to Timely Release Earnest Money. If Buyer fails to timely execute and return the Earnest Money Release Form, or other written mutual instructions, Buyer is in default and liable to Seller as set forth in "**If Buyer is in Default, § 20.1. and § 21**, unless Buyer is entitled to the Earnest Money due to a Seller Default.

4.4. Form of Funds; Time of Payment; Available Funds.

4.4.1. Good Funds. All amounts payable by the parties at Closing, including any loan proceeds, Cash at Closing and closing costs, must be in funds that comply with all applicable Colorado laws, including electronic transfer funds, certified check, savings and loan teller's check and cashier's check (Good Funds).

4.4.2. Time of Payment. All funds, including the Purchase Price to be paid by Buyer, must be paid before or at Closing or as otherwise agreed in writing between the parties to allow disbursement by Closing Company at Closing **OR SUCH NONPAYING PARTY WILL BE IN DEFAULT**.

4.4.3. Available Funds. Buyer represents that Buyer, as of the date of this Contract, ☒ **Does** ☐ **Does Not** have funds that are immediately verifiable and available in an amount not less than the amount stated as Cash at Closing in § 4.1.

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4.5. New Loan. (Omitted as inapplicable)

4.6. Assumption. (Omitted as inapplicable)

4.7. Seller or Private Financing. (Omitted as inapplicable)

TRANSACTION PROVISIONS

5. FINANCING CONDITIONS AND OBLIGATIONS. (Omitted as inapplicable)

5.3. Credit Information. If an existing loan is not to be released at Closing, this Contract is conditional (for the sole benefit of Seller) upon Seller's approval of Buyer's financial ability and creditworthiness, which approval will be in Seller's sole subjective discretion. Accordingly: (1) Buyer must supply to Seller by **Buyer's Credit Information Deadline** , at Buyer's expense, information and documents (including a current credit report) concerning Buyer's financial, employment and credit condition; (2) Buyer consents that Seller may verify Buyer's financial ability and creditworthiness; and (3) any such information and documents received by Seller must be held by Seller in confidence and not released to others except to protect Seller's interest in this transaction. If the Cash at Closing is less than as set forth in § 4.1. of this Contract, Seller has the Right to Terminate under § 24.1., on or before Closing. If Seller disapproves of Buyer's financial ability or creditworthiness, in Seller's sole subjective discretion, Seller has the Right to Terminate under § 24.1., on or before **Disapproval of Buyer's Credit Information Deadline** .

5.4. Existing Loan Review. If an existing loan is not to be released at Closing, Seller must deliver copies of the loan documents (including note, deed of trust and any modifications) to Buyer by **Existing Loan Deadline**. For the sole benefit of Buyer, this Contract is conditional upon Buyer's review and approval of the provisions of such loan documents. Buyer has the Right to Terminate under § 24.1., on or before **Existing Loan Termination Deadline**, based on any unsatisfactory provision of such loan documents, in Buyer's sole subjective discretion. If the lender's approval of a transfer of the Property is required, this Contract is conditional upon Buyer obtaining such approval without change in the terms of such loan, except as set forth in § 4.6. If lender's approval is not obtained by **Loan Transfer Approval Deadline**, this Contract will terminate on such deadline. Seller has the Right to Terminate under § 24.1., on or before Closing, in Seller's sole subjective discretion, if Seller is to be released from liability under such existing loan and Buyer does not obtain such compliance as set forth in § 4.6.

6. APPRAISAL PROVISIONS.

6.1. Appraisal Definition. An "Appraisal" is an opinion of value prepared by a licensed or certified appraiser, engaged on behalf of Buyer or Buyer's lender, to determine the Property's market value (Appraised Value). The Appraisal may also set forth certain lender requirements, replacements, removals or repairs necessary on or to the Property as a condition for the Property to be valued at the Appraised Value.

6.2. Appraised Value. The applicable appraisal provision set forth below applies to the respective loan type set forth in § 4.5.3., or if a cash transaction (i.e., no financing), § 6.2.1. applies.

6.2.1. Conventional/Other. Buyer has the right to obtain an Appraisal. If the Appraised Value is less than the Purchase Price, or if the Appraisal is not received by Buyer on or before **Appraisal Deadline** Buyer may, on or before **Appraisal Objection Deadline**:

6.2.1.1. Notice to Terminate. Notify Seller in writing, pursuant to § 24.1., that this Contract is terminated; or

6.2.1.2. Appraisal Objection. Deliver to Seller a written objection accompanied by either a copy of the Appraisal or written notice from lender that confirms the Appraised Value is less than the Purchase Price (Lender Verification).

6.2.1.3. Appraisal Resolution. If an Appraisal Objection is received by Seller, on or before **Appraisal Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **Appraisal Resolution Deadline**, this Contract will terminate on the **Appraisal Resolution Deadline**, unless Seller receives Buyer's written withdrawal of the Appraisal Objection before such termination, (i.e., on or before expiration of **Appraisal Resolution Deadline**).

6.3. Lender Property Requirements. If the lender imposes any written requirements, replacements,

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removals or repairs, including any specified in the Appraisal (Lender Property Requirements) to be made to the Property (e.g., roof repair, repainting), beyond those matters already agreed to by Seller in this Contract, this Contract terminates on the earlier of three days following Seller's receipt of the Lender Property Requirements, or Closing, unless prior to termination: (1) the parties enter into a written agreement to satisfy the Lender Property Requirements; (2) the Lender Property Requirements have been completed; or (3) the satisfaction of the Lender Property Requirements is waived in writing by Buyer.

6.4. Cost of Appraisal. Cost of the Appraisal to be obtained after the date of this Contract must be timely paid by ☒ **Buyer** ☐ **Seller**. The cost of the Appraisal may include any and all fees paid to the appraiser, appraisal management company, lender's agent or all three.

7. OWNERS' ASSOCIATIONS. This Section is applicable if the Property is located within one or more Common Interest Communities and subject to one or more declarations (Association).

7.1. Common Interest Community Disclosure. THE PROPERTY IS LOCATED WITHIN A COMMON INTEREST COMMUNITY AND IS SUBJECT TO THE DECLARATION FOR THE COMMUNITY. THE OWNER OF THE PROPERTY WILL BE REQUIRED TO BE A MEMBER OF THE OWNERS' ASSOCIATION FOR THE COMMUNITY AND WILL BE SUBJECT TO THE BYLAWS AND RULES AND REGULATIONS OF THE ASSOCIATION. THE DECLARATION, BYLAWS AND RULES AND REGULATIONS WILL IMPOSE FINANCIAL OBLIGATIONS UPON THE OWNER OF THE PROPERTY, INCLUDING AN OBLIGATION TO PAY ASSESSMENTS OF THE ASSOCIATION. IF THE OWNER DOES NOT PAY THESE ASSESSMENTS, THE ASSOCIATION COULD PLACE A LIEN ON THE PROPERTY AND POSSIBLY SELL IT TO PAY THE DEBT. THE DECLARATION, BYLAWS AND RULES AND REGULATIONS OF THE COMMUNITY MAY PROHIBIT THE OWNER FROM MAKING CHANGES TO THE PROPERTY WITHOUT AN ARCHITECTURAL REVIEW BY THE ASSOCIATION (OR A COMMITTEE OF THE ASSOCIATION) AND THE APPROVAL OF THE ASSOCIATION. PURCHASERS OF PROPERTY WITHIN THE COMMON INTEREST COMMUNITY SHOULD INVESTIGATE THE FINANCIAL OBLIGATIONS OF MEMBERS OF THE ASSOCIATION. PURCHASERS SHOULD CAREFULLY READ THE DECLARATION FOR THE COMMUNITY AND THE BYLAWS AND RULES AND REGULATIONS OF THE ASSOCIATION.

7.2. Association Documents to Buyer. Seller is obligated to provide to Buyer the Association Documents (defined below), at Seller's expense, on or before **Association Documents Deadline**. Seller authorizes the Association to provide the Association Documents to Buyer, at Seller's expense. Seller's obligation to provide the Association Documents is fulfilled upon Buyer's receipt of the Association Documents, regardless of who provides such documents.

7.3. Association Documents. Association documents (Association Documents) consist of the following:

7.3.1. All Association declarations, articles of incorporation, bylaws, articles of organization, operating agreements, rules and regulations, party wall agreements and the Association's responsible governance policies adopted under § 38-33.3-209.5, C.R.S.;

7.3.2. Minutes of: (1) the annual owners' or members' meeting and (2) any executive boards' or managers' meetings; such minutes include those provided under the most current annual disclosure required under § 38-33.3-209.4, C.R.S. (Annual Disclosure) and minutes of meetings, if any, subsequent to the minutes disclosed in the Annual Disclosure. If none of the preceding minutes exist, then the most recent minutes, if any (§§ 7.3.1. and 7.3.2., collectively, Governing Documents); and

7.3.3. List of all Association insurance policies as provided in the Association's last Annual Disclosure, including, but not limited to, property, general liability, association director and officer professional liability and fidelity policies. The list must include the company names, policy limits, policy deductibles, additional named insureds and expiration dates of the policies listed (Association Insurance Documents);

7.3.4. A list by unit type of the Association's assessments, including both regular and special assessments as disclosed in the Association's last Annual Disclosure;

7.3.5. The Association's most recent financial documents which consist of: (1) the Association's operating budget for the current fiscal year, (2) the Association's most recent annual financial statements, including any amounts held in reserve for the fiscal year immediately preceding the Association's last Annual

Disclosure, (3) the results of the Association's most recent available financial audit or review, (4) list of the fees and charges (regardless of name or title of such fees or charges) that the Association's community association manager or Association will charge in connection with the Closing including, but not limited to, any fee incident to the issuance of the Association's statement of assessments (Status Letter), any rush or update fee charged for the Status Letter, any record change fee or ownership record transfer fees (Record Change Fee), fees to access documents, (5) list of all assessments required to be paid in advance, reserves or working capital due at Closing and (6) reserve study, if any (§§ 7.3.4. and 7.3.5., collectively, Financial Documents);

7.3.6. Any written notice from the Association to Seller of a "construction defect action" under § 38-33.3-303.5, C.R.S. within the past six months and the result of whether the Association approved or disapproved such action (Construction Defect Documents). Nothing in this Section limits the Seller's obligation to disclose adverse material facts as required under § 10.2. (Disclosure of Adverse Material Facts; Subsequent Disclosure; Present Condition) including any problems or defects in the common elements or limited common elements of the Association property.

7.4. Conditional on Buyer's Review. Buyer has the right to review the Association Documents. Buyer has the Right to Terminate under § 24.1., on or before **Association Documents Termination Deadline**, based on any unsatisfactory provision in any of the Association Documents, in Buyer's sole subjective discretion. Should Buyer receive the Association Documents after **Association Documents Deadline**, Buyer, at Buyer's option, has the Right to Terminate under § 24.1. by Buyer's Notice to Terminate received by Seller on or before ten days after Buyer's receipt of the Association Documents. If Buyer does not receive the Association Documents, or if Buyer's Notice to Terminate would otherwise be required to be received by Seller after **Closing Date**, Buyer's Notice to Terminate must be received by Seller on or before Closing. If Seller does not receive Buyer's Notice to Terminate within such time, Buyer accepts the provisions of the Association Documents as satisfactory and Buyer waives any Right to Terminate under this provision, notwithstanding the provisions of § 8.6. (Third Party Right to Purchase/Approve).

8. TITLE INSURANCE, RECORD TITLE AND OFF-RECORD TITLE.

8.1. Evidence of Record Title.

☒ **8.1.1. Seller Selects Title Insurance Company.** If this box is checked, Seller will select the title insurance company to furnish the owner's title insurance policy at Seller's expense. On or before **Record Title Deadline**, Seller must furnish to Buyer, a current commitment for an owner's title insurance policy (Title Commitment), in an amount equal to the Purchase Price, or if this box is checked, ☐ an **Abstract of Title** certified to a current date. Seller will cause the title insurance policy to be issued and delivered to Buyer as soon as practicable at or after Closing.

☐ **8.1.2. Buyer Selects Title Insurance Company.** If this box is checked, Buyer will select the title insurance company to furnish the owner's title insurance policy at Buyer's expense. On or before **Record Title Deadline**, Buyer must furnish to Seller, a current commitment for owner's title insurance policy (Title Commitment), in an amount equal to the Purchase Price.

If neither box in § 8.1.1. or § 8.1.2. is checked, § 8.1.1. applies.

8.1.3. Owner's Extended Coverage (OEC). The Title Commitment ☒ **Will** ☐ **Will Not** contain Owner's Extended Coverage (OEC). If the Title Commitment is to contain OEC, it will commit to delete or insure over the standard exceptions which relate to: (1) parties in possession, (2) unrecorded easements, (3) survey matters, (4) unrecorded mechanics' liens, (5) gap period (period between the effective date and time of commitment to the date and time the deed is recorded) and (6) unpaid taxes, assessments and unredeemed tax sales prior to the year of Closing. Any additional premium expense to obtain OEC will be paid by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **Other** .

Regardless of whether the Contract requires OEC, the Title Insurance Commitment may not provide OEC or delete or insure over any or all of the standard exceptions for OEC. The Title Insurance Company may require a New Survey or New ILC, defined below, among other requirements for OEC. If the Title Insurance Commitment is not satisfactory to Buyer, Buyer has a right to object under § 8.7. (Right to Object to Title, Resolution).

8.1.4. Title Documents. Title Documents consist of the following: (1) copies of any plats,

declarations, covenants, conditions and restrictions burdening the Property and (2) copies of any other documents (or, if illegible, summaries of such documents) listed in the schedule of exceptions (Exceptions) in the Title Commitment furnished to Buyer (collectively, Title Documents).

8.1.5. Copies of Title Documents. Buyer must receive, on or before **Record Title Deadline**, copies of all Title Documents. This requirement pertains only to documents as shown of record in the office of the clerk and recorder in the county where the Property is located. The cost of furnishing copies of the documents required in this Section will be at the expense of the party or parties obligated to pay for the owner's title insurance policy.

8.1.6. Existing Abstracts of Title. Seller must deliver to Buyer copies of any abstracts of title covering all or any portion of the Property (Abstract of Title) in Seller's possession on or before **Record Title Deadline**.

8.2. Record Title. Buyer has the right to review and object to the Abstract of Title or Title Commitment and any of the Title Documents as set forth in § 8.7. (Right to Object to Title, Resolution) on or before **Record Title Objection Deadline**. Buyer's objection may be based on any unsatisfactory form or content of Title Commitment or Abstract of Title, notwithstanding § 13, or any other unsatisfactory title condition, in Buyer's sole subjective discretion. If the Abstract of Title, Title Commitment or Title Documents are not received by Buyer on or before the **Record Title Deadline**, or if there is an endorsement to the Title Commitment that adds a new Exception to title, a copy of the new Exception to title and the modified Title Commitment will be delivered to Buyer. Buyer has until the earlier of Closing or ten days after receipt of such documents by Buyer to review and object to: (1) any required Title Document not timely received by Buyer, (2) any change to the Abstract of Title, Title Commitment or Title Documents, or (3) any endorsement to the Title Commitment. If Seller receives Buyer's Notice to Terminate or Notice of Title Objection, pursuant to this § 8.2. (Record Title), any title objection by Buyer is governed by the provisions set forth in § 8.7. (Right to Object to Title, Resolution). If Seller has fulfilled all Seller's obligations, if any, to deliver to Buyer all documents required by § 8.1. (Evidence of Record Title) and Seller does not receive Buyer's Notice to Terminate or Notice of Title Objection by the applicable deadline specified above, Buyer accepts the condition of title as disclosed by the Abstract of Title, Title Commitment and Title Documents as satisfactory.

8.3. Off-Record Title. Seller must deliver to Buyer, on or before **Off-Record Title Deadline**, true copies of all existing surveys in Seller's possession pertaining to the Property and must disclose to Buyer all easements, liens (including, without limitation, governmental improvements approved, but not yet installed) or other title matters not shown by public records, of which Seller has actual knowledge (Off-Record Matters). This Section excludes any **New ILC** or **New Survey** governed under § 9 (New ILC, New Survey). Buyer has the right to inspect the Property to investigate if any third party has any right in the Property not shown by public records (e.g., unrecorded easement, boundary line discrepancy or water rights). Buyer's Notice to Terminate or Notice of Title Objection of any unsatisfactory condition (whether disclosed by Seller or revealed by such inspection, notwithstanding § 8.2. (Record Title) and § 13 (Transfer of Title), in Buyer's sole subjective discretion, must be received by Seller on or before **Off-Record Title Objection Deadline**. If an Off-Record Matter is received by Buyer after the **Off-Record Title Deadline**, Buyer has until the earlier of Closing or ten days after receipt by Buyer to review and object to such Off-Record Matter. If Seller receives Buyer's Notice to Terminate or Notice of Title Objection pursuant to this § 8.3. (Off-Record Title), any title objection by Buyer is governed by the provisions set forth in § 8.7. (Right to Object to Title, Resolution). If Seller does not receive Buyer's Notice to Terminate or Notice of Title Objection by the applicable deadline specified above, Buyer accepts title subject to such Off-Record Matters and rights, if any, of third parties not shown by public records of which Buyer has actual knowledge.

8.4. Special Taxing Districts. SPECIAL TAXING DISTRICTS MAY BE SUBJECT TO GENERAL OBLIGATION INDEBTEDNESS THAT IS PAID BY REVENUES PRODUCED FROM ANNUAL TAX LEVIES ON THE TAXABLE PROPERTY WITHIN SUCH DISTRICTS. PROPERTY OWNERS IN SUCH DISTRICTS MAY BE PLACED AT RISK FOR INCREASED MILL LEVIES AND TAX TO SUPPORT THE SERVICING OF SUCH DEBT WHERE CIRCUMSTANCES ARISE RESULTING IN THE INABILITY OF SUCH A DISTRICT TO DISCHARGE SUCH INDEBTEDNESS WITHOUT SUCH AN INCREASE IN MILL LEVIES. BUYERS SHOULD INVESTIGATE THE SPECIAL TAXING DISTRICTS IN WHICH THE PROPERTY IS LOCATED BY CONTACTING THE COUNTY TREASURER, BY REVIEWING THE CERTIFICATE OF TAXES DUE FOR THE PROPERTY AND BY OBTAINING FURTHER INFORMATION FROM THE BOARD

OF COUNTY COMMISSIONERS, THE COUNTY CLERK AND RECORDER, OR THE COUNTY ASSESSOR.

8.5. Tax Certificate. A tax certificate paid for by ☒ **Seller** ☐ **Buyer,** for the Property listing any special taxing districts that affect the Property (Tax Certificate) must be delivered to Buyer on or before **Record Title Deadline**. If the Property is located within a special taxing district and such inclusion is unsatisfactory to Buyer, in Buyer's sole subjective discretion, Buyer may terminate, on or before **Record Title Objection Deadline**. Should Buyer receive the Tax Certificate after **Record Title Deadline**, Buyer, at Buyer's option, has the Right to Terminate under § 24.1. by Buyer's Notice to Terminate received by Seller on or before ten days after Buyer's receipt of the Tax Certificate. If Buyer does not receive the Tax Certificate, or if Buyer's Notice to Terminate would otherwise be required to be received by Seller after **Closing Date**, Buyer's Notice to Terminate must be received by Seller on or before Closing. If Seller does not receive Buyer's Notice to Terminate within such time, Buyer accepts the provisions of the Tax Certificate and the inclusion of the Property in a special taxing district, if applicable, as satisfactory and Buyer waives any Right to Terminate under this provision. If Buyer's loan specified in §4.5.3. (Loan Limitations) prohibits Buyer from paying for the Tax Certificate, the Tax Certificate will be paid for by Seller.

8.6. Third Party Right to Purchase/Approve. If any third party has a right to purchase the Property (e.g., right of first refusal on the Property, right to purchase the Property under a lease or an option held by a third party to purchase the Property) or a right of a third party to approve this Contract, Seller must promptly submit this Contract according to the terms and conditions of such right. If the third-party holder of such right exercises its right this Contract will terminate. If the third party's right to purchase is waived explicitly or expires, or the Contract is approved, this Contract will remain in full force and effect. Seller must promptly notify Buyer in writing of the foregoing. If the third party right to purchase is exercised or approval of this Contract has not occurred on or before **Third Party Right to Purchase/Approve Deadline**, this Contract will then terminate. Seller will supply to Buyer, in writing, details of any Third Party Right to Purchase the Property on or before the Record Title Deadline.

8.7. Right to Object to Title, Resolution. Buyer has a right to object or terminate, in Buyer's sole subjective discretion, based on any title matters including those matters set forth in § 8.2. (Record Title), § 8.3. (Off-Record Title), § 8.5. (Special Taxing District) and § 13 (Transfer of Title). If Buyer exercises Buyer's rights to object or terminate based on any such title matter, on or before the applicable deadline, Buyer has the following options:

8.7.1. Title Objection, Resolution. If Seller receives Buyer's written notice objecting to any title matter (Notice of Title Objection) on or before the applicable deadline and if Buyer and Seller have not agreed to a written settlement thereof on or before **Title Resolution Deadline**, this Contract will terminate on the expiration of **Title Resolution Deadline**, unless Seller receives Buyer's written withdrawal of Buyer's Notice of Title Objection (i.e., Buyer's written notice to waive objection to such items and waives the Right to Terminate for that reason), on or before expiration of **Title Resolution Deadline**. If either the Record Title Deadline or the Off-Record Title Deadline, or both, are extended pursuant to § 8.2. (Record Title) or § 8.3. (Off-Record Title) the Title Resolution Deadline also will be automatically extended to the earlier of Closing or fifteen days after Buyer's receipt of the applicable documents; or

8.7.2. Title Objection, Right to Terminate. Buyer may exercise the Right to Terminate under § 24.1., on or before the applicable deadline, based on any title matter unsatisfactory to Buyer, in Buyer's sole subjective discretion.

8.8. Title Advisory. The Title Documents affect the title, ownership and use of the Property and should be reviewed carefully. Additionally, other matters not reflected in the Title Documents may affect the title, ownership and use of the Property, including, without limitation, boundary lines and encroachments, set-back requirements, area, zoning, building code violations, unrecorded easements and claims of easements, leases and other unrecorded agreements, water on or under the Property and various laws and governmental regulations concerning land use, development and environmental matters.

8.8.1. OIL, GAS, WATER AND MINERAL DISCLOSURE. THE SURFACE ESTATE OF THE PROPERTY MAY BE OWNED SEPARATELY FROM THE UNDERLYING MINERAL ESTATE AND TRANSFER OF THE SURFACE ESTATE MAY NOT NECESSARILY INCLUDE TRANSFER OF THE MINERAL ESTATE OR WATER RIGHTS. THIRD PARTIES MAY OWN OR LEASE INTERESTS IN OIL, GAS, OTHER MINERALS, GEOTHERMAL ENERGY OR WATER ON OR UNDER THE SURFACE OF THE

PROPERTY, WHICH INTERESTS MAY GIVE THEM RIGHTS TO ENTER AND USE THE SURFACE OF THE PROPERTY TO ACCESS THE MINERAL ESTATE, OIL, GAS OR WATER.

8.8.2. SURFACE USE AGREEMENT. THE USE OF THE SURFACE ESTATE OF THE PROPERTY TO ACCESS THE OIL, GAS OR MINERALS MAY BE GOVERNED BY A SURFACE USE AGREEMENT, A MEMORANDUM OR OTHER NOTICE OF WHICH MAY BE RECORDED WITH THE COUNTY CLERK AND RECORDER.

8.8.3. OIL AND GAS ACTIVITY. OIL AND GAS ACTIVITY THAT MAY OCCUR ON OR ADJACENT TO THE PROPERTY MAY INCLUDE, BUT IS NOT LIMITED TO, SURVEYING, DRILLING, WELL COMPLETION OPERATIONS, STORAGE, OIL AND GAS, OR PRODUCTION FACILITIES, PRODUCING WELLS, REWORKING OF CURRENT WELLS AND GAS GATHERING AND PROCESSING FACILITIES.

8.8.4. ADDITIONAL INFORMATION. BUYER IS ENCOURAGED TO SEEK ADDITIONAL INFORMATION REGARDING OIL AND GAS ACTIVITY ON OR ADJACENT TO THE PROPERTY, INCLUDING DRILLING PERMIT APPLICATIONS. THIS INFORMATION MAY BE AVAILABLE FROM THE COLORADO OIL AND GAS CONSERVATION COMMISSION.

8.8.5. Title Insurance Exclusions. Matters set forth in this Section and others, may be excepted, excluded from, or not covered by the owner's title insurance policy.

8.9. Mineral Rights Review. Buyer ☐ **Does** ☐ **Does Not** have a Right to Terminate if examination of the Mineral Rights is unsatisfactory to Buyer on or before the **Mineral Rights Examination Deadline**.

9. NEW ILC, NEW SURVEY.

9.1. New ILC or New Survey. If the box is checked, (1) ☒ **New Improvement Location Certificate (New ILC);** or, (2) ☐ **New Survey** in the form of ; is required and the following will apply:

9.1.1. Ordering of New ILC or New Survey. ☐ **Seller** ☒ **Buyer** will order the New ILC or New Survey. The New ILC or New Survey may also be a previous ILC or survey that is in the above-required form, certified and updated as of a date after the date of this Contract.

9.1.2. Payment for New ILC or New Survey. The cost of the New ILC or New Survey will be paid, on or before Closing, by: ☐ **Seller** ☒ **Buyer** or:
Survey will only be ordered if the Title Company requires it.

9.1.3. Delivery of New ILC or New Survey. Buyer, Seller, the issuer of the Title Commitment (or the provider of the opinion of title if an Abstract of Title) and ***Buyer*** will receive a New ILC or New Survey on or before **New ILC or New Survey Deadline**.

9.1.4. Certification of New ILC or New Survey. The New ILC or New Survey will be certified by the surveyor to all those who are to receive the New ILC or New Survey.

9.2. Buyer's Right to Waive or Change New ILC or New Survey Selection. Buyer may select a New ILC or New Survey different than initially specified in this Contract if there is no additional cost to Seller or change to the **New ILC or New Survey Objection Deadline**. Buyer may, in Buyer's sole subjective discretion, waive a New ILC or New Survey if done prior to Seller incurring any cost for the same.

9.3. New ILC or New Survey Objection. Buyer has the right to review and object based on the New ILC or New Survey. If the New ILC or New Survey is not timely received by Buyer or is unsatisfactory to Buyer, in Buyer's sole subjective discretion, Buyer may, on or before **New ILC or New Survey Objection Deadline**, notwithstanding § 8.3. or § 13:

9.3.1. Notice to Terminate. Notify Seller in writing, pursuant to § 24.1., that this Contract is terminated; or

9.3.2. New ILC or New Survey Objection. Deliver to Seller a written description of any matter that was to be shown or is shown in the New ILC or New Survey that is unsatisfactory and that Buyer requires Seller to correct.

9.3.3. New ILC or New Survey Resolution. If a **New ILC or New Survey Objection** is received by Seller, on or before **New ILC or New Survey Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **New ILC or New Survey Resolution Deadline**, this Contract will terminate on expiration of the **New ILC or New Survey Resolution Deadline**, unless Seller

receives Buyer's written withdrawal of the New ILC or New Survey Objection before such termination (i.e., on or before expiration of **New ILC or New Survey Resolution Deadline**).

DISCLOSURE, INSPECTION AND DUE DILIGENCE

10. PROPERTY DISCLOSURE, INSPECTION, INDEMNITY, INSURABILITY, DUE DILIGENCE AND SOURCE OF WATER.

10.1. Seller's Property Disclosure. On or before **Seller's Property Disclosure Deadline** , Seller agrees to deliver to Buyer the most current version of the applicable Colorado Real Estate Commission's Seller's Property Disclosure form completed by Seller to Seller's actual knowledge and current as of the date of this Contract.

10.2. Disclosure of Adverse Material Facts; Subsequent Disclosure; Present Condition. Seller must disclose to Buyer any adverse material facts actually known by Seller as of the date of this Contract. Seller agrees that disclosure of adverse material facts will be in writing. In the event Seller discovers an adverse material fact after the date of this Contract, Seller must timely disclose such adverse fact to Buyer. Buyer has the Right to Terminate based on the Seller's new disclosure on the earlier of Closing or five days after Buyer's receipt of the new disclosure. Except as otherwise provided in this Contract, Buyer acknowledges that Seller is conveying the Property to Buyer in an "**As Is**" condition, " **Where Is**" and " **With All Faults**."

10.3. Inspection. Unless otherwise provided in this Contract, Buyer, acting in good faith, has the right to have inspections (by one or more third parties, personally or both) of the Property, Leased Items, and Inclusions (Inspection), at Buyer's expense. If (1) the physical condition of the Property, including, but not limited to, the roof, walls, structural integrity of the Property, the electrical, plumbing, HVAC and other mechanical systems of the Property, (2) the physical condition of the Inclusions and Leased Items, (3) service to the Property (including utilities and communication services), systems and components of the Property (e.g., heating and plumbing), (4) any proposed or existing transportation project, road, street or highway, or (5) any other activity, odor or noise (whether on or off the Property) and its effect or expected effect on the Property or its occupants is unsatisfactory, in Buyer's sole subjective discretion, Buyer may:

10.3.1. Inspection Termination. On or before the **Inspection Termination Deadline**, notify Seller in writing, pursuant to § 24.1., that this Contract is terminated due to any unsatisfactory condition, provided the Buyer did not previously deliver an Inspection Objection. Buyer's Right to Terminate under this provision expires upon delivery of an Inspection Objection to Seller pursuant to § 10.3.2.; or

10.3.2. Inspection Objection. On or before the **Inspection Objection Deadline**, deliver to Seller a written description of any unsatisfactory condition that Buyer requires Seller to correct.

10.3.3. Inspection Resolution. If an Inspection Objection is received by Seller, on or before **Inspection Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **Inspection Resolution Deadline**, this Contract will terminate on **Inspection Resolution Deadline** unless Seller receives Buyer's written withdrawal of the Inspection Objection before such termination (i.e., on or before expiration of **Inspection Resolution Deadline**). Nothing in this provision prohibits the Buyer and the Seller from mutually terminating this Contract before the Inspection Resolution Deadline passes by executing an Earnest Money Release.

10.4. Damage, Liens and Indemnity. Buyer, except as otherwise provided in this Contract or other written agreement between the parties, is responsible for payment for all inspections, tests, surveys, engineering reports, or other reports performed at Buyer's request (Work) and must pay for any damage that occurs to the Property and Inclusions as a result of such Work. Buyer must not permit claims or liens of any kind against the Property for Work performed on the Property. Buyer agrees to indemnify, protect and hold Seller harmless from and against any liability, damage, cost or expense incurred by Seller and caused by any such Work, claim, or lien. This indemnity includes Seller's right to recover all costs and expenses incurred by Seller to defend against any such liability, damage, cost or expense, or to enforce this Section, including Seller's reasonable attorney fees, legal fees and expenses. The provisions of this Section survive the termination of this Contract. This § 10.4. does not apply to items performed pursuant to an Inspection

Resolution.

10.5. Insurability. Buyer has the Right to Terminate under § 24.1., on or before **Property Insurance Termination Deadline**, based on any unsatisfactory provision of the availability, terms and conditions and premium for property insurance (Property Insurance) on the Property, in Buyer's sole subjective discretion.

10.6. Due Diligence.

10.6.1. Due Diligence Documents. Seller agrees to deliver copies of the following documents and information pertaining to the Property and Leased Items (Due Diligence Documents) to Buyer on or before **Due Diligence Documents Delivery Deadline**:

10.6.1.1. Occupancy Agreements. All current leases, including any amendments or other occupancy agreements, pertaining to the Property. Those leases or other occupancy agreements pertaining to the Property that survive Closing are as follows (Leases):

n/a

10.6.1.2. Leased Items Documents. If any lease of personal property (§ 2.5.4., Leased Items) will be transferred to Buyer at Closing, Seller agrees to deliver copies of the leases and information pertaining to the personal property to Buyer on or before **Due Diligence Documents Delivery Deadline**. Buyer ☐ **Will** ☐ **Will Not** assume the Seller's obligations under such leases for the Leased Items (§ 2.5.4., Leased Items).

10.6.1.3. Encumbered Inclusions Documents. If any Inclusions owned by Seller are encumbered pursuant to § 2.5.2. (Encumbered Inclusions) above, Seller agrees to deliver copies of the evidence of debt, security and any other documents creating the encumbrance to Buyer on or before **Due Diligence Documents Delivery Deadline**. Buyer ☐ **Will** ☐ **Will Not** assume the debt on the Encumbered Inclusions (§ 2.5.2., Encumbered Inclusions).

10.6.1.4. Other Documents. If the respective box is checked, Seller agrees to additionally deliver copies of the following:

☒ **10.6.1.4.1.** All contracts relating to the operation, maintenance and management of the Property;

☐ **10.6.1.4.2.** Property tax bills for the last years;

☒ **10.6.1.4.3.** As-built construction plans to the Property and the tenant improvements, including architectural, electrical, mechanical and structural systems; engineering reports; and permanent Certificates of Occupancy, to the extent now available;

☒ **10.6.1.4.4.** A list of all Inclusions to be conveyed to Buyer;

☐ **10.6.1.4.5.** Operating statements for the past years;

☐ **10.6.1.4.6.** A rent roll accurate and correct to the date of this Contract;

☐ **10.6.1.4.7.** A schedule of any tenant improvement work Seller is obligated to complete but has not yet completed and capital improvement work either scheduled or in process on the date of this Contract;

☒ **10.6.1.4.8.** All insurance policies pertaining to the Property and copies of any claims which have been made for the past ***3*** years;

☒ **10.6.1.4.9.** Soils reports, surveys and engineering reports or data pertaining to the Property (if not delivered earlier under § 8.3.);

☒ **10.6.1.4.10.** Any and all existing documentation and reports regarding Phase I and II environmental reports, letters, test results, advisories and similar documents respective to the existence or nonexistence of asbestos, PCB transformers, or other toxic, hazardous or contaminated substances and/or underground storage tanks and/or radon gas. If no reports are in Seller's possession or known to Seller, Seller warrants that no such reports are in Seller's possession or known to Seller;

☒ **10.6.1.4.11.** Any *Americans with Disabilities Act* reports, studies or surveys concerning the compliance of the Property with said Act;

☒ **10.6.1.4.12.** All permits, licenses and other building or use authorizations issued by any governmental authority with jurisdiction over the Property and written notice of any violation of any such permits, licenses or use authorizations, if any; and

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☒ **10.6.1.4.13.** Other:

Any warranties, manuals, invoices, receipts if in existence which can be left with the home for the buyer to review at their inspection. Seller agrees to leave all said documents out for buyers review at buyers home inspection. All said documents/etc then stay in the home for the buyers closing/possession.

10.6.2. Due Diligence Documents Review and Objection. Buyer has the right to review and object based on the Due Diligence Documents. If the Due Diligence Documents are not supplied to Buyer or are unsatisfactory, in Buyer's sole subjective discretion, Buyer may, on or before **Due Diligence Documents Objection Deadline**:

10.6.2.1. Notice to Terminate. Notify Seller in writing, pursuant to § 24.1., that this Contract is terminated; or

10.6.2.2. Due Diligence Documents Objection. Deliver to Seller a written description of any unsatisfactory Due Diligence Documents that Buyer requires Seller to correct.

10.6.2.3. Due Diligence Documents Resolution. If a Due Diligence Documents Objection is received by Seller, on or before **Due Diligence Documents Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on or before **Due Diligence Documents Resolution Deadline**, this Contract will terminate on **Due Diligence Documents Resolution Deadline** unless Seller receives Buyer's written withdrawal of the Due Diligence Documents Objection before such termination (i.e., on or before expiration of **Due Diligence Documents Resolution Deadline**.

10.6.3. Zoning. Buyer has the Right to Terminate under § 24.1., on or before **Due Diligence Documents Objection Deadline**, based on any unsatisfactory zoning and any use restrictions imposed by any governmental agency with jurisdiction over the Property, in Buyer's sole subjective discretion.

10.6.4. Due Diligence – Environmental, ADA. Buyer has the right to obtain environmental inspections of the Property including Phase I and Phase II Environmental Site Assessments, as applicable. ☐ **Seller** ☒ **Buyer** will order or provide **Phase I Environmental Site Assessment**, **Phase II Environmental Site Assessment** (compliant with most current version of the applicable ASTM E1527 standard practices for Environmental Site Assessments) and/or , at the expense of ☐ **Seller** ☒ **Buyer** (Environmental Inspection). In addition, Buyer, at Buyer's expense, may also conduct an evaluation whether the Property complies with the *Americans with Disabilities Act* (ADA Evaluation). All such inspections and evaluations must be conducted at such times as are mutually agreeable to minimize the interruption of Seller's and any Seller's tenants' business uses of the Property, if any.

If Buyer's Phase I Environmental Site Assessment recommends a Phase II Environmental Site Assessment, the **Environmental Inspection Termination Deadline** will be extended by ***30*** days (Extended Environmental Inspection Objection Deadline) and if such Extended Environmental Inspection Objection Deadline extends beyond the **Closing Date**, the **Closing Date** will be extended a like period of time. In such event, ☐ **Seller** ☐ **Buyer** must pay the cost for such Phase II Environmental Site Assessment.

Notwithstanding Buyer's right to obtain additional environmental inspections of the Property in this § 10.6.4., Buyer has the Right to Terminate under § 24.1., on or before **Environmental Inspection Termination Deadline**, or if applicable, the Extended Environmental Inspection Objection Deadline, based on any unsatisfactory results of Environmental Inspection, in Buyer's sole subjective discretion.

Buyer has the Right to Terminate under § 24.1., on or before **ADA Evaluation Termination Deadline**, based on any unsatisfactory ADA Evaluation, in Buyer's sole subjective discretion.

10.7. Conditional Upon Sale of Property. This Contract is conditional upon the sale and closing of that certain property owned by Buyer and commonly known as ***n/a***. Buyer has the Right to Terminate under § 24.1. effective upon Seller's receipt of Buyer's Notice to Terminate on or before **Conditional Sale Deadline** if such property is not sold and closed by such deadline. This Section is for the sole benefit of Buyer. If Seller does not receive Buyer's Notice to Terminate on or before **Conditional Sale Deadline**, Buyer waives any Right to Terminate under this provision.

10.8. Source of Potable Water (Residential Land and Residential Improvements Only). Buyer ☐ **Does** ☒ **Does Not** acknowledge receipt of a copy of Seller's Property Disclosure or Source of Water Addendum disclosing the source of potable water for the Property. ☒ There is **No Well**. Buyer ☐ **Does** ☐ **Does Not** acknowledge receipt of a copy of the current well permit.

Note to Buyer: SOME WATER PROVIDERS RELY, TO VARYING DEGREES, ON NONRENEWABLE GROUND WATER. YOU MAY WISH TO CONTACT YOUR PROVIDER (OR INVESTIGATE THE DESCRIBED SOURCE) TO DETERMINE THE LONG-TERM SUFFICIENCY OF THE PROVIDER'S WATER SUPPLIES.

10.9. Existing Leases; Modification of Existing Leases; New Leases. Seller states that none of the Leases to be assigned to the Buyer at the time of Closing contain any rent concessions, rent reductions or rent abatements except as disclosed in the Lease or other writing received by Buyer. Seller will not amend, alter, modify, extend or cancel any of the Leases nor will Seller enter into any new leases affecting the Property without the prior written consent of Buyer, which consent will not be unreasonably withheld or delayed.

10.10. Lead-Based Paint. [Intentionally Deleted - See Residential Addendum if applicable]

10.11. Carbon Monoxide Alarms. [Intentionally Deleted - See Residential Addendum if applicable]

10.12. Methamphetamine Disclosure. [Intentionally Deleted - See Residential Addendum if applicable]

11. TENANT ESTOPPEL STATEMENTS.

11.1. Estoppel Statements Conditions. Buyer has the right to review and object to any Estoppel Statements. Seller must request from all tenants of the Property and if received by Seller, deliver to Buyer on or before **Estoppel Statements Deadline**, statements in a form and substance reasonably acceptable to Buyer, from each occupant or tenant at the Property (Estoppel Statement) attached to a copy of the Lease stating:

11.1.1. The commencement date of the Lease and scheduled termination date of the Lease;

11.1.2. That said Lease is in full force and effect and that there have been no subsequent modifications or amendments;

11.1.3. The amount of any advance rentals paid, rent concessions given and deposits paid to Seller;

11.1.4. The amount of monthly (or other applicable period) rental paid to Seller;

11.1.5. That there is no default under the terms of said Lease by landlord or occupant; and

11.1.6. That the Lease to which the Estoppel Statement is attached is a true, correct and complete copy of the Lease demising the premises it describes.

11.2. Seller Estoppel Statement. In the event Seller does not receive from all tenants of the Property a completed signed Estoppel Statement, Seller agrees to complete and execute an Estoppel Statement setting forth the information and documents required §11.1. above and deliver the same to Buyer on or before **Estoppel Statements Deadline**.

11.3. Estoppel Statements Termination. Buyer has the Right to Terminate under § 24.1., on or before **Estoppel Statements Termination Deadline**, based on any unsatisfactory Estoppel Statement, in Buyer's sole subjective discretion, or if Seller fails to deliver the Estoppel Statements on or before **Estoppel Statements Deadline**. Buyer also has the unilateral right to waive any unsatisfactory Estoppel Statement.

CLOSING PROVISIONS

12. CLOSING DOCUMENTS, INSTRUCTIONS AND CLOSING.

12.1. Closing Documents and Closing Information. Seller and Buyer will cooperate with the Closing Company to enable the Closing Company to prepare and deliver documents required for Closing to Buyer and Seller and their designees. If Buyer is obtaining a loan to purchase the Property, Buyer acknowledges Buyer's lender is required to provide the Closing Company, in a timely manner, all required loan documents and financial information concerning Buyer's loan. Buyer and Seller will furnish any additional information and documents required by Closing Company that will be necessary to complete this transaction. Buyer and Seller will sign and complete all customary or reasonably required documents at or

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before Closing.

12.2. Closing Instructions. Colorado Real Estate Commission's Closing Instructions ☐ **Are** ☒ **Are Not** executed with this Contract.

12.3. Closing. Delivery of deed from Seller to Buyer will be at closing (Closing). Closing will be on the date specified as the **Closing Date** or by mutual agreement at an earlier date. At Closing, Seller agrees to deliver a set of keys for the Property to Buyer. The hour and place of Closing will be as designated by ***mutual agreement between buyer & seller***.

12.4. Disclosure of Settlement Costs. Buyer and Seller acknowledge that costs, quality and extent of service vary between different settlement service providers (e.g., attorneys, lenders, inspectors and title companies).

12.5. Assignment of Leases. Seller must assign to Buyer all Leases at Closing that will continue after Closing and Buyer must assume Seller's obligations under such Leases. Further, Seller must transfer to Buyer all Leased Items and assign to Buyer such leases for the Leased Items accepted by Buyer pursuant to § 2.5.4. (Leased Items).

13. TRANSFER OF TITLE. Subject to Buyer's compliance with the terms and provisions of this Contract, including the tender of any payment due at Closing, Seller must execute and deliver the following good and sufficient deed to Buyer, at Closing: ☒ special warranty deed ☐ general warranty deed ☐ bargain and sale deed ☐ quit claim deed ☐ personal representative's deed ☐ deed. Seller, provided another deed is not selected, must execute and deliver a good and sufficient special warranty deed to Buyer, at Closing.

Unless otherwise specified in § 29 (Additional Provisions), if title will be conveyed using a special warranty deed or a general warranty deed, title will be conveyed "subject to statutory exceptions" as defined in §38-30-113(5)(a), C.R.S.

14. PAYMENT OF LIENS AND ENCUMBRANCES. Unless agreed to by Buyer in writing, any amounts owed on any liens or encumbrances securing a monetary sum against the Property and Inclusions, including any governmental liens for special improvements installed as of the date of Buyer's signature hereon, whether assessed or not, and previous years' taxes, will be paid at or before Closing by Seller from the proceeds of this transaction or from any other source.

15. CLOSING COSTS, FEES, ASSOCIATION STATUS LETTER AND DISBURSEMENTS, TAXES AND WITHHOLDING.

15.1. Closing Costs. Buyer and Seller must pay, in Good Funds, their respective closing costs and all other items required to be paid at Closing, except as otherwise provided herein.

15.2. Closing Services Fee. The fee for real estate closing services must be paid at Closing by ☐ **Buyer** ☐ **Seller** ☒ **One-Half by Buyer and One-Half by Seller** ☐ **Other** ***n/a***.

15.3. Association Fees and Required Disbursements. At least fourteen days prior to **Closing Date**, Seller agrees to promptly request that the Closing Company or the Association deliver to Buyer a current Status Letter, if applicable. Any fees associated with or specified in the Status Letter will be paid as follows:

15.3.1. Status Letter Fee. Any fee incident to the issuance of Association's Status Letter must be paid by ☐ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☒ **N/A.**

15.3.2. Record Change Fee. Any Record Change Fee must be paid by ☐ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☒ **N/A.**

15.3.3. Assessments, Reserves or Working Capital. All assessments required to be paid in advance (other than Association Assessments as defined in § 16.2. (Association Assessments), reserves or working capital due at Closing must be paid by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

15.3.4. Other Fees. Any other fee listed in the Status Letter as required to be paid at Closing will be paid by ☐ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☒ **N/A.**

15.4. Local Transfer Tax. Any Local Transfer Tax must be paid at Closing by ☐ **Buyer** ☐ **Seller**

☐ **One-Half by Buyer and One-Half by Seller** ☒ **N/A.**

15.5. Sales and Use Tax. Any sales and use tax that may accrue because of this transaction must be paid when due by ☐ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☒ **N/A.**

15.6. Private Transfer Fee. Any private transfer fees and other fees due to a transfer of the Property, payable at Closing, such as community association fees, developer fees and foundation fees, must be paid at Closing by ☐ **Buyer** ☐ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☒ **N/A.**

15.7. Water Transfer Fees. Water Transfer Fees can change. The fees, as of the date of this Contract, do not exceed $***n/a*** for:

☐ Water Stock/Certificates ☐ Water District

☐ Augmentation Membership ☐ Small Domestic Water Company ☒ ***n/a***

and must be paid at Closing by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

15.8. Utility Transfer Fees. Utility transfer fees can change. Any fees to transfer utilities from Seller to Buyer must be paid by ☐ **Buyer** ☒ **Seller** ☐ **One-Half by Buyer and One-Half by Seller** ☐ **N/A.**

15.9. FIRPTA and Colorado Withholding.

15.9.1. FIRPTA. The Internal Revenue Service (IRS) may require a substantial portion of the Seller's proceeds be withheld after Closing when Seller is a foreign person. If required withholding does not occur, the Buyer could be held liable for the amount of the Seller's tax, interest and penalties. If the box in this Section is checked, Seller represents that Seller ☐ **IS** a foreign person for purposes of U.S. income taxation. If the box in this Section is not checked, Seller represents that Seller is not a foreign person for purposes of U.S. income taxation. Seller agrees to cooperate with Buyer and Closing Company to provide any reasonably requested documents to verify Seller's foreign person status. If withholding is required, Seller authorizes Closing Company to withhold such amount from Seller's proceeds. Seller should inquire with Seller's tax advisor to determine if withholding applies or if an exemption exists.

15.9.2. Colorado Withholding. The Colorado Department of Revenue may require a portion of the Seller's proceeds be withheld after Closing when Seller will not be a Colorado resident after Closing, if not otherwise exempt. Seller agrees to cooperate with Buyer and Closing Company to provide any reasonably requested documents to verify Seller's status. If withholding is required, Seller authorizes Closing Company to withhold such amount from Seller's proceeds. Seller should inquire with Seller's tax advisor to determine if withholding applies or if an exemption exists.

16. PRORATIONS AND ASSOCIATION ASSESSMENTS.

16.1. Prorations. The following will be prorated to the **Closing Date**, except as otherwise provided:

16.1.1. Taxes. Personal property taxes, if any, special taxing district assessments, if any, and general real estate taxes for the year of Closing, based on

☐ **Taxes for the Calendar Year Immediately Preceding Closing**

☒ **Most Recent Mill Levy and Most Recent Assessed Valuation,** ☐ **Other**

n/a

16.1.2. Rents. Rents based on ☐ **Rents Actually Received** ☐ **Accrued.** At Closing, Seller will transfer or credit to Buyer the security deposits for all Leases assigned to Buyer, or any remainder after lawful deductions, and notify all tenants in writing of such transfer and of the transferee's name and address.

16.1.3. Other Prorations. Water and sewer charges, propane, interest on continuing loan and ***n/a***

16.1.4. Final Settlement. Unless otherwise specified in Additional Provisions, these prorations are final.

16.2. Association Assessments. Current regular Association assessments and dues (Association Assessments) paid in advance will be credited to Seller at Closing. Cash reserves held out of the regular Association Assessments for deferred maintenance by the Association will not be credited to Seller except as may be otherwise provided by the Governing Documents. Buyer acknowledges that Buyer may be obligated to pay the Association, at Closing, an amount for reserves or working capital. Any special assessment assessed prior to **Closing Date** by the Association will be the obligation of ☐ **Buyer** ☐ **Seller.** Except however, any special assessment by the Association for improvements that have been installed as of the date of Buyer's signature hereon, whether assessed prior to or after Closing, will be the obligation of Seller

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unless otherwise specified in Additional Provisions. Seller represents there are no unpaid regular or special assessments against the Property except the current regular assessments and

No Exceptions

Association Assessments are subject to change as provided in the Governing Documents.

17. POSSESSION. Possession of the Property and Inclusions will be delivered to Buyer on **Possession Date** at **Possession Time**, subject to the Leases as set forth in § 10.6.1.1.

If Seller, after Closing occurs, fails to deliver possession as specified, Seller will be subject to eviction and will be additionally liable to Buyer, notwithstanding § 20.2. (If Seller is in Default), for payment of $ ***250*** per day (or any part of a day notwithstanding § 3.3., Day) from **Possession Date** and **Possession Time** until possession is delivered.

General Provisions

18. CAUSES OF LOSS, INSURANCE; DAMAGE TO INCLUSIONS AND SERVICES; CONDEMNATION; AND WALK-THROUGH. Except as otherwise provided in this Contract, the Property, Inclusions or both will be delivered in the condition existing as of the date of this Contract, ordinary wear and tear excepted.

18.1. Causes of Loss, Insurance. In the event the Property or Inclusions are damaged by fire, other perils or causes of loss prior to Closing (Property Damage) in an amount of not more than ten percent of the total Purchase Price and if the repair of the damage will be paid by insurance (other than the deductible to be paid by Seller), then Seller, upon receipt of the insurance proceeds, will use Seller's reasonable efforts to repair the Property before **Closing Date**. Buyer has the Right to Terminate under § 24.1., on or before **Closing Date**, if the Property is not repaired before **Closing Date**, or if the damage exceeds such sum. Should Buyer elect to carry out this Contract despite such Property Damage, Buyer is entitled to a credit at Closing for all insurance proceeds that were received by Seller (but not the Association, if any) resulting from damage to the Property and Inclusions, plus the amount of any deductible provided for in the insurance policy. This credit may not exceed the Purchase Price. In the event Seller has not received the insurance proceeds prior to Closing, the parties may agree to extend the **Closing Date** to have the Property repaired prior to Closing or, at the option of Buyer, (1) Seller must assign to Buyer the right to the proceeds at Closing, if acceptable to Seller's insurance company and Buyer's lender; or (2) the parties may enter into a written agreement prepared by the parties or their attorney requiring the Seller to escrow at Closing from Seller's sale proceeds the amount Seller has received and will receive due to such damage, not exceeding the total Purchase Price, plus the amount of any deductible that applies to the insurance claim.

18.2. Damage, Inclusions and Services. Should any Inclusion or service (including utilities and communication services), system, component or fixture of the Property (collectively Service) (e.g., heating or plumbing), fail or be damaged between the date of this Contract and Closing or possession, whichever is earlier, then Seller is liable for the repair or replacement of such Inclusion or Service with a unit of similar size, age and quality, or an equivalent credit, but only to the extent that the maintenance or replacement of such Inclusion or Service is not the responsibility of the Association, if any, less any insurance proceeds received by Buyer covering such repair or replacement. If the failed or damaged Inclusion or Service is not repaired or replaced on or before Closing or possession, whichever is earlier, Buyer has the Right to Terminate under § 24.1., on or before **Closing Date**, or, at the option of Buyer, Buyer is entitled to a credit at Closing for the repair or replacement of such Inclusion or Service. Such credit must not exceed the Purchase Price. If Buyer receives such a credit, Seller's right for any claim against the Association, if any, will survive Closing.

18.3. Condemnation. In the event Seller receives actual notice prior to Closing that a pending condemnation action may result in a taking of all or part of the Property or Inclusions, Seller must promptly notify Buyer, in writing, of such condemnation action. Buyer has the Right to Terminate under § 24.1., on or before **Closing Date**, based on such condemnation action, in Buyer's sole subjective discretion. Should Buyer elect to consummate this Contract despite such diminution of value to the Property and Inclusions, Buyer is entitled to a credit at Closing for all condemnation proceeds awarded to Seller for the diminution in the value of the Property or Inclusions, but such credit will not include relocation benefits or expenses or

exceed the Purchase Price.

18.4. Walk-Through and Verification of Condition. Buyer, upon reasonable notice, has the right to walk through the Property prior to Closing to verify that the physical condition of the Property and Inclusions complies with this Contract.

18.5. Home Warranty. [Intentionally Deleted]

18.6. Risk of Loss – Growing Crops. The risk of loss for damage to growing crops by fire or other casualty will be borne by the party entitled to the growing crops as provided in § 2.8. and such party is entitled to such insurance proceeds or benefits for the growing crops.

19. RECOMMENDATION OF LEGAL AND TAX COUNSEL. By signing this Contract, Buyer and Seller acknowledge that their respective broker has advised that this Contract has important legal consequences and has recommended: (1) legal examination of title; (2) consultation with legal and tax or other counsel before signing this Contract as this Contract may have important legal and tax implications; (3) to consult with their own attorney if Water Rights, Mineral Rights or Leased Items are included or excluded in the sale; and (4) to consult with legal counsel if there are other matters in this transaction for which legal counsel should be engaged and consulted. Such consultations must be done timely as this Contract has strict time limits, including deadlines, that must be complied with.

20. TIME OF ESSENCE, DEFAULT AND REMEDIES. Time is of the essence for all dates and deadlines in this Contract. This means that all dates and deadlines are strict and absolute. If any payment due, including Earnest Money, is not paid, honored or tendered when due, or if any obligation is not performed timely as provided in this Contract or waived, the non-defaulting party has the following remedies:

20.1. If Buyer is in Default:

☐ **20.1.1. Specific Performance.** Seller may elect to cancel this Contract and all Earnest Money (whether or not paid by Buyer) will be paid to Seller and retained by Seller. It is agreed that the Earnest Money is not a penalty, and the parties agree the amount is fair and reasonable. Seller may recover such additional damages as may be proper. Alternatively, Seller may elect to treat this Contract as being in full force and effect and Seller has the right to specific performance or damages, or both.

20.1.2. Liquidated Damages, Applicable. This § 20.1.2. applies unless the box in § 20.1.1. is checked. Seller may cancel this Contract. All Earnest Money (whether or not paid by Buyer) will be paid to Seller and retained by Seller. It is agreed that the Earnest Money amount specified in § 4.1. is LIQUIDATED DAMAGES and not a penalty, which amount the parties agree is fair and reasonable and (except as provided in §§ 10.4. and 21), such amount is SELLER'S ONLY REMEDY for Buyer's failure to perform the obligations of this Contract. Seller expressly waives the remedies of specific performance and additional damages.

20.2. If Seller is in Default:

20.2.1. Specific Performance, Damages or Both. Buyer may elect to treat this Contract as canceled, in which case all Earnest Money received hereunder will be returned to Buyer and Buyer may recover such damages as may be proper. Alternatively, in addition to the per diem in § 17 (Possession) for failure of Seller to timely deliver possession of the Property after Closing occurs, Buyer may elect to treat this Contract as being in full force and effect and Buyer has the right to specific performance or damages, or both.

20.2.2. Seller's Failure to Perform. In the event Seller fails to perform Seller's obligations under this Contract, to include, but not limited to, failure to timely disclose Association violations known by Seller, failure to perform any replacements or repairs required under this Contract or failure to timely disclose any known adverse material facts, Seller remains liable for any such failures to perform under this Contract after Closing. Buyer's rights to pursue the Seller for Seller's failure to perform under this Contract are reserved and survive Closing.

21. LEGAL FEES, COST AND EXPENSES. Anything to the contrary herein notwithstanding, in the event of any arbitration or litigation relating to this Contract, prior to or after **Closing Date**, the arbitrator or court must award to the prevailing party all reasonable costs and expenses, including attorney fees, legal fees and expenses.

22. MEDIATION. If a dispute arises relating to this Contract (whether prior to or after Closing) and is not resolved, the parties must first proceed, in good faith, to mediation. Mediation is a process in which the parties meet with an impartial person who helps to resolve the dispute informally and confidentially. Mediators cannot impose binding decisions. Before any mediated settlement is binding, the parties to the dispute must agree to the settlement, in writing. The parties will jointly appoint an acceptable mediator and will share equally in the cost of such mediation. The obligation to mediate, unless otherwise agreed, will terminate if the entire dispute is not resolved within thirty days of the date written notice requesting mediation is delivered by one party to the other at that party's last known address (physical or electronic as provided in § 26). Nothing in this Section prohibits either party from filing a lawsuit and recording a *lis pendens* affecting the Property, before or after the date of written notice requesting mediation. This Section will not alter any date in this Contract, unless otherwise agreed.

23. EARNEST MONEY DISPUTE. Except as otherwise provided herein, Earnest Money Holder must release the Earnest Money following receipt of written mutual instructions, signed by both Buyer and Seller. In the event of any controversy regarding the Earnest Money, Earnest Money Holder is not required to release the Earnest Money. Earnest Money Holder, in its sole subjective discretion, has several options: (1) wait for any proceeding between Buyer and Seller; (2) interplead all parties and deposit Earnest Money into a court of competent jurisdiction (Earnest Money Holder is entitled to recover court costs and reasonable attorney and legal fees incurred with such action); or (3) provide notice to Buyer and Seller that unless Earnest Money Holder receives a copy of the Summons and Complaint or Claim (between Buyer and Seller) containing the case number of the lawsuit (Lawsuit) within one hundred twenty days of Earnest Money Holder's notice to the parties, Earnest Money Holder is authorized to return the Earnest Money to Buyer. In the event Earnest Money Holder does receive a copy of the Lawsuit and has not interpled the monies at the time of any Order, Earnest Money Holder must disburse the Earnest Money pursuant to the Order of the Court. The parties reaffirm the obligation of § 22 (Mediation). This Section will survive cancellation or termination of this Contract.

24. TERMINATION.

24.1. Right to Terminate. If a party has a right to terminate, as provided in this Contract (Right to Terminate), the termination is effective upon the other party's receipt of a written notice to terminate (Notice to Terminate), provided such written notice was received on or before the applicable deadline specified in this Contract. If the Notice to Terminate is not received on or before the specified deadline, the party with the Right to Terminate accepts the specified matter, document or condition as satisfactory and waives the Right to Terminate under such provision.

24.2. Effect of Termination. In the event this Contract is terminated, and all Earnest Money received hereunder is timely returned to Buyer, the parties are relieved of all obligations hereunder, subject to §§ 10.4. and 21.

25. ENTIRE AGREEMENT, MODIFICATION, SURVIVAL; SUCCESSORS. This Contract, its exhibits and specified addenda, constitute the entire agreement between the parties relating to the subject hereof and any prior agreements pertaining thereto, whether oral or written, have been merged and integrated into this Contract. No subsequent modification of any of the terms of this Contract is valid, binding upon the parties, or enforceable unless made in writing and signed by the parties. Any right or obligation in this Contract that, by its terms, exists or is intended to be performed after termination or Closing survives the same. Any successor to a party receives the predecessor's benefits and obligations of this Contract.

26. NOTICE, DELIVERY AND CHOICE OF LAW.

26.1. Physical Delivery and Notice. Any document or notice to Buyer or Seller must be in writing, except as provided in § 26.2. and is effective when physically received by such party, any individual named in this Contract to receive documents or notices for such party, Broker, or Brokerage Firm of Broker working with such party (except any notice or delivery after Closing must be received by the party, not Broker or

Brokerage Firm).

26.2. Electronic Notice. As an alternative to physical delivery, any notice may be delivered in electronic form to Buyer or Seller, any individual named in this Contract to receive documents or notices for such party, Broker or Brokerage Firm of Broker working with such party (except any notice or delivery after Closing, cancellation or Termination must be received by the party, not Broker or Brokerage Firm) at the electronic address of the recipient by facsimile, email or ***n/a***.

26.3. Electronic Delivery. Electronic Delivery of documents and notice may be delivered by: (1) email at the email address of the recipient, (2) a link or access to a website or server provided the recipient receives the information necessary to access the documents, or (3) facsimile at the facsimile number (Fax No.) of the recipient.

26.4. Choice of Law. This Contract and all disputes arising hereunder are governed by and construed in accordance with the laws of the State of Colorado that would be applicable to Colorado residents who sign a contract in Colorado for real property located in Colorado.

27. NOTICE OF ACCEPTANCE, COUNTERPARTS. This proposal will expire unless accepted in writing, by Buyer and Seller, as evidenced by their signatures below and the offering party receives notice of such acceptance pursuant to § 26 on or before **Acceptance Deadline Date** and **Acceptance Deadline Time**. If accepted, this document will become a contract between Seller and Buyer. A copy of this Contract may be executed by each party, separately and when each party has executed a copy thereof, such copies taken together are deemed to be a full and complete contract between the parties.

28. GOOD FAITH. Buyer and Seller acknowledge that each party has an obligation to act in good faith including, but not limited to, exercising the rights and obligations set forth in the provisions of **Financing Conditions and Obligations**; **Title Insurance, Record Title and Off-Record Title**; **New ILC, New Survey**; and **Property Disclosure, Inspection, Indemnity, Insurability Due Diligence and Source of Water**.

ADDITIONAL PROVISIONS AND ATTACHMENTS

29. ADDITIONAL PROVISIONS. (The following additional provisions have not been approved by the Colorado Real Estate Commission.)

1) All Parcels at 6630 W. 51st, Arvada, CO 80002 and 5045 Marshall St, Arvada, CO 80002, Jefferson County are included with the sale, including Single Family home.

2) Seller will not sign any competing offers ("No Competition Period") until after February 9th, and if an agreement has been reached on an acceptable PSA (Purchase and Sale Agreement) with specific price, terms, and conditions by February 9th, the Seller will extend that No Competition Period to March 9th to allow City Council formal approval of the PSA, which would then set a closing by May 20, 2022.

3) 2.5 Other Inclusions. The following items, whether fixtures or personal property, are also included in the Purchase Price: All appliances in kitchens including refrigerators, stoves/ovens, dishwashers , washers & dryers (if owned by seller), any window blinds and fixtures presently and permanently in place.

4) Prior to a Phase I Environmental Site Assessment, any contaminated soils on site will be removed by the Seller or Seller`s contractor as will any underground tank and those removals shall be at Seller`s expense. The greenhouse demolition is at Seller`s expense.

5) 10.6.4. Due Diligence – Environmental, ADA- If Buyer`s Phase I Environmental Site Assessment recommends a Phase II Environmental Site Assessment, buyer and seller shall split the cost 50/50 to a cap of $10,000.

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6) Seller shall pay Jay Peterson with West Peak Properties a commission, as buyer`s broker, equal to 3.0% of the closed purchase price.

30. OTHER DOCUMENTS.

30.1. Documents Part of Contract. The following documents **are a part** of this Contract:
Legal Descriptions in Exhibit A

30.2. Documents Not Part of Contract. The following documents have been provided but are **not** a part of this Contract:
n/a

Signatures

_____ Date: _____

Buyer: ***City of Arvada***
By: Marc Williams, Mayor
Address:
Phone: Fax:
Email Address:

[NOTE: If this offer is being countered or rejected, do not sign this document.]

_____ Date: _____

Seller: ***Roxy F Vendena Entities***
By: Roxy F. Vendena , Owner
Address:
Phone: Fax:
Email Address:

END OF CONTRACT TO BUY AND SELL REAL ESTATE

BROKER'S ACKNOWLEDGMENTS AND COMPENSATION DISCLOSURE.

A. Broker Working With Buyer

Broker ☐ **Does** ☒ **Does Not** acknowledge receipt of Earnest Money deposit. Broker agrees that if

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Brokerage Firm is the Earnest Money Holder and, except as provided in § 23, if the Earnest Money has not already been returned following receipt of a Notice to Terminate or other written notice of termination, Earnest Money Holder will release the Earnest Money as directed by the written mutual instructions. Such release of Earnest Money will be made within five days of Earnest Money Holder's receipt of the executed written mutual instructions, provided the Earnest Money check has cleared.

Broker is working with Buyer as a ☒ **Buyer's Agent** ☐ **Transaction-Broker** in this transaction.

☐ **Customer.** Broker has no brokerage relationship with Buyer. See § B for Broker's brokerage relationship with Seller.

Brokerage Firm's compensation or commission is to be paid by ☒ **Listing Brokerage Firm** ☐ **Buyer** ☐ **Other** ***n/a***.

This Broker's Acknowledgements and Compensation Disclosure is for disclosure purposes only and does NOT create any claim for compensation. Any compensation agreement between the brokerage firms must be entered into separately and apart from this provision.

Brokerage Firm's Name: ***West Peak Properties***

Brokerage Firm's License #: ***100092959***

Date: ***2/8/2022***

Broker's Name: ***Jay Peterson***

Broker's License #:

Address: ***8480 E. Orchard Road, Ste 1100 Greenwood Village, CO 80111***

Ph:***303-779-7979*** Fax: ***720-210-9750*** Email Address: ***jay@westpeakproperties.com***

B. Broker Working with Seller

Broker ☐ **Does** ☒ **Does Not** acknowledge receipt of Earnest Money deposit. Broker agrees that if Brokerage Firm is the Earnest Money Holder and, except as provided in § 23, if the Earnest Money has not already been returned following receipt of a Notice to Terminate or other written notice of termination, Earnest Money Holder will release the Earnest Money as directed by the written mutual instructions. Such release of Earnest Money will be made within five days of Earnest Money Holder's receipt of the executed written mutual instructions, provided the Earnest Money check has cleared.

Broker is working with Seller as a ☒ **Seller's Agent** ☐ **Transaction-Broker** in this transaction.

☐ **Customer.** Broker has no brokerage relationship with Seller. See § A for Broker's brokerage relationship with Buyer.

Brokerage Firm's compensation or commission is to be paid by ☒ **Seller** ☐ **Buyer** ☐ **Other** .

This Broker's Acknowledgements and Compensation Disclosure is for disclosure purposes only and does NOT create any claim for compensation. Any compensation agreement between the brokerage firms must be

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entered into separately and apart from this provision.

Brokerage Firm's Name: ***Cresco Properties***

Brokerage Firm's License #:

_____ Date: _____

Broker's Name: ***Joe Dunn***

Broker's License #:

Address: ***215 S Wadsworth, Suite 510 Lakewood, CO 80226***

Ph: ***303-980-4184*** Fax: Email Address: ***c.properties@comcast.net***

CBS4-6-21. CONTRACT TO BUY AND SELL REAL ESTATE (LAND)

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West Peak Properties
Jay Peterson jay@westpeakproperties.com
Ph: 303-779-7979 Fax: 720-210-9750

The printed portions of this form, except differentiated additions, have been approved by the Colorado Real Estate Commission. (RA33-10-21) (Mandatory 1-22)

THIS FORM HAS IMPORTANT LEGAL CONSEQUENCES AND THE PARTIES SHOULD CONSULT LEGAL AND TAX OR OTHER COUNSEL BEFORE SIGNING.

RESIDENTIAL ADDENDUM TO CONTRACT TO BUY AND SELL REAL ESTATE

Date: ***2/8/2022***

1. ADDENDUM TO CONTRACT TO BUY AND SELL REAL ESTATE. This Residential Addendum (Addendum) is made a part of the following contract that is checked:

☒ **Contract to Buy and Sell Real Estate (Land)** between Seller and Buyer (Contract) dated ***02/08/2022*** relating to the sale of the Property, or;

☐ **Contract to Buy and Sell Real Estate (Commercial)** between Seller and Buyer (Contract) dated ***02/08/2022*** relating to the sale of the Property

known as ***6630 W 51st Avenue, Arvada, CO 80002*** (Property).

This Addendum shall control in the event of any conflict with the Contract. Except as modified, all other terms and provisions of the Contract shall remain the same. Terms used herein shall have the same meaning as in the Contract.

2. PURPOSE.

The Property contains, in part, one or more residences but the Contract does not contain required provisions that are set forth in this Addendum. The Contract provisions are added or amended as follows:

4.5.3. Loan Limitations. Buyer may purchase the Property using any of the following types of loan: ☐ **Conventional** ☐ **FHA** ☐ **VA** ☐ **Bond** ☐ **Other** .
If either or both of the FHA or VA boxes are checked, and Buyer closes the transaction using one of those loan types, Seller agrees to pay those closing costs and fees that Buyer is not allowed by law to pay not to exceed $.

4.5.4. Loan Estimate – Monthly Payment and Loan Costs. Buyer is advised to review the terms, conditions and costs of Buyer's New Loan carefully. If Buyer is applying for a residential loan, the lender generally must provide Buyer with a Loan Estimate within three days after Buyer completes a loan application. Buyer also should obtain an estimate of the amount of Buyer's monthly mortgage payment.

6.2.2. FHA. It is expressly agreed that, notwithstanding any other provisions of this Contract, the purchaser (Buyer) shall not be obligated to complete the purchase of the Property described herein or to incur any penalty by forfeiture of Earnest Money deposits or otherwise unless the purchaser (Buyer) has been given, in accordance with HUD/FHA or VA requirements, a written statement issued by the Federal Housing Commissioner, Department of Veterans Affairs, or a Direct Endorsement lender, setting forth the appraised value of the Property of not less than $ ***n/a***. The Purchaser (Buyer) shall have the privilege and option of proceeding with the consummation of this Contract without regard to the amount of the appraised valuation. The appraised valuation is arrived at to determine the maximum mortgage the Department of Housing and Urban Development will insure. HUD does not warrant the value nor the condition of the Property. The purchaser (Buyer) should satisfy himself/herself/themselves that the price and condition of the Property are acceptable.

Initials _____

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6.2.3. VA. It is expressly agreed that, notwithstanding any other provisions of this Contract, the purchaser (Buyer) shall not incur any penalty by forfeiture of Earnest Money or otherwise or be obligated to complete the purchase of the Property described herein, if the Contract Purchase Price or cost exceeds the reasonable value of the Property established by the Department of Veterans Affairs. The purchaser (Buyer) shall, however, have the privilege and option of proceeding with the consummation of this Contract without regard to the amount of the reasonable value established by the Department of Veterans Affairs.

10.8. Source of Potable Water (Residential Land and Residential Improvements Only). Buyer ☐ **Does** ☒ **Does Not** acknowledge receipt of a copy of Seller's Property Disclosure or Source of Water Addendum disclosing the source of potable water for the Property. ☒ There is **No Well.** Buyer ☐ **Does** ☒ **Does Not** acknowledge receipt of a copy of the current well permit.

Note to Buyer: SOME WATER PROVIDERS RELY, TO VARYING DEGREES, ON NONRENEWABLE GROUND WATER. YOU MAY WISH TO CONTACT YOUR PROVIDER (OR INVESTIGATE THE DESCRIBED SOURCE) TO DETERMINE THE LONG-TERM SUFFICIENCY OF THE PROVIDER'S WATER SUPPLIES.

10.10. Lead-Based Paint.

10.10.1. Lead-Based Paint Disclosure. Unless exempt, if the Property includes one or more residential dwellings constructed or a building permit was issued prior to January 1, 1978, for the benefit of Buyer, Seller and all required real estate licensees must sign and deliver to Buyer a completed Lead-Based Paint Disclosure (Sales) form on or before the **Lead-Based Paint Disclosure Deadline**. If Buyer does not timely receive the Lead-Based Paint Disclosure, Buyer may waive the failure to timely receive the Lead-Based Paint Disclosure, or Buyer may exercise Buyer's Right to Terminate under § 24.1. by Seller's receipt of Buyer's Notice to Terminate on or before the expiration of the **Lead-Based Paint Termination Deadline**.

10.10.2. Lead-Based Paint Assessment. If Buyer elects to conduct or obtain a risk assessment or inspection of the Property for the presence of Lead-Based Paint or Lead-Based Paint hazards, Buyer has a Right to Terminate under § 24.1. by Seller's receipt of Buyer's Notice to Terminate on or before the expiration of the **Lead-Based Paint Termination Deadline**. Buyer may elect to waive Buyer's right to conduct or obtain a risk assessment or inspection of the Property for the presence of Lead-Based Paint or Lead-Based Paint hazards. If Seller does not receive Buyer's Notice to Terminate within such time, Buyer accepts the condition of the Property relative to any Lead-Based Paint as satisfactory, and Buyer waives any Right to Terminate under this provision.

10.11. Carbon Monoxide Alarms. Note: If the improvements on the Property have a fuel-fired heater or appliance, a fireplace, or an attached garage and include one or more rooms lawfully used for sleeping purposes (Bedroom), the parties acknowledge that Colorado law requires that Seller assure the Property has an operational carbon monoxide alarm installed within fifteen feet of the entrance to each Bedroom or in a location as required by the applicable building code.

10.12. Methamphetamine Disclosure. If Seller knows that methamphetamine was ever manufactured, processed, cooked, disposed of, used or stored at the Property, Seller is required to disclose such fact. No disclosure is required if the Property was remediated in accordance with state standards and other requirements are fulfilled pursuant to § 25-18.5-102, C.R.S. Buyer further acknowledges that Buyer has the right to engage a certified hygienist or industrial hygienist to test whether the Property has ever been used as a methamphetamine laboratory. Buyer has the Right to Terminate under § 24.1., upon Seller's receipt of Buyer's written Notice to Terminate, notwithstanding any other provision of this Contract, based on Buyer's test results that indicate the Property has been contaminated with methamphetamine, but has not been remediated to meet the standards established by rules of the State Board of Health promulgated pursuant to § 25-18.5-102, C.R.S. Buyer must promptly give written notice to Seller of the results of the test.

18.5. Home Warranty. Seller and Buyer are aware of the existence of pre-owned home warranty programs that may be purchased and may cover the repair or replacement of such Inclusions.

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_____ Date: _____

Buyer: ***City of Arvada***

By: Marc Williams, Mayor

Buyer: _____ Date: _____

_____ Date: _____

Seller: ***Roxy F Vendena Entities***

By: Roxy F. Vendena , Owner

Seller: _____ Date: _____

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Initials _____

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CITY OF ARVADA

REPORT TO CITY COUNCIL ORDINANCE FIRST READING

AGENDA ITEM 8.C.1.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: CB22-045, An Ordinance Authorizing A Loan Agreement Between the City of Arvada and the Arvada Urban Renewal Authority to Support Redevelopment Projects in the Ralston Fields Urban Renewal Area (Public Hearing to be set for March 21, 2022 at 6:15 p.m.)

Report in Brief

The Ralston Fields Urban Renewal Area expires in 2028 and the Arvada Urban Renewal Authority (AURA) is looking to complete several projects in the next few years. Some of these projects include: Ralston Commons, Berkeley Homes, Paseo, Redevelopment of Kmart, Ralston Gardens and Paseo Place Apartments. In order to complete these projects, AURA is seeking a loan of $8,000,000 from the City. The terms of the loan would include 3% interest which would be paid back over a three-year period starting in 2023. The loan would enable AURA to accelerate the construction on these much needed projects. AURA has secured a tax-exempt loan through Vectra bank as a back up should the City need to call the note. The City's General Fund currently has over $50 million dollars in its fund balance and can cash finance this request. The City's current rate of return on its investments is 1.6%.

The Arvada team recommends that the City Council approve CB22-045, An Ordinance Authorizing A Loan Agreement Between the City of Arvada and the Arvada Urban Renewal Authority to Support Redevelopment Projects in the Ralston Fields Urban Renewal Area on first reading, ordered published in full, and a public hearing date set for March 21, 2022 at 6:15 p.m.

Financial Impact

The loan will be up to $8,000,000 between the City and AURA. The payback will start in 2023 with the final payment being made in 2025 and will be at a 3% interest rate. The loan will be paid back with TIF revenues generated in the Ralston Fields Urban Renewal Area.

Background

The projects listed above are all part of the larger Urban Renewal Plan. Successful implementation of these projects supports the City's overall master plan and would help to finish the revitalization of the Ralston Fields Urban Renewal Area. Additional information on the projects is below.

- Ralston Commons (NW corner of Ralston Rd and Garrison St) – a mixed-use development with 27 for sale townhomes, 186 apartments, two restaurant buildings built around a large active park with parking for food trucks.
- Berkeley Homes (former Safeway) – 44 for-sale townhomes
- Paseo – 55’ parkway linking Ralston Road with 57th Street along the 55’ Garrison ROW. The project will extend the community garden into the parkway, create public viewing to the mountains and into the gardens, and increase safety and usage through lighting and design.
- Redevelopment of Kmart into a mixed-use development with 348 apartment units with 5% affordable and 10,000 s.f. of commercial.
- Ralston Gardens (former City Stores site) – 102 affordable housing units
- Paseo Place Apartments (57th & Garrison) – 36 apartments with 5% affordable

The City and AURA have a successful history of working together financially, including:

- $2 million loan to AURA to buy Brooklyn's - now the Hilton Garden Inn
- $5 million loan to AURA to buy Arvada Square - soon to be Ralston Commons
- $3.5 million grant to the City to finance the Ralston Road streetscape improvements
- $1 million loan to City (COVID small business grant) returned with CARES act funding
- $450,000 grant to the City to finance the historic trolley platform

Discussion

This Loan Agreement has been developed as a transparent and formal instrument to facilitate the borrowing of funds from the City's General Fund to help cash flow to the identified AURA projects. The repayment is over a short period of time, three years, and the funds are secured by future TIF revenues. The revenue stream is sufficient to pay back the loan through the specified time period.

The City will receive 3% interest on this investment, greater than the current 1.6% generated through the City's short-term cash investments. The payment schedule is attached. AURA will begin paying back the loan with a payment in 2023 of $2,000,000, a payment in 2024 of $3,000,000 and the final payment in 2025 of $3,530,000.

The Arvada Finance team has evaluated this proposed loan and concluded that this is a mutually beneficial agreement for the City and AURA.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

The Arvada Urban Renewal Authority Board is scheduled to approve this request at their March 2 board meeting.

Strategic Alignment

This action supports the following City Council Strategic Result:

By 12/25, fully align the City's economic development efforts with the community's vision expressed in the Community Survey and Business Survey.

Alternative Courses of Action

The Council could reject this request and the AURA would move forward with the tax exempt loan through Vectra Bank.

Recommendation for Action

The Arvada team recommends that the City Council approve CB22-045, An Ordinance Authorizing A Loan Agreement Between the City of Arvada and the Arvada Urban Renewal Authority to Support Redevelopment Projects in the Ralston Fields Urban Renewal Area on first reading, ordered published in full, and a public hearing date set for March 21, 2022 at 6:15 p.m.

Suggested Motion:

I move that CB22-045, An Ordinance Authorizing A Loan Agreement Between the City of Arvada and the Arvada Urban Renewal Authority to Support Redevelopment Projects in the Ralston Fields Urban Renewal Area, be (approved on first reading, ordered published in full, and a public hearing set for March 21, 2022 at 6:15 p.m.) (rejected).

Prepared by:
Bryan Archer, Director of Finance

Reviewed by:

Approved by:

Jenna Belec, Executive Assistant	1/20/2022
Bryan Archer, Director of Finance	1/20/2022
Emily Grogg, Senior Assistant City Attorney	1/25/2022
Gail Walker, Legal Specialist-Contracts	1/28/2022
Rachel Morris, City Attorney	2/10/2022
Lorie Gillis, Deputy City Manager	2/23/2022
Mark Deven, City Manager	2/23/2022

Enclosure, exhibits & attachments required to support the report

COUNCIL BILL NO. 22-045
ORDINANCE NO. _____

AN ORDINANCE AUTHORIZING A LOAN AGREEMENT BETWEEN THE CITY OF ARVADA AND ARVADA URBAN RENEWAL AUTHORITY TO SUPPORT REDEVELOPMENT PROJECTS IN THE RALSTON FIELDS URBAN RENEWAL AREA

WHEREAS, Arvada Urban Renewal Authority ("AURA") will be completing several projects in the Ralston Fields Urban Renewal Area before it expires in 2028; and

WHEREAS, to ensure the completion of these projects, AURA needs to borrow against the future revenue of said projects to allow them to move forward promptly; and

WHEREAS, the City will loan AURA $8 million to complete these projects timely under the terms of the loan agreement.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is hereby authorized to sign and the City Clerk to attest, in form approved by the City Attorney, a Loan Agreement, which is attached hereto, by and between the City of Arvada and Arvada Urban Renewal Authority to Support Redevelopment Projects in the Ralston Fields Urban Renewal Area.

Section 2. Copies of the proposed Loan Agreement are on file in the Office of the City Clerk and are available for inspection by the public.

Section 3. This ordinance shall take effect five days after publication following final passage.

INTRODUCED, READ, AND ORDERED PUBLISHED this 7th day of March, 2022.

PASSED, ADOPTED, AND APPROVED this ___day of _____, 2022.

_____
Marc Williams, Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:
Rachel A. Morris, City Attorney

_____

Publication Dates: March 10, 2022

Loan Agreement

A. **Parties**. The parties to this Loan Agreement ("Agreement") are the City of Arvada, a home rule municipal corporation ("Lender" or "City") and the Arvada Urban Renewal Authority, a body corporate and politic of the State of Colorado ("Borrower" or "AURA").

B. **Purpose**. Borrower is responsible for revitalizing urban areas designated throughout the community by creating successful, high-quality projects that will help produce a vibrant cohesive city and enhance the quality of life for the citizens for Arvada. Borrower is an independent body, corporate and politic under the State of Colorado law and governed by a seven member volunteer board appointed by the Mayor of Arvada and approved by the City Council. The Ralston Fields Urban Renewal Area expires in 2028 and Borrower is looking to complete several projects in the remaining years. The Ralston Field's Fund is projected to have $21 million by 2028 with the final few years producing the highest revenue. In order for Borrower to support these projects and allow them to move forward, Borrower needs to borrow against the future revenue of the Ralston Field's projects. To ensure the completion of the remaining projects, the Lender agrees to loan Borrower $8 million dollars.

C. **The City's obligations**. Lender agrees that, subject to Borrower's agreement to and compliance with the terms of this Agreement, Lender will loan the amount of $8 million dollars to Borrower to allow Borrower to complete the remaining Ralston Fields Urban Renewal Area projects as described in Borrower's memo to the City, attached as "Exhibit A".

1. Upon final execution and delivery of this Agreement by both parties, the City shall deliver funds for deposit with Wells Fargo Bank, or such other similar financial institution as the Borrower may direct ("the Bank"), in the amount of $8 million dollars ("Loan"). The City shall remit the Loan into the custody of the Bank by March 18, 2022.

2. The City's obligations described herein shall at all times be conditioned upon the Borrower using the funds solely for the aforementioned purpose. If at any time the Loan is not required to finish the projects, Borrower shall notify the City in writing within five business days of determining the Loan is not required. This Agreement may thereafter be terminated by the City, and Borrower shall repay the Loan to the City within five business days of the termination date.

D. **Borrower' Obligations**. In consideration of the City providing the Loan for the purposes described herein, Borrower agrees to the following terms and conditions, and shall perform, or have performed certain actions as may be necessary under this Agreement.

1. Borrower understands and agrees that the funds described herein are a loan and not a grant. Borrower understands and agrees that the Loan is to be repaid in full, including all principal, and interest if any, as provided herein. The principal of the Loan shall be $8 million dollars. The principal balance ($8 million) shall thereafter bear interest at the rate of 3.0% simple annual interest over a period of

three years commencing March 18, 2022 and continuing through March 18, 2025. Annual payments of principal and interest in the amounts set forth in Exhibit B shall be made to the City of Arvada, for the benefit of Lender. Borrower will make three payments until the Loan is paid in full: $2 million by March 18, 2023; $3 million by March 18, 2024, and $3,530,000 or balance remaining by March 18, 2025. The parties understand and agree that the term of the Loan shall commence on March 18, 2022 and continue until March 18, 2025.

2. Borrower shall utilize any available source of revenue to repay the balance of the Loan. In the event Borrower shall for any reason fail to make a payment when due, Lender shall have the right to receive from the Borrower, any revenues or reserves held by the City of Arvada for the benefit of the Borrower's enterprise in payment of the Loan, or any portion of it currently owed, but not paid. Until repayment of Loan in full, Borrower hereby consents to, and assigns to Lender, upon demand, all right title and interest to all accounts, inventories, receipts, and revenue due to, or held by, or held for the benefit of Borrower.

3. The parties may extend the term of the Loan on an annual basis for up to four additional one year terms, (hereafter, each being an "Extended Term"). Any Extended Term shall be agreed upon in writing not less than 30 calendar days prior to the date of expiration of the Original Term, or the anniversary date of each succeeding Extended Term, as the case may be. At the end of the final Extended Term, if not terminated earlier, Borrower shall remit payment in full to the City without demand not later than five business days after the expiration of the then current Extended Term.

4. Borrower shall be responsible for payment of all costs or expenses associated with obtaining and maintaining the Loan. Such costs or expenses shall not be debited to the Loan. The Loan may not be pledged for security of any other loan, debt, expense or obligation of Borrower, or otherwise be expended or hypothecated by Borrower for any other purpose whatsoever.

5. Borrower expressly acknowledges and agrees that the Loan is authorized by the City solely to facilitate the completion of the Ralston Fields projects. It is not the intention of the parties that the Loan be used to fund any other operation or undertaking of Borrower. Use of the Loan for any other purpose without the express written consent of the City, which consent may be granted or withheld in the sole and exclusive discretion of the City, shall be a breach of this Agreement.

6. In the event of breach of this Agreement by Borrower, the City shall have the right to terminate this Agreement and the repayment of the Loan shall become due and payable in full immediately, and without demand by the City. Any portion of the Loan not repaid in full when due, shall bear interest at the rate of 8% per annum, compounded annually, until paid in full.

7. Borrower shall at all times make all records, ledgers, books, accounts or other documents, concerning the Loan or its balance in any medium, kept or maintained by Borrower available for the City's inspection at reasonable times

upon request by the City. Borrower shall cooperate with the City, and provide permission to the Bank if required by the Bank, for City access to all account information necessary concerning the Loan for the purpose of verifying any information provided to the City by Borrower related to the Loan.

8. By entering into this Agreement, Lender expressly does not assume any obligation of Borrower to any third party, including, but not by limitation, any term, condition, covenant, duty, or obligation set forth in any contract, certificates of participation, commercial loan, or any other debt or obligation of Borrower to which Lender has not expressly consented in writing.

E. **Additional Documents or Actions**. The parties agree to execute any additional documents or take any additional action that is reasonably necessary to carry out this Agreement.

F. **Assignment.** This Agreement shall not be assigned by Borrower without the prior written consent of Lender, which may be granted or denied in Lender's absolute discretion. Borrower may not hypothecate, lend, or otherwise pledge the proceeds of the Loan to any other lender for any purpose, including, but not by limitation, as collateral for Borrower's performance under any other contract or financial obligation without the consent of Lender.

G. **Binding Effect**. This Agreement shall inure to the benefit of, and be binding upon, the parties, their respective legal representatives, successors, heirs, and assigns; provided however, that nothing in this Section shall be construed to permit the assignment of this Agreement except as otherwise expressly authored herein.

H. **Exhibits.** All Exhibits referred to in this Agreement are, by reference, incorporated herein for all purposes.

I. **Supersedes**. This Agreement supersedes and replaces all prior agreements, written or oral, with respect to the Loan.

J. **Governing Law and Venue**. This Agreement shall be governed by the laws of the State of Colorado without reference to its conflict of laws principles. Venue for any action arising under this Agreement or for the enforcement of this Agreement shall be in the appropriate court for Jefferson County, Colorado.

K. **The City Not a Partner**. The parties understand and agree that by making the Loan, the City is not a guarantor of Borrowers performance, or is assuming any debt or obligation of Borrower, or is creating a partnership or joint venture with Borrower. Nothing herein shall be deemed to be, or be construed as, a guarantee by the City of any debt or obligation of Borrower. Borrower shall not make any representation on behalf of the City, except as expressly authorized.

L. **No Third Party Beneficiaries**. There are no intended or unintended third party beneficiaries to this Agreement. The City acknowledges the Loan may be used in accordance with the terms of the LOC, but nothing herein shall provide any third party any benefit or right under this Agreement. Any person seeking payment from the proceeds of the

Loan shall be deemed incidental to this Agreement, and nothing herein shall be deemed to provide any right of, or claim to, payment, or to otherwise create any action for recovery of any debt or obligation, or obligation of performance against the City under or arising from any Borrower agreement with any third party.

M. **Attorneys' Fees**. If any party breaches this Agreement, the breaching party shall pay all of the prevailing party's reasonable attorney's fees and costs in enforcing this Agreement.

N. **Wavier of Breach**. A waiver by any party to this Agreement of the breach of any term or provision of this Agreement shall not operate or be construed as a waiver of any subsequent breach by either party.

O. **Termination of Agreement**. This Agreement shall automatically terminate upon payment of the Loan. The Lender may extend the term of this Agreement for such reasonable period of time it may believe is reasonable to do so in order to allow cure to occur in the event of default or non-payment by Borrower. Termination of this Agreement shall not otherwise relieve Borrower of any obligation of repayment any funds advanced or loaned by the City for any purpose described herein.

Agreed to this _____ day of _____, 2022.

Remainder of this page left blank intentionally.

Signature Page for AURA Loan Agreement

For Borrower:
Arvada Urban Renewal Authority

By: _____
Name: Alan K. Parker
Title: Chairman

For Lender:
City of Arvada

By: _____
Name: Marc Williams
Title: Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

Rachel A. Morris, City Attorney

By:_____

EXHIBIT A
A LOAN AGREEMENT BETWEEN THE CITY OF ARVADA AND THE ARVADA URBAN RENEWAL AUTHORITY TO SUPPORT SOME REDEVELOPMENT PROJECTS

Exhibit A

ARVADA URBAN RENEWAL AUTHORITY

M E M O R A N D U M

TO: **Mark Deven, City Manager**
FROM: **Maureen Phair, Executive Director**
DATE: **January 12, 2022 (original sent December 2020)**
RE: **AURA request for a loan from City of Arvada**

The Ralston Fields Urban Renewal Area expires in 2028 and AURA is looking to complete several very exciting projects in the next few years. Some of these projects include:

- Ralston Commons (NW corner of Ralston Rd and Garrison St) – mixed-use development with 27 for sale townhomes, 186 apartments, two restaurant buildings built around a large active park with parking for food trucks.
- Berkeley Homes (former Safeway) – 44 for-sale townhomes
- Paseo – 55' parkway linking Ralston Road with 57th Street along the 55' Garrison ROW. The project will extend the community garden into the parkway; create public viewing to the mountains and into the gardens, and increase safety and usage through lighting and design.
- Redevelopment of Kmart into a mixed-use development with 348 apartment units with 5% affordable and 10,000 s.f. of commercial.
- Ralston Gardens (former City Stores site) – 102 affordable housing units
- Paseo Place Apartments (57th & Garrison) – 36 apartment with 5% affordable

The Ralston Field's Fund is projected to have $21 million by 2028 with the final few years producing the highest revenue. In order to financially support these projects and allow them to move forward in the next couple years, AURA needs to borrow against the future revenue. Below is Ralston Field's projected fund balance.

2021	2022	2023	2024	2025	2026	2027	2028
4,701,754	3,402,834	2,446,727	5,137,711	7,983,689	14,187,264	20,414,017	21,314,214

AURA would like to request the following loan terms with the City of Arvada, an $8 million loan at 3% interest paid over three years.

Loan Proceeds:
2022 $8,000,000

Payment Schedule:

2023	$2,000,000
2024	3,000,000
2025	3,530,000
	$8,530,000

In order to minimize the impact to the City's cash balance, we are proposing a three year payback. We have also worked with Vectra Bank to secure a tax exempt loan, also at 3% interest, as a backup plan in case the City has need of those funds prior to the loan payback.

AURA and the City have a successful history of working together financially, including:

- $2 million loan to AURA to buy Brooklyn's - now the Hilton Garden Inn
- $5 million loan to AURA buy Arvada Square - soon to be Ralston Commons
- $3.5 million grant to City to finance the Ralston Road streetscape improvements
- $1 million loan to City – Covid small business grant
- $450,000 grant to the City to finance the historic trolley platform

We respectfully ask that you consider our request and look forward to hearing from you.

EXHIBIT B
A LOAN AGREEMENT BETWEEN THE CITY OF ARVADA AND THE ARVADA URBAN RENEWAL AUTHORITY TO SUPPORT SOME REDEVELOPMENT PROJECTS

General Fund

	2020	2021	2022	2023
Total Rev	$88,613,301	$88,553,637	$90,425,308	$93,125,408
Total Exp	$96,174,934	$91,118,633	$92,753,123	$94,751,201
Fund Bal Beg	$41,914,563	$34,352,930	$31,787,934	$29,460,119
Fund Bal End	$34,352,930	$31,787,934	$29,460,119	$27,834,326
Goal (17%)	$16,349,739	$15,490,168	$15,768,031	$16,107,704
Excess/(Deficiency)	$18,003,191	$16,297,766	$13,692,088	$11,726,622

Loan			$10,000,000	
Payments + Interest 3%				$2,500,000
				-$188,657

	2020	2021	2022	2023
Total Rev	$88,613,301	$88,553,637	$90,425,308	$95,436,751
Total Exp	$96,174,934	$91,118,633	$102,753,123	$94,751,201
Fund Bal Beg	$41,914,563	$34,352,930	$31,787,934	$19,460,119
Fund Bal End	$34,352,930	$31,787,934	$19,460,119	$20,145,669
Goal (17%)	$16,349,739	$15,490,168	$17,468,031	$16,107,704
Excess/(Deficiency)	$18,003,191	$16,297,766	$1,992,088	$4,037,965
Current Fund Balance	$34,352,930	$31,787,934	$29,460,119	$27,834,326
After Fund Balance	$34,352,930	$31,787,934	$19,460,119	$20,145,669
Current Excess	**$18,003,191**	**$16,297,766**	**$13,692,088**	**$11,726,622**
After Loan	**$18,003,191**	**$16,297,766**	**$1,992,088**	**$4,037,965**
% of total Exp	35.72%	34.89%	18.94%	21.26%

2024	2025	2026	2027	2028	2029
$96,277,004	$98,723,962	$100,997,836	$103,191,251	$105,582,430	$111,113,979
$96,872,388	$99,826,474	$102,625,880	$105,416,394	$108,208,543	$111,221,512
$27,834,326	$27,238,942	$26,136,430	$24,508,386	$22,283,243	$19,657,130
$27,238,942	$26,136,430	$24,508,386	$22,283,243	$19,657,130	$19,549,597
$16,468,306	$16,970,501	$17,446,400	$17,920,787	$18,395,452	$18,907,657
$10,770,636	$9,165,929	$7,061,986	$4,362,456	$1,261,678	$641,940
$5,300,000	$3,143,838				
-$110,000	-$55,000	$12,000	$20,000	$25,000	$28,000

2024	2025	2026	2027	2028	2029
$101,467,004	$101,812,800	$101,009,836	$103,211,251	$105,607,430	$111,141,979
$96,872,388	$99,826,474	$102,625,880	$105,416,394	$108,208,543	$111,221,512
$20,145,669	$24,740,285	$26,726,611	$25,110,567	$22,905,424	$20,304,311
$24,740,285	$26,726,611	$25,110,567	$22,905,424	$20,304,311	$20,224,778
$16,468,306	$16,970,501	$17,446,400	$17,920,787	$18,395,452	$18,907,657
$8,271,979	$9,756,111	$7,664,168	$4,984,637	$1,908,859	$1,317,121
$27,238,942	$26,136,430	$24,508,386	$22,283,243	$19,657,130	$19,549,597
$24,740,285	$26,726,611	$25,110,567	$22,905,424	$20,304,311	$20,224,778
$10,770,636	**$9,165,929**	**$7,061,986**	**$4,362,456**	**$1,261,678**	**$641,940**
$8,271,979	**$9,756,111**	**$7,664,168**	**$4,984,637**	**$1,908,859**	**$1,317,121**
25.54%	26.77%	24.47%	21.73%	18.76%	18.18%

2030

$113,897,710
$114,039,573

$19,549,597
$19,407,734

$19,386,727
$21,007

$30,000

2030

$113,927,710
$114,039,573

$20,224,778
$20,112,915

$19,386,727
$726,188

$19,407,734
$20,112,915

$21,007
$726,188
17.64%

General Fund

	2020	2021	2022	2023
Total Rev	$88,613,301	$88,553,637	$90,425,308	$93,125,408
Total Exp	$96,174,934	$91,118,633	$92,753,123	$94,751,201
Fund Bal Beg	$41,914,563	$34,352,930	$31,787,934	$29,460,119
Fund Bal End	$34,352,930	$31,787,934	$29,460,119	$27,834,326
Goal (17%)	$16,349,739	$15,490,168	$15,768,031	$16,107,704
Excess/(Deficiency)	$18,003,191	$16,297,766	$13,692,088	$11,726,622

Loan			$6,000,000	
Payments + Interest 3%				$1,310,127
				-$113,194

	2020	2021	2022	2023
Total Rev	$88,613,301	$88,553,637	$90,425,308	$94,322,341
Total Exp	$96,174,934	$91,118,633	$98,753,123	$94,751,201
Fund Bal Beg	$41,914,563	$34,352,930	$31,787,934	$23,460,119
Fund Bal End	$34,352,930	$31,787,934	$23,460,119	$23,031,259
Goal (17%)	$16,349,739	$15,490,168	$16,788,031	$16,107,704
Excess/(Deficiency)	$18,003,191	$16,297,766	$6,672,088	$6,923,555
Current Fund Balance	$34,352,930	$31,787,934	$29,460,119	$27,834,326
After Fund Balance	$34,352,930	$31,787,934	$23,460,119	$23,031,259
Current Excess	**$18,003,191**	**$16,297,766**	**$13,692,088**	**$11,726,622**
After Loan	**$18,003,191**	**$16,297,766**	**$6,672,088**	**$6,923,555**
% of total Exp	35.72%	34.89%	23.76%	24.31%

2024	2025	2026	2027	2028	2029
$96,277,004	$98,723,962	$100,997,836	$103,191,251	$105,582,430	$111,113,979
$96,872,388	$99,826,474	$102,625,880	$105,416,394	$108,208,543	$111,221,512
$27,834,326	$27,238,942	$26,136,430	$24,508,386	$22,283,243	$19,657,130
$27,238,942	$26,136,430	$24,508,386	$22,283,243	$19,657,130	$19,549,597
$16,468,306	$16,970,501	$17,446,400	$17,920,787	$18,395,452	$18,907,657
$10,770,636	$9,165,929	$7,061,986	$4,362,456	$1,261,678	$641,940
$1,310,127	$1,310,127	$1,310,127	$1,310,127		
-$95,859	-$67,294	-$26,336	$21,000	$22,615	$22,740

2024	2025	2026	2027	2028	2029
$97,491,272	$99,966,795	$102,281,627	$104,522,378	$105,605,045	$111,136,719
$96,872,388	$99,826,474	$102,625,880	$105,416,394	$108,208,543	$111,221,512
$23,031,259	$23,650,143	$23,790,463	$23,446,211	$22,552,195	$19,948,697
$23,650,143	$23,790,463	$23,446,211	$22,552,195	$19,948,697	$19,863,904
$16,468,306	$16,970,501	$17,446,400	$17,920,787	$18,395,452	$18,907,657
$7,181,837	$6,819,963	$5,999,811	$4,631,408	$1,553,245	$956,247
$27,238,942	$26,136,430	$24,508,386	$22,283,243	$19,657,130	$19,549,597
$23,650,143	$23,790,463	$23,446,211	$22,552,195	$19,948,697	$19,863,904
$10,770,636	**$9,165,929**	**$7,061,986**	**$4,362,456**	**$1,261,678**	**$641,940**
$7,181,837	**$6,819,963**	**$5,999,811**	**$4,631,408**	**$1,553,245**	**$956,247**
24.41%	23.83%	22.85%	21.39%	18.44%	17.86%

2030

$113,897,710
$114,039,573

$19,549,597
$19,407,734

$19,386,727
$21,007

$24,051

2030

$113,921,761
$114,039,573

$19,863,904
$19,746,092

$19,386,727
$359,364

$19,407,734
$19,746,092

$21,007
$359,364
17.32%

Computer Fund

	2020	2021	2022	2023
Total Rev	$2,532,712	$2,578,338	$2,627,463	$2,680,104
Total Exp	$2,631,275	$1,842,004	$2,903,239	$3,696,175
Fund Bal Beg	$7,274,682	$7,176,119	$7,912,453	$7,636,677
Fund Bal End	$7,176,119	$7,912,453	$7,636,677	$6,620,606

Loan			$2,000,000	
Payments + Interest 3%				$436,709
				-$46,044

	2020	2021	2022	2023
Total Rev	$2,532,712	$2,578,338	$2,627,463	$3,070,769
Total Exp	$2,631,275	$1,842,004	$4,903,239	$3,696,175
Fund Bal Beg	$7,274,682	$7,176,119	$7,912,453	$5,636,677
Fund Bal End	$7,176,119	$7,912,453	$5,636,677	$5,011,271
Current Fund Balance	**$7,176,119**	**$7,912,453**	**$7,636,677**	**$6,620,606**
After Fund Balance	**$7,176,119**	**$7,912,453**	**$5,636,677**	**$5,011,271**

Exhibit B

2024	2025	2026	2027	2028	2029
$2,733,904	$2,788,660	$2,844,614	$2,901,864	$2,959,996	$3,019,239
$2,298,700	$2,664,418	$2,773,225	$3,126,130	$3,678,412	$4,384,587
$6,620,606	$7,055,810	$7,180,052	$7,251,441	$7,027,175	$6,308,759
$7,055,810	$7,180,052	$7,251,441	$7,027,175	$6,308,759	$4,943,411
$436,709	$436,709	$436,709	$436,709		
-$31,135	-$18,736	-$6,808	$5,093	$5,673	$7,240

2024	2025	2026	2027	2028	2029
$3,139,478	$3,206,633	$3,274,515	$3,343,666	$2,965,669	$3,026,479
$2,298,700	$2,664,418	$2,773,225	$3,126,130	$3,678,412	$4,384,587
$5,011,271	$5,852,048	$6,394,264	$6,895,554	$7,113,090	$6,400,347
$5,852,048	$6,394,264	$6,895,554	$7,113,090	$6,400,347	$5,042,239
$7,055,810	**$7,180,052**	**$7,251,441**	**$7,027,175**	**$6,308,759**	**$4,943,411**
$5,852,048	**$6,394,264**	**$6,895,554**	**$7,113,090**	**$6,400,347**	**$5,042,239**

2030

$3,079,698
$5,290,103

$4,943,411
$2,733,006

$13,096

2030

$3,092,794
$5,290,103

$5,042,239
$2,844,930

$2,733,006
$2,844,930

Vehicle Fund

	2020	2021	2022	2023
Total Rev	$5,722,503	$5,707,343	$5,835,447	$5,922,009
Total Exp	$5,432,742	$4,880,933	$6,493,683	$4,581,402
Fund Bal Beg	$5,191,172	$5,480,933	$6,307,343	$5,649,107
Fund Bal End	$5,480,933	$6,307,343	$5,649,107	$6,989,714

Loan			$2,000,000	
Payments + Interest 3%				$436,709
				-$29,075

	2020	2021	2022	2023
Total Rev	$5,722,503	$5,707,343	$5,835,447	$6,329,643
Total Exp	$5,432,742	$4,880,933	$8,493,683	$4,581,402
Fund Bal Beg	$5,191,172	$5,480,933	$6,307,343	$3,649,107
Fund Bal End	$5,480,933	$6,307,343	$3,649,107	$5,397,348
Current Fund Balance	**$5,480,933**	**$6,307,343**	**$5,649,107**	**$6,989,714**
After Fund Balance	**$5,480,933**	**$6,307,343**	**$3,649,107**	**$5,397,348**

2024	2025	2026	2027	2028	2029
$6,038,481	$6,153,296	$6,271,525	$6,379,580	$6,490,665	$6,605,283
$5,215,936	$4,894,280	$5,021,221	$5,203,113	$5,329,785	$5,435,985
$6,989,714	$7,812,259	$9,071,275	$10,321,579	$11,498,046	$12,658,926
$7,812,259	$9,071,275	$10,321,579	$11,498,046	$12,658,926	$13,828,224
$436,709	$436,709	$436,709	$436,709		
-$18,747	-$9,887	-$3,189	$2,075	$1,885	$1,726

2024	2025	2026	2027	2028	2029
$6,456,443	$6,580,118	$6,705,045	$6,818,364	$6,492,550	$6,607,009
$5,215,936	$4,894,280	$5,021,221	$5,203,113	$5,329,785	$5,435,985
$5,397,348	$6,637,855	$8,323,693	$10,007,518	$11,622,769	$12,785,534
$6,637,855	$8,323,693	$10,007,518	$11,622,769	$12,785,534	$13,956,557
$7,812,259	**$9,071,275**	**$10,321,579**	**$11,498,046**	**$12,658,926**	**$13,828,224**
$6,637,855	**$8,323,693**	**$10,007,518**	**$11,622,769**	**$12,785,534**	**$13,956,557**

2030

$6,723,556
$5,565,049

$13,828,224
$14,986,731

$1,592

2030

$6,725,148
$5,565,049

$13,956,557
$15,116,656

$14,986,731
$15,116,656

	Loan	Interest	Payment	Remaining Balance
3/1/22	$8,000,000	$0	$0	$8,000,000
3/1/23	$8,000,000	$240,000	$2,000,000	$6,240,000
3/1/24	$6,240,000	$187,200	$3,000,000	$3,427,200
3/1/25	$3,427,200	$102,800	$3,530,000	$0

CITY OF ARVADA

REPORT TO CITY COUNCIL ORDINANCE FIRST READING

AGENDA ITEM 8.C.2.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: CB22-046, An Ordinance Amending The Land Development Code, of The City of Arvada Code (Public Hearing to be set for March 21, 2022 at 6:15 p.m.)

Report in Brief

The latest version of the Land Development Code was adopted in May of 2020. Since that time, the City team, members of the development community and residents of Arvada have identified a small number of modifications to the Code that would make it more functional and easier to understand.

The Arvada team recommends that the City Council approve CB22-046, An Ordinance Amending The Land Development Code, of The City of Arvada Code, on first reading, ordered published in full, and a public hearing set for March 21, 2022 at 6:15 p.m.

Financial Impact

The approval of the recommended action will have no financial impact.

Background

The Land Development Code was adopted by City Council on May 18, 2020. It was later amended to allow for Short Term Rental properties within the City.

During the adoption of the Land Development Code, the City team committed to review the document following the first year of use and suggest changes and clarifications. The team presented the proposed amendments to the Planning Commission on September 7, 2021 and City Council on September 13, 2021 and again on December 13, 2021. Following the December meeting, it was determined that a majority of the changes could move forward to adoption. There are also changes that require additional discussion and will, therefore, go through the adoption process as a second package of amendments.

The Planning Commission held a public hearing on February 8, 2022 regarding the proposed amendments. An additional workshop and action by the Planning Commission is planned for March 8, 2022.

Discussion

There are 24 substantive changes proposed to the Land Development Code that the City team has identified as significant and warrant review by the Planning Commission and City Council. In addition, there are several other minor changes, such as spelling errors and incorrect references that have been provided in the attached redlines.

The changes include:

1. Table 2-1-3-3A to clarify the setback distance for alley-loaded garages.
2. Tables 2-1-3-4A, 2-1-3-5A, 2-1-3-6A, 2-1-4-1A to address the Landscape Surface Area and Landscape Surface Area, Amenitized requirements.

3. Section 2-1-3-4 to delete Urban Townhomes as a permitted housing type.
4. Table 2-1-5-4D to revise the Total Building Width in the Olde Town –GV and OW zoning districts.
5. Table 3-1-2-5 related to Animal Day Care/Training. This amendment would allow the use as Conditional in the RA Zoning District.
6. Section 3-1-3-5 to clarify that a caretaker residence is allowed for Kennel uses and to define the requirements for the residence.
7. Section 3-1-4-5 to allow the Food and Retail Truck vending distance to be measured from a home or building, rather than a zoning district boundary.
8. Sections 4-3-2-2 and 4-3-2-3 have been added to replace Common Open Spaces with Landscape Surface Area and Amenitized Landscape Surface Area to reduce confusion regarding the difference between active and passive landscape areas.
9. Table 4-5-2-2A to increase the townhome parking requirement from 2 to 2.2 spaces per unit to account for guest parking.
10. Section 4-5-3-1 to clarify the maximum percentage of a front yard area that can be paved with impervious material.
11. Section 4-5-3-4 to allow off-site parking to be located up to 500 feet from the property it is serving. Additionally, the distance the off-street property is located from the property it is serving is reduced from 300 feet to 200 feet.
12. Section 4-5-3-6 to clarify where drive-through stacking lanes can be located.
13. Section 4-5-3-8 to better differentiate between short and long term bike parking requirements.
14. Section 4-6-5-2 to revise the situations in which landscape buffer yards are required when new development is located adjacent to various dwelling unit types and RN zoning districts.
15. Table 4-7-2-1 to clarify how fencing standards are applied to properties zoned PUD.
16. Article 4-8 to simplify and clarify the exterior lighting requirements and standards to avoid continued confusion.
17. Section 5-1-5-2 to clarify that accessory dwelling units shall always be located at or behind the front plane of the primary residential unit regardless of the lot type.
18. Table 5-1-5-3A to clarify how accessory buildings are counted in PUD zoning districts.
19. Section 5-1-6-8 to add additional requirements and standards for electric vehicle charging stations to address the various types of facilities being developed.
20. Table 8-2-2-2A to add Director discretion regarding notice requirements and neighborhood meetings and to indicate that a public hearing is not required for a specific application type.
21. Section 8-2-4-1 to allow for more flexibility in determining what constitutes a minor defect in public hearing noticing.
22. Section 8-2-3-8 to provide for a notice of administrative decision.
23. Section 8-3-5-3 to expand the Site Plan approval criteria related to project amenities required in the R6, R13 and R24 zoning districts and townhome development in order to create more complete neighborhoods.
24. Article 11-3 to add or revise definitions including, but not limited to, Electric Vehicle Charging Station, Food and Retail Truck Vending, Fueling/Service Station, Landscape Surface Area and Landscape Surface Area, Amenitized, and Produce Stand.

Public Contact

Information regarding the proposed amendments has been provided on the City's website. Additionally, two workshops were held by the City Council with the presentations being streamed live and also available for viewing on the City's website.

Commission Recommendation

The Planning Commission will review the proposed amendments on March 8, 2022.

Strategic Alignment

The recommended action aligns with the Community and Economic Development Priority Area of the City Council Strategic Plan.

Alternative Courses of Action

N/A

Recommendation for Action

The Arvada team recommends that the City Council approve CB22-046, An Ordinance Amending The Land Development Code, of The City of Arvada Code, on first reading, ordered published in full, and a public hearing set for March 21, 2022 at 6:15 p.m.

Suggested Motion:

I move that CB22-046, An Ordinance Amending The Land Development Code, of The City of Arvada Code, be (approved on first reading, ordered published in full, and a public hearing set for March 21,2022 at 6:15 p.m.) (rejected).

Prepared by:
Abigail Ogg, Administrative Specialist

Reviewed by:

Approved by:

Robert Smetana, Manager of City Planning and Development	2/16/2022
Josie Suk, Development Systems and Administrative Manager	2/18/2022
Ryan Stachelski, Director of Community and Economic Development	2/18/2022
Gail Walker, Legal Specialist-Contracts	2/18/2022
Emily Grogg, Senior Assistant City Attorney	2/22/2022
Rachel Morris, City Attorney	2/23/2022
Lorie Gillis, Deputy City Manager	2/23/2022
Mark Deven, City Manager	2/23/2022

Enclosure, exhibits & attachments required to support the report

COUNCIL BILL NO. 22-046
ORDINANCE NO.

AN ORDINANCE AMENDING THE LAND DEVELOPMENT CODE, OF THE ARVADA CITY CODE

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. Chapter 2, Zoning Districts, of the Land Development Code, of the Arvada City Code is hereby amended:

Table 2-1-3-3A: Residential Neighborhood Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-3-3A: Residential Neighborhood Lot and Building Standards								
Standard		Subdistrict						
		RN-32.5	RN-12.5	RN-7.5	RN-6	RN-4	RN-D	
Residential Uses								
Housing Type		Single-Family	Single-Family	Single-Family	Single-Family	Single-Family	Single-Family	Duplex
Lot Standards								
	Min. Lot Area	32,500 sf.	12,500 sf.	7,500 sf.	6,000 sf.	4,000 sf.	6,000 sf.	9,000 sf.
A	Min. Lot Width	100 ft.	100 ft.	75 ft.	50 ft.	40 ft.	60 ft.	75 ft.
	Min. Lot Width (Corner)	100 ft.	100 ft.	85 ft.	60 ft.	40 ft.	75 ft.	85 ft.
	Max. Lot Coverage	25%	35%	40%	40%	40%	40%	30%
Setback Standards								
B	Min. Front	30 ft.	30 ft.	20 ft.	18 ft.	18 ft.	18 ft.	25 ft.
C	Min. Street Side[1]	25ft.	25 ft.	20 ft.	13 ft.	13 ft.	13 ft.	20 ft.
D	Min. Interior Side	15 ft.	10 ft.	7.5 ft.	5 ft.	5 ft.	5 ft.	10 ft.
E	Min. Rear	15 ft.	15 ft.	10 ft.	10 ft.	10 ft.	10 ft.	10 ft.
	Min. Rear, Alley[1]	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.
	Min. Arterial Setback[2]	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.
Building Standards								
F	Max. Height, Principal Building	35 ft.	28 ft.	28 ft.	28 ft.	28 ft.	28 ft.	28 ft.
	Max. Height, ADU (detached)	30 ft.	25 ft.	25 ft.	25 ft.	25 ft.	25 ft.	-
G	Max. Height, Accessory Building except for Barns and Stables	20 ft.	16 ft.	16 ft.	16 ft.	16 ft.	16 ft.	16 ft.
	Max. Height, Barns and Stables	35 ft.	30 ft.	-	-	-	-	-
	Max. Height, Mini Structures	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.
Nonresidential Uses								
Lot Standards								
	Min. Lot Area	1 ac.	1 ac.	10,000 sf.	10,000 sf.	10,000 sf.	10,000 sf.	
A	Min. Lot Width	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	

Table 2-1-3-3A: Residential Neighborhood Lot and Building Standards							
Standard		Subdistrict					
		RN-32.5	RN-12.5	RN-7.5	RN-6	RN-4	RN-D
	Max. Lot Coverage	25%	25%	40%	40%	40%	40%
Setback Standards							
B	Min. Front	30 ft.	30 ft.	25 ft.	18 ft.	18 ft.	18 ft.
C	Min. Interior Side	15 ft.	15 ft.	10 ft.	10 ft.	10 ft.	10 ft.
D	Min. Street Side	30 ft.	30 ft.	25 ft.	18 ft.	18 ft.	18 ft.
E	Min. Rear	15 ft.	15 ft.	15 ft.	10 ft.	10 ft.	10 ft.
	Min. Rear (Alley)[1]	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.
	Min. Arterial Setback[2]	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.
Building Standards							
F	Max. Height, Principal Building	35 ft.	35 ft.	35 ft.	35 ft.	35 ft.	35 ft.
G	Max. Height, Accessory Building	20 ft.	16 ft.	16 ft.	16 ft.	16 ft.	16 ft.
	Max. Height, Mini Structure	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.

TABLE NOTES:

[1] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicant's discretion.

[2] Measured from the centerline of the arterial. *See* Section 2-1-9-2, Arterial Street Setbacks.

Section 2-1-3-4 R6: Residential 6 is hereby amended in its entirety to read as follows:

A. **"Purpose.** The purpose of the Residential 6 (R6) zoning district is to allow for new residential development of a variety of housing products up to a gross density of six units per acre along with supporting community and institutional uses.

B. **Relationship to the Comprehensive Plan.** The R6 zoning district generally implements the "Suburban Residential" land use category stated in the Comprehensive Plan.

C. **Lot and Building Standards.** The standards for lots and buildings in the R6 zoning district are set out in Table 2-1-3-4A, Residential 6 Lot and Building Standards and Division 2-1-8, Housing Palette.

Figure 2-1-3-4: Illustrative Residential 6 Lot and Building Standards

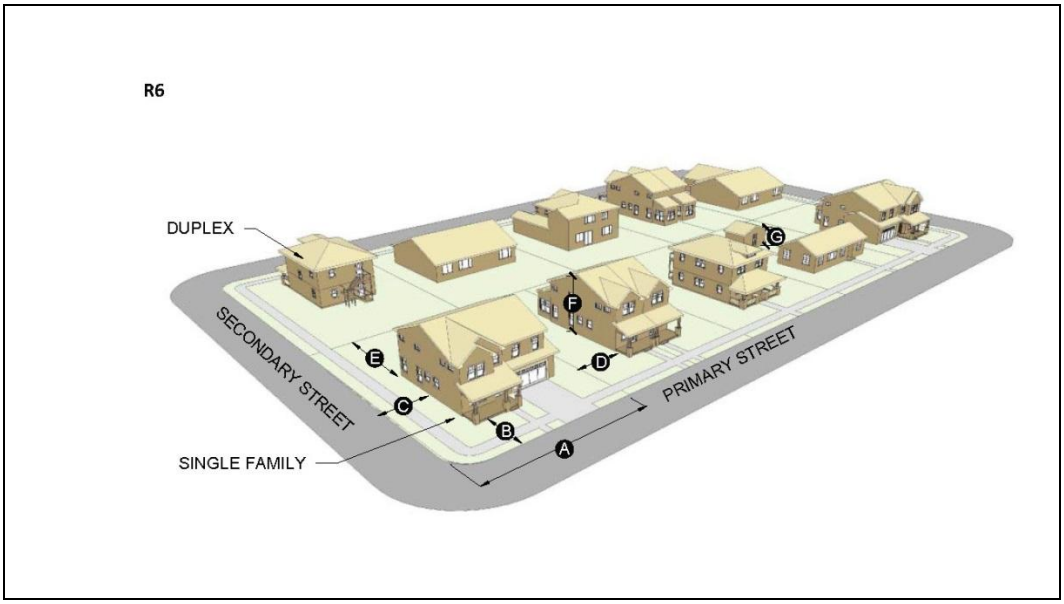


Table 2-1-3-4A: Residential 6 Lot and Building Standards			
Standard		Lot Type	
		Residential	Nonresidential
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10,000 sf.
A	Min. Lot Width		100 ft.
	Max. Lot Coverage		40%
Building and Parking Siting Standards			
B	Min. Front	*See* Subsection D., below, and Division 2-1-8, Housing Palette	25 ft.
C	Min. Street Side		25 ft.
D	Min. Interior Side		10 ft.
E	Min. Rear		15 ft.
	Min. Arterial Setback[1]	100 ft.	No Minimum
	Min. Parking Setback	20 ft.[2]	20 ft.
Building Standards			
F	Max. Height, Principal Building	35 ft.	35 ft.
	Max. Height, ADU (detached)	30 ft.	-
G	Max. Height, Accessory Building	18 ft.	18 ft.
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area	20%	30%
	Min. Landscape Surface Area, Amenitized[3]	5%	-
Density Standards			
	Max. Density	6 u/a	-

TABLE NOTES:
[1] Measured from the centerline of the arterial. *See* Section 2-1-9-2, Arterial Street Setbacks.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.

D. **Housing Palette.** The following housing types identified in Division 2-1-8, Housing Palette, are allowed in the R6 zoning district:

1. Single-Family Detached: Small General; General; Small Suburban; Suburban
2. Zero Lot Line: Small General; General
3. Duplexes: Side-By-Side; Over-Under
4. Townhomes: Suburban Type
5. Multiplexes
6. Clustered Housing: Micro Homes; Cottage Types.

E. **Cross-References.** The cross-references in Table 2-1-3-4B, Cross-References for Residential 6, are provided for the reader's convenience and are not necessarily exhaustive of applicable regulations.

Table 2-1-3-4B: Cross-References for Residential 6

Topic	Reference
Max. No. of Principal Building	Section 2-1-9-1, One Principal Building per Lot
Land Use Regulations	Division 3-1-2, Land Use by Zoning District
Business Use of the Home	Division 3-1-5, Business Use of the Home
Parking	Article 4-5, Parking and Loading
Landscaping	Article 4-6, Landscaping and Buffering
Fences and Walls	Section 4-7-2-1, Fences and Divisional Walls; and Section 4-7-2-2, Retaining Walls
Exterior Lighting	Article 4-8, Exterior Lighting
Building Design Standards	Division 5-1-2, Building and Structure Design Standards; and Section 5-1-4-1, Decks, Balconies, and Porches
Mini-Structures (*e.g.,* Playground Equipment)	Section 5-1-4-3, Mini-Structures
Accessory Dwelling Units	Section 5-1-5-2, Accessory Dwelling Units
Accessory Buildings	Section 5-1-5-3, Accessory Buildings
Satellite Dishes, Antennas, and Amateur Radio	Section 5-1-5-4, Satellite Dishes and Antennas; Amateur Radio Antennas
Renewable Energy Systems (*e.g.,* Solar Panels)	Section 5-1-4-4, Renewable Energy Systems
Accessory Buildings (Non-Residential and Multifamily)	Section 5-1-6-1.E, Number of Accessory Buildings or Free-Standing Accessory Structures"

Section 2-1-3-5 R13: Residential 13 is hereby amended in its entirety to read as follows:

A. **"Purpose.** The purpose of the Residential 13 (R13) zoning district is to allow for new residential development of a variety of housing products up to a gross density of 13 units per acre.

B. **Relationship to the Comprehensive Plan.** The R13 zoning district generally implements the "Medium Density Residential" land use category stated in the Comprehensive Plan.

C. **Lot and Building Standards.** The standards for lots and buildings in the R13 zoning district are set out in Table 2-1-3-5A, Residential 13 Lot and Building Standards and Division 2-1-8, Housing Palette.

Figure 2-1-3-5: Illustrative Residential 13 Lot and Building Standards

Table 2-1-3-5A: Residential 13 Lot and Building Standards

Standard		Lot Type	
		Residential	Nonresidential
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10,000 sf.
A	Min. Lot Width		100 ft.
	Max. Lot Coverage		40%
Setback Standards			
B	Min. Front	*See* Subsection D., below, and Division 2-1-8, Housing Palette	20 ft.
C	Min. Street Side		20 ft.
D	Min. Interior Side		10 ft.
E	Min. Rear		15 ft.
	Min. Arterial Setback[1]	100 ft.	-
	Min. Parking Setback	20 ft.[2]	20 ft.
Building Standards			
F	Max. Height, Principal Building	35 ft.	35 ft.
	Max. Height, ADU (detached)	30 ft.	-
	Max. Height, Accessory Building	18 ft.	18 ft.
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area	20%	30%
	Min. Landscape Surface Area, Amenitized[3]	5%	-

Density Standards			
	Max. Density	13 u/a	-

TABLE NOTES:
[1] Measured from the centerline of the arterial. ***See*** Section 2-1-9-2, Arterial Street Setbacks.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.

D. **Housing Palette.** The following housing types identified in Division 2-1-8, Housing Palette, are allowed in the R13 zoning district:

1. Single-Family Detached: Small Urban; Urban; Small General; General; Small Suburban
2. Zero Lot Line: Small General; General
3. Duplexes: Side-By-Side; Over-Under
4. Townhomes: Suburban; Urban
5. Multiplexes
6. Multifamily: General
7. Clustered Housing: Micro; Cottages Types.

E. **Cross-References.** The cross-references in Table 2-1-3-5B, Cross-References for Residential 13, are provided for the reader's convenience and are not necessarily exhaustive of applicable regulations.

Table 2-1-3-5B: Cross-References for Residential 13

Topic	Reference
Max. No. of Principal Building	Section 2-1-9-1, One Principal Building per Lot
Land Use Regulations	Division 3-1-2, Land Use by Zoning District
Business Use of the Home	Division 3-1-5, Business Use of the Home
Parking	Article 4-5, Parking and Loading
Landscaping	Article 4-6, Landscaping and Buffering
Fences and Walls	Section 4-7-2-1, Fences and Divisional Walls; and Section 4-7-2-2, Retaining Walls
Exterior Lighting	Article 4-8, Exterior Lighting
Building Design Standards	Division 5-1-2, Building and Structure Design Standards; and Section 5-1-4-1, Decks, Balconies, and Porches
Mini-Structures (e.g., Playground Equipment)	Section 5-1-4-3, Mini-Structures
Accessory Dwelling Units	Section 5-1-5-2, Accessory Dwelling Units
Accessory Buildings	Section 5-1-5-3, Accessory Buildings
Satellite Dishes, Antennas, and Amateur Radio	Section 5-1-5-4, Satellite Dishes and Antennas; Amateur Radio Antennas
Renewable Energy Systems (e.g., Solar Panels)	Section 5-1-4-4, Renewable Energy Systems
Accessory Buildings (Non-Residential and Multifamily)	Section 5-1-6-1.E, Number of Accessory Buildings or Free-Standing Accessory Structures"

Section 2-1-3-6 R24: Residential 24 is hereby amended in its entirety to read as follows:

A. **"Purpose.** The purpose of the Residential 24 (R24) zoning district is to allow for new residential development of a variety of moderate to higher density housing products, up to a gross density of 24 units per acre.

B. **Relationship to the Comprehensive Plan.** The R24 zoning district generally implements the "High Density Residential" land use category stated in the Comprehensive Plan.

C. **Lot and Building Standards.** The standards for lots and buildings in the R24 zoning district are set out in Table 2-1-3-6A, Residential 24 Lot and Building Standards and Division 2-1-8, Housing Palette.

Figure 2-1-3-6: Illustrative Residential 24 Lot and Building Standards

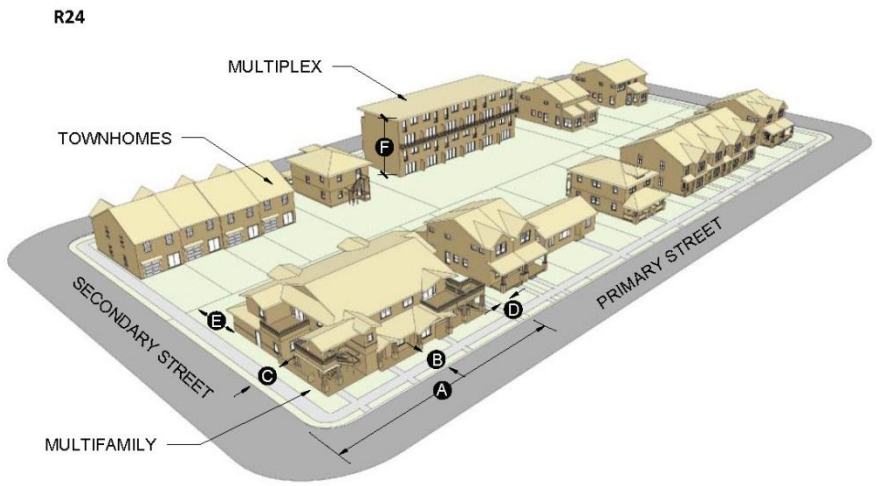


Table 2-1-3-6A: Residential 24 Lot and Building Standards

Standard		Lot Type	
		Residential	Nonresidential
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10,000 sf.
A	Min. Lot Width		100 ft.
	Max. Lot Coverage		40%
Building and Parking Siting Standards			
B	Min. Front	*See* Subsection D., below, and Division 2-1-8, Housing Palette	20 ft.
C	Min. Street Side		20 ft.
D	Min. Interior Side		10 ft.
E	Min. Rear		15 ft.
	Min. Arterial Setback[1]	100 ft.	-
	Min. Parking Setback	20 ft.[2]	20 ft.
Building Standards			
F	Max. Height, Principal Building	35 ft.	35 ft.

Table 2-1-3-6A: Residential 24 Lot and Building Standards			
Standard		Lot Type	
		Residential	Nonresidential
	Max. Height, ADU (detached)	30 ft.	-
	Max. Height, Accessory Building	18 ft.	18 ft.
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area	20%	30%
	Min. Landscape Surface Area, Amenitized[3]	5%	-
Density Standards			
	Max. Density	24 u/a	-

TABLE NOTES:
[1] Measured from the centerline of the arterial. See Section 2-1-9-2, Arterial Street Setbacks.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.

D. **Housing Palette.** The following housing types identified in Division 2-1-8, Housing Palette, are allowed in the R24 zoning district:

1. Single-Family Detached: Small Urban; Urban; Small General; General; Small Suburban
2. Zero Lot Line: Small General; General
3. Duplexes: Side-By-Side; Over-Under
4. Townhomes: Suburban; Urban
5. Multiplexes
6. Multifamily: General; Urban
7. Clustered Housing; Micro Homes; Cottages Types.

E. **Cross-References.** The cross-references in Table 2-1-3-6B, Cross-References for Residential 24, are provided for the reader's convenience and are not necessarily exhaustive of applicable regulations.

Table 2-1-3-6B: Cross-References for Residential 24	
Topic	Reference
Max. No. of Principal Building	Section 2-1-9-1, One Principal Building per Lot
Land Use Regulations	Division 3-1-2, Land Use by Zoning District
Business Use of the Home	Division 3-1-5, Business Use of the Home
Parking	Article 4-5, Parking and Loading
Landscaping	Article 4-6, Landscaping and Buffering
Fences and Walls	Section 4-7-2-1, Fences and Divisional Walls; and Section 4-7-2-2, Retaining Walls
Exterior Lighting	Article 4-8, Exterior Lighting
Building Design Standards	Division 5-1-2, Building and Structure Design Standards; and Section 5-1-4-1, Decks, Balconies, and Porches
Mini-Structures (*e.g.,* Playground Equipment)	Section 5-1-4-3, Mini-Structures
Accessory Dwelling Units	Section 5-1-5-2, Accessory Dwelling Units
Accessory Buildings	Section 5-1-5-3, Accessory Buildings

Table 2-1-3-6B: Cross-References for Residential 24	
Topic	Reference
Satellite Dishes, Antennas, and Amateur Radio	Section 5-1-5-4, Satellite Dishes and Antennas; Amateur Radio Antennas
Renewable Energy Systems (*e.g.,* Solar Panels)	Section 5-1-4-4, Renewable Energy Systems
Accessory Buildings (Non-Residential and Multifamily)	Section 5-1-6-1.E, Number of Accessory Buildings or Free-Standing Accessory Structures"

Table 2-1-4-1A: Mixed-Use, Neighborhood Lot and Building Structures is hereby amended in its entirety to read as follows**:**

Table 2-1-4-1A: Mixed-Use, Neighborhood Lot and Building Standards			
Standard		Use Type	
		Residential	Nonresidential or Mixed-Use Building
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	6,500 sf.
A	Min. Lot Width		60 ft.
	Max. Lot Coverage	70%	70%
Building and Parking Siting Standards			
B	Frontage Zone (min./max.)	For min. refer to Division 2-1-8, Housing Palette / 25 ft.	5 ft. / 25 ft.
	Min. Front Build-to width within Frontage Zone	50%	50%
C	Street Side Setback (min. / max.)	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10 ft. / -
D	Min. Interior Side Setback		5 ft.
E	Min. Rear Setback, without alley		10 ft.
	Min. Rear Setback, with alley		2 ft. [2]
F	Min. Front Parking Setback	15 ft.[3]	15 ft.
	Min. Arterial Street	*See* Section 2-1-9-2, Arterial Street Setbacks	-
Building Standards			
G	Max. Height, Principal Building	35 ft.	35 ft.
	Max. Height, ADU (detached)	30 ft.	-
	Max. Height, Accessory Building	18 ft.	-
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area[1]	15%	20%
	Min. Landscape Surface Area, Amenitized[1,4]	5%	-
Density Standards			
	Max. Density	None	
Height Transition Zone			

Table 2-1-4-1A: Mixed-Use, Neighborhood Lot and Building Standards			
Standard		Use Type	
		Residential	Nonresidential or Mixed-Use Building
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	

TABLE NOTES:
[1] For the development parcel.
[2] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicant's discretion.
[3] Except for driveways associated with single family and duplex units and multiplex buildings.
[4] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.

Table 2-1-4-2A: Mixed Use, Suburban Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-4-2A: Mixed-Use, Suburban Lot and Building Standards			
Standard		**Use Type**	
		Residential	**Nonresidential or Mixed-Use Building**
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	-
A	Min. Lot Width		-
	Max. Lot Coverage[1]	60%	60%
Building and Parking Siting Standards			
B	Frontage Zone (min. / max.)	For min. refer to Division 2-1-8, Housing Palette / 35 ft.	10 ft. / 35 ft.
	Min. Front Build-to Width within Frontage Zone	20%	20%
C	Min. Street Side Setback (min. / max.)	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10 ft. / 35 ft.
D	Min. Interior Side Setback		10 ft.
E	Min. Rear Setback		20 ft.
F	Min. Parking Setback (front)	20 ft.[2]	20 ft.
	Min. Arterial Setback	*See* Section 2-1-9-2, Arterial Street Setbacks	None
Building Standards			
G	Max. Height	45 ft.	45 ft.
	Max. Height, ADU (detached)	30 ft.	
	Max. Height, Accessory Building	18 ft.	
	Max. Height, Mini-structure	12 ft.	12 ft.
		-	
Site Standards			
	Min. Landscape Surface Area	25%	25%
	Max. Outdoor Display	-	5% of enclosed retail floor area

	Min. Area for Small Urban Parks (Lot Area less than 1 ac.) [1,3]	2,500 sf.	
	Min. Area for Small Urban Parks (Lot Area 1 ac. or more) [1,3]	10 percent of the net parcel area	5,000 sf. or 5 percent of the net parcel area, whichever is greater
Density Standards			
	Max. Density	None	
Height Transition Zone			
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	See Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.

TABLE NOTES:
[1] For the development parcel.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] In addition to principal buildings, Small Urban Parks may count toward the Front Building Facade within Frontage Zone requirement.

Table 2-1-4-3A: Mixed-Use, Urban Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-4-3A: Mixed-Use, Urban Lot and Building Standards

Standard		Use Type: Residential	Use Type: Nonresidential or Mixed-Use Building
Lot Standards			
	Min. Lot Area	*See* Subsection E., below, and Division 2-1-8, Housing Palette	None
A	Min. Lot Width		None
	Max. Lot Coverage[1]	75%	75%
Building and Parking Siting Standards			
B	Frontage Zone (min. / max.)	For min. refer to Division 2-1-8, Housing Palette/20 ft.	0 ft. / 20 ft.
	Min. Front Build-to Width within Frontage Zone	35%	35%
C	Min. Street Side Setback (min. / max.)	*See* Subsection E., below, and Division 2-1-8, Housing Palette	0 ft. / 20 ft.
D	Min. Interior Side Setback		0 ft.
E	Min. Rear Setback		0 ft.
F	Min. Parking Setback (front)	20 ft.[2]	20 ft.
	Min. Arterial Setback	*See* Section 2-1-9-2, Arterial Street Setbacks	—
Building Standards			
G	Max. Height, Principal Building	as identified on the Official Zoning Map	as identified on the Official Zoning Map
	Max. Height, ADU (detached)	30 ft.	
	Max. Height, Accessory Building	18 ft.	
	Max. Height, Mini-structure	12 ft.	12 ft.

Site Standards			
	Min. Landscape Surface Area	15%	15%
	Max. Outdoor Display	-	5% of enclosed retail floor area
	Min. Area for Small Urban Parks (Lot Area less than 1 ac.) [1, 3]	2,500 sf.	
	Min. Area for Small Urban Parks (Lot Area 1 ac. or more) [1,3]	10 percent of the net parcel area	5,000 sf. or 5 percent of the net parcel area, whichever is greater
Subdivision Standards			
	Max. Density	None	
Height Transition Zone			
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	

TABLE NOTES:
[1] For the development parcel.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] In addition to principal buildings, Small Urban Parks count toward the Front Building Façade within Frontage Zone requirements.

Table 2-1-4-4A: Mixed-Use, Transit Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-4-4A: Mixed-Use, Transit Lot and Building Standards			
Standard		Use Type	
		Residential	Nonresidential or Mixed Use Building
Lot Standards			
	Min. Lot Area	*See* Subsection E., below, and Division 2-1-8, Housing Palette	None
A	Min. Lot Width		None
	Max. Lot Coverage	80%	80%
Building and Parking Siting Standards			
B	Frontage Zone (min. / max.)	For min. refer to Division 2-1-8, Housing Palette / 20 ft.	0 ft. / 20 ft.
	Min. Front Build-to Width within Frontage Zone	60%	60%
C	Street Side Setback (min. / max.)	*See* Subsection E., below, and Division 2-1-8, Housing Palette	0 ft. / 20 ft.
D	Min. Interior Side Setback		0 ft.
E	Min. Rear Setback		0 ft.
F	Min. Parking Setback (front)	20 ft. [6]	20 ft.
	Min. Arterial Setback	*See* Section 2-1-9-2, Arterial Street Setbacks	—
Building Standards			
	Min. Height[2]	1 story	1 story

Table 2-1-4-4A: Mixed-Use, Transit Lot and Building Standards			
Standard		Use Type	
		Residential	Nonresidential or Mixed Use Building
G	Max. Height	As identified on the Official Zoning Map	As identified on the Official Zoning Map
	Max. Height, Accessory Building	18 ft.	
	Max. Height, Mini-structure	12 ft.	12 ft.
	Min. Ground Floor Height[4]	13 ft. 6 in.	13 ft. 6 in.[3]
Site Standards			
	Min. Landscape Surface Area[4]	10%	10%
	Max. Outdoor Display	-	5% of enclosed retail floor area
	Min. Area for Small Urban Parks (Lot Area less than 1 ac.) [1,5]	2,000 sf.	2,000 sf.
	Min. Area for Small Urban Parks (Lot Area 1 ac. or more) [1,5]	8 percent of the net parcel land area	3,000 sf. or 4 percent of the net parcel land area, whichever is greater
Subdivision Standards			
	Max. Density	None	
Height Transition Zone			
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	

TABLE NOTES:
[1] For the development parcel.
[2] *See* Section 5-1-3-1, Pedestrian Priority Streets, for minimum height requirement.
[3] For areas required by Section 5-1-3-1, Pedestrian Priority Streets.
[4] Rooftop and upper level deck amenities (except individual private balconies) may be counted towards the landscape surface ratio requirement.
[5] In addition to principal buildings, small urban parks count toward the Front Building Façade within Frontage Zone requirements.
[6] Parking is not allowed in the frontage zone.

Table 2-1-5-4D: Mixed-Use Building type Placement and Building Width is hereby amended in its entirety to read as follows:

Table 2-1-5-4D: Mixed-Use Building Type Placement and Building Width											
Standard		Context	Unit	Sub-District of OT Zoning District							
				E	EY	GV	OW	RN[1]	RR	W	
A	Frontage Zone (min / max)	Generally, except as specified below	ft.	0 / 15	0 / 15	0 / 15	0 / 15	0 / 15	0 / 15	0/15	
A	Frontage Zone (min / max)	Ralston Road frontage	ft.	10 / 25	10 / 25	-	10 / 25	10 / 25	10 / 25	10 / 25	
A	Frontage Zone (min / max)	Robinson Way or Yukon Street frontage	ft.	10 / 25	10 / 25	-	10 / 25	10 / 25	10 / 25	-	
A	Frontage Zone (min / max)	McIlvoy Park frontage	ft.	10 / 20	10 / 20	10 / 20	10 / 20	10 / 20	10 / 20	10/20	
A	Frontage Zone (min / max)	Olde Town Plaza frontage	ft.	-	-	-	0/20	-	-	0 / 20	

Table 2-1-5-4D: Mixed-Use Building Type Placement and Building Width											
Standard		Context	Unit	Sub-District of OT Zoning District						
				E	EY	GV	OW	RN[1]	RR	W
B	Build-to (min)	Building Façade at Front Setback Line	%[2]	75	85	85	75	75	75	85
B	Total Building Width (max)	Generally, except as specified below	ft.	150	180	80	80	180	120	180
B	Total Building Width (max)	Wadsworth Bypass frontage	ft.	240	-	-	-	-	240	-
B	Total Building Width (max)	McIlvoy Park frontage[3]	ft.	120	-	35	-	-	-	120

TABLE NOTES:
[1] The Mixed-Use building form is allowed in this subdistrict only as provided in Section 2-1-5-2, Building Types.
[2] Percent of lot width. *See* Section 2-1-5-3, Generally Applicable Lot and Building Standards.
[3] Applies where property is directly adjacent to or across the street from McIlvoy Park.

Table 2-1-6-1A: Commercial, General Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-6-1A: Commercial, General Lot and Building Standards		
Standard		All Lot Types
Lot Standards		
	Min. Lot Area	5,000 sf.
A	Min. Lot Width	50 ft.
	Max. Lot Coverage	35%
Setback Standards		
B	Min. Front	20 ft.
C	Min. Street Side	20 ft.
D	Min. Interior Side	10 ft.
E	Min. Rear	20 ft.
	Min. Front Parking	20 ft.
Building Standards		
F	Max. Height, Principal Building	45 ft.
	Max. Height, Accessory Building	18 ft.
	Max. Height, Mini-structure	12 ft.
Site Standards		
	Min. Landscape Surface Area	20%
	Max. Outdoor Display	5% of enclosed retail floor area
	Max. Outdoor Storage	5% of lot area
Height Transition Zone		
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.

Table 2-1-6-2A: Industrial, Light Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-6-2A: Industrial, Light Lot and Building Standards		
Standard		All Lot Types
Lot Standards		
	Min. Lot Area	None

Table 2-1-6-2A: Industrial, Light Lot and Building Standards		
Standard		All Lot Types
	Min. Lot Width	None
	Max. Lot Coverage	50%
Setback Standards		
A	Min. Front	20 ft.
B	Min. Street Side	20 ft.
C	Min. Interior Side	5 ft. [1]
D	Min. Rear Setback	5 ft. [1]
	Min. Front Parking	20 ft.
Building Standards		
E	Max. Height, Buildings	40 ft.
	Max. Height, Mini-structures	12 ft.
Site Standards		
	Min. Landscape Surface Area	15%
	Max. Outdoor Display	10% of enclosed retail floor area
	Max. Outdoor Storage	35% of lot area
TABLE NOTES: [1] Side and rear setbacks shall be 20 ft. where adjacent to a single-family detached use in unincorporated Jefferson County.		

Table 2-1-6-3A: Industrial, General Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-6-3A: Industrial, General Lot and Building Standards		
Standard		All Lot Types
Lot Standards		
	Min. Lot Area	None
	Min. Lot Width	None
	Max. Lot Coverage	60%
Setback Standards		
A	Min. Front	20 ft.
B	Min. Street Side	10 ft.
C	Min. Interior Side	10 ft. [1]
D	Min. Rear	10 ft. [1]
	Min. Front Parking	10 ft.
Building Standards		
E	Max. Height, Buildings	45 ft.
	Max. Height, Mini-structures	12 ft.
Site Standards		
	Min. Landscape Surface Area	10%
	Max. Outdoor Display	90% of enclosed retail floor area
	Max. Outdoor Storage	90% of lot area
TABLE NOTES: [1] Side and rear setbacks shall be 20 ft. where adjacent to a single-family detached use in unincorporated Jefferson County.		

Table 2-1-8-4: Single-Family Detached Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-8-4: Single-Family Detached Lot and Building Standards										
		Minimum							Maximum	
Lot Type	Vehicular[3] Access	Lot Area	Lot Width	Lot Width, Corner	Front[4] Setback (Building / Garage Door)	Street[4] Side Setback	Interior Side Setback	Rear[2] Setback	Building[1] Coverage	Height[1]
Small Urban	Alley	2,000 sf.	30 ft.	40 ft.	10 ft. / NA	10 ft.	3 ft.	2 ft.	65%	35 ft.
Urban	Alley	3,800 sf.	40 ft.	50 ft.	10 ft. / NA	10 ft.	5 ft.	2 ft.	65%	35 ft.
	Street	4,000 sf.	40 ft.	50 ft.	15 ft. / 18 ft.	15 ft.	5 ft.	10 ft.	60%	35 ft.
Small General	Alley	4,000 sf.	40 ft.	40 ft.	15 ft. / NA	15 ft.	5 ft.	2 ft.	60%	35 ft.
	Street	5,000 sf.	50 ft.	60 ft.	15 ft. / 18 ft.	15 ft.	5 ft.	10 ft.	65%	35 ft.
General	Any	6,000 sf.	60 ft.	70 ft.	20 ft. / 20 ft.	15 ft.	5 ft.	10 ft.	50%	35 ft.
Small Suburban	Any	7,500 sf.	70 ft.	80 ft.	20 ft. / 20 ft.	15 ft.	7.5 ft.	10 ft.	45%	35 ft.
Suburban	Any	10,000 sf.	80 ft.	90 ft.	20 ft. / 20 ft.	20 ft.	10 ft.	10 ft.	40%	35 ft.

TABLE NOTES:
[1] Maximum height, required transition zones and maximum building coverage varies based on the zone in which the subject property is located.
[2] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicants discretion.
[3] On corner lots, street access must be located adjacent to the property line farthest from the corner.
[4] Setback is measured from the property line or the back of the sidewalk, whichever provides a greater setback.

Table 2-1-8-5: Zero Lot-Line Home Lot and Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-8-5: Zero Lot-Line Home Lot and Building Standards									
		Minimum						Maximum	
Lot Type	Vehicular Access	Lot Area	Lot Width	Front Setback (Building/Garage Door)	Interior Side[2] Setback (single side)	Street Side Setback	Rear Setback	Building Coverage	Height
Small General	Alley	5,000 sf.	45 ft.	12 ft./NA	10 ft.	10 ft.	2 ft.[1]	60%	35 ft.
	Street	5,500 sf.	50 ft.	15 ft. / 18 ft.	10 ft.	10 ft.	15 ft.	65%	35 ft.
General	Any	6,000 sf.	60 ft.	15 ft./ 18 ft.	10 ft.	10 ft.	20 ft.	50%	35 ft.

TABLE NOTES:
[1] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicants discretion.
[2] Zero setback is on one side only.

Table 2-1-8-7: Townhome Building Standards is hereby amended in its entirety to read as follows:

Table 2-1-8-7: Townhome Building Standards										
		Minimum						Maximum		
Lot Type	Vehicular Access	Unit Width	Street Setback	Alley Garage Setback	Non-street Frontage Perimeter Setback	Building Separation, side to side	Building Separation, all others	Units Per Building	Building Coverage	Height
Suburban	Alley or Parking Court	20 ft.	15 ft.[1,]	2 ft.[2]	15 ft.	10 ft.	30 ft.[3]	8	100%	35 ft.
	Street	28 ft.	18 ft.	-	15 ft.	10 ft.	30 ft.[3]	8	100%	35 ft.

Table 2-1-8-7: Townhome Building Standards										
Lot Type	Vehicular Access	Minimum						Maximum		
		Unit Width	Street Setback	Alley Garage Setback	Non-street Frontage Perimeter Setback	Building Separation, side to side	Building Separation, all others	Units Per Building	Building Coverage	Height
Urban	Alley or Parking Court	16 ft.	10 ft.[1,]	2 ft.[2]	15 ft.[4]	10 ft.	20 ft.	10	100%	35 ft.

TABLE NOTES:
[1] Where garage access is directly from a side street, the minimum garage setback shall be 18 ft.
[2] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicants discretion.
[3] Building separation can be reduced to 20 feet if buildings are one or two stories.
[4] If less than one-half of the units in a townhome building are adjacent to a non-street frontage perimeter, then the minimum setback shall be 10 feet.

Table 2-1-10-1: Permitted Encroachments into Required Setbacks is hereby amended in its entirety to read as follows:

Table 2-1-10-1: Permitted Encroachments into Required Setbacks	
Structure or Feature	Permitted Locations in Setbacks
Single-story covered front porches	Permitted to extend outward from the building 8 feet into a front setback, but no closer than 12 feet to the front property line. This encroachment shall only apply to the front setback, not the street side setback. [1]
All other covered porches, decks, terraces, and patios and are not enclosed Covered stairs that provide below grade access to a building	Permitted to extend outward from the building 8 feet into a rear setback, but no closer than 8 feet from the rear property line. Permitted to extend outward from the building 4 feet into a side setback, but no closer than 3 feet from the side property line. [1]
Uncovered porches, decks, patios, concrete slabs, and other flatwork, provided that such items are no more than 30 inches in height above grade	Permitted anywhere in setbacks. [1]
Uncovered balconies, decks, and outside stairs more than 30 inches above grade	Permitted to extend outward from building 6 feet into a front or rear setback, but no closer than 12 feet to the front property line and 8 feet to the rear property line. Permitted to extend outward from the building 4 feet into a side setback, but no closer than 3 feet from the property line. [1]
Bay windows, window sills, eaves, cantilevers, cornices, fireplace chimneys, roof overhangs, and architectural and ornamental features	Permitted to extend outward from building up to 2 feet into any setback. [1]
Clotheslines and clothesline poles	Permitted in rear or side setback only, but not closer than 18 inches from any side or rear property line. [1]
Driveways	Permitted anywhere in setbacks.

Table 2-1-10-1: Permitted Encroachments into Required Setbacks	
Structure or Feature	Permitted Locations in Setbacks
Trash containers	Permitted in side and rear setbacks when not adjacent to residential use. Not permitted in the OT and MX districts frontage zone.
Fences and walls	*See* Article 4-7, Fences and Divisional Walls.
Flagpoles, lighting poles, and other poles not otherwise covered in this table	Permitted in any setback, provided that the height of any such pole, except for flagpoles, shall not exceed the distance from the base of the pole to the nearest property line. Flag poles are subject to the height and setback restrictions set forth in Section 6-1-2-3. Amateur radio antennas shall not be located in a front setback.
One accessory building not larger than 600 square feet or an attached garage addition provided that the garage addition will not result in more than a cumulative total of 600 square feet of attached garage The encroachment shall apply to the accessory building, or an attached garage addition, but does not apply to both	Permitted in any side or rear setback in the RN zoning district only, but not closer than 5 feet from any side or rear property line.
Landscaping, including trees, shrubs, flowers, hedges, and other features	Permitted anywhere in setbacks, subject to city standards governing sight distances. *See* Section 4-4-3-4 Intersection Visibility.
Little Library	If no more than 3 square feet and 5'5 feet high, may encroach into front setback but not closer than one-foot from the front property line or public sidewalk, whichever is closer.
Mini-structures	*See* Section 5-1-4-3, Mini Structures.
Mobility access ramps and lifts for existing single-family detached dwelling units, duplex, and townhomes	Allowed as necessary upon written request to the Director.
Signs	*See* Chapter 6, Signs.
Swimming pools	*See* Section 5-1-4-2 Swimming Pools, Hot Tubs, and Spas.
Air conditioning units	Permitted in side and rear setbacks but not in a front setback.
Counterforts	Permitted in any setback provided it does not encroach more than 5 feet into a front or rear setback and 3 feet into the side setback.
Window wells	Permitted in any side setback provided it does not exceed 15 square feet and does not encroach more than 3 feet into the side lot setback easement.
Window awnings	Permitted in any setback, but not closer than 10 feet from the rear property line or 18 inches from a side property line.
Wireless Communications Facilities	*See* Chapter 7, Wireless Communications Facilities.

Table 2-1-10-1: Permitted Encroachments into Required Setbacks	
Structure or Feature	Permitted Locations in Setbacks

TABLE NOTES:
[1] The maximum encroachment noted is measured from the building wall, or in the case of pergolas, carports, or other structures without walls, the maximum encroachment is measured from the vertical structural element such as a post.

The remaining portions of Chapter 2 shall remain unchanged.

Section 2. Chapter 3, Use Regulations, of the Land Development Code, of the Arvada City Code is hereby amended:

Table 3-1-2-5: Commercial Land Use by Zoning District is hereby amended in its entirety to read as follows:

Table 3-1-2-5: Commercial Land Use by Zoning District

Land Use	Open Space and Residential						Mixed-Use				Olde Town							Commercial and Industrial			Reference
	OS	RA	RN	R6	R13	R24	MX-N	MX-S	MX-U	MX-T	OT-E	OT-EY	OT-GV	OT-OW	OT-RN	OT-RR	OT-W	CG	IL	IG	
Animal Day Care / Training		C					L	L	L	L								L	L		3-1-3-5
Animal Hospital (Large Animal)		A																			-
Art Studio / Makerspace		A					A	A	A	A	L	L	L	L	L	L	L	A	A	A	3-1-3-5
Auction House or Yard																			L	L	3-1-3-5
Continuing Care Facility					A	A	A	A	A	A	A	A	A	A		A	A	C			
Kennel		C																	L	A	3-1-3-5
Office, General or Professional							A	A	A	A	A	A	A	A	A	A	A	A	A	A	-
Retail Sales and Services Type 1 [1]							L	L	L	L	L	L	L	L	L	L	L	L	L		3-1-3-5
Retail Sales and Services Type 2[1]								L	L	L								L	L		3-1-3-5
Veterinary Offices or Clinics		C					L	L	L	L	L	L	L	L		L	L	L	L		3-1-3-5
Workshop							A	A	A	A								A	A	A	3-1-3-5

TABLE NOTES:
[1] All drive-through facilities are subject to the standards in Section 5-1-6-2, Drive-Through Facilities, which may prohibit a drive-through in certain locations.

Section 3-1-3-5 Commercial Standards is hereby amended in its entirety to read as follows:

A. **"Animal Day Care / Training.**
   1. In the MX and CG zoning districts, the use shall be located entirely indoors.

2. In the IL zoning district, if the use is located within 300 feet of a residential zoning district, no outdoor activities related to the use shall occur between the hours of 9:00 PM and 7:00 AM.

B. **Art Studio / Makerspace.**

Such use shall not exceed 5,000 square feet unless located within a vertically mixed-use building.

C. Auction House.

All business activities shall be conducted within an entirely enclosed building.

D. Kennel.

1. In the RA and IL zoning districts, a kennel facility shall be subject to the following:

a. Outdoor facilities, including outdoor runs, shall not be located within 150 feet of any adjacent residential zoning district.

b. If the use is located within 300 feet of residentially zoned property, no outdoor activities related to the use shall occur on the subject property between the hours of 9:00 PM and 7:00 AM.

c. The parts of a building where animals are boarded shall be fully enclosed and shall be sufficiently insulated so no unreasonable noise or odor can be detected off premises.

2. All kennels shall be licensed by the City of Arvada pursuant to Article VIII, "Kennel License," of Chapter 14 of the Arvada Code of Ordinances.

3. A residence for a caretaker is allowed, subject to the requirements of Section 5-1-6-7, Custodial Unit.

E. Retail Sales and Services, Type 1.

1. Retail Sales Uses – General.

Retail sales uses must take place within a completely enclosed building, except that accessory outdoor display of merchandise, and accessory outdoor customer seating/dining areas are permitted, subject to the following standards:

a. Outdoor display areas must comply with the minimum street setback requirements of the subject zoning district.

b. Outdoor display areas may not occupy or use required parking space or drive aisle unless approved by the Director.

c. Outdoor seasonal temporary sales display requires a temporary use permit.

F. **Retail Sales and Services, Type 2.**

1. Convenience Lending Operations.

All convenience lending operations except national banks and those operating as of the effective date of this Code shall comply with the following locational restrictions and standards:

a. It shall be unlawful to operate or cause to be operated a convenience lending operation within 2,500 feet of another convenience lending operation.

b. It shall be unlawful to operate or cause to be operated a convenience lending operation within 300 feet of any residentially-zoned property.

c. The distance between any two such operations shall be measured in a straight line, without regard to intervening structures or objects, from the closest exterior wall of the structure in which each such operation is located, and the distance between a convenience lending operation and a residentially-zoned property shall be measured in a straight line, without regard to intervening structures or objects, from the closest exterior wall of the structure in which the operation is located to the nearest property line of the residentially-zoned property, excluding public street rights of way.

2. Used Merchandise Stores and Donation Centers (retail, used - primarily donated; retail, used - primarily non-donated; used merchandise donation center).

a. Used merchandise stores that accept donated goods on the premises and used merchandise donation centers shall:

i. Coordinate delivery and acceptance of donations, during business hours only, either inside the store or center, or outside the store or center as long as donations are moved inside immediately after drop-off;

ii. Sort and store donations only inside the store or center;

iii. Patrol the store or center premises as the need arises to remove any donations left outside after hours; and

iv. Remove donations left outside of the store or center after business hours no later than 7:00 AM the next morning.

b. A used merchandise store shall devote more than 50% of its floor area to retail sales.

c. The arrangement of activities inside a used merchandise store shall be such to preserve a retail character when it is viewed from the outside. Where the building façade includes windows or doors, the areas within the building visible through these openings shall be used for retail sales only.

d. Used merchandise donation centers shall be limited to a maximum gross floor area of 2,500 square feet and a maximum tenant width of 25 feet.

e. Donation boxes, trailers, containers, or other structures intended and utilized as an exterior, stand-alone receptacle or depository for the donation of goods are prohibited.

i. Based upon the generally mobile, temporary, impermanent, and accessory nature thereof, and notwithstanding the provisions of Chapter 9, Nonconformities of this Code, any such box, trailer, container, or structure, or use of such box, trailer, container, or structure, legally established prior to May 12, 2011 shall be permitted to continue in place, but such use, and the lawful status of such structure and use, shall terminate upon the occurrence of any of the following:

a. Any change in tenancy, ownership, or management of the structure or user thereof;

b. Any cessation of such use, or absence of such structure from the premises, for a period of 30 days or more;

c. Any damage or destruction of the structure, by any means, to the extent of more than 50 percent of its structural replacement value prior to such damage or destruction;

d. Any enlargement or expansion of such structure or use;

e. Any alteration (beyond that necessary for routine maintenance and repair) or relocation of the structure on the premises, other than that which, in the sole discretion of the Director, is determined appropriate; or

f. A failure to register the structure or use within the allotted time period, as provided in below.

3. The owner of any such box, trailer, container, or structure legally established prior to May 12, 2011, and the user thereof (if different than the owner), must have registered such structure or use with the Director prior to December 30, 2011.

G. Veterinary Office or Clinic.

1. All veterinary offices or clinics shall be subject to the following requirements:

a. All facilities, including all treatment rooms, cages, pens, training rooms, and exercise runs, shall be within a completely enclosed, soundproof building.

b. Short-term overnight boarding associated with the medical treatment and post-operative care of animals shall be allowed, provided such boarding is contained within a completely enclosed building.

H. Workshop.

1. The use shall not exceed 5,000 square feet unless located within a vertically mixed-use building.

Section 3-1-3-7 Industrial, Processing, Recycling, Storage, and Disposal Standards is amended to read as follows:

A. Brewery / Winery / Distillery.

1. In the MX-S zoning district warehousing is prohibited.

B. Heavy Logistic Center Industry

1. All buildings shall be a minimum of 300 feet from any residential district.

2. Landscaping and barriers shall be provided and located such that no part of parked vehicles will extend beyond the yard space or into the setback space from a lot line abutting a residential lot or separated therefrom by a street.

3. An Option B landscape bufferyard, per Section 4-6-5-3, Bufferyard Options, is required between the use and adjoining right-of-way.

4. Barriers shall be provided and located such that no part of parked vehicles will extend beyond the yard space or into the setback space from a lot line abutting a residential lot or separated therefrom by a street.

C. **Light Industry**.

1. Bakery.

a. In the IL and IG zoning districts, no more than 50 percent of the gross floor area of a bakery shall be devoted to retail sales.

2. Manufacturing, Light Trade and Technical Uses.

a. In the IL and IG zoning districts, the following shall apply:
   i. Loading and unloading of shipments shall be permitted.
   ii. The land uses inside the building shall preserve a commercial, retail or office character viewed from the outside.
   iii. All industry, manufacturing and production uses shall utilize the best industry standard, maintenance, and control available to maintain the lowest possible measurement of emission of odorous gases.

b. In the MX-N, MX-S, MX-U, MX-T, and CG zoning districts:
   i. Primary manufacturing, processing, and fabrication uses shall be completely enclosed within a building.

c. In the MX-N, MX-S, and MX-U zoning districts:
   i. If the use is located within 200 feet of a residential district, the use shall not operate between the hours of 9:00 PM and 7:00 AM.

3. Office, General Contractor.

a. Office uses with storage related to construction shall only be permitted in the IL and IG zoning districts, and the following requirement shall apply:
   i. Any outdoor storage area shall be screened with an Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options.

4. Research, Development, and Testing Laboratories.

a. In the CG, IL and IG zoning districts:
   i. Laboratories shall not contain or utilize toxic or explosive materials.
   ii. All facilities shall be completely enclosed.

5. Warehousing and Distribution.

a. In the CG and IL zoning districts, retail sales in conjunction with a permitted warehouse establishment may be allowed subject to the following conditions:
   i. All retail sales shall be conducted within the same structure housing the principal warehouse use, and no outdoor retail sales activity shall be allowed.
   ii. Parking for the retail accessory use shall be provided in accordance with the off-street parking standards for retail uses in Section 4-5-2-2, Parking Requirement Tables.

6. **Wholesale Establishments.**

a. Wholesale establishments with stock may be permitted in the IG zoning district except for the following:
   i. Live animals;
   ii. Commercial explosives;
   iii. Flammable or combustible liquids are permitted provided their use, dispensing, mixing, and storage complies with all the requirements of the currently adopted edition of the applicable Building Code, Fire Code,

Plumbing Code, Mechanical Code, and National Electrical Code and all applicable State and Federal laws;

iv. Flammable gases are permitted provided their use, dispensing, mixing, and storage complies with all of the requirements of the currently adopted edition of the applicable Building Code, Fire Code, Mechanical Code, Plumbing Code, and National Electrical Code, and all applicable State and Federal laws.

b. Retail sales in conjunction with wholesale establishments may be allowed, provided that:

i. Not more than 20 percent of floor area or sales volume of any individual user or tenant may be devoted to retail operations. Notwithstanding this 20 percent limitation, furniture and carpet wholesalers may have greater than 20 percent of their floor area or sales volume devoted to retail operations.

ii. All retail sales shall be conducted within the same structure housing the principal wholesale use, and no outdoor retail sales activity shall be allowed.

iii. Parking for the retail accessory use shall be provided in accordance with the off-street parking standards for retail uses as set forth in Section 4-5-2-2, Parking -Requirement Tables.

D. Recycling Drop-Off (Attended).

1. The facility shop shall be located at least 500 feet from a residential zone district. This requirement may be reduced or eliminated by the Director if the Applicant proves that the proposed use, site design, its traffic generation, and other external effects indicates a reduced separation will have no significant effect on the nearby residential zone district.
2. The use shall comply with the screening and enclosure requirements of Division 5-1-6-3, Outdoor Storage and Outdoor Retail Display.

E. Resource Extraction (Minerals).

The following applies in all zoning districts:

1. **Permitting Requirements.**

a. The Applicant shall be responsible for securing all other permits or approvals required by any other governmental agency that may have jurisdiction over the proposed use.

b. It shall be unlawful for any person, firm, or other entity to process, crush, blast or similarly treat earth materials on any approved borrow pit site.

c. In addition to the standards specified in this Section and in Chapter 2, Zoning Districts of this Code, the proposed use shall be evaluated using the applicable standards that the state or federal government use to evaluate a permit request for the specific use. Additionally, all annual or other reports required by another governmental agency shall be simultaneously submitted to the City.

2. Mining Operations.

a. Mining equipment, except for reservoir construction equipment, shall be considered mechanical equipment and, in lieu of the screening standards set forth

in Article 4-6, Landscaping and Buffering, such equipment shall be subject to the following requirements:

i. All mining equipment and operation areas shall be screened from sight from adjacent properties or right-of-way by the use of berms or by other equivalent means; and

ii. All mining equipment shall be located behind building setback lines.

b. All roadways longer than 100 feet used for ingress and egress from the public roadway to the area of mining operations shall be cleaned and maintained to minimize the fugitive dust which is generated by vehicles.

c. All mining operations, except for reservoir construction, shall be at least 200 feet from the property line. No open pit mine shall be deeper than 200 feet. No reclaimed open pit mine shall be left deeper than 100 feet.

d. No finished grade shall exceed slopes of one foot of rise in three feet of horizontal distance. A diverse permanent vegetative cover shall be established on all disturbed areas to achieve erosion control equal to pre-mining levels. The cover shall be predominantly of native species. Disturbed areas shall be kept to a minimum. Reclamation shall commence within one growing season after slopes reach final grade.

e. Mining, processing, or transporting operations, except for reservoir construction, shall be within the time limits of 7:00 a.m. to 6:00 p.m., with no operations on Sunday. Maintenance operations are not subject to this provision.

f. The use of explosives is subject to all state and federal standards and restricted to a maximum of five calendar days per year. All blasting shall be conducted in a manner which will not cause a peak particle velocity on any adjacent property which exceeds one-half inch per second. A blast over pressure shall not exceed 130 db peak measured at 6 Hz or lower flat response at the property line.

g. Quarrying of hard rock aggregate is prohibited.

h. Sediment caused by accelerated soil erosion shall be removed from runoff water before leaving the site. Runoff shall not be discharged from the site in quantities or at velocities above those occurring before mining.

3. **Exempt Activities.** The following burrowing and hauling of earth material may be done without obtaining a conditional use permit from the City:

a. Minor projects which have cuts or fills each of which is less than five feet in vertical depth at its deepest point measured from the existing ground surface, which include the following:

i. Less than 50 cubic yards of earth material; or

ii. The removal of less than 10,000 square feet of vegetation.

b. Minimum excavation required in connection with a building or other structure authorized by a valid building permit.

c. Grading work being done pursuant to an approved grading plan in conjunction with an approved recorded plat, development plan or over lot grading plan being done on the same property.

d. Trenching incidental to the construction and installation of approved underground pipeline, septic tank, disposal lines, electrical or communication facilities, and drilling or excavation for approved wells or fence posts.

e. Grading or excavation in accordance with plans incorporated in an approved conditional use permit.

f. Maintenance and cleaning of ditches, lakes, ponds, and water storage reservoirs.

F. Resource Extraction (Oil and Gas).

1. Reserved.

G. **Salvage Yard.**

1. The following applies:
   a. Salvage yards shall not be located on property adjacent to any of the following streets:
      i. 52nd Avenue;
      ii. 60th Avenue;
      iii. Lamar Street; and
      iv. Sheridan Boulevard.
   b. The use shall not be located closer than 25 feet to an adjacent street right-of-way.
   c. The subject property shall be surrounded by an Option C or D buffer, per Section 4-6-5-3, Bufferyard Options.
   d. Best management practices for stormwater quality must be implemented and maintained on-site.

H. Self-Storage.

1. The following shall apply to all Self-Storage facilities:
   a. Public access to any storage unit within 150 feet of any residential zoning district or lot containing a residential use in any mixed-use zoning district is not allowed between 10:00 PM and 7:00 AM.
   b. The use is not allowed at the intersection of two arterial streets.
   c. Self-storage facilities are subject to the design standards in Section 5-1-2-8, Industrial, Self-Storage, or Distribution.
2. In the MX-S and CG zoning districts:
   a. All storage shall be within a building, and access to individual storage units shall be from interior corridors. Storage units with access from the exterior building may be permitted on non-street frontage facades. No outdoor storage of goods or vehicles is allowed.
   b. The use shall be located a minimum of 150 feet from any residential zoning district.
3. In the IL and IG zoning districts:
   a. The use may have multiple buildings with storage units and / or storage units in free-standing buildings.
   b. Doors to individual storage units shall not be directly accessible from any street frontage.

c. Individual storage units shall face the interior of the site. This does not apply to storage units within an enclosed structure.

d. A residence for a caretaker is allowed, subject to the requirements of Section 5-1-6-7, Custodial Unit.

4. Operation and Activities.

a. The incidental retail sale of products associated with the business (e.g., boxes, moving supplies) is allowed.

I. Storage Yard.

1. In the IG zoning districts:

a. The use shall not be located closer than 25 feet to an adjacent street right-of-way.

b. No storage or accumulation of waste products, including paint, stain, oils, grease, or other flammable, toxic, or hazardous materials, or stagnant water, shall be permitted as part of any storage yard use if they exceed the currently adopted fire code requirements. Flammable liquids or gases in excess of 1,000 gallons shall be stored underground.

c. Suitable containers for rubbish shall be placed on the premises. *See* Section 5-1-6-5, Trash Collection and Compaction.

d. There shall be at least one 24 feet access drive that shall be wide enough to accommodate two vehicles side-by-side.

e. No storage yards shall be located closer than 300 feet from any lot line that abuts a residential zoning district or single-family detached residential uses in unincorporated Jefferson County.

f. In areas that adjoin a residential use, there is no height limit on the outdoor storage provided that the storage yard is screened from view from the closest point of the adjacent residential structure or right-of-way.

g. Permitted hours of operation shall be 7:00 AM to 7:00 PM.

h. There shall be no height restriction for machinery, vehicles, and cranes licensed, leased, and/or titled to a business conducted on the property.

i. Storage of customer vehicles for a period not to exceed 90 days is exempt from the screening height restrictions.

J. Waste Removal Fleet Storage and Administration.

1. In the IL and IG zoning districts:

a. The use shall not be located closer than 25 feet to an adjacent street right-of-way.

b. No storage yards shall be located closer than 300 feet from any lot line that abuts a residential zoning district or dwelling unit.

c. Permitted hours of operation shall be 7:00 AM to 7:00 PM.

K. Waste Transfer Station.

1. In the IG zoning district:

a. The use shall not be located within one-half mile of a residential zoning district.

b. The subject property shall be surrounded by an Option C buffer, per Section 4-6-5-3, Bufferyard Options."

Section 3-1-3-8 Motor Vehicle Use Standards is hereby amended in its entirety to read as follows:

A. "Fueling / Service Station.

1. **Fueling / Service Station Requirements**

a. When permitted:

i. The use shall be located within 660 feet of an intersection of arterial streets unless it is associated with a retail use (e.g., a grocery store or warehouse club) that is at least 45,000 square feet in floor area.

ii. No more than two service stations or convenience stores with fuel sales may be located within 660 feet of a single Arterial/Arterial intersection. Where more than two service stations or convenience stores exist at the time of the adoption of this Code, they shall be considered an allowed use.

iii. Vehicle access to such uses shall be limited to a maximum of one curb cut per street frontage.

iv. On-site vehicle access and circulation shall be designed so that adjacent residential uses or properties are not disturbed, either by day or night, by the movement of vehicles or the lights from vehicles.

v. Fueling pump canopies shall comply with the requirements of Subsection 5-1-2-3-C-9, Canopies and Port-Cochères.

vi. In the MX-S, MX-U and MX-T zoning districts, options for the site design of the fueling / service station are set out in Subsection 4-3-3-4F, Fueling / Service Station Site Design.

vii. A service station with a convenience store shall provide adequate space to allow a minimum of three cars to stack in a line for fuel dispensing services without using or obstructing any portion of an adjacent public sidewalk or right-of-way.

2. Minimum Lot Dimensions.

i. Minimum lot area: 12,000 square feet.

ii. Minimum lot width (street frontage): 120 feet.

iii. Limits on Number of Service Bays and Pump Islands. A service station or convenience store with fuel sales may have a maximum two service bays and two pump islands on a 12,000 square foot lot. One service bay or one pump island may be added for each additional 2,000 square feet of lot area, provided that the total number of service bays shall not exceed five per lot and the number of pump islands shall not exceed five per lot.

3. Building and Equipment Setbacks and Buffers.

i. Fuel pumps, pump islands, detached canopies, compressed air connections, and similar equipment, shall be set back a minimum of 40 feet from all street rights-of-way and from all property lines abutting a residential zoning district or a parcel containing residential uses.

ii. When the service station use abuts a residential zoning district, use, or property, an Option C or D buffer shall be required, per Section 4-6-5-3, Bufferyard Options.

4. **Service Station with Vehicle Repair.**
   a. When permitted:
      i. Hydraulic hoists, pits, and all lubrications, greasing, automobile washing, or repairing equipment shall be entirely enclosed within a building. When any such building or portion of a building faces, abuts, or is adjacent to residentially zoned property, the closest, adjacent building wall or face shall consist of a solid blank wall with no openings other than those required by applicable building codes.
      ii. All repair work, vehicle washing, lubrication, and installation of parts and accessories shall be wholly performed within an enclosed building or structure.
      iii. All vehicle parts, dismantled vehicles, and similar materials, and all discarded materials such as tires, cans, and drums, shall be stored within an enclosed building or totally screened from view by a solid, opaque fence. *See* Division 4-7-2, Fences and Divisional Walls for acceptable fence/wall materials.
      iv. All vehicles awaiting repair shall be stored onsite in approved parking spaces and under no circumstances shall such vehicles be stored outside in an inoperable condition or stored on or obstruct access to a public right-of-way.

B. Motor Vehicle Repairs and Service, Heavy.

1. When permitted:
   a. All repair and vehicle storage shall be completely enclosed within a building.
   b. An Option B buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and adjoining right-of-way.
   c. An Option C or D buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district or MX with residential uses.
   d. Overhead bay doors that face residential zoning districts shall be set back at least 60 feet from the residential zoning district boundary.
   e. The use shall not operate between 7:00 PM and 7:00 AM if it is located within 300 feet of a residential zoning district, measured from the outside building wall that encloses the use to the zoning district boundary.

C. Motor Vehicle Repairs and Service, Light.

1. In the MX-N, MX-S, CG, and IL zoning districts:
   a. All vehicle repair uses shall be conducted within a completely enclosed building.
   b. The use shall not operate between 7:00 PM and 7:00 AM if it is located within 300 feet of a residential zoning district, measured from the outside building wall that encloses the use to the zoning district boundary.
   c. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district.

d. Storage of vehicles on the premises shall not exceed 15 days.

e. Open storage of wrecked or inoperable cars, discarded tires, auto parts, or similar materials shall be prohibited.

f. Garage bays shall not face a street.

D. Motor Vehicle Storage.

1. In the IL and IG zoning districts;

a. An Option B landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and adjoining right-of-way.

b. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district.

c. The use shall be located behind the principal building, unless the stored motor vehicles are inventory that is for sale or for rent.

E. Motor Vehicle Towing Services.

1. In the IL and IG zoning district:

a. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the yard and adjoining right-of-way and any adjoining residential zone district.

b. Vehicular ingress-egress shall be limited to one point for each side of property abutting any street.

c. All vehicles and activities not within fully enclosed buildings shall be enclosed by a solid fence or wall at least six feet in height, including point of ingress or egress.

d. No vehicle repair, maintenance, or body work shall take place.

2. In the IL zoning district:

a. The site shall not be more than two acres in size.

F. Motor Vehicle Wash.

1. Motor vehicle wash facilities including automotive detail facilities shall comply with the following conditions:

a. General Requirements.

i. A motor vehicle wash facility is prohibited at the intersection of two arterial streets, unless it is located in a center occupying at least two acres and containing other commercial establishments occupying at least 12,000 square feet gross floor area.

ii. The motor vehicle wash facility, including all driveways, entrances and appurtenant structures, must be set back a minimum of 20 feet from any adjacent street. The entire 20-foot setback must be landscaped to provide a buffer from adjacent streets.

iii. No motor vehicle wash facility shall be located on a corner lot.

b. Open Bay Motor Vehicle Wash Facility.

i. No new motor vehicle wash facility may be located within one-half mile of any other existing motor vehicle wash facility having two or more car wash bays within the city limits of Arvada.

c. Enclosed Motor Vehicle Wash Facility.

i. All enclosed motor vehicle washing bays must have bay doors. No bay door shall face the adjacent street or an adjacent residential district.

ii. All enclosed motor vehicle wash facilities must be self-contained, except those services such as drying, polishing or vacuuming which may be performed outdoors. Exterior vacuums must have the machinery located within the main wash building with only vacuum hoses located outside.

G. **Parking Lot Surface, Stand-Alone.** Where identified as a conditional use, a stand-alone surface parking lot shall be subject to the following requirements:

1. A stand-alone surface parking lot shall not front an arterial or collector street.
2. The stand-alone surface parking lot shall meet all the landscaping requirements of Article 4-6, Landscaping and Buffering.
3. A stand-alone surface parking lot associated with an adjacent primary use shall also comply with the requirements of Section 4-5-3-4, Off-Site Parking.

H. **Parking Garage, Structured.** Refer to Section 5-1-6-8.

I. **Vehicle Equipment Sales or Rentals.**

1. **Vehicle Sales and Rentals.**

a. In the MX-S, MX-U, MX-T, CG, and IL zoning districts:

i. All vehicles used for sales display or inventory must be stored indoors.

ii. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district.

iii. Overhead bay doors that face residential zoning districts shall be set back at least 60 feet from a residential zoning district boundary.

b. In the MX-T zoning district, only automobile rentals shall be permitted and only in principal hotel and motel uses with surface parking limited to a maximum number of 10 parking spaces dedicated to the use.

2. **Equipment Sales and Rentals.**

a. In the MX-S, MX-U, MX-T, CG, and IL zoning districts:

i. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district.

ii. Overhead bay doors that face residential zoning districts shall be set back at least 60 feet from the residential zoning district boundary."

Section 3-1-4-5 Food and Retail Truck Vending is hereby amended in its entirety to read as follows:

A. **"Generally.** Food and retail truck vending is allowed as provided in this Section.

B. **Where Permitted.**

1. Food and retail truck vending is permitted in the following areas and under the following circumstances:

a. On private property as provided in Section 3-1-4-2, Temporary Uses by Zoning District;

b. In any park or public space (regardless of zoning district), if approved by the governmental entity exercising ownership or control thereof; and

c. In a public street right-of-way (regardless of zoning district), subject to the limitations established in Subsection D.2., below.

2. Notwithstanding any provision herein to the contrary, allowing food and retail truck vending in a park, public space, or public street right-of-way shall be in the sole discretion of the governmental entity exercising ownership or control thereof.

C. **Permit Required.** Except as otherwise provided herein, no person may engage in activities of food or retail truck vending without first obtaining a City of Arvada business license and a Food Truck Permit for food vendors or a Retail Vending Truck Permit. The approved temporary use permit shall be permanently displayed to the public in the food handling area of the food truck vending operation or in the retail area of a retail vending truck.

D. **Standards.** The following rules and requirements shall apply to all food and retail truck vending:

1. Hours of Operation. Hours of operation shall be between 6:00 a.m. and 11:00 p.m. unless a different time is specified in the temporary use permit.

2. Location.

a. Operations shall not obstruct the visibility of motorists, nor obstruct parking lot circulation or block access to a public street, alley, or sidewalk.

b. Operations shall be located at least 50 feet from any residential use or mixed-use buildings where residential units are on the first floor as measured from the closest point of the food truck to the nearest property line of the residential unit, except as may otherwise be permitted pursuant to subsection B.1.c., where permitted above.

c. Food and retail trucks may operate on private property provided they meet the following requirements:

i. The operator must obtain prior written permission from the private property owner.

ii. The food or retail truck must be parked on a paved surface outside of the public right-of-way.

d. Operations are prohibited on public street rights of way, except for the following:

i. Food and retail truck vending may be allowed in a public street right-of-way closed to vehicular traffic when a Special Event Permit has been issued for a special event requiring such closure.

3. Refuse.

a. Operators shall be responsible for the storage and daily disposal of all trash, refuse, and litter. All areas used for food and retail trucks shall be maintained in a safe and clean condition.

b. Operators shall not cause any liquid wastes used in the operation, with the exception of clean ice melt, to be discharged from the vehicle or structure.

c. The food and retail trucks shall not be washed on location.

4. Health Department Certificate.

a. Operators shall obtain a Health Department Certificate required by the Colorado Department of Public Health and Environment and other state and local agencies to operate a mobile retail food establishment."

Section 3-1-5-3 Short-Term Rentals is hereby amended in its entirety to read as follows:

A. "*License Required.* Short Term Rental is prohibited within the City unless a license has been duly issued therefore pursuant to this Section 3-1-5-3 and in compliance with the Code, including without limitation, Chapter 98, Article V, Division 2, Lodging License.

B. *Application.*

1. *Requirements.* An application for a license shall be submitted to the Director and shall be signed by the fee owner of record of the property to be licensed or an individual authorized in writing by the fee owner of record. All license applications shall be submitted on a form supplied by the Director, which shall include such information as is reasonably necessary for the Director to act on such application, together with an application fee as authorized under Section 74-31 of the Code. The applicant must specify which portions of the Dwelling Unit, Dwelling Unit or Accessory Dwelling Unit, Residential ("ADUR") will constitute the licensed premises available for use by renters. A license is not valid until the application fee is paid and accepted by the City.

2. *Certification.* The applicant shall self-certify that the information on the application is accurate and truthful under penalty of perjury under the laws of the State of Colorado. Applicants shall inform the Director in writing of any material change to the information submitted on an application for a license within 30 calendar days of such change.

C. *Term of License and Renewal.* Licenses issued pursuant to this Section shall be valid for a period of one calendar year from the date of issuance. Licenses must be renewed annually. Applications for renewals of a Short Term Rental license are subject to all application, fees, licensing, and operation requirements set forth in this Section that apply to new licenses. In the Financial Officer's discretion, after consultation with the Director, the Financial Officer may impose conditions upon a license at the time of renewal to address non-compliance with the terms of the license, the provisions of this Section, or any other applicable provision of federal, state, or local law. Failure to comply with such conditions may result in suspension, revocation, or non-renewal of the license.

D. *License Regulations.*

1. *Compliance.* The licensee shall comply with all applicable Code provisions and state and federal law including, but not limited to, Chapter 18, Buildings and Building Regulations, Chapter 38, Article III, Nuisances, and Chapter 98, Taxation.

2. *Restrictions.* The licensee shall ensure that renters of a Short Term Rental Unit shall only be allowed access to the portions of the Dwelling, Dwelling Unit or ADUR identified in the license.

3. *Local Contact Person.* The licensee must designate on the application a local contact person who shall be available to respond to the property within one hour of being notified by the city of a complaint about the condition of the property or the conduct of short term tenants. The local contact person must be available to respond as set forth herein 24 hours per day, seven days per week during any term the Short Term Rental Unit is occupied by or rented to a short term tenant, must be able to provide access to the licensed premises, and must be authorized to make decisions about the licensed premises. Should the person designated as the local contact person change, the licensee must, within seven days of the change, update the license on file with the city.

4. *Brochures.* Each Short Term Rental Unit shall provide two brochures to its guests:

   a. The first brochure shall include the licensee's contact information, the local contact party's contact information, and any necessary emergency contact information. The brochure shall also provide information pertinent to the neighborhood where the Short Term Rental Unit is located including, but not limited to, parking restrictions, trash collection schedule, relevant water restrictions, fire evacuation routes, and any other information, as required by the Director, applicable to the Short Term Rental Unit and the surrounding neighborhood.

   b. The second brochure will be provided by the City and include relevant local ordinances, rules, and regulations that apply to all residences in the City. The licensee must display the City's brochure in each Short Term Rental Unit as it is made available and updated by the City.

E. *Licensing Requirements.*

1. *Number of Short Term Rentals Units per lot.* Licensees are limited to one Short Term Rental Unit per property. If a lot contains more than one legal Dwelling, Dwelling Unit or ADUR, only one Dwelling, Dwelling Unit or ADUR on such lot is eligible for licensure as a Short Term Rental Unit.

2. *Permitted structures.* Short Term Rental Units are allowed in primary and accessory structures with finished living space. All structures shall comply with the regulations for primary and accessory structures, including maximum size, height, lot coverage, and setbacks, for the property's zoning district. In the case of a multifamily property, the licensee is allowed one Short Term Rental Unit. In the case of condominiums or buildings held in similar common ownership, each licensee shall be limited to one Short Term Rental Unit per property.

3. *Reservations.* Only one Short Term Rental reservation to one party at a time is allowed.

4. *Parking requirements.* One additional on-site parking space shall be required if a portion of a primary structure is used for Short Term Rental.

5. *Safety requirements.* Each Short Term Rental Unit shall be equipped with an operational smoke detector, carbon monoxide detector, and fire extinguisher on the licensed premises.

6. *Occupancy.* The occupancy of a Short Term Rental Unit shall not exceed the total number of unrelated persons that are otherwise permitted to occupy property in the City.

7. *Prohibited uses.* Use of the Short Term Rental Unit for any commercial or large social events or gatherings, such as weddings, is prohibited.

8. *Trash collection.* The licensee shall maintain weekly residential trash collection services for the Short Term Rental Unit.

9. *Number of days in use.* No Short Term Rental may be occupied by guests for more than 240 days in any 365 day period. Upon renewal of the license, the licensee shall provide to the City the number of days that the Short Term Rental was occupied by guests during the previous 365 days. The licensee shall certify that the number reported is accurate.

10. *Number of Short Term Rentals per Licensee.* No applicant may operate more than three individual properties as short term rentals within the City at any one time. Licensee shall certify compliance with this requirement on each application submitted to the City. .

F. *Refusal to Grant, Suspension, Revocation, Nonrenewal of License.* The Director may refuse to grant an initial license, or suspend, revoke, or not renew any license requested or issued pursuant to this Section if the Director determines that any of the following have occurred: (i) fraud, material misrepresentation or false statement in the initial application for the license or any renewal application; or (ii) failure to comply with the terms or conditions of the license, the provisions of this Section, or any other application provision of federal, state, or local law including, but not limited to, the Arvada City Code.

1. *Authority.* In addition, the Director may issue any order reasonably calculated to ensure compliance with this Section.

2. *Remedies.* The Director's authority under this Section is in addition to any other authority the Director has to enforce this Section, and election of one remedy by the Director shall not preclude resorting to any other remedy as well.

   a. The Director shall not accept a new application from the same licensee for the same Dwelling, Dwelling Unit or ADUR after revocation of a license:

      (i) For at least one year following the revocation; and

      (ii) Unless the applicant demonstrates compliance with all applicable laws and licensing requirements.

3. *Appeal.* An applicant or licensee may appeal any decision to refuse to grant, not renew, or suspend his or her license to the City Manager within 14 days from the City providing notice of the decision. The City Manager's decision shall be final.

4. *Administrative Hearing.* A licensee may appeal any decision to revoke his or her license through the City's Administrative Hearing procedure as provided in Chapter 2,

Article V, Division 3 of the Arvada City Code. The appeal must be received within 14 days from the City providing notice of the revocation.

G. *Administration.* The Financial Officer and Director shall administer the provisions of this Article and are authorized to jointly promulgate rules and regulations for its administration and implementation.

1. *Authority to inspect.* The Director or his her designee may inspect the property, dwelling, dwelling unit, or ADUR prior to the issuance of a license or a license renewal and at any point during the duration of the Short Term Rental license term to ensure compliance with the provisions of this Section or with any other applicable local, state, or federal laws. The Director or his or her designee may inspect the licensed premises for the purpose of investigating and determining compliance with the requirements for a license issued under this Section, the provisions of this Section, or with any other applicable local, state, or federal law. Where any part of the property, dwelling, dwelling unit, ADUR, or licensed premises consists of a locked area, such area shall be made available for inspection as provided hereunder, without delay, upon request. Refusal to allow an inspection may result in the non-issuance of a license, or in the suspension, revocation, or non-renewal of the license for that licensed premises.

2. *Violations and Penalty.* It shall be unlawful for any person to violate a provision of this section. Violators shall be subject to the penalties as contained in section 1-5 of the Arvada City Code and may also be subject to civil remedies. A separate offense shall be deemed committed upon each day such person is in violation of this chapter unless otherwise provided in this chapter."

The remaining portions of Chapter 3 shall remain unchanged.

Section 3. Chapter 4, Environmental and Site Design, of the Land Development Code, of the Arvada City Code is hereby amended:

Section 4-2-1-4 Subdivision Requirements and Standards is hereby amended in its entirety to read as follows:

A. "General Requirements.

1. Every subdivision shall comply with applicable zoning district, design and development standards in this LDC.
2. Every subdivision shall comply with all other ordinances and regulations of the City of Arvada.
3. Public infrastructure shall be constructed in accordance with the City of Arvada Engineering Code of Standards and Specifications as approved by the Director.

B. **Minimum Standards.** The standards in this Article are minimum standards. The City may impose more restrictive standards when it finds that they are necessary to conform the design of a proposed subdivision to sound engineering or design standards or other standards in this LDC.

C. **Buildable Lots.** All lots created through the subdivision process shall be developable and conform to the minimum zoning, development, and floodplain standards in this LDC. No subdivisions shall create lots that prohibit development due to configuration of the lots, steepness of terrain, location of watercourses or floodplain, natural physical conditions, or other existing conditions.

D. Layout and Design. The design and layout of the lots shall be dependent upon topography, natural vegetation, soil conditions, drainage, street traffic, or other conditions. The following standards shall apply to:

1. A subdivision of two or more lots;
2. A division of a lot; or
3. Combining lots.

E. Lot Size and Configuration.

1. **Lot Area.** The minimum area and dimensions of all lots shall conform to the requirements of the zoning districts and development standards relating to the zoning district in which the lot is located. *See* Chapter 2 of this Code.
2. **Lot Lines.** Side lot lines shall be substantially at right angles or radial to street lines, except where other terrain makes such design impractical.

3. Double Frontage Lots.

a. Double frontage lots are discouraged in new subdivisions except where necessary to provide separation of residential development from parkways and arterials, or to overcome specific disadvantages of topography and orientation.

b. If approved, double frontage lots shall have an average lot depth of not less than 130 feet.

c. Unless waived by the Director, the owner / developer shall construct fences along the rear of double frontage lots. Such fences shall be six feet high, and composed of cedar picket fencing with brick posts not more than 60 feet apart, unless an alternate design or material is approved by the Director.

4. **Flag Lots.** Flag lots and other irregularly shaped lots are discouraged in new and existing subdivisions.
5. **Corner Lots.** Corner lots may be required to be wider than interior lots to provide for setback requirements.

F. Drainage. Lots shall be designed and located to provide positive drainage away from all buildings, shall comply with the standards in Division 4-1-3, Stormwater and Drainage Control, and shall allow for the infiltration of storm water runoff to the maximum extent feasible.

G. Access.

1. Every residential lot shall abut a public or private street or access easement. Access to residential lots shall be from local streets except as specifically authorized by the Director.
2. For subdivisions, at least two points of vehicular access into a proposed subdivision shall be provided, where feasible, unless it can be shown to the satisfaction of the Director that legal, topographical, and / or engineering constraints preclude such

access. The Director may allow for additional access supported by traffic impact study and meets all other design criteria.

3. For lot splits, shared common access shall be provided to the maximum extent practicable.

H. Block Layout and Length.

1. Blocks shall normally be at least 400 feet in length and not more than 1,200 feet in length. The Director may approve a shorter or longer block length when necessary to accommodate natural features such as steep slopes, environmentally sensitive lands, and pedestrian linkages.
2. Block lengths and widths shall be suitable for the uses contemplated and the zoning requirements pertaining to minimum lot sizes and dimensions.
3. In blocks over 1,000 feet long, pedestrian, bicycle, and equestrian crosswalks may be required. Said crosswalks shall normally require a six and one-half foot width.
4. Blocks along designated or planned parkways or arterial streets shall not be less than 660 feet in length, unless approved by the Director.

I. Street Design. All public and private streets shall comply with the Article 4-4, Access, Circulation, Mobility, and Utilities, City of Arvada Engineering Code of Standards and Specifications, and the following standards:

1. **Coordination of Streets.**
   a. All new collector and local streets shall connect with surrounding streets at safe and convenient locations as required by the Director to allow convenient movement of traffic and reasonable access for emergency vehicles.
   b. When connections to surrounding streets are proposed or required by the City, public right-of-way shall be dedicated and streets developed to existing paved rights-of-way.
   c. When developing adjacent to an existing RA orRN-32.5 zoning district where there is no paved street between the subdivision and an existing paved street, an interim street, improved in accordance with local street standards, shall be constructed by the Applicant for developments with densities in excess of one residential unit per acre of land.
   d. Whenever possible, proposed intersections along one side of a street shall coincide with existing or proposed intersections on the opposite side of such street. Where a centerline offset (jog) occurs at an intersection, the distance between centerlines of the intersecting streets shall be not less than required by the City of Arvada Engineering Code of Standards and Specifications.
   e. The street pattern shall not cause adjacent property to be landlocked nor prevent access to public land.

2. Street Intersections.

a. Streets shall be arranged in relation to existing topography to produce streets of reasonable gradient to facilitate adequate drainage and to produce desirable lots of maximum utility.

b. Where a subdivision abuts or contains the right-of-way of a drainage way, a limited access highway, or an irrigation ditch, or abuts a commercial or industrial

land use, the Director may require the location of a street approximately parallel to and on each side of this right-of-way at a distance suitable for appropriate use of the intervening land. This distance shall be determined with due regard for approach grades, drainage, bridges or future grade separations.

3. Street Design Standards.

a. Streets shall be related appropriately to the expected use of the property. Minimum requirements for street right-of-way, pavement width, and other standards for public and private streets are set forth in the City of Arvada Engineering Code of Standards and Specifications.

b. Other designs and materials may be required for the construction of streets, curbs, and sidewalks when, in the determination of the Director, such methods would be more environmentally desirable or more in keeping with the design of the development or neighborhood.

c. Turnarounds shall be provided at the ends of cul-de-sacs and at elbows on one-way streets. Turnarounds shall meet the minimum requirements of the Fire Protection District.

J. Street Naming and Traffic Control Signs.

1. Continuation of Existing Names. The City will assign a name subject to final plat, site plan or final development plan approval.

2. Street Signage.

a. All streets in a subdivision shall be named and identified by signs installed at every street intersection.

b. These signs shall be standard street signs as indicated in the current edition of the Manual on Uniform Traffic Control Devices.

c. All traffic control signs, as well as street name signs, required in a subdivision shall be provided and installed by the City at the expense of the subdivider in conformance with the current edition of the Manual on Uniform Traffic Control Devices, and any relevant Colorado state supplements.

K. Sidewalks, Trails and Bicycle Paths.

1. General Requirements.

a. The layout and design of an interconnected system of sidewalks, trails, and/or bicycle paths shall be consistent with the City of Arvada Transportation Plan and Bicycle Plan, as amended, and all other adopted plans and policies.

b. All subdivisions shall comply with the development standards set forth in Section 4-4-2-1, Pedestrian and Bicycle Access and Circulation.

c. All subdivisions shall include an interconnected system of sidewalks, trails and or bicycle paths that directly connects to all uses, lots, open space areas, and parks.

2. Trails.

a. The owner/developer shall provide and construct pedestrian, bicycle, or equestrian trail rights-of-way in compliance with Section 4-4-2-1, Pedestrian and Bicycle Access and Circulation, and Section 8-4-3-6, Park and Trail Dedications

and Fees-in-Lieu. Additional trail rights-of-way may be required where necessary for access to parks, schools, shopping areas, or other community facilities.

b. Trails shall be eight feet wide, unless a wider trail is required by the City. All trails between lots shall be located within a minimum 40-foot wide landscaped strip, which 40-foot wide strip may be dedicated to the City or set aside as private, amenitized landscape surface area."

Section 4-2-2-1 Cluster Subdivisions is hereby amended in its entirety to read as follows:

A. **"Generally.** This Division provides optional standards for cluster subdivision development to create more compact development in order to preserve and protect sensitive lands, create amenitized landscape areas, and to implement the Comprehensive Plan and/or adopted specific area plans. A cluster subdivision is a residential or mixed-use subdivision in which some or all of the lots are allowed to be smaller (in area and width) than otherwise required for the underlying zoning district, in exchange for permanent protection of sensitive lands and/or open space.

B. Zoning Districts Where Allowed.

1. The cluster subdivision option is available in the R6, R13, and R24 zoning districts.

C. **Minimum Parcel Size.** The minimum parcel size for a cluster subdivision shall be three acres.

D. Cluster Subdivision Development Standards.

1. All other standards in the LDC shall apply to cluster subdivisions unless modified by this Section.

E. Identification and Maintenance of Protected Lands.

1. Protected lands as defined in Section 4-1-4-2, Limits of Development, shall be identified on the final subdivision plat with a notation that indicates that those lands shall not be used for future development.
2. Protected lands shall be identified with appropriate permanent signage markers in order to distinguish these areas from private lots.
3. Protected lands shall be permanently maintained and preserved as:
   a. Open space tracts with deed restrictions;
   b. Land dedicated to the City;
   c. Land protected through a conservation easement; or
   d. Land protected by other means approved by the City.
4. For any protected land not dedicated to the City, the developer shall provide a permanent mechanism acceptable to the City Attorney for the primary purpose of conservation, preservation, and management of protected lands.
5. There shall be no further subdivision of land in an area approved for cluster subdivision; however, dedication of easements for public purposes may be permitted.

F. Use of Protected Lands.

1. Protected lands shall be left in an undisturbed natural state or landscaped pursuant to Section 4-6-5, Landscape Areas and Bufferyards.

2. The protected lands shall be used for low-intensity recreation, agriculture, buffers, critical wildlife habitat, or other passive park or open space purposes.
3. The use of protected lands may be further limited or controlled at the time of final approval where necessary to protect adjacent properties.

G. **Review and Approval of Cluster Subdivisions**.

1. The review and approval of cluster subdivisions shall follow the procedures for preliminary and final plats. The applicable procedure is dependent on the number of lots proposed in the cluster subdivision."

Section 4-3-2-2 Common Open Spaces is hereby retitled and amended in its entirety to read as follows:

"4-3-2-2 Landscape Surface Area

A. **Generally.** Development shall be designed with landscaped areas that support the resource values of the natural open space in terms of its ecological function (e.g., habitat, water quality enhancement, energy efficiency, etc.), aesthetic contribution, recreational value, and buffering value in accordance with Article 4-6 Landscaping and Buffering.

B. **Site Design.** Site design shall be organized to include, protect or enhance the natural open spaces areas and landmark features of the site.

C. **Enhancement of Open Space / Open Space Corridors.** Landscaped areas should be organized so as to create integrated systems that connect with dedicated school lands, parklands, other open spaces, or public lands or trails within the subject property or on adjoining property.

D. **Natural Resource and Hazard Areas.** Natural resources such as water features including lakes, natural ponds, rivers, streams, wetlands, riparian areas, drainage ways, ditches, and flood hazard areas and vistas of natural features including distant peaks and ridges, steep slopes, existing tree canopy, wildlife habitat areas should be undisturbed."

Section 4-3-2-3 Landscape Surface Area, Amenitized is hereby retitled and amended in its entirety to read as follows:

"4-3-2-3 Landscape Surface Area, Amenitized

A. **Generally.** Sometimes referred to as "common open space." Development shall be designed with amenities for the common use or enjoyment of residents, employees, or guests of the development. Any portion of the area intended to meet requirements of small urban parks (Section 4-3-3-4 Mixed-Use) must be publicly accessible. Amenities may include:

1. Passive recreational facilities such as trails, community gardens, courtyards with seating, shaded picnic areas, scenic areas, open grassy areas large enough for recreation, or similar common areas; or
2. Active recreational facilities such as pools, tennis courts, playgrounds, and clubhouses; or
3. Commercial outdoor seating and dining areas, or similar common areas serving employees and/or guests.

B. Accessibility. Areas shall be accessible to all residents, employees, or guests of a development and meet all design requirements of the Americans with Disabilities Act (ADA). “

Section 4-3-3-2 Residential is hereby amended in its entirety to read as follows:

A. **“Generally.** The standards of this Section apply to residential developments that include more than 10 dwelling units, located in all residential zoning districts and the MX and OT zoning districts, where single-family, duplexes, townhomes, multiplex, and multifamily are permitted, as provided in the following Subsections.

B. Arrangement of Landscape Areas and Buildings.

1. Amenitized landscape areas shall be provided to the extent practicable and situated so that landscaped areas and outdoor recreation amenities are centrally located within the development.
2. Principal buildings, such as club houses and recreational facilities, and landscaping shall, to the extent practicable, be located and designed so that residents can easily observe the buildings, landscaped areas, circulation paths, and access points into the development.

C. **Parking.** For multiplex, townhome and multifamily development, at least 50 percent of required off-street parking shall be provided in garages or carports, rather than surface lots. Where surface parking lots are used, they shall to the extent practicable be located between or behind buildings, rather than adjacent to street frontages.

D. Single-Family Detached, Duplex, and Multiplex.

1. **Generally.** Single-family detached, duplex, and multiplex residential subdivisions shall be designed to mitigate the impacts of streets and paved areas on the neighborhood, and to provide comfortable alternative routes for pedestrians and bicyclists, including continuous sidewalks, tree-lined streets, and pedestrian-scaled details.
2. **Creation of Neighborhoods.** Residential development that includes more than 200 dwelling units shall be designed to create identifiable “neighborhoods” of 30 to 100 units.
3. **Configuration of Lots.** Lots shall be configured to maximize the number of lots that are:
   a. Within close proximity to an amenitized landscape area (e.g., playground or trail); and
   b. Connected by trails or common greens that do not cross streets.

E. Townhome.

1. **Creation of Neighborhoods.** Residential development that includes more than 200 dwelling units shall be designed to create identifiable “neighborhoods” of 30 to 100 units.
2. **Configuration of Lots.** Lots shall be configured to maximize the number of lots that are:

a. Within close proximity to an amenitized landscape area (e.g. playground or trail); or

b. Connected by trails or common greens that do not cross streets.

3. Buildings shall front on and align with:

a. Adjacent streets; or

b. Meet the minimum Non-Street Frontage Perimeter Setbacks identified in Table 2-1-8-7, Townhome Building Standards.

4. Connectivity.

a. Where there is a sidewalk, separation between buildings shall be a minimum of 20 feet wide to allow for a minimum five foot wide sidewalk and landscaping

F. **Multifamily.** The standards of this Subsection shall apply to all new multifamily residential development.

1. Street Connectivity.

a. Multifamily sites of 10 acres or more shall include a minimum of one public street (or private drive that is built to City street standards), that is continuous through the subject property, and that connects to a public street on both ends.

b. The Director may waive this requirement for a through-access street or drive, if it is demonstrated that:

i. There are adequate alternatives available for residents and vehicles to travel through the subject property to adjacent properties and developments; or

ii. There are no opportunities for a through-street to safely make such connections.

2. **Landscape Areas.** Landscape areas shall be provided as follows:

a. Large landscaped areas should be the fundamental organizing element of the site. Landscaped areas should be well defined by buildings and streets. Buildings should be oriented in such a way as to create courtyards and open space areas.

b. Large existing trees and other natural features should be integrated into the landscape areas.

c. Landscape areas should be centralized and directly accessible to a majority of the surrounding units. Where possible, it should be linked to adjacent parks, paths, and open space areas.

d. The landscape areas shall be useable, non-riparian areas with slopes not exceeding 3:1.

3. **Site Amenities.** In conjunction with the landscape surface area requirements, and the required small urban parks in the MX-S, MX-U and the MX-T zoning districts (*See* Subsection 4-3-3-4E), all multifamily projects shall provide site amenities from the list below for the residents. Amenities shall be centrally located for a majority of the residents, and may be located within the landscape areas. Multifamily projects with less than 50 units shall provide two of the amenities from the list below. Multifamily projects with more than 50 units shall provide three of the amenities from the list below.

a. Plaza.

b. Swimming pool.
c. Sports court, such as tennis, basketball, or volleyball.
d. Natural open space area with benches.
e. Jogging trail.
f. Fountain, art, or sculpture.
g. Other amenity as approved by the Director"

Section 4-3-3-3 Clustered Small Housing is hereby amended in its entirety to read as follows:

A. **"Generally.** The standards of this Section apply to developments of the clustered small housing types that are described in Section 2-1-8-9, Clustered Housing Types.

B. **Common Green.**

1. Clustered housing types shall be organized around one or two amenitized landscape areas ("green(s)"), with no dimension that is less than the larger of:
   a. 1.5 times the height of the tallest building that fronts on the common green; or
   b. 20 feet, for micro homes or 30 feet for cottages.
2. The common green(s) shall be developed and maintained to provide for passive and/or active recreation activities for the residents of the housing cluster.
3. The common green(s) shall be centrally located and easily accessible to all dwelling units within the cluster.
4. The common green(s) shall be surrounded by clustered housing types on at least two sides, which do not have to be opposite sides.
5. Stormwater management facilities are allowed within a common green, if they do not adversely impact access to or use of the common green for all-season pedestrian access to the dwelling units, and for anticipated active and passive recreation activities.

C. **Front Porches.**

1. Cottages. Each cottage dwelling unit shall have a front porch that is not less than seven feet in any dimension.
2. Micro Homes. Each micro home shall have a front porch that is not less than five feet in any dimension.

D. **Private Entry Yards.**

1. Each dwelling unit may have a private entry yard, in front of the building elevation that contains the primary entrance to the dwelling unit, that is:
   a. Not more than 10 feet deep; and
   b. Enclosed with a fence that is not more than 36 inches in height in front of the front building plane, and not more than 60 inches in height behind the front building plane.
2. Private entry yards may border the common greens, but are not included in the dimensions of the common green.

E. **Configuration.** Housing clusters shall relate to both the street and to a common green, in that:

1. Each building that is constructed along the principal street side of the subject property shall include architectural features that provide visual continuity with adjoining properties and visual interest from the street, such as a primary or secondary entrance or porch that is oriented to the street.
2. Not less than 50 percent of the dwelling units shall front on a common green.

F. **Pedestrian Network.**

1. Pedestrian connections shall link all buildings to the street, common green(s), and parking areas.
2. Pedestrian connections from parking areas to common buildings and the front doors of dwelling units shall traverse a common green.
3. If housing clusters share a common building, *see* Subsection G., below, the pedestrian network shall connect the housing clusters.

G. **Common Building.** A common building with amenities is allowed within clustered housing developments. Amenities may include a kitchen, meeting area, common dining area, indoor recreation facilities, storage (provided that other amenities are also provided in the building), and up to two guest bedrooms. Up to two housing clusters that are connected with pedestrian pathways may share a common building, unless the size of the common building and provided amenities are designed to accommodate additional clusters, the common building is centrally located and within 600 feet of all dwelling units, and the common building is connected to the clusters by pedestrian pathways.

H. **Individual Storage Buildings.** One individual storage building is allowed for each dwelling unit, provided that:

1. The storage building is not more than 10 feet in height, measured from grade to the peak of the roof;
2. The storage building is not more than 80 sf. in floor area;
3. The storage building is located behind the dwelling unit, and set back:
   a. 20 feet from any street; and
   b. five feet from any boundary of the housing cluster and
4. The storage building is screened from the street and a common green.

I. **Parking Design.**

1. Generally.

a. Required parking shall be provided in shared surface parking lots, covered parking spaces in shared parking lots, shared detached garage buildings, or directly accessed from an alley.

b. No parking space or drive aisle shall be located between a front building elevation and a common green.

c. For alley accessed parking, parking spaces shall be located between the alley and rear building planes, and shall not extend into side or front yards of individual buildings.

2. Surface Parking and Covered Parking Spaces.

a. Surface parking and covered parking spaces shall be set back from streets as provided in Section 2-1-8-9, Clustered Housing Types.

b. Surface parking and covered parking spaces shall be screened from the street and the common green(s) and from individual units with a parking lot bufferyard as provided in Section 4-6-6-3 Parking Area Landscape.

c. Surface parking spaces shall be distributed on the site to minimize visual impacts and optimize access to individual units.

3. Shared Detached Garage Buildings.

a. Shared detached garage buildings may not exceed four overhead doors per building, and a total floor area of 1,200 square feet.

b. Shared detached garage buildings shall be reserved for the parking of vehicles owned by the residents of the development."

Table 4-5-2-2A: Residential Land Use Parking Standards is hereby amended in its entirety to read as follows:

Table 4-5-2-2A: Residential Land Use Parking Standards	
Land Use	Minimum Required Parking
Standard Housing Types	
Single-Family Detached or Duplex	2 sp. / du[1]
Townhome	2.2 sp. / du[1]
Multifamily and Multiplex	efficiency units: 1.4 sp. / du 1 BR units: 1.6 sp. / du 2 BR units: 2.1 sp. / du[1] 3+ BR units: 2.5 sp. / du[1]
Multifamily, Affordable[2]	efficiency units / 1 BR units: 1.4 sp. / du 2 + BR units: 2.0 sp. / du[1]
Multifamily, Senior[3]	1 sp. / du
Clustered Housing Types	
Micro Home	1.25 sp. / du
Cottage	2.25 sp. / du
TABLE NOTES: [1] Tandem spaces may be counted towards this requirement. [2] Projects that receive Low Income Housing Tax Credits. [3] Age restricted projects for residents 62 years and older.	

Section 4-5-3-1 General Design Principles is hereby amended in its entirety to read as follows:

A. **"Generally.** Circulation systems within a subject property shall provide for continuous traffic flow with efficient, non-conflicting movement throughout the site.

B. **Vehicular-Pedestrian Conflicts.**

1. Conflicts between areas of significant pedestrian movement and vehicular circulation shall be minimized.

2. Required drive-through stacking areas shall not intersect with pedestrian access to a public entrance of a building.

C. **Configuration of Parking Lots.** If differentiated, short-term and long-term parking shall be clearly signed, and short-term parking areas shall generally be located closer to the primary public entrances of principal buildings.

1. Parking lots and loading areas shall have access from a clearly defined drive aisle not less than 18 feet in width for one-way traffic and 24 feet in width for two-way traffic.
2. Parking spaces shall be marked on the pavement surface with striping, or change of color or material.

D. **Parking in the Front Setbacks.** Parking shall not be permitted within the front setback or frontage zone on any lot, except for single-family detached and duplex lots and multiplex sites with parking on paved driveways.

E. **Parking Areas Surface**. All off-street parking spaces and areas required by Division 4-5-2-2, Parking Requirements Tables, vehicular access and drive aisles, and stacking areas shall be surfaced with asphalt, concrete or other approved equivalent surface. Recycled asphalt, gravel, or similar compacted materials are not an acceptable parking surface.

1. The surfacing requirements above shall not apply to access drives on lots or tracts within the RA zoning district when the access drive is more than 100 feet in length or utilized for an accessory agricultural use.
2. Any area used to park vehicles on a single-family or duplex lot, which is not an off-street parking space required by Table 4-5-2-2A, Residential Land Use Parking Standards, shall be clearly delineated, improved with concrete, asphalt, stone pavers, gravel or rock (provided the installation is sufficient to support vehicles), maintained free of weeds and display no visible dirt surface. However, no more than 60 percent of the front or street side yards shall be paved with an impervious material."

Section 4-5-3-4 Off-Site Parking is hereby amended in its entirety to read as follows:

A. **"Generally.** In lieu of locating parking spaces required by Division 4-5-2, Parking and Loading Calculations, on the lot that generates the demand for the required parking, parking spaces may be provided on any lot or premises controlled, *i.e.*, by fee-simple ownership, easement interests, lease interests, or participation in a parking district or other joint venture to provide centralized off-street parking, by the owner of the use that generates the parking demand, provided that:

1. The parking spaces are within 200 feet of the boundaries of the property generating such parking requirements and no required off-street parking space within said parking lot is more than 500 feet from the property it is serving; and
2. The parking spaces are not already counted towards the parking requirements of another use after application of Section 4-5-2-4, Shared Parking, Section 4-5-2-5, Parking Credits and Reductions, or Section 4-5-2-6, Parking Studies, as may be applicable.

B. **Exceptions.** Off-site parking is not allowed in:

1. Residential zoning districts, except that manufactured home parks and clustered housing types may utilize centralized parking; and
2. Locations in which a street with more than two lanes separates the off-site parking area from the subject property."

Section 4-5-3-6 Vehicle Stacking is hereby amended in its entirety to read as follows:

A. **"Generally.** Vehicle stacking spaces are used to measure the capacity of a drive-through lane to hold cars while transactions are taking place at drive-through stations. Adequate space must be provided for on-site stacking, storage and queuing of vehicles.
   1. The required stacking distance for the site may be distributed between access points serving the site, provided a minimum stacking of 20 feet is provided at all access points.
   2. Stacking spaces must be a minimum of 8.5 feet in width and 20 feet in length.
   3. Electronic devices such as loudspeakers, automobile service order devices, and similar instruments shall not be audible beyond the property line adjacent to a residential zone district.
   4. Stacking spaces for internal drive-through services shall be measured from the point of service and within a designated drive aisle.
   5. Required vehicle stacking spaces shall not interfere with access to parking spaces.

B. **Drive-Through.** Uses that include drive-through service shall provide the following minimum number of stacking spaces:
   1. **Financial institutions, drive-through convenience retail, fueling stations, and pharmacies.** Three stacking spaces.
   2. Drive-through restaurants.
      a. If two service windows are provided (one for payments and one for pick-up):
         i. Four stacking spaces to each menu board;
         ii. Three stacking spaces between the menu board and the first window, including the position at the first window; and
         iii. Two spaces between the first window and the second window, including the position at the second window (*See* Figure 4-5-3-6, Illustrative Stacking Requirements).
      b. If one service window is provided, for both payments and pick up:
         i. Six stacking spaces to the menu board; and
         ii. Three stacking spaces between the menu board and the service window.
   3. **Drive-through only uses in buildings with less than 300 square feet of gross floor area and no separate menu board.** Three stacking spaces per service window.
   4. **Dry cleaners.** Two stacking spaces per service window.
   5. Vehicle wash.
      a. Two stacking spaces for each bay in a self-service vehicle wash facility;
      b. Five stacking spaces for each in-bay or conveyor vehicle wash facility; and

c. If the facility provides detailing, manual drying or polishing, and / or vacuuming, sufficient area to provide those services without creating additional demand for stacking at the vehicle wash entrance.

6. **Other Uses.** The determination by the Director of stacking spaces necessary for other uses may require a queuing study conducted by a qualified transportation planner or traffic engineer at the Applicant's expense.

C. **Design.**

1. Stacking lanes shall be clearly marked, and shall not interfere with on-site or off-site traffic circulation, or access to parking spaces.
2. Stacking areas shall not be located in the front setback or side street."

Section 4-5-3-7 Design and Use of Off-Street Loading Areas is hereby amended in its entirety to read as follows:

A. **"Generally.** All required off-street loading spaces shall be designed, constructed, and maintained in accordance with the standards and requirements of this Section.

B. **Location.**

1. Loading spaces shall be located on the same lot as the building or structure to which they relate.
2. No loading space shall be located in any front setback area.
3. Except where alley loading or over-the-curb loading is allowed, loading areas shall be located and designed to ensure adequate on-site maneuvering area for delivery vehicles.
4. No loading area shall be designed in a manner that would allow any vehicle to extend into any front setback area or adjacent to any residential zone district while being loaded or unloaded.
5. Trucks parked in loading areas shall not encroach into required parking spaces or building setbacks.
6. Parked trucks loading or unloading materials shall not block travel lanes in parking lot or fire lanes.

C. **Buffering.** Drive-through stacking areas and loading areas, including overhead doors, oriented so to face a residential zone district or a public right-of-way shall be screened from view from all property lines and adjacent streets to the greatest extent possible, as determined by the Director, by the following:

1. By an opaque fence or wall between six feet and eight feet in height that incorporates at least one of the predominant materials and one of the predominant colors used in the principal building. The fence or wall may exceed eight feet in height when there is a difference in grade between the street and loading area to effectively screen the area. (For a drive-through stacking area, a fence or wall shall only be used when the area is adjacent to a residential zone district).
2. A landscape berm may be used instead or combined with the required fence or wall.
3. If such areas are covered, then the covering shall include at least one of the predominant exposed roofing colors on the principal building.

D. **Surfacing.** All required off-street loading spaces and access drives shall be improved with an asphaltic, concrete, or equivalent surface and shall be graded and drained in order to dispose of all surface water accumulation within such areas, as well as any associated parking area.

E. **Alleys.** All alleys that are used for loading shall meet the City of Arvada Engineering Code of Standards and Specifications."

4-5-3-8 Bicycle Parking Design is hereby amended in its entirety to read as follows:

A. **"Generally.** The bicycle parking spaces that are required by Section 4-5-2-8, Bicycle Parking, shall be designed according to the standards of this Section. The purpose of these design standards is to ensure that bicycle parking is convenient to bicyclists and provides security from theft and damage.

B. **Standards.**

1. **Generally.** Bicycle parking shall be designed to ensure that it is convenient to bicyclists and secured from theft and damage.
    a. Bicycle parking shall be securely locked and safeguarded from accidental or intentional damage.
    b. Each required bicycle parking space shall be accessible without moving another bicycle.
    c. There shall be an aisle at least five feet around the perimeter of all bicycle parking areas to allow room for bicycle maneuvering.

C. **Short-term Bicycle Parking.** Short-term bicycle parking facilities or racks shall accommodate securing a bicycle using an industry-standard bike lock.

1. Short-term bicycle parking spaces shall be located within 50 feet of the main entrance to the building. Where there is more than one main entrance to a building, short-term spaces should be split between building entrances.
2. Bicycle racks shall meet the following standards:
    a. A U-shaped bike rack or variation thereof that allows for the bike to be locked to the rack by the frame and at least one wheel;
    b. A bicycle that is six feet long can be securely held with its frame supported so that the bicycle cannot be pushed or fall in a manner that will damage the wheel components; and
    c. The racks are securely anchored to a hard surface.
3. **MX Zoning Districts.** Multifamily residential, mixed-use, and office uses in the MX-N, MX-S MX-U and MX-T zoning districts shall provide bicycle parking in locations where at least 50 percent of the required spaces, when more than three are required, are covered, secure, and illuminated. Such bicycle parking areas shall be maintained by the property owner, a property owners' association, or a metropolitan district.
4. **OT and CG Zoning Districts.** Multifamily, schools, retail, and office uses in the OT and CG zoning districts shall provide bicycle parking locations that are secure, illuminated and along traveled ways.

D. **Long-term Bicycle Parking**. Long-term bicycle parking shall be in a secure and weather-protected place. Long-term parking does not have to be provided on site; however long-term bicycle parking must be within a reasonable distance of a site in order to encourage bicycle use.

1. Long-term bicycle parking is not required on a site when:
   a. Non-residential gross building area is less than 5,000 square feet; or
   b. There are ten or fewer residential units in a development or redevelopment.
2. Long-term bicycle parking, when required, shall be located within 50 feet of a building entrance and be visible from the building entrance. If the location of the bicycle parking is not obvious from the building entrance, signs shall be posted that indicate the location of bicycle parking.
3. Long-term bicycle parking is require to be covered and shall be at least one of the following:
   a. In a locked room;
   b. In a bicycle locker;
   c. Under roof overhangs or awnings;
   d. In an area that is enclosed by a fence with a locked gate;
   e. A free standing building;
   f. Within view of an attendant or security guard; or
   g. In an area that is monitored by a security camera.

E. **Surfacing and Clear Area.**

1. The surface of bicycle parking spaces shall be of hardscape material such as asphalt, concrete, or other materials approved by the Director.
2. Racks shall be bordered by physical barriers or located a sufficient distance from motor vehicles to prevent damage to parked bicycles."

Section 4-6-3-1 Applicability is hereby amended in its entirety to read as follows:

A. **"Generally.** All new construction, including building expansions that increase the footprint of a building by 25 percent or more, and modification to an existing landscape area shall comply with the standards in this Article.

B. **Exceptions.** Exceptions to this Article are allowed under the following circumstances:

1. **Interior Tenant Improvement.** The landscaping requirements of this Article shall not apply to existing structures where interior tenant improvements occur and where there is no addition to the number of parking spaces provided.
2. **Existing Structures.** Where existing structures are situated so as to preclude the installation of required landscaping, the Director may authorize reductions for the required landscaping.
3. **Physical Limitations of the Site.** The Director may authorize modifications to landscaping requirements for structure additions or tenant improvements where landscaping requirements are not feasible due to physical limitations of the site. Where the landscaping requirements have been modified, the landscaping shall be relocated in the following manner:

a. To another portion of the lot;

b. Along a property line; or

c. To an area, including a nearby public park or other City-owned property, as determined by the Director upon review with the owner or developer.

4. **Single-Family Detached and Duplex.** Single-family detached and duplex dwelling unit lots, are exempt from landscaping requirements, provided the initial development of the subdivision contains nine or fewer lots of single-family and/or duplex. Common landscape areas, bufferyards, water quality/detention basins, or streetscape areas, shall meet the applicable requirements of this Chapter.

C. **Site Changes**. Townhome, multiplex, multifamily, mixed-use, commercial, and industrial uses that are part of larger project shall be required to submit a site plan for the area that is disturbed that meets the requirements of this Article. The Director may require that a site plan covering the entire project area be submitted.

D. **Parking lot Reconfiguration**. Modifications to any existing parking lot in an amount greater than 20 percent, or expansions of an existing parking lot by 25 spaces or more shall meet the landscaping requirements of this Article for the area being modified or expanded."

4-6-3-2 General Landscaping Standards is hereby amended in its entirety to read as follows:

A. **"Landscape Plan Required.** A landscape plan with designated landscaped areas shall be submitted as a part of all development applications where landscaping, buffering, or screening is required, unless the applicable Decision-Making Body determines that compliance with the provisions of this Article can be demonstrated without the use of a landscape plan. Final landscape plans shall be stamped, signed and dated by a State of Colorado Registered Landscape Architect for all projects except residential minor subdivisions as defined in Subsection B.4 above or where the Director determines the scope of the project does not warrant such plans.

B. **Vegetative Coverage.** Landscaped areas shall be covered with shrubs in combination with lower water consuming ground-level plants, ornamental grasses, or turf for at least 75 percent of the landscape area, at maturity.

C. **Detention and Retention Ponds.** Detention and retention ponds shall be physically, functionally and visually integrated into adjacent landscape uses through the use of topography, building and parking lot placement, plantings, permanent water features, recreational or open space amenities, or other methods. Slopes shall not exceed a 4:1 ratio or be flatter than 2 percent.

D. **Steep Slopes.** Grading in landscaped areas shall not exceed slopes greater than 6:1 in the amenitized area of Small Urban Parks and 4:1 for all other areas, except that public maintained shrub beds and native grass areas shall not exceed 3:1 slope.

E. Alternative Requirements for Hardscape Features.

1. In mixed-use and nonresidential districts, pedestrian walks and other hardscape landscape features and amenities, such as Small Urban Parks, outdoor seating areas,

and plazas with recreation and entertainment areas, water features, and public art, may comprise up to 50 percent of the landscape area.

2. The Director may approve a greater percentage of hardscape features based on the consideration of the proposed development, mix of uses, and the quality of the proposed landscape design."

Section 4-6-5-2 Purpose and Applicability is hereby retitled and amended in its entirety to read as follows:

4-6-5-2 "Bufferyard Purpose and Applicability

A. **Purposes of Bufferyards.** A bufferyard is a landscaped area between two differing land uses and is designed to provide a transition between the uses, mitigate or minimize potential nuisances such as noise, light, and glare, protect the character of an area, and protect natural resources from impacts of nearby development.

B. **Applicability.**

1. **Uses Requiring a Bufferyard.** The following uses require a bufferyard per Section 4-6-5-3, Bufferyard Options, where directly adjacent to a single-family detached dwelling, duplex dwelling or multiplex, or a RN zoning district:
   a. Multifamily and townhomes;
   b. Mixed-use buildings;
   c. Non-residential buildings;
   d. Drive-through facilities;
   e. Industrial manufacturing and processing uses, and storage uses in the IL and IG zoning districts; and
   f. Dead-end drives and turnarounds.
2. **Additional Uses Requiring a Bufferyard.** The following uses require a bufferyard per Section 4-6-5-3, Bufferyard Options, where directly adjacent to a multifamily, townhomes, or other attached residential buildings or a mixed-use building with a residential component:
   a. Drive-through facilities; and
   b. Industrial manufacturing, processing uses, and storage uses in the IL and IG zoning districts."

Section 4-6-6-2 Street Bufferyards is hereby amended in its entirety to read as follows:

A. **"Street Bufferyards in Setbacks.**

1. In the CG, IL and IG zoning districts, and multifamily in the R13 and R24 zoning districts, the front setback shall be landscaped in accordance with Sections 4-6-6-4, Foundation Plantings and 4-6-6-5, General Landscape Areas .
2. In the MX and OT zoning districts, if the principal building is set back more than five feet from the property line, then that area shall be landscaped in accordance with Sections 4-6-6-4, Foundation Plantings and 4-6-6-5, General Landscape Areas. If the

building is set back less than five feet, the area shall be hardscaped with paving materials such as concrete, pavers or other quality paving materials, or landscaped with shrubs and ground-level plants. The remainder of all setbacks shall be landscaped in accordance with Sections 4-6-6-4, Foundation Plantings and 4-6-6-5, General Landscape Areas."

Section 4-6-6-3 Parking Area Landscaping is hereby amended in its entirety to read as follows:

A. **"Generally.** Surface parking lots shall be landscaped to reduce the apparent size of the parking area; prevent views of long rows of parked cars; create an impression of smaller, connected parking lots; provide shade for parked cars; reduce the heat island effect of an urbanized area; and define pedestrian access ways, according to the standards of this Section.

B. Exceptions.

1. The surface parking lot landscape requirements of this Section do not apply to:
   a. Parking lots in the IL and IG zoning districts if the subject property is located south of West 60th Avenue and east of or adjacent to Lamar Street; or
   b. Surface parking lots with 24 or fewer parking spaces and with 12 or fewer parking spaces in a row.
2. The access point landscape requirements of this Section do not apply to driveways that provide access to individual single-family detached, duplex, multiplex, or townhome lots.

C. **Perimeter Landscape Buffer.**

1. Required Perimeter Landscape Buffer.

   a. Parking lots adjacent to single-family detached, duplex, multiplex, or townhome uses shall meet the Option C or D bufferyard in Division 4-6-5-3, Bufferyard Options.

2. **Exceptions.**
   a. The requirements for perimeter landscaping do not apply at points of ingress or egress to the surface parking lot, or to points of cross-access among properties that share a parking lot.

D. Required Surface Parking Lot Landscape Areas.

1. Landscaping shall be installed in the following required landscape areas:
   a. Landscape islands are required at the end of each row of parking spaces in each parking module;
   b. Landscape islands are required and must be distributed throughout the parking lot, at a rate of at least one landscaped island for each 12 consecutive parking spaces;
   c. Vegetated entry medians are required with a minimum of at least 300 square feet in surface area and a minimum five feet in width (not including curbs), if the surface parking lot contains 180 or more parking spaces;

d. Landscape strips are required at least 14 feet in width (not including curbs) that separate groups of parking modules (along their long edges) into "cells" as provided in Table 4-6-6-3, Parking Module Separation Requirements.

Figure 4-6-6-3: Parking Module Separation Diagram

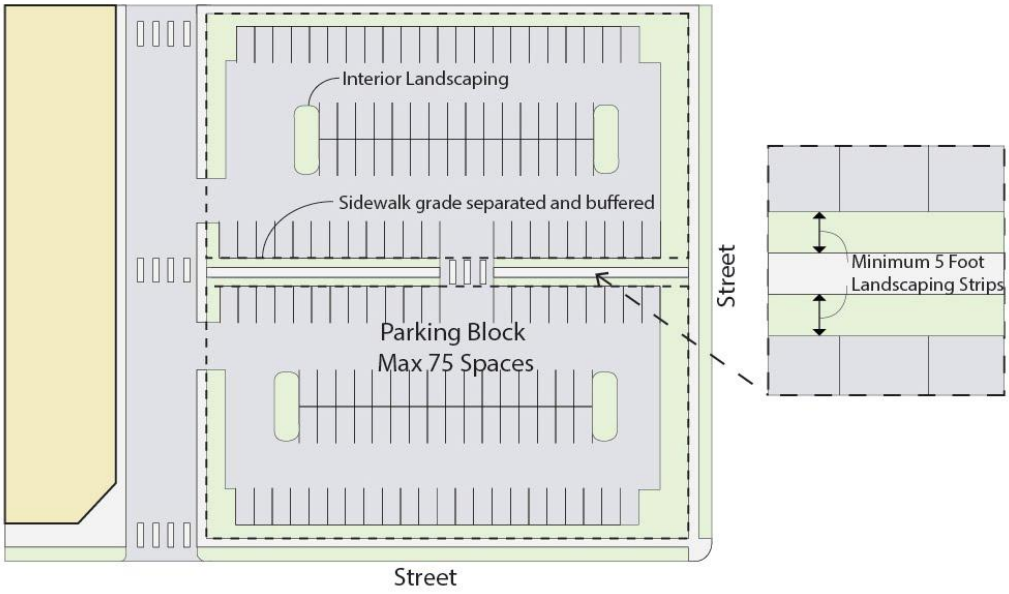


Table 4-6-6-3: Parking Module Separation Requirements

Predominant Type of Land Use	Maximum Number of Parking Spaces in Cell
Residential	50
Nonresidential (except Industrial)	75
Industrial	100 if the parking area is located within 300 feet of a public street; otherwise, no maximum

2. Landscape islands that are used to meet the requirements of Subsection D.1.a. and D.1.b., above, shall be at least eight feet in width (not including curbs) and 16 feet in length, and may be combined (eight feet in width by 32 feet in length) at the ends of adjacent parking modules.
3. Landscape strips may include sidewalks (and landscape islands may be crossed by sidewalks), but the sidewalks shall not be counted as required landscape areas for the purposes of the calculation of planting requirements (*see* Subsection E., below).
4. A raised sidewalk to connect the parking area with major building entries should be provided between the cells with a five foot planting strip on both sides of the sidewalk. An alternative layout is a sidewalk connection with a central five foot wide landscaped area, flanked with sidewalks on both sides.

E. **Minimum Planting Requirements.** Required surface parking lot landscape areas shall be planted with one shade tree or two ornamental trees, plus eight shrubs per 300 square feet of required landscape area."

Section 4-6-6-5 General Landscape Areas is hereby amended in its entirety to read as follows:

A. **"Generally.** Except as provided in Subsection B., below, the landscaping requirements of this Section apply to all permeable areas of the subject property that are not otherwise a designated required planting area pursuant to Division 4-6-5, Landscape Areas and Bufferyards or Section 4-6-6-1, Street Trees, through Section 4-6-6-4, Foundation Plantings, inclusive.

B. **Exceptions.** The requirements of this Section do not apply to:
   1. Preserved open space; and
   2. Irrigation canals, irrigation ditches, reservoirs, and appurtenant maintenance areas (whether owned in fee simple or as easements).

C. **Planting Requirements.** General landscape areas shall be planted with at least:
   1. One canopy or evergreen tree, or two ornamental trees per 3,000 square feet of landscape surface area;
   2. A minimum of 10 percent of all trees shall be evergreen; and
   3. 75 percent vegetative ground coverage at maturity, excluding tree canopy.

D. **Shrub Requirements.** Shrubs shall be planted at a maximum spacing of five feet on center.

E. **Planting on Steeper Slopes.** On slopes greater than 3:1, the following can be planted:
   1. Trees and shrubs; and
   2. Groundcovers."

Section 4-7-2-1 Fences and Divisional Walls is hereby amended in its entirety to read as follows:

A. **"Generally.** All fences and divisional walls shall comply with the requirements of this Division.

1**.** If a proposed fence or divisional wall is located directly adjacent to a zoning district boundary or on a shared property line, the less restrictive standards shall apply.

B. **Permits Required.** All fences and divisional walls require fence permits, except for the following:
   1. Repair of a fence section not greater than eight linear feet in length.

C. **Height.** All fences and divisional walls shall comply with the maximum heights shown in the following Table 4-7-2-1, Maximum Height of Fences and Divisional Walls Within Required Setback Areas, unless a different maximum height is explicitly permitted:
   1. By this Code or approved through the Minor or Major Modification, or PUD approval process;
   2. For an activity field (*i.e.,* tennis court, baseball, football, soccer fields) at the discretion of the Director; or
   3. For fences associated with a Utility, Major for security purposes, at the discretion of the Director.

D. **Location.** All fences and divisional walls may encroach into required yards and setbacks. Fences and wall shall not:

1. Be constructed within a public right-or-way or areas to be dedicated for public right-of-way unless a revocable permit is approved;
2. Conflict with sight distance visibility of intersections or points of ingress/egress;
3. Block or divert a natural drainage flow onto or off of any other property;
4. Block access within an access easement; and
5. Encroach into a utility easement, unless the easement holder has provided written consent. (This specific requirement shall only apply to masonry walls.)

Figure 4-7-2-1A: Fence and Division Wall Location Diagram

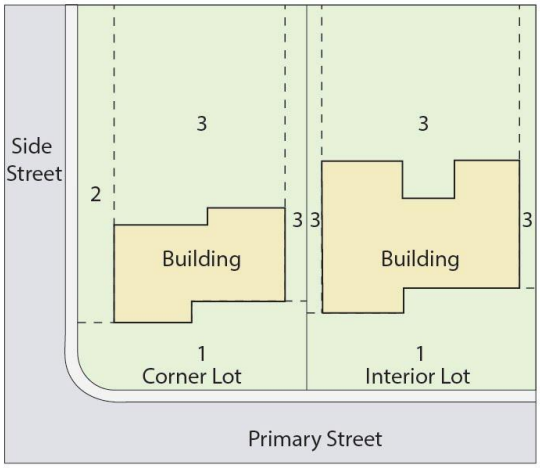


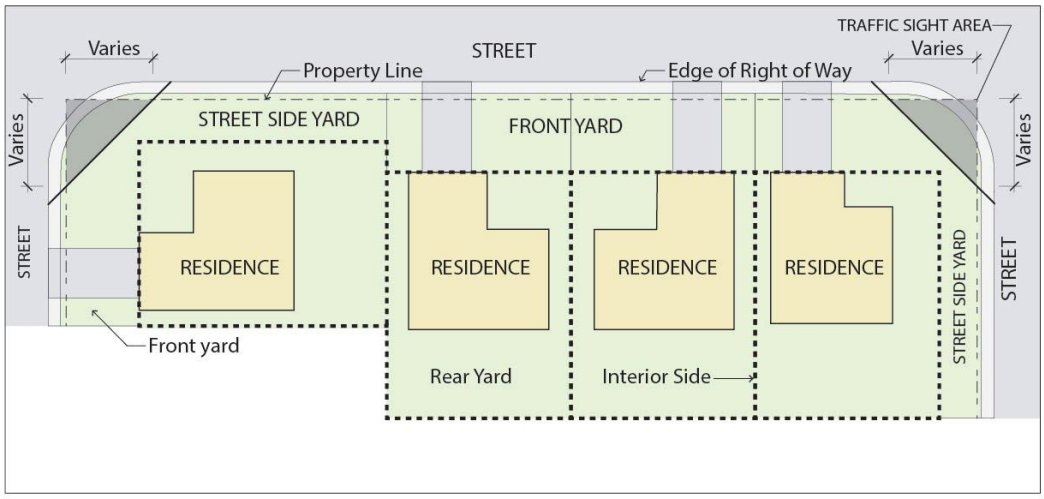
Table 4-7-2-1 : Maximum Height of Fences and Divisional Walls Within Required Setback Areas

Zoning District	Setback		
	Area 1 Front	Area 2 Street Side	Area 3 Rear & Interior Side
OS, RA, RN, R6, R13, R24, MX-N	3 ft.[2]	3 ft.[2,3,4]	6 ft.[4,9]
MX-S, CG	3 ft.[2]	3 ft.[2,5]	6 ft.
MX-U, MX-T	3 ft.[2]	3 ft.[2,5]	6 ft.
OT Zoning Districts	3 ft. [5,6,7,8]	3 ft.[5,6,7,8]	3 ft.[8]
IL	6 ft.	6 ft.	6 ft.
IG	6 ft.	8 ft.	8 ft.
PUD	Per the approved PUD. If no standards were identified as part of the approved PUD, then the fence standards for the closest zoning district shall be utilized.		

TABLE NOTES:
[1] *See* Figure 4-7-2-1A, Fence and Divisional Wall Location Diagram.
[2] Height may be increased to 4 ft. if the fence is at least 50 percent transparent when viewed at a perpendicular angle.
[3] Height may be increased to 6 ft. (regardless of opacity) if the fence is set back at least 6 ft. from the

Table 4-7-2-1 : Maximum Height of Fences and Divisional Walls Within Required Setback Areas			
Zoning District	Setback		
	Area 1 Front	Area 2 Street Side	Area 3 Rear & Interior Side
property line or 6 ft. from the back of adjacent sidewalk, whichever is greater. [4] Height may be increased to 8 ft. for divisional walls that face arterial streets. [5] Height may be increased to 6 ft. if a minimum of 50% open for school yards. [6] Height may be increased to 4 ft. if a minimum of 50% open for single-family, duplex or multiplex building types. [7] Height may be increased to 4 ft. if a minimum of 50% open for mixed-use building type outdoor dining areas. [8] Height may be increased to 6 ft. except within any McIlvoy Park Frontage zone or any side or rear setback adjacent to McIlvoy Park or Olde Town Plaza, or where it would extend in front of a building within any frontage zone. [9] Maximum height is 6 ft. for rear yards on double frontage lots.			

Figure 4-7-2-1B: General Fence Location



E. Setbacks from Streets, Sidewalks, Open Space, Trails, and Multi-Use Pathways.

1. No solid fence or divisional wall that is between four and eight feet in height shall be installed closer than:
   a. Eight feet from the flowline of a street; and
   b. Five feet to the nearest edge of a sidewalk, open space corridor less than 15 feet wide, trail, or multi-use pathway.
2. No solid fence or divisional wall that is more than eight feet in height shall be installed closer than:
   a. Ten feet from the flowline of a street; and
   b. Eight feet to the nearest edge of a sidewalk, open space corridor less than 15 feet wide, trail, or multi-use pathway.
3. Fences that exist in the condition identified in Subsection E1 and E2 above prior to the adoption of this Code shall be considered conforming.

4. The area between the fence or divisional wall and the street, sidewalk, trail, or multi-use pathway shall be landscaped with shrubs, groundcover, perennials, ornamental grasses, or turf materials that provide contrast with the sidewalk. Inorganic ground cover such as river rock, cobble rock, or gravel may be used as part of the landscape provided that the ground cover, ornamental grasses or turf which are planted achieve 50 percent coverage at maturity. Hardscape materials are allowed only at points of access through the fence or divisional wall.
5. Vehicular gates adjacent to streets and sidewalks shall be located a minimum of 18 feet from the sidewalk or the property line, whichever is greater, and shall not open outward from the private property.
6. Fences shall comply with the sight triangle requirements of Section 4-4-3-3, Intersection Visibility.

F. Design of Street-Facing Fences or Divisional Walls.

1. All fences or divisional walls adjacent to a street, open space, trails, and multi-use pathways, the finished surface of the fence shall face towards the street frontage. Non-decorative elements such as fence posts and supporting structures, when visible on one side and not the other, shall face inward.
2. No portion of any front yard setback may be fenced for use as an animal pen or dog run.

G. **Perimeter Fence and Walls.** Perimeter fences and walls along arterial streets or railroad tracks may be constructed up to eight feet in height. Perimeter fencing shall be constructed of Western Red Cedar wood or other material approved by the Director, or masonry. Masonry fence posts two foot by two foot in size, shall be located at property corners but no further than 100 feet apart on-center, and with sloped column caps to drain water to the sides of the posts.

H. Security Fencing.

1. No barbed wire or other sharp-pointed fences or similar security devices on divisional walls shall be installed on any property, except:
   a. In the IL or IG zoning districts that is used for industrial purposes, upon demonstration to the Director or the Decision Making Body that a substantial security need justifies the installation; or
   b. In the RA or OS zoning districts on property that is used for agricultural purposes.
2. Electrically charged fences are not allowed unless necessary for livestock control in an RA zoning district.

I. Relationship to State Statutes or Regulations.

1. Where the Colorado statutes or implementing administrative regulations require fencing or divisional walls that are taller than those that are allowed by Table 4-7-2-1, Maximum Height of Fences and Divisional Walls Within Required Setback Areas, the Director may approve the increased fence or divisional wall height in accordance with the statutes or implementing administrative regulations.
2. If the fence or divisional wall is located within Area 1 or Area 2 as shown in Figure 4-7-2-1A, Fence and Divisional Wall Location Diagram, then where feasible and

consistent with the statute or regulation, the Director shall require landscaping or design treatments to mitigate the visual impacts of the increased height of the fence or garden wall when viewed from the public streets. Mitigation measures may include, but are not limited to, tree, shrub, or hedge plantings; material and color selections that de-emphasize the fence or garden wall; transparency; and additional setbacks for the fence or divisional wall.

J. Fence and Wall Materials.

1. Fences and divisional walls shall be made of high quality, durable materials that require low maintenance and are complementary with the overall design of the principal building and site landscape. The following materials are allowed:
   a. Wood and composite wood;
   b. Non-reflective plastic and vinyl fencing;
   c. Natural stone, stacked stone, brick, stucco, decorative concrete masonry blocks that replicate the appearance of brick, stone, stucco and CMUs;
   d. Metal iron, metal picket and other metals simulating the appearance of wrought iron, chain-link fencing or aluminum or wrought iron decorative fencing;
2. The Director may approve other materials that are equal to or surpass the materials listed in this Subsection J. in terms of durability, maintenance, and aesthetics.
3. Prohibited Material. Sheet plastic, sheet metal, chicken wire, fabric materials, fiberboard, garage door panels, snow fencing, rope, plywood fences, PVC pipes, and miscellaneous materials not commonly used with residential fences are not allowed.

K. **Maintenance.** All fences and divisional walls shall be maintained in good condition at all times."

Section 4-8-2-2 General Design Standards is hereby amended in its entirety to read as follows:

A. **"Shielding of Lights.** Luminaires shall be shielded and directed to avoid glare and overspill onto adjacent property.

1. All exterior light fixtures shall be full cutoff fixtures that are directed downward (90 degrees from true vertical) and shall have flat lenses, emitting no more than 10 percent of the total lumens between 80 and 90 degrees from true vertical. Fixtures shall be configured so that lights do not cause glare.
2. All light fixtures on structures, poles, bollards, stands, or mounted on a building shall have a shield, adjustable reflector, and/or non-protruding diffuser to shield the light source from sight from adjacent residential zoning districts.

Figure 4-8-2-2: Light Fixtures Examples

B. **Maximum Spill Light Illumination Levels.** Except for public street lighting, all exterior lighting and indoor lighting visible from outside shall be designed to minimize adverse impacts on adjacent properties by minimizing glare and limiting light at the property line and located so that the maximum illumination measured in foot candles at ground level and for mixed-use development without property lines shall be measured a line half-way between buildings of differing uses and shall not exceed the standards in Table 4-8-2-2A, Maximum Illumination Levels.

Table 4-8-2-2A: Maximum Spill Light Illumination Levels at Property Line

Type of Use	Maximum Illumination level at Lot Line (Foot Candles)
Single-family dwelling and duplex residential property line in RA, RN, R6, R13, R24, OT districts (-single-family, duplex, multiplex building types), and OS	0.3
Attached dwelling and multifamily residential property line (except mixed-use buildings)	0.8
Mixed-use buildings and non-residential property lines	1.0
Industrial	1.5

1. **Maximum Illumination and Lighting Uniformity**.
    a. Lighting shall have a uniformity ratio of ten to one (maximum to minimum).
    b. No single lamp shall exceed:
        i. All zone districts except IL and IG – 16,000 lumens
        ii. IL and IG zone districts - 20,000 lumens

2. **Maximum Light Levels.**

a. The maximum allowed light levels at any point on the property (as measured in foot candles) shall not exceed the following limits:

i. Pedestrian areas (when not adjacent to parking lots): 3 Foot Candles.

ii. Multiplex, Townhome, and Multifamily Building Entries: 8 Foot Candles.

iii. Parking lots and all other non-residential use areas: 8 Foot Candles.

iv. Service Canopies (fuel stations, ATMs, Drive-Through's, etc.): 20 Foot Candles.

C. **Maximum Height.** The height of exterior light fixtures, whether mounted on poles, walls, or by other means, shall comply with the standards in Table 4-8-2-2B, Maximum Height for Exterior Lighting.

Table 4-8-2-2B: Maximum Height for Exterior Lighting

Base Zoning District	Maximum Height[1]
OS, RA, RN, R6, R13, R24, OT, MX-N, MX-S	22 feet
CG, MX –U, MX-T, IL, IG	35 feet

TABLE NOTES:
[1] Porch and balcony lights on residential buildings are exempt from the maximum height. Lighting allowed no more than 12 ft. above the surface of a rooftop deck.

D. Motion-Activated Security Lighting.

1. Motion-activated security lighting may emit up to 3,000 lumens per fixture.
2. Not more than one motion-activated security light fixture is allowed per 60 linear feet of building elevation.
3. Security lighting shall be timed to turn off after not more than five minutes after motion activation.

E. Outdoor Sports or Performance Venue. Lighting fixtures for outdoor sports areas, athletic fields, and performance areas shall be equipped with a glare control package (e.g., louvers, shields, or similar devices) and aimed so that their beams are directed and fall within the primary playing or performance area.

1. Lighting fixtures may not be more than 40 feet in height.

F. Pedestrian Area Lighting.

1. Pole light fixtures for plazas, small urban parks, sidewalks, walkways, trails, and bicycle paths outside of or not adjacent to vehicular surface areas (i.e., parking lots or streets) shall:

a. Provide at least one foot candle of illumination, but not exceed three foot candles; and

b. Have a maximum height of 15 feet.

c. No single lamp shall exceed 10,000 lumens.

2. Pedestrian bollard lamps shall be mounted no higher than four feet above grade and shall not exceed 3 foot candles.

a. No single lamp shall exceed 900 lumens.

G. Wall Pack Lights. Wall packs on the exterior of the building shall be fully shielded (e.g., true cut- off type bulb or light source not visible from off-site) to direct the light vertically downward and have a maximum of 1600 lumens.

H. Awnings. Awnings used for building accents over doors and windows shall not be internally illuminated (i.e., from underneath or behind the awning) unless the awning material is entirely opaque.

1. **Service Canopy Lighting.** Canopy lighting for uses that shelter outside work, full-service areas or porte-cocheres shall have all light fixtures flushed mounted or recessed into the canopy and equipped with flat lenses.

I. Decorative Lighting.

1. Decorative lighting shall be permitted to enhance the appearance of a building and / or landscape feature provided that:

a. All light is cast against the building surface or downward onto a landscape feature;

b. All decorative lighting is directed away from residential uses located within 50 feet of the building façade on which the decorative lighting is mounted and is shielded to reduce light trespass on adjacent uses;

c. The lamp is not visible from adjacent properties, pedestrian or vehicular traffic; and

d. The decorative lighting does not exceed 1600 lumens.

2. Unshielded Tivoli and patio string lighting with no more than 200 lumens per foot provided that the lighting is turned off between 11:00 PM and 6:00 AM.

J. Pole and Fixture Color.

1. All poles and fixtures (luminaires) shall be of dark colors including, but not limited to, black, dark gray, dark green or brown. Reflective or light colored poles and fixtures are not allowed."

The remaining portions of Chapter 4 shall remain unchanged.

Section 4. Chapter 5, Building Design, of the Land Development Code, of the Arvada City Code is hereby amended:

Section 5-1-2-2 Evaluation of Aesthetic Consistency is hereby amended in its entirety to read as follows:

A. **"Generally.** Where the standards of Division 5-1-5, Supplemental Standards for Residential Land Uses (Except Multifamily), or Division 5-1-6, Supplemental Standards for Nonresidential and Multifamily Land Uses, require aesthetic consistency, aesthetic consistency shall be evaluated in accordance with the standards of this Section.

B. **Roof Pitch and Form.** As to roof pitch, "consistency" means a roof pitch within 1:12 of the slope of the primary roof structure of the principal building.

C. **Roofing or Cladding Materials.** As to roofing and cladding materials, "consistency" means a material that is not obviously different in terms of texture or color from a material used for the same purpose on the principal building.

D. **Window Styles, Window Orientation, and Doors.** As to window styles, window orientation, and doors, "consistency" means windows or doors with a design and aspect ratio that is not materially different from windows or doors on the principal building.

E. **Color Palette.** As to color palette, "consistency" means colors that are:

1. The same as the principal building;
2. Complimentary to the predominate color(s) of the principal building;
3. Monochromatic variants of the primary color(s) of the principal building."

Section 5-1-2-3 General Building Design Standards is hereby amended in its entirety to read as follows:

A. "Building Orientation. Primary buildings shall emphasize the location and importance of the entryways.

1. The main entrance or a courtyard leading to the main entrance of each principal building shall be located on the front facade.
2. On corner lots, the main entrance shall face one of the streets or be oriented to the corner.

B. **Massing.** Primary buildings shall be designed to avoid a monolithic appearance when viewed from the street.

C. **Facade Materials and Design.**

1. General Requirements.

a. All building exterior finish materials shall be durable and consistent with the architectural style for that building.

b. Where lap siding is used, it shall have a maximum nine-inch exposed board face.

c. Siding material shall be continued down to within nine inches of finished grade on any elevation, except that siding shall be allowed to step to follow grade:

i. Between six to 24 inches; or

ii. Within 24 inches maximum from finished grade.

d. Vinyl siding shall be a VSI (Vinyl Siding Institute) certified product.

2. **Prohibited Materials.** The following materials are prohibited:

a. Highly reflective opaque materials;

b. Natural cinder block, unfinished or smooth concrete block / masonry units or concrete wall;

c. Metal panels with a corrugated appearance with exposed fasteners; and

d. Unlisted materials that are unsuitable for exterior building applications as determined by the Director.

3. **Other Materials.** The Director may permit materials that are not listed in this Section as either allowed or limited, provided that the Director finds that they have

comparable aesthetic qualities, durability, and maintenance characteristics. The Director may prohibit materials that are not listed in this Section if the Director finds that they do not have aesthetic qualities, durability, and maintenance characteristics that are comparable to the materials that are allowed or limited under this Section.

4. **Side and Rear Facade Design.** Where a side or rear facade of a residential building abuts streets, parks, or open spaces, the facade shall be designed to provide human scale by the use of all of the following:
   a. At least one change in the vertical or horizontal wall plane within 20 feet above grade;
   b. At least one change in the color or material of the wall;
   c. Provision of windows, a porch, or a balcony; and
   d. Detailing the wall with reveals, belt courses, cornices, projections, or other devices.

5. Rear Facade Design for Double-Frontage Lots.
   a. Double-frontage lots shall be required to meet the standards in Section 2-1-10-5, Double-Frontage Lots, for building setbacks or stepped setbacks for taller buildings.
   b. Structures of two stories or more shall incorporate at least one of the following rear elevation treatments:
      i. The building façade on the rear elevation shall have brick, stone, or stucco cladding in a minimum amount equivalent to 50 percent of the façade, (excluding windows, doors, trim and vents) from the average grade to the highest eave or 9′-6″ above the average grade, whichever is lowest; or
      ii. At least 50 percent of the area of the building facade shall have a minimum four-foot horizontal difference (plan view) in the rear wall plane at the height of one of the floors.

6. **360-Degree Architecture.** All buildings shall incorporate the following design standards to create architectural interest.
   a. Materials.
      i. Where brick, stone, or stucco cladding is used, they must be applied to the building facade in a manner which begins and ends at edges related to the structure of the building (such as a window sill level, floor plane lines, or interior corners of projection or similar elements). All brick, stone or stucco cladding shall wrap around all outside building corners a minimum of two feet, and must wrap all sides of a column on which it is used. An architectural treatment shall be used to transition from brick, stone, or stucco to other materials.
   b. Windows and Doors.
      i. Windows are encouraged on all elevations, except as provided in Division 2-1-8-5, Zero Lot Line, and unless restricted by the Building Code. On facades facing streets, parks, or open space, a minimum of 20 percent of the façade shall be windows. A greater percentage of windows may be required by other sections of this Code.

ii. Window and door openings shall be articulated on all elevations of the building through the use of:
    a. Shutters, awnings or canopies;
    b. Decorative lintels and/or sills (such as projecting, recessed, those constructed of materials other than the principal building material or ornamentation);
    c. Overhangs; or
    d. Surrounds and trims.

7. **Façade and Roof Color.** Colors used on building exteriors should integrate a building's various design elements or features.
    a. Walls should be subdued in color and not reflective. Bright colors should be used sparingly and limited to accenting a building, and should not be used to act as signs or create "sign buildings". Monotonous color palettes are strongly discouraged.
    b. All building projections, including, but not limited to, gutters, downspouts, chimneys, flues and vents, shall match in color the permanent color of the surface from which they project or match the building's trim color.
8. **Rooflines.**
    a. Building rooflines visible from a public street, park, or open space shall incorporate features to create a varied and visually distinctive roof form through features, such as prominent cornice or fascia, stepped roofs, emphasized dormers, chimneys, gables, or an articulated roofline.
    b. Roof slopes, excluding covered porches and patios, shall have a minimum pitch of 2:12 unless screened with a parapet wall. Subordinate roofs can be of a lesser pitch. A building of a style that is traditionally associated with flatter roofs, such as Prairie or Modern style, may be allowed as determined by the Director.
    c. The maximum length of a continuous roof ridgeline is 35 feet. Roofs with dormers and other architectural details are exempt from this requirement.
    d. Pitched roofs shall have a minimum eave overhang of at least one-foot.
9. **Canopies and Port-Cochères.** Canopies and port-cochères that cover vehicular use areas, service areas, or outdoor storage areas shall meet the following standards:
    a. The same architectural treatments utilized on the principal building in terms of cladding materials, roof pitch, roofing materials, and color scheme shall be used on canopies and port-cochères.
    b. A maximum of 25 percent of each canopy fascia area visible from a public street may be internally illuminated, and no portion of any fascia may be externally illuminated. Each side of a canopy shall be considered a separate fascia area.
10. **Rooftop, Wall Mounted and Ground Mounted Mechanical Equipment, Flues and Exterior Building Elements.**
    a. Screening.
        i. Rooftop mechanical equipment and appurtenances should all be screened from a public street through the use of parapets or enclosures that are equal

to, or greater than, the height of the equipment to be screened. The parapet or enclosure shall use one of the predominate materials or colors used on the primary façade of the building.

ii. The Director may reduce or waive these screening requirements for building elevations that face substantial changes in grade that make screening impracticable if relocation of the mechanical equipment to a less conspicuous location is also impracticable.

iii. All air conditioning compressors shall be completely screened. Screening enclosures shall use at least one of the predominant materials used in the facades of the primary structure where feasible, and one of the predominant colors used in the primary structure.

iv. All rooftop and wall vents and flues on a pitched roof or extending above the top of the nearest parapet shall be painted with one of the predominant colors used in the primary structure.

v. Wall-mounted utility equipment and meters shall be screened from view from a public street and shall be painted a color to blend with the building façade.

b. **Noise attenuation.** Equipment that generates noise perceptible at the adjacent street or property line shall be baffled or otherwise attenuated to direct unavoidable noise upward."

Section 5-1-2-4 Building Design Standards Applicable to Single-Family Detached, Duplex, and Multiplex is hereby amended in its entirety to read as follows:

A. **"Generally.** In addition to Section 5-1-2-3, General Building Design Standards, the following standards shall apply to new development or redevelopment of single-family detached, duplex, and multiplex units in all zoning districts.

B. **Front Façade Design**. In new development of single-family detached and duplex buildings, the front façade shall have significant variation as defined below:

1. No identical home elevation shall be repeated directly across the street or adjacent to the other home.
2. No identical model elevation shall be repeated more than once every three lots.
3. Distinct elevations shall be provided by incorporating at least three of the following:
   a. The use of different materials and color on the front facade;
   b. Variations in the front wall plane;
   c. Vary the size and location of the front porch;
   d. A variation of building types;
   e. The overall width of the front façade elevation differs by more than four feet;
   f. The overall height of the front façade elevation differs by more than four feet; and
   g. Windows size and shapes are substantially different.

C. Garages. All garages for single-family detached and duplex buildings shall comply with Section 5-1-2-2, Evaluation of Aesthetic Consistency, and are subject to the following:

1. For each new development containing ten or more single-family or duplex dwelling units in all zoning districts, 50 percent of the total number of lots in the subdivision that have a street-accessed garage shall use at least one of the following garage variations:
    a. Recessed garage doors facing the street shall be recessed a minimum of four feet behind the front wall plane of the house.
    b. Side-loaded garages shall be located at a right angle to the street. The design of the garage wall facing the street shall have the same predominate materials used on the front façade.
    c. Rear garages shall be located to the rear of the property either as a detached structure or part of the house. If constructed as part of the house, the part of the house, the front wall of the garage shall be setback at least 15 feet behind the front façade of the house.
2. Front loading, front-facing garage doors shall not constitute more than 50 percent of the total width of the building.
3. No more than three garage bays shall face the street, except when the bays are located behind the principal buildings.
4. When more than two garage bays exist, all garages doors that face a street shall include at least one two-foot-wide column or a two-foot façade setback separating each garage door."

Section 5-1-2-6 Nonresidential and Mixed-Use Design Standards is hereby amended in its entirety to read as follows::

A. **"Generally**. This Section shall apply to any new nonresidential development, mixed-use development, redevelopment, or building expansion in all zoning districts. In addition to Section 5-1-2-5, Building Design Standards Applicable to Townhomes and Multifamily, the following standards shall apply to new development or redevelopment of multifamily and townhome units in the MX zoning districts. In the OT Zoning District, these standards may be modified through the design review process based on the standards in the Olde Town Building Form Standards and Design Guidelines for Olde Town.

B. Building Orientation and Configuration.

1. Structures shall be arranged so that the primary facade, or each facade with a main pedestrian entry, orients onto a public or private street, a public park, open space or common green, plaza, courtyard, private street-like drive, or a pedestrian passage, in the following order of priority:
    a. A public or private street;
    b. A pubic park, open space or common green;
    c. A plaza or courtyard; or
    d. A pedestrian walkway.

C. Single-Story Commercial and Mixed-Use Developments.

1. Commercial and mixed-use developments shall break up supporting commercial buildings into a cluster of individual pad and liner buildings at intersections and street edges.
2. Pad and liner buildings located within the frontage zone shall be designed to be "double-fronted", where at least one entrance shall face the street or public space, following the order of priority in B.1 above. Secondary entries can be oriented to the parking lot.
3. Large commercial or large format buildings with a minimum of 50,000 square feet of gross area, such as a grocery store or big box retail building, may be placed internal to the site.

D. Multi-Building Developments.

1. Multi-building developments that have three or more buildings shall be organized to create pedestrian-friendly spaces and streetscapes. This should be accomplished by placing buildings to:
   a. Frame and emphasize the corners of street intersections, development entry, or a primary pedestrian street within the development;
   b. Frame and enclose parking areas on at least two sides;
   c. Frame and emphasize a plaza, pocket park, square, or other outdoor gathering spaces for pedestrians; and / or
   d. Frame and emphasize other site improvements as approved by the Director.
2. Developments composed of multiple buildings totaling 100,000 square feet or more of gross floor area shall be configured to break up the site into a series of smaller blocks.

E. **Building Design.** The following building design standards are intended to provide architectural interest.

1. Design of Facades.

a. The first floor façade of all buildings, including structured parking facilities, shall be designed to encourage and complement pedestrian-scale interest and activity through the use of elements such as windows, awnings, and other similar features.

b. Architectural features and treatments shall not be limited to a single façade. All visible sides of a building, whether viewed from public or private property, shall display a similar level of quality and architectural interest, with elements such as windows, awnings, a variety of exterior materials, reveals, and other similar features.

2. **Horizontal and Vertical Articulation.**

a. **General Standards.** All buildings shall be designed to include horizontal and vertical articulation by incorporating the following elements:

i. Single story commercial buildings shall use at least three of the horizontal articulation methods listed below at an interval of 50 feet or less on each façade.

ii. Single story industrial buildings shall use at least two of the horizontal articulation methods listed below at an interval of 100 feet or less on each.

iii. All multi-story commercial, mixed-use, multifamily, and industrial buildings in the IL zoning district, shall use at least two of the articulation methods listed below at an interval of 50 feet or less on each street-facing building façade.

b. **Articulation Methods.**

i. Visual breaks in the façade by incorporating a horizontal wall plane offset or projection of at least three feet extending for at least 20 percent of the average width of the primary façade.

ii. A change in materials, colors, textures, or pattern.

iii. A change in window sizes, styles, or placement across the façade.

iv. A change in roof or parapet height of a least three feet, or a change in roof form.

v. Incorporation of a wall notch in combination with at least one option from (i.-iv.) above. Wall notches shall be a minimum of three feet deep and eight feet wide and shall total at least 20 percent of the façade length.

vi. Use of masonry such as brick or stone, or other durable material to delineate the ground floor.

vii. Use of an arcade, gallery or colonnade to accentuate the ground floor.

viii. Use of enhanced architectural detailing or fenestration.

ix. Use of cornices or projecting roof lines.

x. For multi-story buildings, the horizontal interval may exceed 50 feet if building material changes and/or articulation occur above the first floor.

Figure 5-1-2-6: Horizontal and Vertical Articulation

Acceptable **Not Acceptable**

F. **Building Transparency.** The entire ground floor of all buildings located within a required building frontage zone that faces a public or private street shall provide transparency to increase pedestrian interest by incorporating window and door openings so that the uses are visible from and to the street. The following shall apply:

1. At least 40 percent of the façade between two feet and 10 feet above grade, must be transparent.
2. Up to 20 percent of the building transparency requirement may be satisfied with permanent art displays.

G. Roofs Materials and Roof Form.

1. **Roof Materials.** Visible roofs may be constructed of conventional asphalt (3-tab) roofs, architectural metal, or other acceptable material, but roofs constructed of clay or concrete tiles, slate, Masonite, or heavy duty/hail resistant dimensional composition are preferred. All composition shingle roofing shall be constructed using high profile, textured shingles.
2. **Roof Form.**
   a. Where sloped roofs are used, at least one of the following elements shall be incorporated into the design for each 100 linear feet of roof to avoid long, flat roof surfaces:
      i. Projecting gables,
      ii. Dormers,
      iii. Hips,
      iv. Vertical elevation change in roof height of at least two feet, or
      v. Other similar techniques as approved by the Director.
   b. Where flat roofs are used, the design or height of the parapet shall include at least one change in setback or height of at least two feet along each 100 linear feet of façade.
   c. On all structures exceeding three stories in height, all pitched roofs shall be internally drained and external scuppers and wall drains shall be prohibited.
   d. All sloped roofs shall have overhanging eaves of at least one foot in depth, and roofs with a pitch of less than 2:12 shall be screened by a parapet wall."

Table 5-1-4-3: Mini-Structure Standards is hereby amended in its entirety to read as follows:

Table 5-1-4-3: Mini-Structure Standards

Attribute	Standard	Exception
Size (max)	200 sf.	
Height (max)	12 ft.	Tree Houses
Number of Mini-Structures	Maximum 2	Not limited for the following land uses: Amusement, Outdoor; Recreation, Outdoor; Stables and Riding Academies; Cemetery; Day Care Center; Public Lands, Parks, or Buildings; Schools (all); Storage Yard; Community Agriculture
Location of Mini-Structures	Not allowed in front yard; Not attached to principal building	Allowed in the front yard for Recreation, Outdoor; Cemetery; Public Lands, Parks, or Buildings;

Table 5-1-4-3: Mini-Structure Standards		
Attribute	Standard	Exception
		Schools (all); Storage Yard; Community Agriculture
Design	Roofed structures shall be compatible with principal building in terms of materials and colors	-
Use	Cannot be used for vehicle storage	-

Section 5-1-5-2 Accessory Dwelling Units is hereby amended in its entirety to read as follows:

A. **"Generally.** Accessory Dwelling Units ("ADUs") are allowed in conjunction with all single-family detached dwellings in residential, OT and MX zoning districts, subject to the standards in this Section.

B. **Conformance to Development Standards.** ADUs must meet the same development standards that are required for the principal dwelling unit, except as provided in this Section.

C. **Classification of ADUs.** For the purposes of this LDC, ADUs are classified as follows:

1. **Type A**. A Type A ADU is detached from the principal dwelling unit. It is considered a separate dwelling unit for the purposes of the Building Code.
2. **Type B**. A Type B ADU is located inside in basements, the upper story, or attached to the principal single-family detached building, but the occupants of the ADU and principal dwelling unit do not live together as a single household unit. A Type B ADU is typically rented. Type B ADUs typically have a separate access from the principal dwelling unit. A Type B ADU and the principal dwelling unit into which it is integrated are considered separate dwelling units for the purposes of the Building Code.

D. Parking.

1. One on-site parking space shall be required for an ADU, in addition to any required parking for the principal dwelling unit.
2. The required parking space may be in tandem with other required spaces.
3. Garage space that is constructed for use by the occupant(s) of the ADU shall not exceed 250 square feet.

E. Unit Size and Configuration.

1. Except as provided in Subsection E.2., below, ADUs shall be:
   a. No larger than 40 percent of the living space of the principal building; and
   b. Within the lot size and floor area ranges set out in Table 5-1-5-2, Maximum Floor Area of Accessory Dwelling Unit.

Table 5-1-5-2: Maximum Floor Area of Accessory Dwelling Unit	
Lot Size	**Maximum Floor Area**
6,000 sf. or less	600 sf.

Greater than 6,000 sf. and up to 12,499 sf.	850 sf.
12,500 sf. to 1 acre	1,000 sf.
Greater than 1 acre	1,200 sf.

2. The limitations of Subsection E.1., above, shall not apply to ADUs that are located within the footprint of an existing home as long as the ADU is not larger than 50 percent of the floor area of the principal dwelling unit, including the basement. For example, if a home has a 1,000 square foot basement, an ADU could be established in the basement if the rest of the principal dwelling is at least 1,000 square feet.
3. ADUs shall be designed and configured as studio, one bedroom, or two bedroom units.

F. Location. Type A ADUs shall be located as follows:

1. For interior lots, at or behind the front plane of the primary building.

2. On corner lots, ten feet behind the facade of the principal building along both street frontages.

G. **Number of Accessory Dwelling Units per Lot.** Only one ADU is allowed for each residential lot.

H. **Design.** The appearance of ADUs built as additions to the existing principal building or as separate structure should continue the residential character and appearance of the principal building.

1. Type A ADUs.

a. Type A ADUs shall be clearly subordinate to the principal building in terms of floor area.

b. Windows that face an adjoining residential property should be designed and configured to protect the privacy of neighbors, unless fencing or landscaping is provided that adequately accomplishes the same purpose.

c. Type A ADUs should be designed in a manner that is aesthetically consistent with the principal building in at least four of the following:

i. roof pitch;

ii. roof form;

iii. roofing materials;

iv. cladding materials;

v. window styles and window orientation;

vi. doors; and

vii. color palette.

2. **Type B ADUs.** Type B ADUs are integrated into the principal building. If the ADU involves a modification to the exterior of the building, the modification shall be subject to the same design standards as Type A ADUs (Subsection H.1., above). If the entrance to the ADU is visible from an adjacent street, it shall be designed in a manner as to be clearly subordinate to the entrance of the principal dwelling.

I. **Outdoor Areas.** The subject property shall provide accessible outdoor space and landscaping for both the principal dwelling unit and the ADU.

J. **Utility Service Requirements.** ADUs must be connected to the utilities (except telephone, television, electrical, and internet) of the principal dwelling unit and may not have separate services.

K. **Owner Occupancy.**

1. The property owner, as reflected in title records and evidenced by voter registration, vehicle registration or other similar means, must occupy either the principal dwelling unit or ADU.
2. The Director may waive this requirement for temporary absences of less than one year provided that the owner has maintained the permitted use for a minimum of two years and submits proof of the temporary absence.

L. **Deed Restriction.** Before obtaining a building permit for an ADU, the property owner shall file with the County Clerk and Recorder, in a form acceptable to the Director, a declaration of restrictions in reference to the deed under which the property was acquired by the present owner stating that:

1. The ADU shall not be sold separately from the principal dwelling unit, nor shall the lot on which it is situated be subdivided unless such subdivision can be accomplished in accordance with all provisions of this Code;
2. The ADU shall be restricted to the approved size;
3. The certificate of occupancy for the ADU shall be in effect only so long as either the main residence, or the ADU, is occupied by the owner of record as their principal dwelling unit, subject to any temporary waiver granted pursuant Subsection L., above;
4. Lack of compliance with deed restrictions may subject the owner of the property to any and all penalties provided for in this Code;
5. The above restrictions are binding upon any successor in ownership of the property;
6. The deed restrictions shall lapse upon removal of the ADU. To effect this intent, and upon verification of such removal, the Director shall record appropriate documentation releasing such encumbrance. The property owner shall pay all required recording fees, and it shall be the Applicant's responsibility to ensure that such recording was successfully completed.

M. **Existing Development on Lot.** A single-family detached dwelling unit must exist as a principal dwelling unit on the lot or be constructed simultaneously with the ADU. A certificate of occupancy will only be issued for an ADU after it has been issued for the principal dwelling unit."

Section 5-1-5-3 Accessory Buildings is hereby amended in its entirety to read as follows:

A. **"Generally.**

1. Storage sheds, studios, cabanas, stables, loafing sheds, barns, and detached garages requiring a building permit shall comply with the standards of this Section. Accessory dwelling units are subject to Section 5-1-5-2, Accessory Dwelling Units, and not this Section.
2. Stables, loafing sheds, and barns are allowed only in RA and RN-32.5 zoning districts.

3. Except for barns and stables, each Accessory Building shall have a square footage area that is less than the footprint of the living area, excluding attached garage square footage, of the principal dwelling unit.

B. **Number.** The maximum number of Accessory Buildings that may be constructed or installed upon a residential lot is based on the zoning district and lot size, and shall be as set forth in Table 5-1-5-3A, Maximum Number of Accessory Buildings.

Table 5-1-5-3A: Maximum Number of Accessory Buildings

Zoning District	Maximum Number of Accessory Buildings
RN-4	2
RN-6, RN-7.5, RN-D	3
RN-12.5	4
RN-32.5	6
RA: lot less than 5 acres	6
RA: lot 5 acres or larger	7
PUD	Per the approved PUD. If no standards were identified as part of the approved PUD, then the maximum number for the closest zoning district shall be utilized.
R6, R13, R24, OT Form, and MX Zoning Districts and Lot Type	
Small Urban, Urban	-
Small General	2
General, Small Suburban, Suburban,	3
Cluster	1

C. **Building Coverage.** Accessory Buildings are counted towards the combined square footage of the principal building footprint and accessory structure(s) and shall not exceed the zoning district maximum lot coverage limitations.

D. **Height.** Accessory Buildings shall not exceed the maximum height for accessory buildings identified in the zoning districts in Chapter 2, Zoning Districts.

E. Location.

1. **All Zoning Districts except RA.** Accessory Buildings shall be:
   a. Located within the setbacks identified in the zoning districts. (*See* Chapter 2, Zoning Districts); and
   b. Set back at or behind the front plane as the nearest front façade of the principal building.
2. **RA Zoning District.** Accessory Buildings may be located in any yard, and must meet the required setbacks.
3. **Accessory Buildings**. With the exception of non-residential gas station canopies, gas station or car wash facilities where allowed, and security/entry booths, accessory buildings shall not be in the front or side yards.

F. **Design.** The design of accessory buildings shall be aesthetically consistent with the design of the principal building. *See* Section 5-1-2-2, Evaluation of Aesthetic Consistency, for applicable standards."

Section 5-1-6-2 Drive-Through Facilities is hereby amended in its entirety to read as follows:

A. **"Generally.** Drive-through facilities are subject to the standards of this Section.

B. Design Standards.

1. **Location.** Uses with drive-through facilities shall be located on properties with frontage on an arterial or collector street. Drive-through facilities are prohibited in the OT zoning district.

2. Speakers.

a. Speakers shall not be oriented towards an adjacent residential zone district unless an intervening building exists. Where an intervening building does not exist, the following shall also apply to minimize the speaker noise impact on an adjacent property:

i. If the speaker is located within 15 feet or more of the property line, a solid wall with a minimum height of 6 feet shall be installed on the property line.

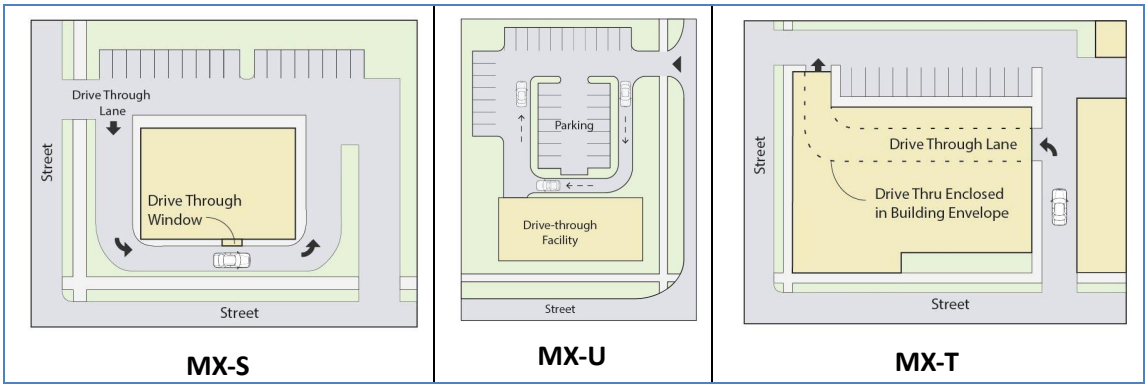
3. CG and MX Zoning Districts. In CG and MX zoning districts, a drive-through facility shall be subject to the following:

a. In CG and MX-S zoning district, a drive-through lane may be located in the area between a building and a public street. The drive-through lane shall be screened from the public street by an Option B bufferyard, per Division 4-6-5-3, Bufferyard Options, or a low decorative wall to a minimum height of 48 inches. If a low screen wall is installed, the construction material shall be aesthetically consistent with the first floor exterior color and materials used on the principal building or provide a comparable level of quality.

b. In the MX-U zoning district, a drive-through lane shall not be located in the area between a building and a public street. The drive-through windows shall not face a public street.

c. In the MX-T zoning district, a drive-through lane shall be designed so that it is enclosed within the envelope of the building, the drive through windows are not visible from adjacent public streets and the drive-through lane shall not be located in the area between a building and a public street.

Figure 5-1-6-2: Illustrative Drive-Through Facilities in the MX



C. **Stacking.** Drive-through lanes shall meet the applicable requirements of Section 4-5-3-6, Vehicle Stacking. Additional stacking may be required if the Director finds that, based on pertinent data, the drive-through configuration would likely otherwise create congestion on adjacent streets due to queuing at the drive-in or drive-through stations."

Section 5-1-6-5 Trash Collection and Compaction is hereby amended in its entirety to read as follows:

A. **"Generally.** Nonresidential, mixed-use, multifamily, and clustered small housing development shall include a designated trash collection and/or compaction area, which shall be located and designed to ensure adequate on-site maneuvering area for trash collection vehicles. Residential subdivisions may include designated trash collection and/or compaction areas, which, if provided, must also comply with the standards of this Section. Trash collection dumpsters shall not be allowed on individual single-family or duplex lots, unless on a temporary basis associated with construction projects for which a building permit has been issued.

B. Location.

1. Each trash collection, including recycling bins, or compaction area shall be located not less than 20 feet away from lots used for single-family detached, duplex, multiplex, or townhome uses, and at least 20 feet away from streets, sidewalks, and internal pedestrian circulation systems. Such areas shall be located on the site in the following order of priority (highest priority listed first, and higher order priorities are eliminated only if infeasible):
    a. In a screened enclosure that is connected to or adjacent to the rear of the principal building;
    b. In the rear yard; or
    c. In the interior side yard;
2. Trash collection, recycling bins, or compaction areas shall not be located more than 200 feet from the entrances of uses that they are intended to serve.

C. **Enclosures.** Each such trash collection area shall be screened from view from all property lines by a non-combustible screen or wall between six feet and eight feet in height. The access to this enclosure shall be screened with an opaque gate. Screening fences and walls (not including gates) shall be aesthetically consistent with one of the predominant materials and one of the predominant colors used in the principal building. Chain-link gates with metal cladding are prohibited."

Section 5-1-6-7 Custodial Unit is hereby amended in its entirety to read as follows:

A. **"Generally.** The standards of this section apply to self-storage and kennel facilities with a dwelling unit for an on-site resident manager.

B. **Design Standards.** Self-storage and kennel facilities with one on-site resident manager/caretaker dwelling shall be meet the following standards:

1. The resident manager / caretaker dwelling unit shall be incorporated into and occupy space on the premises of the self-storage or kennel facility;
2. One off-street, covered parking space shall be required for the exclusive use of the resident manager / caretaker.
3. A landscaped private recreation area, with a minimum area of 750 square feet, shall be provided within the self-storage or kennel facility for the exclusive use of the resident manager / caretaker. The landscaped recreation area shall include:
    a. A minimum of one 2.5 inch caliper shade tree, turf shrubs, and recreation equipment.
    b. Recreation equipment shall consist of picnic table and barbeque facilities, or other comparable equipment for use by the resident manager/caretaker."

Section 5-1-6-9 Electric Vehicle (EV) Charging Stations is added to read as follows:

"5-1-6-9 Electric Vehicle (EV) Charging Stations

A. **Generally**. The standards of this section shall apply to new developments containing parking stalls or other spaces on-site dedicated to the use of such spaces for the charging of electric vehicles. These standards shall also apply to existing sites that make modifications to build or plan for EV charging stations.

B. Location

1. For single-family, duplex, or multiplex use, EV charging stations shall be located inside a garage or carport.
2. For townhome, multifamily, or cottage-home use, EV charging stations and equipment shall be located either in a garage or in a location internal to the site.
3. For any mixed-use and non-residential uses containing ten or fewer EV charging stations, all charging stations and equipment may be allowed anywhere on site provided:
    a. All equipment adheres to the required minimum parking front setback from all public and private streets.
4. For mixed-use and non-residential uses containing more than ten EV charging stations, all charging stations and equipment shall comply with the requirements of Subsection 4-3-3-4(F), Fueling/Service Station Site Design.
5. In the OT zone district, EV charging stations and equipment shall be located either in a garage or internal to the site, behind a building or buildings, and not visible from a public street.
6. EV charging stations and equipment may not be located in any portion of a required small urban park or buffer yard.

C. Sitting, Site Design, and Screening

1. If located along a public or private street, an Option B bufferyard per Division 4-6-5-3, Bufferyard Options, between all equipment and the front property line shall be provided.
2. The installation of an EV charging station shall not reduce the size of the parking stall in which it is being installed below the minimum size required in Subsection 4-5-3-2, Parking Space and Aisle Standards.
3. Concrete wheel stops shall be used between the parking space and the equipment if the parking is not parallel.
4. If a canopy will be used, the canopy shall comply with the requirements of Subsection 5-1-2-3-C9, Canopies and Port-Cochères.
    a. In any MX zone district if a canopy is used, the canopy shall comply with the requirements of Subsection 4-3-3-4-F, Fueling/Service Station Site Design.
5. Parking spaces used for EV charging shall be signed for EV vehicles only."

The remaining portions of Chapter 5 shall remain unchanged.

Section 5. Chapter 6, Signs, of the Land Development Code, of the Arvada City Code is hereby amended:

Table 6-1-5-2: Detached Permanent Signs is hereby amended in its entirety to read as follows:

Table 6-1-5-2: Detached Permanent Signs

Type of Sign / Standards	Sign District			
	Olde Town (OT)	Mixed- Use, Commercial-Industrial (MX, C, I)	Multifamily Residential (RM)	Single-Family Residential (R)
Primary Detached Signs				
Max. #	1 per property	1 per 600 lf. of property frontage or fraction thereof	*See* "Other Standards," below	*See* "Other Standards," below
Max. Sign Area	Generally: 32 sf. mixed-use form In the OT District on property that is developed with a building with a single-family detached , duplex or multiplex form: 8 sf. For all other forms: 20 sf.	Aggregate primary detached sign area shall not exceed 10 sf. plus 1 sf. per 4 lf. of property frontage, up to a maximum of 125 sf.	25 sf. per sign, plus 1 sf. per 2 lf. of additional setback from property lines, up to a maximum of 50 sf. per sign	25 sf. per sign, plus 1 sf. per 2 lf. of additional setback from property lines, up to a maximum of 50 sf. per sign
Max. Sign Height	Single-family detached, duplex or multiplex form: 4 ft. For all other forms: 6 ft.	Less than 200 lf. of property frontage: 6 ft. 200 to 600 lf. of property frontage: 12 ft. More than 600 lf. of property frontage: 24 ft.	6 ft.	6 ft.

Table 6-1-5-2: Detached Permanent Signs				
Type of Sign / Standards	Sign District			
	Olde Town (OT)	Mixed- Use, Commercial-Industrial (MX, C, I)	Multifamily Residential (RM)	Single-Family Residential (R)
Allowed Lighting	External	External or internal	External	External
Setbacks and Spacing	No encroachment upon sidewalk 2 ft. from property lines 6 ft. max from building walls and vehicular use areas	4 ft. from vehicular use areas, sidewalks, trails, multi-use pathways, and property lines 12 ft. from building walls	2 ft. from sidewalks, trails, multi-use pathways, curbs, and vehicular use areas	2 ft. from sidewalks, trails, multi-use pathways, curbs, and vehicular use areas
Other Standards	Except in the OT-RR Zoning District, cabinet signs are not allowed. Must be installed in permeable landscaped area or hardscaped pedestrian plaza that extends at least 4 ft. from the base of the sign in all directions	Must be installed in permeable landscaped area that extends at least 4 ft. from the base of the sign in all directions	Allowed at points of entry into residential subdivisions or multifamily developments on properties where signs are present on the effective date or where designated on approved final plat, approved final development plan, or approved site plan	Allowed at points of entry into residential subdivisions or multifamily developments on properties where signs are present on the effective date or where designated on approved final plat, approved final development plan, or approved site plan
Secondary Detached Signs				
Max. #	1 per vehicular ingress point	1 per vehicular ingress point	1 per vehicular ingress point	Not allowed
Max. Sign Area	4 sf.	600 lf. of property frontage or less: 4 sf. More than 600 lf. of property frontage: 8 sf.	4 sf.	NA
Max. Sign Height	3.5 ft.	600 lf. of property frontage or less: 3.5 ft. More than 600 lf. of property frontage: 6 ft.	3.5 ft.	NA
Allowed Lighting	External	External or internal	External	NA
Setbacks and Spacing	At least 2 ft. from property lines Not more than 4 ft. from inside of curb of vehicular ingress or egress point	At least 2 ft. from property lines Not more than 4 ft. from inside of curb of vehicular ingress or egress point	At least 2 ft. from property lines Not more than 4 ft. from inside of curb of vehicular ingress or egress point	NA

The remaining portions of Chapter 6 shall remain unchanged.

Section 6. Chapter 8, Development Review Process, of the Land Development Code, of the Arvada City Code is hereby amended:

Section 8-1-1-1 Director of Community and Economic Development is hereby amended in its entirety to read as follows:

A. **"Generally.** The Director of Community and Economic Development ("Director") is the member of the City Staff who carries out the planning and zoning functions of the City. The Director shall designate staff members to manage applications through the review process and be points of contact for Applicants. The Director may also delegate review responsibilities to managers or other professional-level staff, or, as appropriate, to consultants selected by the City.

B. **Duties and Responsibilities.** The Director shall be responsible for the administration of this LDC and the regulations contained herein.

1. The Director shall have the authority to:

   a. Interpret and apply the provisions set forth in the LDC, other regulations adopted by the City and planning and engineering best practice. The Director shall have the authority to prepare and update Development Procedures, which may include a checklist for each type of development application, setting forth the information that Applicants must submit in order for the City to review development applications, permits and other developmental approvals under this Code, an application review schedule, fees and other relevant and appropriate materials related to the administration of this Code.

   b. Make district boundary interpretations when uncertainty as to the district boundaries exists.

   c. Make each of those decisions shown as a decision of the Director in 8-2-2-2, Decision-Making Tracks by Application Type.

   d. Review and make recommendations on development applications reviewed and acted upon by the Planning Commission, City Council or other Decision Makers, as applicable, as shown in 8-2-2-2, Decision-Making Tracks by Application Type.

   e. Review all land-use activities, plans involving land-use activity, or applications for land-use activity that are subject to either the Design Guidelines for Olde Town Arvada or the guidelines designated as "mandatory" within the Design Guidelines for the Reno Park Addition Historic District, and take final action to approve, approve with conditions, or deny the issuance of a (CCDG), as appropriate.

   f. Accept land dedications and easements associated with development applications concerning which final approval has been granted by the Director.

2. The Director shall:

   a. Review applications for Sign Permits and taking final action to approve, approve with conditions, or deny on such applications.

   b. Maintain the Official Zoning Map, including updates to reflect rezonings.

   c. Administer the provisions of this LDC and approvals granted hereunder, and coordinate with the Code Enforcement, Neighborhood Services and the City Attorney with regard to enforcement of this LDC.

d. Make recommendations regarding amendments to this LDC and to the Comprehensive Plan and other land use or strategic plans approved or adopted by the City.

e. Develop or supervise the development of master plans, special area plans, or strategic plans, however titled, as directed by the Planning Commission.

f. Provide expertise and technical assistance to the advisory and decision making bodies under this Code, upon request, and as appropriate.

3. The Director shall also determine:
   a. Whether the proposed development creates a need for off-site public improvements;
   b. Whether required development-related agreements (*see* Division 8-4-5, Development-Related Agreements and Covenants) comply with the requirements of this LDC and the Arvada Municipal Code with respect to the identification of required public improvements and the security provided for said public improvements; and
   c. Whether proposed public improvements and drainage plans comply with applicable engineering standards.
   d. Review applications for revocable right-of-way permits and determine as to whether and to what extent the requested encroachment will or could interfere with municipal or public use of the right-of-way."

Section 8-1-2-2 Planning Commission is hereby amended in its entirety to read as follows:

A. **"Powers and Duties; Generally.**
   1. *Decisions*. The Planning Commission shall hear and find facts as to whether the following types of applications comply with the requirements of this LDC:
      a. Alternative Sign Programs
   2. *Recommendations*. The Planning Commission shall consider and recommend to the City Council approval, approval with conditions, or disapproval of the following types of applications or petitions:
      a. Annexations;
      b. Height Exceptions;
      c. Major Subdivision Preliminary Plats;
      d. Major Modifications;
      e. Zoning and Rezoning;
      f. Conditional Uses;
      g. PUD Development Plans (Planned Unit Developments);
      h. Combined PUD Development Plans / Final Development Plans (Planned Unit Developments); and
      i. Vacation of Right-of-Way and Access Easements.

B. **Powers and Duties; Initiated Land Development Code Amendments and Other Duties.** The Planning Commission may also initiate proposed changes to the LDC and

advise the City Council on such proposed changes, and shall perform such other duties as the City Council may be ordinance, resolution or motion prescribe.

C. **Powers and Duties; Comprehensive Plan.**

1. *Comprehensive Planning*. Upon request by the City Council, the Planning Commission shall have the power to prepare a Comprehensive Plan as a guide for future zoning and rezoning and shall have lawful and comprehensive studies made in conjunction therewith. Any plan so prepared shall be made with the general purpose of carrying out the objective of providing for the considered planning and orderly physical development of the City and applicable surrounding areas. The Planning Commission shall also actively promote implementation of any such Comprehensive Plan and other adopted plans, through its powers and duties as set out in this Section.
2. *Other Plans*. Upon request by the City Council or the Director, the Planning Commission shall be responsible for adopting other land use plans, open space/parks/trails plans, special area plans, corridor plans, and similar plans, and any updates or amendments to such plans. The Planning Commission shall also actively promote implementation of the Comprehensive Plan and other adopted plans, through its powers and duties as set out in this Section."

Section 8-2-2-1 Development Approval Required is hereby amended in its entirety to read as follows:

A. **"Generally.** Unless specifically exempt from the application of this LDC, development approval is required for all:

1. Development;
2. Redevelopment;
3. Qualifying "land use activity" within areas that are subject to Design Guidelines (*see* Section 8-3-5-4, Certificate of Compliance with or Waiver from Design Guidelines); or
4. Re-grading of:
   a. Nonresidential property; or
   b. Property within the Special Flood Hazard Area.

B. **Temporary Uses and Special Events.** Certain temporary uses and special events require Temporary Use Permits. *See* Division 3-1-4, Temporary Uses.

C. **Encroachments into Public Rights-of-Way.** Certain encroachments may be allowed in or over public rights-of-way pursuant to an approved revocable right-of-way license."

Table 8-2-2-2A: Decision Making Tracks is hereby amended in its entirety to read as follows:

Table 8-2-2-2A: Decision-Making Tracks

Track	Decision-Maker	Public Hearing	Public Outreach		Administrative Appeal To
			Neighborhood Meeting	Notice	
Track 1	Director[1]	No	No[3]	Yes[4]	Planning Commission or City Council (*See*

					Section 8-2-5-2, Appellate Body)
Track 2	Director[2]	Planning Commission	Yes	Yes	City Council
Track 3	Planning Commission	Planning Commission	Yes	Yes	City Council
Track 4	City Council	City Council[5]	No	Yes	-
Track 5	City Council	Planning Commission; City Council	Yes[6]	Yes	-
Track 6	Floodplain Administrator	Floodplain Administrator	No	Yes	Floodplain Hearing Officer
Track 7	Floodplain Hearing Officer	Floodplain Hearing Officer	No	Yes	-
Track 8	Board of Adjustment	Board of Adjustment	No	Yes	-
Track 9	Informational only to Planning Commission and City Council	No	No	No	-

TABLE NOTES:
[1] For Public Improvements Construction Drawings for private development, and is not appealable to the Planning Commission; for Floodplain Development Permits, the decision is by the Floodplain Administrator, and is appealable to the Floodplain Hearing Officer.
[2] Planning Commission fact-finding is not advisory. Director must issue decision on facts found by Planning Commission as to application's compliance with the applicable standards of this LDC.
[3] At the discretion of the Director, a neighborhood meeting may be required to inform residents of the proposed development in their neighborhood.
[4] Notice required for Track 1 reviews only as required by Section 8-2-3-8, Notice of Administrative Application. The Director shall have the discretion to waive the notice requirement or reduce the notice distance for applications determined to have minimal impact on the notice area.
[5] Public hearing not required for Revocable Right-of-Way License Agreements.
[6] The Director shall have the discretion to waive the neighborhood meeting requirement for applications determined to have minimal impact on the notice area.

Table 8-2-2-2B: Decision-Making Tracks by Application Type is hereby amended in its entirety to read as follows:

Table 8-2-2-2B: Decision-Making Tracks by Application Type

Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
1. Annexation, Zoning, and Rezoning					
Annexation	Annexing property into the City	-	Division 8-3-3, Annexation and Disconnection	Track 5[1]	Project
Disconnection	Removing property from the City limits	-	Division 8-3-3, Annexation and Disconnection	Track 5[1]	Project
Zoning or Rezoning	Changing the zoning designation of land within the City or establishing initial zoning for land being annexed into the City	-	Division 8-3-4, Zoning and Rezoning	Track 5	Project
2. Land Use					

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
Limited Use	Establishing a limited use	-	Division 3-1-3, Use-Specific Standards for Primary Land Uses, as applicable to the use	Track 1	Project
Conditional Use	Establishing a conditional use	-	Division 3-1-3, Use-Specific Standards for Primary Land Uses, as applicable to the use; and Section 8-3-5-1, Conditional Use	Track 5	Project
Temporary Use / Special Event	Commencing / conducting certain temporary uses on a subject property	-	Division 3-1-4, Temporary Uses, as applicable to the temporary use or special event; and Section 8-3-5-5, Temporary Use Permit	Track 1	Permit
3. Certificate of Compliance, Site Plans and Site Development					
Certification of Compliance with Design Guidelines	Verifying compliance with or waiver from applicable Design Guidelines, if the subject property is located in an area that is subject to Design Guidelines (e.g., Olde Town or Reno Park)	As provided in the applicable design guidelines document; *see* Appendix A: Design Guidelines for Olde Town Arvada; and Appendix B: Design Guidelines for the Reno Park Addition Historic District	Applicable design guidelines document; *see* Appendix A: Design Guidelines for Olde Town Arvada; and Appendix B: Design Guidelines for the Reno Park Addition Historic District; and Section 8-3-5-4, Certificate of Compliance with Design Guidelines	Track 1, if not processed with another application type; otherwise same track as related application. *See* Sec. 8-3-5-4, Certificate of Compliance with Design Guidelines	Project
Master Development Plan	Establishing or modifying a plan for a phased project to ensure	-	Section 8-3-5-2, Master Development Plan	Track 1	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
	compliance with the LDC				
Site Plan or Site Plan Amendment	Establishing or modifying the physical layout of a subject property, including infrastructure, development and architectural standards, parking and loading, landscaping, lighting, grading, drainage, , major structure footprints, and building footprints	Single-family detached and duplex housing types on individual lots in a subdivision of nine or fewer lots. Accessory dwelling units and accessory buildings	Applicable provisions of Chapter 2, Zoning Districts; Chapter 3,Use Regulations;; Chapter 4, Environmental and Site Design; and Chapter 5Building Design	Track 1	Project
Floodplain Map Amendment	Changing the boundaries of a special flood hazard area	-	As provided by federal regulation	Track 6, as provided by federal regulation	Project
Floodplain Development Permit	Authorizing development within the floodplain or floodway	-	Applicable provisions of Division 4-1-2, Floodplain Regulations; and Section 8-3-5-6, Floodplain Development Permit	Track 6 (*see* footnote 1 of Table 8-2-2-2.A., above)	Permit
Miscellaneous Structure Permit	Authorizing the construction or installation of fences, walls, decks, retaining walls, garden walls, accessory buildings, accessory structures or sheds	Mini-structures less than 200 square feet	Section 8-3-5-7, Miscellaneous Structure Permit-	Track 1	Permit
Revocable Right-of-Way License Agreement	Authorizing encroachments within public rights-of-way (e.g., signs,	Temporary structures that are approved by Temporary Use	Section 8-3-5-7, Revocable Right-of-Way License Agreements	Track 4	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
	outdoor dining areas, etc.)	or Special Event Permits			
4. Wireless Communications Facilities					
Small Cell Facilities Permit	Authorizing the co-location of wireless communications facilities; authorizing small-cell facilities in the right-of-way	-	Chapter 7, Wireless Communications Facilities; and Division 8-3-6, Wireless Communications Facilities	Track 1, as modified by Division 8-3-6, Wireless Communications Facilities	Permit
Base Stations and Alternative Tower Structures	Authorizing the installation of a new wireless communications facility on private property	-	Chapter 7, Wireless Communications Facilities; and Division 8-3-6, Wireless Communications Facilities	Track 1, as modified by Division 8-3-6, Wireless Communications Facilities	Project
Free-standing Towers	Authorizing the new installation of a freestanding wireless communications tower	-	Chapter 7, Wireless Communications Facilities; and Division 8-3-6, Wireless Communications Facilities	Track 5, as modified by Division 8-3-6, Wireless Communications Facilities	Project
5. Signs					
Sign Permit	Installing or displaying a sign (may also require Certification of Compliance with Design Guidelines)	Exceptions and exemptions listed in Sec. 6-1-2-2, Exemptions and Partial Exemptions; and Sec. 6-1-2-3, Permit Exceptions	Chapter 6, Signs, or an approved Alternative Sign Program; and Section 8-3-7, Sign Permits	Track 1	Permit
Alternative Sign Program	Establishing a specific signage program for a particular subject property or development, which may modify some of the standards of Chapter 6, Signs	-	Chapter 6, Signs; and Section 8-3-7-2, Alternative Sign Programs	Track 2	Project
6. Subdivisions, Plats, and Vacations					

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
Major Subdivision Concept Plan	Providing the City with a generalized land use plan and layout for the area proposed to be included within a subdivision	This review process is available at the Applicant's option	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 9	Project
Major Subdivision Preliminary Plat	Establishing the preliminary layout of lots, streets, utilities, and open spaces within a subdivision, prior to approval of a major subdivision final plat for 10 or more lots.	-	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 5	Project
Major Subdivision Final Plat	Establishing the final layout of the lots, tracts, streets, alleys, and easements within a subdivision for 10 or more lots	-	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 1	Project
Minor Subdivision Plat	Establishing the specific layout of the lots, tracts, streets, alleys, and easements within a subdivision that including nine or fewer new lots or tracts	-	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 1	Project
Vacation of Right-of-Way	Extinguishing Right-of-Way that is held by the City	-	Division 8-3-9, Vacation of Rights-of-Way; Termination of Easements	Track 4	Project
Vacation of Easement	Extinguishing an easement that is held by the City	-	Division 8-3-9, Vacation of Rights-of-Way; Termination of Easements	Track 1	Project
7. Infrastructure Development and Public Improvements					

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
Public Improvement Construction Drawings	Approving construction drawings for wastewater, water, stormwater, street, and landscaping improvements	Landscaping on individual lots used for single-family detached and duplex housing types	Engineering Code of Standards and Specifications; Division 8-4-4, Public Improvements, Warranties and Utilities	Track 1 (*see* footnote 1 of Table 4-3-2-2A., above)	Project
Development Agreement	Setting out the timing and terms for the installation of public and private improvements, and providing for security to ensure that the improvements are constructed and warranted	-	Division 8-4-5, Development-Related Agreements and Covenants-	Track 1	Project
Formation of Reimbursement Assessment District and Metropolitan District	Creating reimbursement assessment districts for financing public improvements	Development that does not require a reimbursement assessment district, as determined by the Applicant	-	Track 4	Project
Out-of-City Utility Request	Any request for City provision of utility service to property outside City limits	-	Section 8-3-5-8	Track 5	Project
8. Planned Unit Developments					
PUD Sketch Plan	Providing the City with an early, informal, and generalized land use/site plan for the area proposed to be included within a PUD	This review process is available at the Applicant's option	Section8-3-10-5, PUD Sketch Plan	Track 9	Project
PUD Development Plan	Establishing the types and total amount of development proposed within	-	Section 8-3-10-6, PUD Development Plan	Track 5	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
	a PUD (dwelling units, land uses, and nonresidential floor area), as well as the proposed general plan for pedestrian and vehicular circulation within and connecting to the PUD; may run concurrently with preliminary plat application				
PUD Final Development Plan	Establishing or modifying the physical layout of a subject property, including infrastructure, development and architectural standards, parking and loading, landscaping, lighting, grading, drainage, , major structure footprints, and building footprints in accordance with an approved PUD Development Plan		Section 8-3-10-6, PUD Unit Development Plan	Track 1	Project
9. Interpretations, Variances, Modifications, Exceptions, and Interpretations					
Administrative Minor Modifications	Authorizing a minor variation to the standards of the LDC	-	Section 8-3-11-3, Administrative Minor Modifications	Track 1	Project
Major Modification	Authorizing a major variation to the standards of the LDC	-	Section 8-3-11-4, Major Modifications	Track 5	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
Reasonable Accommodations	Authorizing a minor variation to the standards of this LDC	-	Section 8-3-11-5, Reasonable Accommodations	Track 1	Project
Official Interpretations	Providing an official written interpretation of the provisions of this LDC	-	Section 8-3-11-7, Official Interpretations	Track 1	Project
Height Exception	To exceed building or structure height standards in the LDC	-	Section 8-3-11-1, Height Exceptions	Track 5	Project
Variance or Exception to Standards	Authorizing a departure from the strict application of the standards in the LDC	Where other methods exist for authorizing the modification, such as an administrative minor modification, floodplain variance; or where standards are statutory requirements (e.g., state-mandated subdivision monumentation standards)	Section 8-3-11-2, Variances	Track 8	Project
Floodplain Variance	Authorizing a departure from the strict application of Division 4-1-2, Floodplain Regulations	-	Section 8-3-11-6, Floodplain Variances	Track 7	Project
10. Vested Rights					
Early Vested Rights	Obtaining vested rights prior to the approval of a site-specific development plan	-	Section 8-3-12-1, Early Vested Rights	Track 4	Project
Vested Rights (and Extension)	Obtaining vested rights in accordance with	-	Section 8-3-12-2, Vested Rights	Track 4	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
	Article 68 of Title 24, C.R.S., as amended				
11. Amendments and Terminations					
Annexation Agreement Amendment	Amending an annexation agreement	-		Track 4	Project
Major Comprehensive Plan Amendment	Amending text or Future Land Use Map, where amendment does not fall within the category of "minor"	-	-	Track 3	Project
Minor Comprehensive Plan Amendment	Correcting obvious errors (either text or mapping), and updating outdated data without changing policy	-	-	Track 1	Project
Major LDC Amendment	Changing procedures or standards in the LDC, where amendment does not fall within the category of "minor"	-	-	Track 5	Project
Minor LDC Amendment	Correcting non-substantive clerical or formatting errors in the LDC text or maps, or adding or correcting illustrations	-	Section 8-3-2-2, Text Amendment Requirements	Track 1	Project
Abandonment of Development Approval	Terminating a development approval without a replacement development approval	-	-	Track 1 if development never commenced and there is no development agreement	Project

TABLE NOTES:
[1] As modified by Colorado law pertaining to annexation and disconnection.

Section 8-2-3-4 Neighborhood Meetings is hereby amended in its entirety to read as follows:

A. **Purposes and Intent.**

1. *Purposes*. The purposes of the neighborhood meeting are:

a. To educate and inform City residents, businesses and organizations of pending development proposals in and near their neighborhood;

b. To encourage an Applicant to pursue early and effective communications with the affected parties in conjunction with the proposed development prior to submitting applications, giving the Applicant an opportunity to understand and attempt to mitigate any documentable adverse impact of the proposed development on the community;

c. To provide residents and property owners a forum to work together to resolve potential concerns at an early stage of the process; and

d. To facilitate ongoing communication between the Applicant, interested residents and property owners, businesses and organizations, the Director, and City officials throughout the development review process.

2. *Intent*. Neighborhood meetings are forums in which the Applicant and community members should strive to work together in good faith. However, they are not required to achieve consensus on all aspects of the applications, nor to supplant or add to or subtract from the standards of this LDC. The Applicant is primarily responsible for describing the development and answering questions about the development and potential impacts on the community. City staff is primarily responsible for describing applicable review procedures and opportunities for public input.

B. **Notice.** Notice of the neighborhood meeting shall be prepared by the Applicant per the requirements of Division 8-2-4, Required Notices. Notification of the neighborhood meeting shall be sent by mail and electronically to those registered neighborhood groups that have boundaries within one-half mile of the project site, and to property owners within 500 feet of the project site at least 15 calendar days before the meeting date.

C. **Conduct of Meetings.**

1. The Applicant shall be responsible for scheduling the neighborhood meeting at a time when a Director's staff member can attend, coordinating the meeting, and if necessary retaining an independent facilitator. All neighborhood meetings shall be convened at a place in the vicinity of the proposed development.

2. At the meeting, the Applicant or Applicant's representative shall present information about the land uses, site layout, building size and height.

D. **Neighborhood Meeting Summary.** The Applicant shall include a written neighborhood meeting summary on the results of the neighborhood meeting with the formal application. At a minimum, the neighborhood meeting summary shall include the following information:

1. Proof of mailing notification for the dates and locations of all meetings where participants were invited to discuss the Applicant's proposal;
2. Copies of the sign-in sheets;
3. A summary of topics discussed by the Applicant and concerns, issues, and problems expressed by participants; and
4. A summary of:
    a. How the Applicant has addressed identified issues; and
    b. Issues that cannot or should not be addressed, and why those issues cannot or should not be addressed.

Section 8-2-3-8 Notice of Administrative Application is hereby retitled and amended in its entirety to read as follows:

"8-2-3-8 Notices of Administrative Application and Administrative Decision

A. Purpose and Intent.
1. *Purpose.* The purpose of the notice of administrative application and administrative decision is to inform City residents, businesses and organizations of pending development applications and the date a decision will be made on a development application.
2. *Intent.* The notice of application is intended to provide contact information for the Applicant and City staff where interested members of the community can request information and ask questions regarding a pending development application and provide comments to the Director prior to a decision being made.

B. **Notice of Administrative Application.** The notice shall be prepared by the Applicant per the requirements of Division 8-2-4, Required Notices, for Master Development Plans, Site Plans and Minor Subdivision Final Plats.

C. **Notice of Administrative Decision.** A notice may be required at the discretion of the Director. If notice is required, it shall be prepared by the Applicant per the requirements of Division 8-2-4, Required Notices."

Table 8-2-3-13: Time Limitations is hereby amended in its entirety to read as follows:

Table 8-2-3-14: Time Limitations

Approval Type	Time Limitation
Conditional Use	5 years
Temporary Use Permit / Special Event Permit	as specified in the permit
Certificate of Compliance with Design Guidelines	3 years, 1 year for signs
Site Plan and Master Development Plan	3 years
Floodplain Development Permit	24 months
Free-Standing Tower	24 months; or as specified in the permit
Miscellaneous Structure Permit	6 months
Sign Permit	1 year
Alternative Sign Program	3 years
Major Subdivision Preliminary Plat	3 years
Public Improvement Construction Documents	2 years

Development Agreement	as specified in development agreement
Reimbursement Assessment District	as specified in documents establishing Reimbursement Assessment District
PUD Development Plan/Final Development Plan	5 years or as specified by development agreement
Height Exception	3 years
Variance	2 years[1]
Minor Modifications from Zoning District and General Development Standards	as specified in approval documents
Minor Modification	as specified in the approval documents
Major Modification	as specified in the approval documents
Floodplain Variance	24 months
Vested Rights (and Extension)	36 months[2]
Base Station, Alternative Tower Structure and Freestanding Tower	1 year if site not constructed
Small Cell Facility	Specified as defined in the MLA for each carrier-
TABLE NOTES: [1] Or at such alternative time specified in the approval. In addition, a variance that has been not been utilized shall automatically lapse and have no further effect if the rights granted by it are discontinued for 180 consecutive days. [2] Unless specified otherwise in the approval or by development agreement.	

Section 8-2-4-1 General Notice Requirements is hereby amended in its entirety to read as follows:

A. **"Computation of Time.** In computing any period of time prescribed for the purpose of giving notice under this Division, the day of the publication, mailing, or posting shall be included. The day of the meeting or hearing shall not be counted. Saturdays, Sundays, and legal holidays shall be counted as any other day.

B. **Notice Cost.**

1. All costs for providing mail and posted notice as required by this Division shall be the direct responsibility of the Applicant.
2. The City shall provide published notice. The cost of such notice shall be included in the development review fee.

C. **Applicant's Certification.** Prior to the event that is the subject of a public notice, the Applicant shall provide the Director with an executed affidavit certifying that the requirements as to the Applicant's responsibility for the applicable forms of notice under this Division have been met. The Director shall make available sample certifications that address all applicable forms of public notice required by this LDC.

D. **Failure to Provide Notice; Defective Notice.**

1. Failure to timely provide the required affidavit, or evidence that a mailing list or notice letter was defective, may be cause to suspend the review process until proper notice is provided. Such suspension may be ordered by the Director or body that is

responsible for the meeting, hearing, or decision (*e.g.*, neighborhood meeting, public hearing, or staff decision) that is the subject of the notice.

2. Minor defects in any notice shall not impair the notice or invalidate proceedings pursuant to the notice if a *bona fide* attempt has been made to comply with applicable notice requirements. In any case in which a question arises at the public hearing regarding the adequacy of notice, consideration shall be given to the nature and extent of the deficiency, the probability of confusion resulting from the deficiency, and the type and variety of notice successfully accomplished in determining whether substantial compliance with the notice requirements of this Code has been met

E. **Continuation of Hearings and Neighborhood Meetings.** A hearing or neighborhood meeting for which proper notice was given may be continued to a later date without again complying with the public notice requirements of this Division (unless required by Director), provided that the date, time, and location of the continued hearing or meeting is announced to the public at the time of continuance."

Section 8-2-4-2 Required Notice by Application Type is hereby amended in its entirety to read as follows:

"Public notice of administrative applications, neighborhood meetings, or scheduled public meetings or public hearings shall be provided as set out in Table 8-2-4-2, Notice Requirements by Application Type. If an application type is not listed, then no notice is required, unless it is determined to be necessary by the Director.

Table 8-2-4-2: Notice Requirements by Application Type				
Table Key: — **Not Required or Not Applicable** √ **Required**				
Application Type	**Notice Type**			
	Published	**Posted**	**Mailed[2]**	**Internet[3]**
1. Annexation, Zoning and Rezoning				
Annexation or Disconnection[1]	√	√	√	√
Zoning or Rezoning	√	√	√	√
City Initiated Remapping	√	—	—	—
2. Land Use				
Conditional Use	√	√	√	√
3. Site Plans and Site Development				
Master Development Plan	—	—	√	√
Site Plan	—	—	√	√
4. Wireless Communications Facilities				
Major Wireless Communications Facility Permit	—	√	√	√
5. Signs				
Alternative Sign Program	√	√	√	√
6. Subdivisions, Plats, and Vacations				
Major Subdivision Preliminary Plat	√	√	√	√
Vacation of Right-of-Way and Public Easements	√	√	√	√
7. Infrastructure Development and Public Improvements				
Formation of Reimbursement Assessment District	√	—	√	√
8. Planned Unit Developments				
PUD Preliminary Development Plan	√	√	√	√
9. Variances, Modifications, Exceptions, and Conversions				
Height Exception	√	√	√	√
Variance	√	√	√	√
Major Modification	√	√	√	√
Floodplain Variance	—	—	√	√
10. Vested Rights				
Vested Rights (and Extension)	√	√	√	√
11. Amendments				
Land Development Code Text Amendment	√	-	-	√
Major Comprehensive Plan Amendment	√	—	—	√
Major PUD Amendment	√	√	√	√
TABLE NOTES:				

Table 8-2-4-2: Notice Requirements by Application Type				
Table Key: — Not Required or Not Applicable √ Required				
Application Type	Notice Type			
	Published	Posted	Mailed[2]	Internet[3]

[1] As required by applicable provisions of C.R.S § 31-12-101, et seq.
[2] *See* Subsection 8-2-4-4, Statutory Mineral Estate Notices
[3] *See* Subsection 8-2-4-3D, Internet Requirements

A. **Generally.** Contents of the public notice will be determined by the Director.

B. **Public Notice Contents.** All notices required by this Section shall:

1. Indicate the time and place of the public hearing or meeting, if necessary, except for a Notice of Administrative Application;
2. Sufficiently describe the property involved; for example, by legal description, general vicinity, street address, size, and/or nearest cross street;
3. Describe the nature, scope, and purpose of the application or proposal being advertised;
4. Indicate that interested parties may appear and the manner, extent and timing of public participation permitted (*e.g.*, filing written comments with the Director, speaking at the scheduled hearing or meeting, etc.), except for Notice of Administrative Application; and
5. Indicate where additional information can be obtained.

C. **Appeal Notices.** Notices of a pending appeal must include a copy of the petition for appeal and a date, time, and location for the appeal hearing, and either a copy of the rules of procedure for the Appellate Body or instructions regarding how to obtain a copy. Such notices shall be mailed to the Applicant (if different from the appellant), the appellant, and any person or entity that has applied for party status.

D. **Vested Rights Notices.** Notice of a decision to grant vested rights shall be published in accordance with the requirements of C.R.S. § 24-68-101, as it may be amended from time to time."

8-2-4-3 Specific Requirements by Notice Type is hereby amended in its entirety to read as follows:

A. **"Mailed Notice.**

1. *Mailing List*. The Applicant shall submit a mailing list to the Director, including the names and addresses of all property owners of record of all properties within the Area of Notification described below. If there are homeowners associations and/or neighborhood organization registered with the City within the Notice Area, the Applicant shall also notify them. The list shall be compiled from the names and addresses that appear in the records of the applicable County Assessor not more than 30 days before the date the list is submitted to the Director.
2. *Method of Mailing*. Mailed notice shall be mailed first-class, postage pre-paid by the Applicant, at the Applicant's expense, to all property owners on the mailing list.

3. *Affidavit of Compliance*. An affidavit of the Applicant's compliance with the mailing notice requirements shall be provided to the Director prior to the decision or public hearing to which the notice relates.
4. *Preparation/Timing of Notice.* When the provisions of this Code require that written or mailed notice be provided, the Applicant shall be responsible for preparing the written notice, and for mailing the notice at the Applicant's expense. All written notice shall be mailed at least fifteen days prior to the public hearing. Notices shall be prepared pursuant to a written notice form provided by the City.
5. *Deadlines.* For decision-making Tracks 2 through 5 and Track 8, mailed notices shall be postmarked no later than 15 days before a neighborhood meeting, a public hearing, or an appeal hearing. For decision-making Tracks 1, 6, or 7, mailed notice of administrative application shall be postmarked no later than five days after acceptance of an application. For a notice of administrative decision, mailed notice shall be postmarked no later than ten days prior to the decision date.
6. *Notice Area.*
    a. For purposes of public hearings before the City Council or the Planning Commission, and Notice of Administrative Application, notice shall be mailed to all property owners that are within 500 feet of the boundary of the property that is the subject of the application, except as otherwise provided herein. Ownership information shall be obtained from the applicable County Assessor's Office(s). Where an adjacent property is owned by a subdivision or condominium association, notification shall be to the board of directors of such association, and in addition, to the owners of all units immediately adjacent to the subject property. For street and alley right-of-way and public vehicular access easement vacations, mailed (written) notice shall be sent to all owners of property abutting the right-of-way or access easement to be vacated. Written notice shall also be mailed to any homeowners associations and other neighborhood organization with a known interest in the subject area, or to others who have filed a timely request to receive written notice.
    b. *Notices for Board of Adjustment*. For purposes of public hearings before the Board of Adjustment, notice shall be mailed to all property owners that are adjacent to the property that is the subject of the application. Ownership information shall be obtained from the applicable County Assessor's Office(s). Where an adjacent property is owned by a subdivision or condominium association, notification shall be to the board of directors of such association, and in addition, to the owners of all units immediately adjacent to the subject property.
    c. *Changes to Notification Area*. The Director shall have the sole discretion to expand or contract the notification area based on a consideration of the complexity of the project, the geographic reach of potential adverse impacts, the extent of neighborhood compatibility issues, and similar factors.

B. **Published Notice.** When the provisions of this Code require that notice be published, the City shall be responsible for preparing the content of the notice, and the City shall ensure that notice is published in a newspaper of general circulation in the City, at the Applicant's

expense. Notice shall be published at least 15 days prior to any public hearing by the Planning Commission or Board of Adjustment, and at least seven days prior to any public hearing by the City Council.

C. **Posting Requirements.**

1. *Signs to be Posted by Applicant*. Posted notice shall be provided on signs provided by the City at the Applicant's expense. It is the Applicant's responsibility to post the sign(s) on the subject property and ensure that they remain in place from the date of posting to the date of the public hearing.
2. *Minimum Requirements*. Posted notice shall be provided with one sign per street frontage of the applicable property. Additional posting may be required at the Director's discretion. Signs shall be located so that they are clearly visible from the adjoining street. Applicants shall remove all notification signs within one week after the public hearing.
3. *Deadline for Posting*. Notices shall be posted not less than 15 days before the public hearing date.
4. *Affidavit of Compliance*. An affidavit of the Applicant's compliance with the posted notice requirements shall be provided to the Director prior to the public hearing.
5. *Posting Log/Maintenance of Signs.* The Applicant shall be responsible for checking the posted signs each day of the posting period and for keeping a log, to be filed with the City at the time of, or prior to, any public hearing on the matter. If a sign has been removed, destroyed, or has fallen, the sign shall be replaced by the Applicant within 48 hours or by the close of the next business day, whichever period is longer. The Applicant shall sign a statement that the sign(s) were checked daily by the Applicant or the Applicant's representative, and the above-stated procedures were followed. Failure to comply with the required posting procedure may require the public hearing to be rescheduled. Such delays shall not prejudice the City regarding the City's compliance with required times to act set forth in this Code.
6. *City-Initiated Rezoning That Affects Multiple Ownership.* The posting of signs shall not be required when an amendment to the Official Zoning Map is initiated by the City and affects multiple ownerships. At the City's option, notice of a rezoning that affects multiple ownerships may be posted at City Hall.

D. **Internet Requirements.** The Director will create and maintain web pages upon which the Director may provide timely notice of applications. If a notice is missed by the Director, it shall not void the hearing or approval. "

Section 8-3-5-3 Site Plan is hereby retitled and amended in its entirety to read as follows:

"8-3-5-3 Site Plan and Site Plan Amendment

A. **Generally.** The purpose of the Site Plan or Site Plan Amendment is to ensure compliance with the development and design standards and provisions of this Code, while encouraging quality development in the City reflective of the goals, policies, and objectives found in the Comprehensive Plan.

B. **Site Plans.** All applicable provisions of this Division apply unless specifically listed. A Site Plan is required before a building permit may be issued for all development in the City except those listed below:

1. Single family detached homes or duplex units in a subdivision of nine or fewer lots within a residential zoning district and that are not part of land for which a Master Development Plan has been approved;
2. Permitted additions to existing single-family detached dwellings or duplex units; and
3. Interior improvements and tenant finish.

C. **Approval Criteria.** A Site Plan or Site Plan Amendment shall be reviewed for compliance with the following criteria:

1. The application complies with the applicable standards of this LDC, other adopted City regulations, any approved Master Plan that includes the property, and any conditions specifically applied to development of the property by the Planning Commission or City Council in a prior decision affecting the property;
2. The application is consistent with the Comprehensive Plan;
3. The City's existing infrastructure and public improvements, including but not limited to its water, wastewater, street, trail, and sidewalks systems, have adequate capacity to serve the proposed development, and any burdens on those systems have been mitigated to the degree practicable;
4. The application will preserve and protect natural areas, ridgelines, swales, natural landforms, water quality and wildlife habitat of riparian corridors, wetlands and floodplains affected by the proposed development and integrates those areas into site design where practicable;
5. The application will improve or expand multi-modal connections with adjacent sites, neighborhoods, and urban centers;
6. The application is similar to surrounding uses in terms of size, scale and building façade materials;
7. The application mitigates any adverse impacts on the surrounding area to the degree practicable; and
8. Within the MX, R6, R13, and R24 zoning districts, townhome and multifamily residential uses shall provide appropriate amenities, including recreational facilities, pedestrian facilities, unique aesthetic features and quality design.

Section 8-3-8-7 Acceptance of Dedications is hereby amended in its entirety to read as follows:

A. **"Generally.**

1. **Major Subdivision Final Plats.** All major subdivision final plats shall be executed by all owners of property within the boundaries of such plat, the surveyor, the attorney or title company who examined the title, and any and all lienholders. Following the approval of a major subdivision final plat, the plat, which shall have all permitted exceptions, waivers, or variances expressly noted thereon, shall be signed by the Director, the City Engineer, and the City Attorney. Dedication, approval, certification, and signature blocks shall be in a form approved by the City Attorney.

2. **Minor Subdivision Plats**. All minor subdivision plats shall be executed by all owners of property within the boundaries of such plat, the surveyor, the attorney or title company who examined the title, and any lienholders. Following the approval of the minor subdivision plat, the plat, which shall have all permitted exceptions, waivers, or variances expressly noted thereon, shall be signed by the Director. Dedication, approval, certification, and signature blocks shall be in a form approved by the City Attorney.

B. **Method of Acceptance of Dedications; Limitations.** Full execution of the approved major subdivision final plat or minor subdivision plat shall constitute the City's acceptance of any fee-simple dedication or grant of easement to the City as is referenced on the plat. Acceptance of dedications does not constitute final acceptance of public improvements constructed thereon."

Section 8-4-3-6 Park and Trail Dedications and Fees-in-Lieu is hereby amended in its entirety to read as follows:

A. **"Generally.** The park and trail dedication and fee-in-lieu requirements are intended to:
   1. Provide adequate parks, trails, and associated facilities, which significantly contribute to the community character of Arvada, and provide recreation and mobility opportunities for its residents;
   2. Recognize that new residences generate additional demands and burdens on the City's existing parks and trails system and the need for additional such amenities;
   3. Recognize that the necessity for, and cost of, new or expanded parks and trails facilities is properly and proportionally attributable to and should be paid for by new residential development, in accordance with the needs and burdens generated by such development;
   4. Institute dedication requirements sufficient to meet the need for, and cost to develop and improve, new or expanded parks and trails generated by new residential development; and
   5. Provide a dedication methodology that closely approximates the additional park and trail needs and burdens generated by new residential development, links the requirements and fees to be imposed to the additional needs and demands upon the parks and trails system generated by new residential development; and imposes exactions of land for park and trail purposes (or payment in lieu thereof) and payment of park development fees that are roughly proportional to the demands and burdens created by new residential development.

B. **Applicability.** Applicants for new residential development shall provide public land dedications for park or trail purposes or payments of fees-in-lieu of such dedications, as provided in this Section.

C. **Park Land Dedication.** The owner of land to which these provisions apply shall, at the option of the City:
   1. Satisfy such combination of dedication and payment in lieu of dedication that, consistent with the provisions of this Section, the City determines appropriate.
   2. Pay to the City the cash equivalent of the fair market value of the land otherwise required to be dedicated pursuant to this Section; or

3. Convey to the City in fee simple not less than 10 acres per 1,000 projected population in the new residential development.

D. **Standards for Dedicated Park Land.** Park land that is dedicated pursuant to the standards of this Section shall be suitable for the purpose for which it is intended, as determined by the City.

E. **Park Land Fee-in-Lieu.** The park land fee-in-lieu shall be equal to the value of the area of land that would otherwise be required to be dedicated, calculated as provided in Section 8-4-3-4, Appraisal of Property Value.

F. **Public Trail Land Dedication.**
   1. The owner / developer of new residential development shall, at the option of the City, dedicate in fee simple or in the City's discretion grant easements over and across, such land lying within the subject property as may be required, as determined by the City, to provide for the construction and maintenance of public trails that will serve and / or traverse the subject property as referenced in or depicted on the City's approved Arvada Parks, Trail and Open Space Master Plan, or Comprehensive Plan.
   2. The owner / developer of new residential development shall further be required to construct all public trails that are dedicated pursuant to Subsection F.1., above.
   3. Any trail dedication or construction required by the provisions of this Subsection shall comply with all applicable City design and construction standards, and shall conform to the locational requirements of this LDC.

G. **Credit for Trail Land Dedications.**
   1. For purposes of satisfying the park land dedication requirements of Subsection C., above, in those developments where trails referenced in or depicted on the City's approved Arvada Parks, Trail and Open Space Master Plan, or Comprehensive Plan are proposed to be located, those trail dedications or grants of easements as are accepted by the City shall be credited against the park land dedication requirements of the development.
   2. With respect to dedications or grants of easements for other public trails proposed within the development, but not referenced or depicted on the City's approved Arvada Parks, Trail and Open Space Master Plan, or Comprehensive Plan, the City may in its discretion, grant a credit, in whole or in part, against park land dedication requirements for such trail dedications or grants of easement.
   3. Such credits as set forth herein shall not apply to proposed sidewalks or trails within street rights-of-way or on land within the development required to be dedicated for purposes other than park or trail use.

H. **Form of Land Dedication/Payment of In-Lieu Fees**.
   1. All lands or interests required to be conveyed under this Division shall be conveyed to the City by proper dedication upon a plat or by general warranty deed, without restriction, and free and clear of any and all liens, restrictions, covenants, and encumbrances.
   2. Cash-in-lieu payments shall be paid to the City in an account to be used solely for the acquisition and development of parks, trails, and recreation facilities reasonably proximate to the applicable residential development.

I. **Timing of Dedication or Payment-In-Lieu.** Any dedication of land, payment-in-lieu of dedication, or granting of an easement that is required pursuant to the provisions of this Section shall be satisfied in accordance with the following:

1. As to residential development in general, all requirements with respect to land dedication, payments-in-lieu, or trail easements shall be satisfied in full prior to, or as part of, the approval of the final plat, final development plan, or site plan or at such other time as may be required by the City. As to a non-PUD, but phased, development, the provisions of Subsection I.2., below, shall apply.
2. As to the phased development of a PUD project, all of the following shall apply:
    a. All park land dedication requirements shall be satisfied at the time of the approval of the site plan, PUD final development plan, minor subdivision plat, or major subdivision final plat for each phase of the development based upon the projected population for that phase, or at such other time as may be required by the City.
    b. Payments-in-lieu of park land dedication shall be satisfied at the time of the approval of the site plan, PUD final development plan, minor subdivision plat, or major subdivision final plat for each phase, based upon the nature and number of dwelling units contained within such phase and application of the land dedication and payment-in-lieu provisions of this Section, or at such other time as may be required by the City.
    c. Dedications or grants of easements for trail purposes pursuant to the provisions of this Section shall be satisfied prior to, or as part of, the approval of the minor subdivision plat or major subdivision final plat for each phase involving land which a trail or trails referenced in Subsection F., above, will traverse, or at such other time as may be required by the City.
    d. No revision or amendment to an approved development plan or final plat pursuant to which the required land dedication has been previously proffered and accepted by the City shall create a credit in favor of, or reduce the land dedication requirements applicable to an owner/developer, nor shall any such revision or amendment require the City to re-convey any portion of a previously accepted dedication, notwithstanding a decrease in the planned density of the development or any portion thereof."

The remaining portions of Chapter 8 shall remain unchanged.

Section 7. Chapter 11, Measurements, Rules of Construction, and Definitions, of the Land Development Code, of the Arvada City Code is hereby amended:

Section 11-1-1 Purpose of Article is hereby renumbered and amended in its entirety to read as follows:

"**11-1-1-1 Purpose of Article**

A.The purpose of this Article is to provide general rules for measurement used in this Code."

Section 11-1-2 Rules for Measurement is hereby renumbered and amended in its entirety to read as follows:

"11-1-1-2 Rules for Measurement

A. Density

1. *Net Density.* Net density shall be calculated by dividing the net acreage of a parcel by the minimum lot area required for each dwelling unit.
2. *Gross Density.* Gross density shall be calculated by dividing the gross acreage of a parcel by the minimum lot area required for each dwelling unit.
3. *Rounding.* When applying a density standard to a parcel land area, all resulting fractions shall be rounded to the next lower whole number.
4. *Maximum Density not Guaranteed.* The number of dwelling units allowed on a site is based on the presumption that all applicable standards shall be met. The maximum density established for a zoning district as identified in Chapter 2 is not a guarantee that such densities may be obtained, nor a valid justification for varying other dimensional or development standards.

B. Lot Area

1. Lot area is measured as the amount of gross land area contained within the property lines of a lot or parcel, but not including streets or rights-of-way.

C. Lot Frontage (Lot Width)

1. Lot frontage or width refers to the horizontal distance between the side lot lines as measured along a straight line parallel to the front lot line – the lot line abutting the street on which the property has its principal access – or the chord thereof. The minimum lot frontage or width shall be measured between the side lot lines along a line that is parallel to the front lot line and located the minimum front setback distance from the front lot line.

D. Lot Coverage

1. *General Rule.* Lot coverage is measured as the percentage of the total lot area covered by buildings. It is calculated by dividing the square footage of building cover by the square footage of the lot.
2. *Exemptions.* The following features shall not be counted for the purpose of determining lot coverage:
    a. Swimming pools and hot tubs.
    b. Uncovered decks less than 30 inches above grade.
    c. Mini-structures under 200 square feet in total area.

E. Street Frontage

1. Street frontage is measured between side lot lines along the street lot line. Lots that do not have frontage at the street right-of-way line will indicate a building setback line by a dashed line at the point where the lot has the required width, but in no case less than the setback normally required.

F. Setbacks

1. *General Rule.* Setbacks are measured between the lot line and the closest projection of a building or structure along a line at right angles to the lot line. Setbacks shall be unobstructed from the ground to the sky except as otherwise specifically allowed in Section 2-1-10-1, Exceptions to Setback Standards. Driveway length in the front setback is measured from the back of sidewalk to the face of the garage measured along the centerline of the driveway apron. Parking in a rear setback shall meet the requirements set forth in Division 4-5-3, Parking and Loading Design.
2. *Setback Averaging.* Regardless of the minimum front setback required by the underlying zoning district, front setbacks may be reduced to the average of the

existing setbacks of the lots that are on both sides of the subject lot. The following rules apply in calculating the average setback:

a. Only the setbacks on the lots that abut each side of the subject lot and are on the same side of the street may be used. Setbacks across the street or along a different street may not be used.

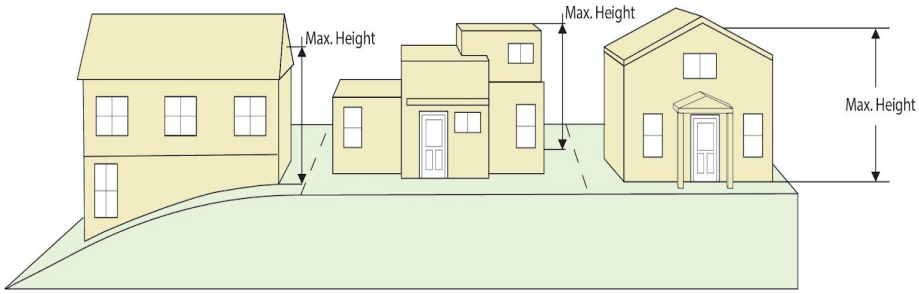
b. When one abutting lot is vacant or if the subject lot is a corner lot, then the average is of the setback of the non-vacant lot and the zoning district minimum setback.

G. Floor Area Ratio (FAR)

1. FAR is measured as the gross floor area of all buildings on a lot or parcel, divided by the lot area.

H. Height

1. *Building Height.* Building height is measured as the vertical distance between the point of measurement on the ground to the highest point of (1) coping of a flat roof, or (2) to the deck line of a mansard roof, or (3) to the mid-point of the highest gable of a pitched or hip roof. The point of measurement may be taken from the highest adjoining sidewalk or ground surface within a five-foot horizontal distance along the exterior wall of the building.
2. *Height, Fence or Wall.* The height of a fence or wall shall be measured as the vertical distance between finished grade on the highest side of the fence or wall to the top of the fence or wall.
3. *Height, Tower/Antenna/Other Structures (Not Buildings). See* Chapter 7, Wireless Communications Facilities.
4. *Exceptions to Height Limitations in All Districts. See* Section 2-1-10-2, Exceptions to Maximum Building or Structure Height.



I. Distance or Spacing

1. Whenever a regulation requires a proposed use or activity to be located a specified distance from an existing use, zoning district boundary, or activity, such distance or spacing requirement shall be measured as follows:

a. For a proposed use that will be located in an individual structure or building, the required minimum distance shall be measured from the closest point of the structure or building housing the proposed use to the property line or the existing use, or activity, or the zoning district boundary, as applicable. Except that as applied to measuring distance between automotive wash facilities, the required distance shall be measured along street frontage and not by a straight line distance between the two structures housing such uses, as specified in the Code.

b. For a proposed use that will be located within a building also occupied by other uses, such as within a shopping center, the required minimum distance shall be measured from the closest point of that portion of the building housing the proposed use to the property line of the existing use, or activity, or the zoning district boundary, applicable.
c. Drive-through lanes, drives for automobile service stations, and other similar areas accessory to a principal use subject to a distance or spacing requirement shall also be located outside the minimum distance required.

J. Variation of Residential Dwelling Elevations

1. Wherever it is required that the elevation of single family homes be varied every so many units, that requirement shall permit the first and last units within that specified number to be the same. For example, a requirement that home facades be varied "every fourth unit" shall require that the first, second, and third home elevations be different, but shall permit the first and fourth home elevations to be the same.

K. Measurement of Brick and Stone Cladding

1. The measurement shall be all of the area excluding windows, doors, garage doors from grade to the roof eve or top plate of the main portion of the structure.

L. Measurement of Signs

1. The measurement of signage shall be calculated in accordance with Chapter 6, Signs."

Division 11-3-3 Definitions is amended or added to read as follows, all defined words not listed here, remain unchanged.

Clustered Subdivision
A cluster lot subdivision is a residential development win which lots are allowed to be smaller or narrow. Cluster lot subdivision is a design technique that concentrates buildings in specific areas on a site to allow the remaining land to be used for recreation or other common use, or preservation of environmentally sensitive areas or agricultural uses.

Electric Vehicle (EV) Charging Station
A public or private parking space and all associated equipment, including electrical transformers, that is served by battery charging station equipment that has its primary purpose to transfer electric energy (by conductive or inductive means) to a battery or other energy storage device in an electric vehicle.

Food and Retail Truck Vending
Food and retail vending from a readily movable wheeled, motorized vehicle designed and equipped to serve food or sell retail goods or a wheeled, non-motorized trailer designed and equipped to serve food or sell retail goods, and towed by a motorized vehicle.

Fueling/Service Station
Any building, land area, or other premises used for the retail dispensing or sales of vehicular fuels; Level 3 DC fast-charging or Level 2 charging of electric vehicles; towing of automobiles and light trucks; and including as an accessory use the sale and installation of lubricants, tires,

batteries, brakes, mufflers, and similar vehicle repairs and accessory installations. The phrase "fueling/service station" does not include collision centers, or facilities that provide transmission repair, engine overhauls, or repair of heavy trucks or heavy motorized equipment. If a use that fits this definition also includes the sale of ready-to-eat food products (not intended for on-premises consumption), groceries and sundries, such use shall be classified as a "convenience store."

Landscape Surface Area
Area that is vegetated per the requirements of Article 4-6, Landscape and Buffering, or reserved for the use of outdoor pedestrian and/or non-vehicular recreation activity areas including sidewalks, trails, patios, decks, amenitzed landscape surface area, and small urban parks. Detention areas, buffers, and landscaping within a parking lot may be included. Includes areas dedicated as amenitized landscape surface area and small urban parks.

Landscape Surface Area, Amenitized
Landscape surface area that is designed for the common use or enjoyment of residents, employees, or guests of the development.

Open Space, Common is deleted in its entirety.

Outdoor Storage
Storage of materials, merchandise, stock, supplies, machines, operable vehicles, equipment, manufacturing materials, or chattels of any nature that are not kept in a structure having at least four walls and a roof, regardless of how long such materials are kept on the premises. This definition shall not apply to items for sale to the general public such as new and used cars, recreational vehicles, boats, landscape and building materials, where such items are permitted for sale in the zoning district in which they are located. "Outdoor storage" shall not apply to the storage of wrecked or inoperable vehicles. (*See* "salvage yard".) In addition, "outdoor storage" does not include outdoor parking of motor vehicles parked for less than 48 hours for maintenance service.

Place of Assembly is amended by placing it between the definitions for Personal Services Vending and Porte- Cochère; the definition remains unchanged.

Produce Stand
A temporary or permanent structure used for sale of produce and incidentally used for sale of related items which is located on property used for agriculture or community agriculture.

Retail Sales and Services, Type 1
A use involving the sale, lease, or rental of consumer, home, and business goods to consumers. Such uses include but are not limited to department stores, furniture stores, clothing stores, and establishments providing the following products or services: antiques, appliances, art, art supplies, beauty supplies, bicycles, books, magazines and newspapers, craft supplies, copies, costumes, dry goods, electronics, fabric, framing, garden supplies, gifts, groceries, hardware, home improvement goods, household products, jewelry, music, musical instruments, office supplies, party supplies, pet grooming, pet supplies, pharmaceuticals, phones, photography

equipment, produce, signs, sporting goods, stationary, toys, and videos; and new automotive parts and accessories. The phrase also includes services such as banking, picture framing, installation of electronics (*e.g.*, audio systems and navigation systems) into motor vehicles, real estate offices that are open for walk-in traffic; repairs of products sold by the establishment (*e.g.*, a computer store may also repair computers), repairs of consumer electronics, tattoo parlors, and comparable services that are not included in the definition of the phrase "Retail Sales and Services, Type 2." The phrase "Retail Sales and Services, Type 1" does not include uses that are classified or defined more specifically in this Code, including but not limited to "Retail Sales and Services, Type 2," "Restaurant," "Restaurant, Fast Food," "Adult Entertainment," "Adult Retail Sales," "Marijuana Uses," and "Vehicle / Equipment Sales or Rentals."

Retail sales and services, type 1 uses are generally conducted indoors. However, the phrase also includes uses in which not more than 25 percent of the area used for storage and display of products is located outside or in partially enclosed structures.

Sign, Canopy
A sign with one face affixed to a canopy. For purpose of this definition, a canopy is an attached or detached structure, open on at least one side, which is designed to provide overhead shelter from the sun or weather. Canopies include, but are not limited to, service station canopies, carports, porte-cocheres, arcades and pergolas.

The remaining portions of Chapter 11 shall remain unchanged.

Section 8. Should any provision of this ordinance be declared by a court to be unconstitutional or invalid, such decision shall not affect the validity of the ordinance as a whole, or any part thereof, other than the part so declared to be unconstitutional or invalid.

Section 9. This ordinance shall take effect five days after publication following final passage.

INTRODUCED, READ, AND ORDERED PUBLISHED this 7th day of March, 2022.

PASSED, ADOPTED AND APPROVED this ___th day of _____, 2022.

_____
Marc Williams, Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

Rachael A. Morris, City Attorney:

BY: _____

Publication Dates: March 10, 2022

REDLINE/STRIKEOVER VERSION

FOR INFORMATION ONLY -- NOT PART OF THE ORDINANCE

Underlined indicates new material
~~**Strikethrough**~~ indicates deleted material

Table 2-1-3-3A: Residential Neighborhood Lot and Building Standards								
Standard		**Subdistrict**						
		RN-32.5	**RN-12.5**	**RN-7.5**	**RN-6**	**RN-4**	**RN-D**	
Residential Uses								
Housing Type		Single-Family	Single-Family	Single-Family	Single-Family	Single-Family	Single-Family	Duplex
Lot Standards								
	Min. Lot Area	32,500 sf.	12,500 sf.	7,500 sf.	6,000 sf.	4,000 sf.	6,000 sf.	9,000 sf.
A	Min. Lot Width	100 ft.	100 ft.	75 ft.	50 ft.	40 ft.	60 ft.	75 ft.
	Min. Lot Width (Corner)	100 ft.	100 ft.	85 ft.	60 ft.	40 ft.	75 ft.	85 ft.
	Max. Lot Coverage	25%	35%	40%	40%	40%	40%	30%
Setback Standards								
B	Min. Front	30 ft.	30 ft.	20 ft.	18 ft.	18 ft.	18 ft.	25 ft.
C	Min. Street Side[1]	25ft.	25 ft.	20 ft.	13 ft.	13 ft.	13 ft.	20 ft.
D	Min. Interior Side	15 ft.	10 ft.	7.5 ft.	5 ft.	5 ft.	5 ft.	10 ft.
E	Min. Rear	15 ft.	15 ft.	10 ft.	10 ft.	10 ft.	10 ft.	10 ft.
	Min. Rear, Alley[1]	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.
	Min. Arterial Setback[2]	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.
Building Standards								
F	Max. Height, Principal Building	35 ft.	28 ft.	28 ft.	28 ft.	28 ft.	28 ft.	28 ft.
	Max. Height, ADU (detached)	30 ft.	25 ft.	25 ft.	25 ft.	25 ft.	25 ft.	-
G	Max. Height, Accessory Building except for Barns and Stables	20 ft.	16 ft.	16 ft.	16 ft.	16 ft.	16 ft.	16 ft.
	Max. Height, Barns and Stables	35 ft.	30 ft.	-	-	-	-	-
	Max. Height, Mini Structures	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.
Nonresidential Uses								
Lot Standards								
	Min. Lot Area	1 ac.	1 ac.	10,000 sf.	10,000 sf.	10,000 sf.	10,000 sf.	
A	Min. Lot Width	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	
	Max. Lot Coverage	25%	25%	40%	40%	40%	40%	
Setback Standards								

Table 2-1-3-3A: Residential Neighborhood Lot and Building Standards							
Standard		**Subdistrict**					
		RN-32.5	**RN-12.5**	**RN-7.5**	**RN-6**	**RN-4**	**RN-D**
B	Min. Front	30 ft.	30 ft.	25 ft.	18 ft.	18 ft.	18 ft.
C	Min. Interior Side	15 ft.	15 ft.	10 ft.	10 ft.	10 ft.	10 ft.
D	Min. Street Side	30 ft.	30 ft.	25 ft.	18 ft.	18 ft.	18 ft.
E	Min. Rear	15 ft.	15 ft.	15 ft.	10 ft.	10 ft.	10 ft.
	Min. Rear (Alley)[1]	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.	0 ft.
	Min. Arterial Setback[2]	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.	100 ft.
Building Standards							
F	Max. Height, Principal Building	35 ft.	35 ft.	35 ft.	35 ft.	35 ft.	35 ft.
G	Max. Height, Accessory Building	20 ft.	16 ft.	16 ft.	16 ft.	16 ft.	16 ft.
	Max. Height, Mini Structure	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.

TABLE NOTES:

[1] ~~For driveway access must be 18 ft.~~ **The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicants discretion.**

[2] Measured from the centerline of the arterial. *See* Section 2-1-9-2, Arterial Street Setbacks.

2-1-3-4 R6: Residential 6

A. **Purpose.** The purpose of the Residential 6 (R6) zoning district is to allow for new residential development of a variety of housing products up to a gross density of six units per acre along with supporting community and institutional uses.

B. **Relationship to the Comprehensive Plan.** The R6 zoning district generally implements the "Suburban Residential" land use category stated in the Comprehensive Plan.

C. **Lot and Building Standards.** The standards for lots and buildings in the R6 zoning district are set out in Table 2-1-3-4A, Residential 6 Lot and Building Standards and Division 2-1-8, Housing Palette.

Figure 2-1-3-4: Illustrative Residential 6 Lot and Building Standards

Table 2-1-3-4A: Residential 6 Lot and Building Standards

Standard		Lot Type	
		Residential	Nonresidential
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10,000 sf.
A	Min. Lot Width		100 ft.
	Max. Lot Coverage		40%
Building and Parking Siting Standards			
B	Min. Front	*See* Subsection D., below, and Division 2-1-8, Housing Palette	25 ft.
C	Min. Street Side		25 ft.
D	Min. Interior Side		10 ft.
E	Min. Rear		15 ft.
	Min. Arterial Setback[1]	100 ft.	No Minimum
	Min. Parking Setback	20 ft.[2]	20 ft.
Building Standards			
F	Max. Height, Principal Building	35 ft.	35 ft.
	Max. Height, ADU (detached)	30 ft.	-
G	Max. Height, Accessory Building	18 ft.	18 ft.
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area	20%	30%
	Min. Landscape Surface Area, Amenitized[3]	5%	-
Density Standards			
	Max. Density	6 u/a	-

TABLE NOTES:
[1] Measured from the centerline of the arterial. *See* Section 2-1-9-2, Arterial Street Setbacks.

Table 2-1-3-4A: Residential 6 Lot and Building Standards		
Standard	**Lot Type**	
	Residential	**Nonresidential**
[2] Except for driveways associated with single family and duplex units and multiplex buildings. [3] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.		

D. **Housing Palette.** The following housing types identified in Division 2-1-8, Housing Palette, are allowed in the R6 zoning district:

1. Single-Family Detached: Small General; General; Small Suburban; Suburban
2. Zero Lot Line: Small General; General
3. Duplexes: Side-By-Side; Over-Under
4. Townhomes: Suburban Type~~; Urban Type~~
5. Multiplexes
6. Clustered Housing: Micro Homes; Cottage Types.

E. **Cross-References.** The cross-references in Table 2-1-3-4B, Cross-References for Residential 6, are provided for the reader's convenience and are not necessarily exhaustive of applicable regulations.

Table 2-1-3-4B: Cross-References for Residential 6	
Topic	**Reference**
Max. No. of Principal Building	Section 2-1-9-1, One Principal Building per Lot
Land Use Regulations	Division 3-1-2, Land Use by Zoning District
Business Use of the Home	Division 3-1-5, Business Use of the Home
Parking	Article 4-5, Parking and Loading
Landscaping	Article 4-6, Landscaping and Buffering
Fences and Walls	Section 4-7-2-1, Fences and Divisional Walls; and Section 4-7-2-2, Retaining Walls
Exterior Lighting	Article 4-8, Exterior Lighting
Building Design Standards	Division 5-1-2, Building and Structure Design Standards; and Section 5-1-4-1, Decks, Balconies, and Porches
Mini-Structures (*e.g.,* Playground Equipment)	Section 5-1-4-3, Mini-Structures
Accessory Dwelling Units	Section 5-1-5-2, Accessory Dwelling Units
Accessory Buildings	Section 5-1-5-3, Accessory Buildings
Satellite Dishes, Antennas, and Amateur Radio	Section 5-1-5-4, Satellite Dishes and Antennas; Amateur Radio Antennas
Renewable Energy Systems (*e.g.,* Solar Panels)	Section 5-1-4-4, Renewable Energy Systems
Accessory Buildings (Non-Residential and Multifamily)	Section 5-1-6-1.E, Number of Accessory Buildings or Free-Standing Accessory Structures

2-1-3-5 R13: Residential 13

A. **Purpose.** The purpose of the Residential 13 (R13) zoning district is to allow for new residential development of a variety of housing products up to a gross density of 13 units per acre.

B. **Relationship to the Comprehensive Plan.** The R13 zoning district generally implements the "Medium Density Residential" land use category stated in the Comprehensive Plan.

C. **Lot and Building Standards.** The standards for lots and buildings in the R13 zoning district are set out in Table 2-1-3-5A, Residential 13 Lot and Building Standards and Division 2-1-8, Housing Palette.

Figure 2-1-3-5: Illustrative Residential 13 Lot and Building Standards

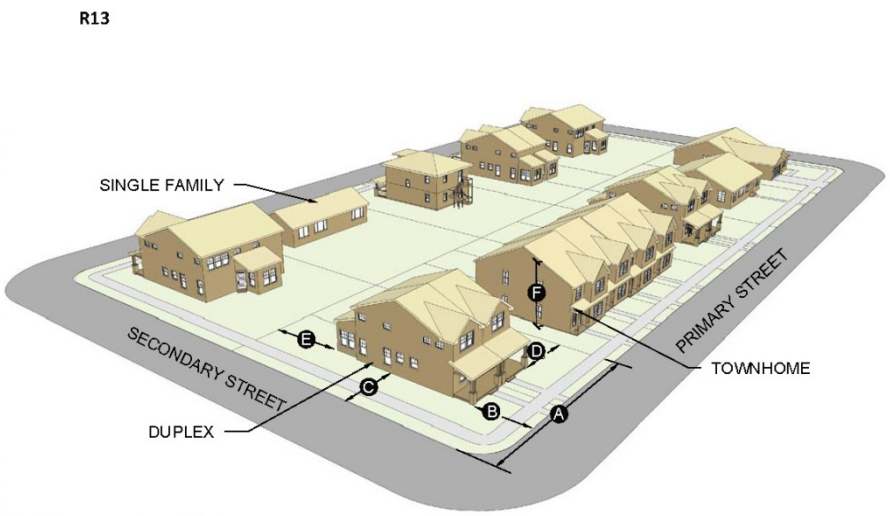


Table 2-1-3-5A: Residential 13 Lot and Building Standards

Standard		Lot Type	
		Residential	Nonresidential
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10,000 sf.
A	Min. Lot Width		100 ft.
	Max. Lot Coverage		40%
Setback Standards			
B	Min. Front	*See* Subsection D., below, and Division 2-1-8, Housing Palette	20 ft.
C	Min. Street Side		20 ft.
D	Min. Interior Side		10 ft.
E	Min. Rear		15 ft.
	Min. Arterial Setback[1]	100 ft.	-
	Min. Parking Setback	20 ft.[2]	20 ft.
Building Standards			
F	Max. Height, Principal Building	35 ft.	35 ft.
	Max. Height, ADU (detached)	30 ft.	-

Table 2-1-3-5A: Residential 13 Lot and Building Standards			
Standard		Lot Type	
		Residential	Nonresidential
	Max. Height, Accessory Building	18 ft.	18 ft.
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area	20%	30%
	Min. Landscape Surface Area, Amenitized[3]	5%	-
Density Standards			
	Max. Density	13 u/a	-
TABLE NOTES: [1] Measured from the centerline of the arterial. ***See*** Section 2-1-9-2, Arterial Street Setbacks. [2] Except for driveways associated with single family and duplex units and multiplex buildings. [3] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.			

D. **Housing Palette.** The following housing types identified in Division 2-1-8, Housing Palette, are allowed in the R13 zoning district:

1. Single-Family Detached: Small Urban; Urban; Small General; General; Small Suburban
2. Zero Lot Line: Small General; General
3. Duplexes: Side-By-Side; Over-Under
4. Townhomes: Suburban; Urban
5. Multiplexes
6. Multifamily: General
7. Clustered Housing: Micro; Cottages Types.

E. **Cross-References.** The cross-references in Table 2-1-3-5B, Cross-References for Residential 13, are provided for the reader's convenience and are not necessarily exhaustive of applicable regulations.

Table 2-1-3-5B: Cross-References for Residential 13	
Topic	**Reference**
Max. No. of Principal Building	Section 2-1-9-1, One Principal Building per Lot
Land Use Regulations	Division 3-1-2, Land Use by Zoning District
Business Use of the Home	Division 3-1-5, Business Use of the Home
Parking	Article 4-5, Parking and Loading
Landscaping	Article 4-6, Landscaping and Buffering
Fences and Walls	Section 4-7-2-1, Fences and Divisional Walls; and Section 4-7-2-2, Retaining Walls
Exterior Lighting	Article 4-8, Exterior Lighting
Building Design Standards	Division 5-1-2, Building and Structure Design Standards; and

Table 2-1-3-5B: Cross-References for Residential 13	
Topic	**Reference**
	Section 5-1-4-1, Decks, Balconies, and Porches
Mini-Structures (e.g., Playground Equipment)	Section 5-1-4-3, Mini-Structures
Accessory Dwelling Units	Section 5-1-5-2, Accessory Dwelling Units
Accessory Buildings	Section 5-1-5-3, Accessory Buildings
Satellite Dishes, Antennas, and Amateur Radio	Section 5-1-5-4, Satellite Dishes and Antennas; Amateur Radio Antennas
Renewable Energy Systems (e.g., Solar Panels)	Section 5-1-4-4, Renewable Energy Systems
Accessory Buildings (Non-Residential and Multifamily)	Section 5-1-6-1.E, Number of Accessory Buildings or Free-Standing Accessory Structures

2-1-3-6 R24: Residential 24

A. **Purpose.** The purpose of the Residential 24 (R24) zoning district is to allow for new residential development of a variety of moderate to higher density housing products, up to a gross density of 24 units per acre.

B. **Relationship to the Comprehensive Plan.** The R24 zoning district generally implements the "High Density Residential" land use category stated in the Comprehensive Plan.

C. **Lot and Building Standards.** The standards for lots and buildings in the R24 zoning district are set out in Table 2-1-3-6A, Residential 24 Lot and Building Standards and Division 2-1-8, Housing Palette.

Figure 2-1-3-6: Illustrative Residential 24 Lot and Building Standards

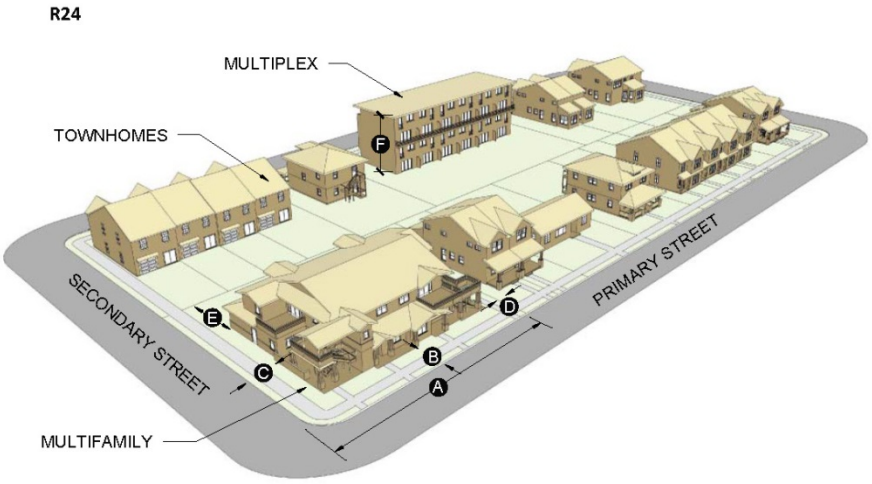


Table 2-1-3-6A: Residential 24 Lot and Building Standards			
Standard		**Lot Type**	
		Residential	**Nonresidential**
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10,000 sf.
A	Min. Lot Width		100 ft.
	Max. Lot Coverage		40%
Building and Parking Siting Standards			
B	Min. Front	*See* Subsection D., below, and Division 2-1-8, Housing Palette	20 ft.
C	Min. Street Side		20 ft.
D	Min. Interior Side		10 ft.
E	Min. Rear		15 ft.
	Min. Arterial Setback[1]	100 ft.	-
	Min. Parking Setback	20 ft.[2]	20 ft.
Building Standards			
F	Max. Height, Principal Building	35 ft.	35 ft.
	Max. Height, ADU (detached)	30 ft.	-
	Max. Height, Accessory Building	18 ft.	18 ft.
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area	20%	30%
	Min. Landscape Surface Area, Amenitized[3]	5%	-
Density Standards			
	Max. Density	24 u/a	-

TABLE NOTES:
[1] Measured from the centerline of the arterial. See Section 2-1-9-2, Arterial Street Setbacks.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.

D. **Housing Palette.** The following housing types identified in Division 2-1-8, Housing Palette, are allowed in the R24 zoning district:

1. Single-Family Detached: Small Urban; Urban; Small General; General; Small Suburban
2. Zero Lot Line: Small General; General
3. Duplexes: Side-By-Side; Over-Under
4. Townhomes: Suburban; Urban
5. Multiplexes
6. Multifamily: General; Urban
7. Clustered Housing; Micro Homes; Cottages Types.

E. **Cross-References.** The cross-references in Table 2-1-3-6B, Cross-References for Residential 24, are provided for the reader's convenience and are not necessarily exhaustive of applicable regulations.

Table 2-1-3-6B: Cross-References for Residential 24	
Topic	**Reference**
Max. No. of Principal Building	Section 2-1-9-1, One Principal Building per Lot
Land Use Regulations	Division 3-1-2, Land Use by Zoning District
Business Use of the Home	Division 3-1-5, Business Use of the Home
Parking	Article 4-5, Parking and Loading
Landscaping	Article 4-6, Landscaping and Buffering
Fences and Walls	Section 4-7-2-1, Fences and Divisional Walls; and Section 4-7-2-2, Retaining Walls
Exterior Lighting	Article 4-8, Exterior Lighting
Building Design Standards	Division 5-1-2, Building and Structure Design Standards; and Section 5-1-4-1, Decks, Balconies, and Porches
Mini-Structures (*e.g.,* Playground Equipment)	Section 5-1-4-3, Mini-Structures
Accessory Dwelling Units	Section 5-1-5-2, Accessory Dwelling Units
Accessory Buildings	Section 5-1-5-3, Accessory Buildings
Satellite Dishes, Antennas, and Amateur Radio	Section 5-1-5-4, Satellite Dishes and Antennas; Amateur Radio Antennas
Renewable Energy Systems (*e.g.,* Solar Panels)	Section 5-1-4-4, Renewable Energy Systems
Accessory Buildings (Non-Residential and Multifamily)	Section 5-1-6-1.E, Number of Accessory Buildings or Free-Standing Accessory Structures

Table 2-1-4-1A: Mixed-Use, Neighborhood Lot and Building Standards			
Standard		**Use~~Lot~~ Type**	
		Residential	**Nonresidential or Mixed-Use Building**
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	6,500 sf.
A	Min. Lot Width		60 ft.
	Max. Lot Coverage	70%	70%
Building and Parking Siting Standards			
B	Frontage Zone (min./max.)	For min. refer to Division 2-1-8, Housing Palette / 25 ft.	5 ft. / 25 ft.
	Min. Front Build-to~~uilding Façade~~ width within Frontage Zone	50%	50%
C	Street Side Setback (min. / max.)	*See* Subsection D., below, and Division 2-1-8, Housing Palette	10 ft. / -
D	Min. Interior Side Setback		5 ft.
E	Min. Rear Setback, without alley		10 ft.
	Min. Rear Setback, with alley		2 ft. [2]
F	Min. Front Parking Setback	15 ft.[3]	15 ft.
	Min. Arterial Street	*See* Section 2-1-9-	-

Table 2-1-4-1A: Mixed-Use, Neighborhood Lot and Building Standards			
Standard		Use~~Lot~~ Type	
		Residential	Nonresidential or Mixed-Use Building
		2, Arterial Street Setbacks	
Building Standards			
G	Max. Height, Principal Building	35 ft.	35 ft.
	Max. Height, ADU (detached)	30 ft.	-
	Max. Height, Accessory Building	18 ft.	-
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area[1]	15%	20%
	Min. Landscape Surface Area, Amenitized[1,4]	5%	-
Density Standards			
	Max. Density	None	
Height Transition Zone			
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	

TABLE NOTES:

[1] For the development parcel.

[2] ~~For driveway access must be 18 ft.~~ The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicant's discretion.

[3] Except for driveways associated with single family and duplex units and multiplex buildings.

[4] Percentage of lot. Counts toward Min. Landscape Surface Area. Detached single family and duplex developments with 9 or less units exempt.

Table 2-1-4-2A: Mixed-Use, Suburban Lot and Building Standards			
Standard		~~Lot~~ Use Type	
		Residential	Nonresidential or Mixed-Use Building
Lot Standards			
	Min. Lot Area	*See* Subsection D., below, and Division 2-1-8, Housing Palette	-
A	Min. Lot Width		-
	Max. Lot Coverage[1]	60%	60%
Building and Parking Siting Standards			
B	Frontage Zone (min. / max.)	For min. refer to Division 2-1-8, Housing Palette / 35 ft.	10 ft. / 35 ft.
	Min. Front Build~~-~~to Width~~ing Façade~~ within Frontage Zone	20%	20%
C	Min. Street Side Setback (min. / max.)	*See* Subsection D.,	10 ft. / 35 ft.

D	Min. Interior Side Setback	below, and Division 2-1-8, Housing Palette	10 ft.
E	Min. Rear Setback		20 ft.
F	Min. Parking Setback (front)	20 ft.[2]	20 ft.
	Min. Arterial Setback	*See* Section 2-1-9-2, Arterial Street Setbacks	None
Building Standards			
G	Max. Height	45 ft.	45 ft.
	Max. Height, ADU (detached)	30 ft.	
	Max. Height, Accessory Building	18 ft.	
	Max. Height, Mini-structure	12 ft.	12 ft.
		-	
Site Standards			
	Min. Landscape Surface Area	25%	25%
	Max. Outdoor Display	-	5% of enclosed retail floor area
	Min. Area for Small Urban Parks (Lot Area less than 1 ac.) [1,3]	2,500 sf.	
	Min. Area for Small Urban Parks (Lot Area 1 ac. or more) [1,3]	10 percent of the net parcel area	5,000 sf. or 5 percent of the net parcel area, whichever is greater
Density Standards			
	Max. Density	None	
Height Transition Zone			
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	See Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.

TABLE NOTES:
[1] For the development parcel.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] In addition to principal buildings, Small Urban Parks may count toward the Front Building Facade within Frontage Zone requirement.

Table 2-1-4-3A: Mixed-Use, Urban Lot and Building Standards

Standard		~~Lot~~ Use Type	
		Residential	Nonresidential or Mixed-Use Building
Lot Standards			
	Min. Lot Area	*See* Subsection E., below, and Division 2-1-8, Housing Palette	None
A	Min. Lot Width		None
	Max. Lot Coverage[1]	75%	75%
Building and Parking Siting Standards			
B	Frontage Zone (min. / max.)	For min. refer to	0 ft. / 20 ft.

		Division 2-1-8, Housing Palette/20 ft.	
	Min. Front Build to Width~~ing Facade~~ within Frontage Zone	35%	35%
C	Min. Street Side Setback (min. / max.)	*See* Subsection E., below, and Division 2-1-8, Housing Palette	0 ft. / 20 ft.
D	Min. Interior Side Setback		0 ft.
E	Min. Rear Setback		0 ft.
F	Min. Parking Setback (front)	20 ft.[2]	20 ft.
	Min. Arterial Setback	*See* Section 2-1-9-2, Arterial Street Setbacks	—
Building Standards			
G	Max. Height, Principal Building	as identified on the Official Zoning Map	as identified on the Official Zoning Map
	Max. Height, ADU (detached)	30 ft.	
	Max. Height, Accessory Building	18 ft.	
	Max. Height, Mini-structure	12 ft.	12 ft.
Site Standards			
	Min. Landscape Surface Area	15%	15%
	Max. Outdoor Display	-	5% of enclosed retail floor area
	Min. Area for Small Urban Parks (Lot Area less than 1 ac.) [1, 3]	2,500 sf.	
	Min. Area for Small Urban Parks (Lot Area 1 ac. or more) [1,3]	10 percent of the net parcel area	5,000 sf. or 5 percent of the net parcel area, whichever is greater
Subdivision Standards			
	Max. Density	None	
Height Transition Zone			
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	

TABLE NOTES:
[1] For the development parcel.
[2] Except for driveways associated with single family and duplex units and multiplex buildings.
[3] In addition to principal buildings, Small Urban Parks count toward the Front Building Façade within Frontage Zone requirements.

Table 2-1-4-4A: Mixed-Use, Transit Lot and Building Standards

Standard		~~Lot~~ Use Type	
		Residential	Nonresidential or Mixed Use Building
Lot Standards			
	Min. Lot Area	*See* Subsection E., below, and Division 2-1-8, Housing Palette	None
A	Min. Lot Width		None
	Max. Lot Coverage	80%	80%
Building and Parking Siting Standards			

Table 2-1-4-4A: Mixed-Use, Transit Lot and Building Standards			
Standard		**~~Lot~~ Use Type**	
		Residential	**Nonresidential or Mixed Use Building**
B	Frontage Zone (min. / max.)	For min. refer to Division 2-1-8, Housing Palette / 20 ft.	0 ft. / 20 ft.
	Min. Front Buildi~~ng Façade~~ to width within Frontage Zone	60%	60%
C	Street Side Setback (min. / max.)	*See* Subsection E., below, and Division 2-1-8, Housing Palette	0 ft. / 20 ft.
D	Min. Interior Side Setback		0 ft.
E	Min. Rear Setback		0 ft.
F	Min. Parking Setback (front)	20 ft. [6]	20 ft.
	Min. Arterial Setback	*See* Section 2-1-9-2, Arterial Street Setbacks	—
Building Standards			
	Min. Height[2]	1 story	1 story[2]
G	Max. Height	As identified on the Official Zoning Map	As identified on the Official Zoning Map
	Max. Height, Accessory Building	18 ft.	
	Max. Height, Mini-structure	12 ft.	12 ft.
	Min. Ground Floor Height[4]	13 ft. 6 in.	13 ft. 6 in.[3]
Site Standards			
	Min. Landscape Surface Area[4]	10%	10%
	Max. Outdoor Display	-	5% of enclosed retail floor area
	Min. Area for Small Urban Parks (Lot Area less than 1 ac.) [1,5]	2,000 sf.	2,000 sf.
	Min. Area for Small Urban Parks (Lot Area 1 ac. or more) [1,5]	8 percent of the net parcel land area	3,000 sf. or 4 percent of the net parcel land area, whichever is greater
Subdivision Standards			
	Max. Density	None	
Height Transition Zone			
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.	

TABLE NOTES:
[1] For the development parcel.
[2] *See* Section 5-1-3-1, Pedestrian Priority Streets, for minimum height requirement.
[3] For areas required by Section 5-1-3-1, Pedestrian Priority Streets.
[4] Rooftop and upper level deck amenities (except individual private balconies) may be counted towards the landscape surface ratio requirement.
[5] In addition to principal buildings, small urban parks count toward the Front Building Façade within Frontage Zone requirements.
[6] Parking is not allowed in the frontage zone.

Table 2-1-5-4D: Mixed-Use Building Type Placement and Building Width										
Standard		**Context**	**Unit**	**Sub-District of OT Zoning District**						
				E	**EY**	**GV**	**OW**	**RN[1]**	**RR**	**W**
A	Frontage Zone	Generally, except as	ft.	0 / 15	0 / 15	0 / 15	0 / 15	0 / 15	0 / 15	0/15

Table 2-1-5-4D: Mixed-Use Building Type Placement and Building Width											
Standard		Context	Unit	Sub-District of OT Zoning District							
				E	EY	GV	OW	RN[1]	RR	W	
	(min / max)	specified below									
A	Frontage Zone (min / max)	Ralston Road frontage	ft.	10 / 25	10 / 25	-	10 / 25	10 / 25	10 / 25	10 / 25	
A	Frontage Zone (min / max)	Robinson Way or Yukon Street frontage	ft.	10 / 25	10 / 25	-	10 / 25	10 / 25	10 / 25	-	
A	Frontage Zone (min / max)	McIlvoy Park frontage	ft.	10 / 20	10 / 20	10 / 20	10 / 20	10 / 20	10 / 20	10/20	
A	Frontage Zone (min / max)	Olde Town Plaza frontage	ft.	-	-	-	0/20	-	-	0 / 20	
B	Build-to (min)	Building Façade at Front Setback Line	%[2]	75	85	85	75	75	75	85	
B	Total Building Width (max)	Generally, except as specified below	ft.	150	180	6080	6080	180	120	180	
B	Total Building Width (max)	Wadsworth Bypass frontage	ft.	240	-	-	-	-	240	-	
B	Total Building Width (max)	McIlvoy Park frontage[3]	ft.	120	-	35	-	-	-	120	

TABLE NOTES:

[1] The Mixed-Use building form is allowed in this subdistrict only as provided in Section 2-1-5-2, Building Types.

[2] Percent of lot width. *See* Section 2-1-5-3, Generally Applicable Lot and Building Standards.

[3] Applies where property is directly adjacent to or across the street from McIlvoy Park.

Table 2-1-6-1A: Commercial, General Lot and Building Standards		
Standard		**All Lot Types**
Lot Standards		
	Min. Lot Area	5,000 sf.
A	Min. Lot Width	50 ft.
	Max. Lot Coverage	35%
Setback Standards		
B	Min. Front	20 ft.
C	Min. Street Side	20 ft.
D	Min. Interior Side	10 ft.
E	Min. Rear	20 ft.
	Min. Front Parking	20 ft.
Building Standards		
F	Max. Height, Principal Building	45 ft.
	Max. Height, Accessory Building	18 ft.
	Max. Height, Mini-structure	12 ft.
Site Standards		
	Min. Landscape Surface Area	20%
	Max. Outdoor Display	5% of enclosed retail floor area
	Max. Outdoor Storage	5% of lot area
Height Transition Zone		
	Min. Height Transition Zone Depth abutting RA and RN districts	*See* Section 2-1-10-3, Height Transition to RA and RN Zoning Districts.

Table 2-1-6-2A: Industrial, Light Lot and Building Standards		
Standard		**All Lot Types**
Lot Standards		
	Min. Lot Area	None
	Min. Lot Width	None
	Max. Lot Coverage	50%
Setback Standards		
A	Min. Front	20 ft.
B	Min. Street Side	20 ft.
C	Min. Interior Side	5 ft. [1]
D	Min. Rear Setback	5 ft. [1]
	Min. Front Parking	20 ft.
Building Standards		
E	Max. Height, Buildings	40 ft.
	Max. Height, Mini-structures	12 ft.
Site Standards		
	Min. Landscape Surface Area	15%
	Max. Outdoor Display	10% of enclosed retail floor area
	Max. Outdoor Storage ~~of Lot Area~~	35% of lot area

TABLE NOTES:
[1] Side and rear setbacks shall be 20 ft. where adjacent to a single-family detached use in unincorporated Jefferson County.

Table 2-1-6-3A: Industrial, General Lot and Building Standards		
Standard		**All Lot Types**
Lot Standards		
	Min. Lot Area	None
	Min. Lot Width	None
	Max. Lot Coverage	60%
Setback Standards		
A	Min. Front	20 ft.
B	Min. Street Side	10 ft.
C	Min. Interior Side	10 ft. [1]
D	Min. Rear	10 ft. [1]
	Min. Front Parking	10 ft.
Building Standards		
E	Max. Height, Buildings	45 ft.
	Max. Height, Mini-structures	12 ft.
Site Standards		
	Min. Landscape Surface Area	10%
	Max. Outdoor Display	90% of enclosed retail floor area
	Max. Outdoor Storage	90% of lot area

TABLE NOTES:
[1] Side and rear setbacks shall be 20 ft. where adjacent to a single-family detached use in unincorporated Jefferson County.

Table 2-1-8-4: Single-Family Detached Lot and Building Standards

Lot Type	Vehicular[3] Access	Minimum							Maximum	
		Lot Area	Lot Width	Lot Width, Corner	Front[4] Setback (Building / Garage Door)	Street[4] Side Setback	Interior Side Setback	Rear[2] Setback	Building[1] Coverage	Height[1]
Small Urban	Alley	2,000 sf.	30 ft.	40 ft.	10 ft. / NA	10 ft.	3 ft.	2 ft.	65%	35 ft.
Urban	Alley	3,800 sf.	40 ft.	50 ft.	10 ft. / NA	10 ft.	5 ft.	2 ft.	65%	35 ft.
	Street	4,000 sf.	40 ft.	50 ft.	15 ft. / 1~~8~~5 ft.	15 ft.	5 ft.	10 ft.	60%	35 ft.
Small General	Alley	4,000 sf.	40 ft.	40 ft.	15 ft. / NA	15 ft.	5 ft.	2 ft.	60%	35 ft.
	Street	5,000 sf.	50 ft.	60 ft.	15 ft. / 1~~8~~7 ft.	15 ft.	5 ft.	10 ft.	65%	35 ft.
General	Any	6,000 sf.	60 ft.	70 ft.	20 ft. / 20 ft.	15 ft.	5 ft.	10 ft.	50%	35 ft.
Small Suburban	Any	7,500 sf.	70 ft.	80 ft.	20 ft. / 20 ft.	15 ft.	7.5 ft.	10 ft.	45%	35 ft.
Suburban	Any	10,000 sf.	80 ft.	90 ft.	20 ft. / 20 ft.	20 ft.	10 ft.	10 ft.	40%	35 ft.

TABLE NOTES:
[1] Maximum height, required transition zones and maximum building coverage varies based on the zone in which the subject property is located.
[2] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicants discretion.
[3] On corner lots, street access must be located adjacent to the property line farthest from the corner.
[4] Setback is measured from the property line or the back of the sidewalk, whichever provides a greater setback.

Table 2-1-8-5: Zero Lot-Line Home Lot and Building Standards

Lot Type	Vehicular Access	Minimum						Maximum	
		Lot Area	Lot Width	Front Setback (Buildling/Garage Door)	Interior Side[2] Setback (single side)	Street Side Setback	Rear Setback	Building Coverage	Height
Small General	Alley	5,000 sf.	45 ft.	12 ft./NA	10 ft.	10 ft.	2~~0~~ ft.[1]	60%	35 ft.
	Street	5,500 sf.	50 ft.	15 ft./18 ft.	10 ft.	10 ft.	15 ft.	65%	35 ft.
General	Any	6,000 sf.	60 ft.	15 ft./ 18ft.	10 ft.	10 ft.	20 ft.[1]	50%	35 ft.

TABLE NOTES:
[1] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicants discretion.
[2] Zero setback is on one side only.

Table 2-1-8-7: Townhome Building Standards

Lot Type	Vehicular Access	Minimum						Maximum		
		Unit Width	Street Setback	Alley Garage Setback	Non-street Frontage Perimeter Setback	Building Separation, side to side	Building Separation, all others	Units Per Building	Building Coverage	Height
Suburban	Alley or Parking Court	20 ft.	15 ft.[1,]	2 ft.[2]	15 ft.	10 ft.	30 ft.[3]	8	100%	35 ft.
	Street	28 ft.	18 ft.	-	15 ft.	10 ft.	30 ft.[3]	8	100%	35 ft.
Urban	Alley or Parking Court	16 ft.	10 ft.[1,]	2 ft.[2]	1~~5~~0 ft.[4]	10 ft.	20 ft.	10	100%	35 ft.

TABLE NOTES:
[1] Where garage access is directly from a side street, the minimum garage setback shall be 18 ft.
[2] The rear setback for alley-loaded garages shall be no less than 2 ft. and no more than 4 ft. or a minimum of 18 ft., at the Applicants discretion.
[3] Building separation can be reduced to 20 feet if buildings are one or two stories.

Table 2-1-8-7: Townhome Building Standards										
Lot Type	Vehicular Access	Minimum						Maximum		
		Unit Width	Street Setback	Alley Garage Setback	Non-street Frontage Perimeter Setback	Building Separation, side to side	Building Separation, all others	Units Per Building	Building Coverage	Height
[4] If ~~more~~less than one-half of the units in a townhome building are adjacent to a non-street frontage perimeter, then the minimum setback shall be 10~~5~~ feet.										

Table 2-1-10-1: Permitted Encroachments into Required Setbacks	
Structure or Feature	**Permitted Locations in Setbacks**
Single-story covered front porches	Permitted to extend outward from the building 8 feet into a front setback, but no closer than 12 feet to the front property line. This encroachment shall only apply to the front setback, not the street side setback. [1]
All other covered porches, decks, terraces, and patios and are not enclosed **Covered stairs that provide below grade access to a building**	Permitted to extend outward from the building 8 feet into a rear setback, but no closer than 8 feet from the rear property line. Permitted to extend outward from the building 4 feet into a side setback, but no closer than 3 feet from the side property line. [1]
Uncovered porches, decks, patios, concrete slabs, and other flatwork, provided that such items are no more than 30 inches in height above grade	Permitted anywhere in setbacks. [1]
Uncovered balconies, decks, and outside ~~stairs of any height~~ more than 30 inches above grade	Permitted to extend outward from building 6 feet into a front or rear setback, but no closer than 12 feet to the front property line and 8 feet to the rear property line. Permitted to extend outward from the building 4 feet into a side setback, but no closer than 3 feet from the property line. [1]
Bay windows, window sills, eaves, cantilevers, cornices, fireplace chimneys, roof overhangs, and architectural and ornamental features	Permitted to extend outward from building up to 2 feet into any setback. [1]
Clotheslines and clothesline poles	Permitted in rear or side setback only, but not closer than 18 inches from any side or rear property line. [1]
Driveways	Permitted anywhere in setbacks.
Trash containers	Permitted in side and rear setbacks when not adjacent to residential use. Not permitted in the OT and MX districts frontage zone.
Fences and walls	*See* Article 4-7, Fences and Divisional Walls.
Flagpoles, lighting poles, and other poles not otherwise covered in this table	Permitted in any setback, provided that the height of any such pole, except for flagpoles, shall not exceed the distance from the base of the pole to the nearest property line. Flag poles are subject to the height and setback restrictions set forth in Section 6-1-2-3. Amateur radio antennas shall not be located in a front setback.
One accessory building not larger than 600 square feet or an attached garage addition provided that the garage addition will not	Permitted in any side or rear setback in the RN zoning district only, but not closer than 5 feet from any side or rear property line.

Table 2-1-10-1: Permitted Encroachments into Required Setbacks	
Structure or Feature	**Permitted Locations in Setbacks**
result in more than a cumulative total of 600 square feet of attached garage **The encroachment shall apply to the accessory building, or an attached garage addition, but does not apply to both**	
Landscaping, including trees, shrubs, flowers, hedges, and other features	Permitted anywhere in setbacks, subject to city standards governing sight distances. *See* Section 4-4-3-4 Intersection Visibility.
Little Library	If no more than 3 square feet and 5'5 feet high, may encroach into front setback but not closer than one-foot from the front property line or public sidewalk, whichever is closer.
Mini-structures	*See* Section 5-1-4-3, Mini Structures.
Mobility access ramps and lifts for existing single-family detached dwelling units, duplex, and townhomes	Allowed as necessary upon written request to the Director.
Signs	*See* Chapter 6, Signs.
Swimming pools	*See* Section 5-1-4-2 Swimming Pools, Hot Tubs, and Spas.
Air conditioning units	Permitted in side and rear setbacks but not in a front setback.
Counterforts	Permitted in any setback provided it does not encroach more than 5 feet into a front or rear setback and 3 feet into the side setback.
Window wells	Permitted in any side setback provided it does not exceed 15 square feet and does not encroach more than 3 feet into the side lot setback easement.
Window awnings	Permitted in any setback, but not closer than 10 feet from the rear property line or 18 inches from a side property line.
Wireless Communications Facilities	*See* Chapter 7, Wireless Communications Facilities.
TABLE NOTES: **[1] The maximum encroachment noted is measured from the building wall, or in the case of pergolas, carports, or other structures without walls, the maximum encroachment is measured from the vertical structural element such as a post.**	

Table 3-1-2-5: Commercial Land Use by Zoning District																					
Land Use	**Open Space and Residential**						**Mixed-Use**				**Olde Town**							**Commercial and Industrial**			**Reference**
	OS	**RA**	**RN**	**R6**	**R13**	**R24**	**MX-N**	**MX-S**	**MX-U**	**MX-T**	**OT-E**	**OT-EY**	**OT-GV**	**OT-OW**	**OT-RN**	**OT-RR**	**OT-W**	**CG**	**IL**	**IG**	
Animal Day Care / Training		C					L	L	L	L								L	L		3-1-3-5
Animal Hospital (Large Animal)		A																			-
Art Studio / Makerspace		A					A	A	A	A	L	L	L	L	L	L	L	A	A	A	3-1-3-5
Auction House or Yard																			L	L	3-1-3-5
Continuing Care Facility					A	A	A	A	A	A	A	A	A	A		A	A	C			
Kennel		C																	L	A	3-1-3-5
Office, General or							A	A	A	A	A	A	A	A	A	A	A	A	A	A	-

Table 3-1-2-5: Commercial Land Use by Zoning District																					
Land Use	Open Space and Residential						Mixed-Use				Olde Town							Commercial and Industrial			Reference
	OS	RA	RN	R6	R13	R24	MX-N	MX-S	MX-U	MX-T	OT-E	OT-EY	OT-GV	OT-OW	OT-RN	OT-RR	OT-W	CG	IL	IG	
Professional																					
Retail Sales and Services Type 1 [1]							L	L	L	L	L	L	L	L	L	L	L	L	L		3-1-3-5
Retail Sales and Services Type 2[1]								L	L	L								L	L		3-1-3-5
Veterinary Offices or Clinics		C					L	L	L	L	L	L	L	L		L	L	L	L		3-1-3-5
Workshop							A	A	A	A								A	A	A	3-1-3-5
TABLE NOTES: [1] All drive-through facilities are subject to the standards in Section 5-1-6-2, Drive-Through Facilities, which may prohibit a drive-through in certain locations.																					

3-1-3-5 Commercial Standards

A. **Animal Day Care / Training.**

1. In the MX and CG zoning districts, the use shall be located entirely indoors.
2. In the IL zoning district, if the use is located within 300 feet of a residential zoning district, no outdoor activities related to the use shall occur between the hours of 9:00 PM and 7:00 AM.

B. **Art Studio / Makerspace.**

Such use shall not exceed 5,000 square feet unless located within a vertically mixed-use building.

C. **Auction House.**

All business activities shall be conducted within an entirely enclosed building.

D. **Kennel.**

1. In the RA and IL zoning districts, a kennel facility shall be subject to the following:
   a. Outdoor facilities, including outdoor runs, shall not be located within 150 feet of any adjacent residential zoning district.
   b. If the use is located within 300 feet of residentially zoned property, no outdoor activities related to the use shall occur on the subject property between the hours of 9:00 PM and 7:00 AM.
   c. The parts of a building where animals are boarded shall be fully enclosed and shall be sufficiently insulated so no unreasonable noise or odor can be detected off premises.
2. All kennels shall be licensed by the City of Arvada pursuant to Article VIII, "Kennel License," of Chapter 14 of the Arvada Code of Ordinances.
3. A residence for a caretaker is allowed, subject to the requirements of Section 5-1-6-7, Custodial Unit.

E. **Retail Sales and Services, Type 1.**

1. **Retail Sales Uses – General.**

Retail sales uses must take place within a completely enclosed building, except that accessory outdoor display of merchandise, and accessory outdoor customer seating/dining areas are permitted, subject to the following standards:

a. Outdoor display areas must comply with the minimum street setback requirements of the subject zoning district.

b. Outdoor display areas may not occupy or use required parking space or drive aisle unless approved by the Director.

c. Outdoor seasonal temporary sales display requires a temporary use permit.

F. **Retail Sales and Services, Type 2.**

1. **Convenience Lending Operations.**

All convenience lending operations except national banks and those operating as of the effective date of this Code shall comply with the following locational restrictions and standards:

a. It shall be unlawful to operate or cause to be operated a convenience lending operation within 2,500 feet of another convenience lending operation.

b. It shall be unlawful to operate or cause to be operated a convenience lending operation within 300 feet of any residentially-zoned property.

c. The distance between any two such operations shall be measured in a straight line, without regard to intervening structures or objects, from the closest exterior wall of the structure in which each such operation is located, and the distance between a convenience lending operation and a residentially-zoned property shall be measured in a straight line, without regard to intervening structures or objects, from the closest exterior wall of the structure in which the operation is located to the nearest property line of the residentially-zoned property, excluding public street rights of way.

2. **Used Merchandise Stores and Donation Centers (retail, used - primarily donated; retail, used - primarily non-donated; used merchandise donation center).**

a. Used merchandise stores that accept donated goods on the premises and used merchandise donation centers shall:

i. Coordinate delivery and acceptance of donations, during business hours only, either inside the store or center, or outside the store or center as long as donations are moved inside immediately after drop-off;

ii. Sort and store donations only inside the store or center;

iii. Patrol the store or center premises as the need arises to remove any donations left outside after hours; and

iv. Remove donations left outside of the store or center after business hours no later than 7:00 AM the next morning.

b. A used merchandise store shall devote more than 50% of its floor area to retail sales.

c. The arrangement of activities inside a used merchandise store shall be such to preserve a retail character when it is viewed from the outside. Where the building façade includes windows or doors, the areas within the building visible through these openings shall be used for retail sales only.

d. Used merchandise donation centers shall be limited to a maximum gross floor area of 2,500 square feet and a maximum tenant width of 25 feet.

e. Donation boxes, trailers, containers, or other structures intended and utilized as an exterior, stand-alone receptacle or depository for the donation of goods are prohibited.

i. Based upon the generally mobile, temporary, impermanent, and accessory nature thereof, and notwithstanding the provisions of Chapter 9, Nonconformities of this Code, any such box, trailer, container, or structure, or use of such box, trailer, container, or structure, legally established prior to May 12, 2011 shall be permitted to continue in place, but such use, and the lawful status of such structure and use, shall terminate upon the occurrence of any of the following:

a. Any change in tenancy, ownership, or management of the structure or user thereof;

b. Any cessation of such use, or absence of such structure from the premises, for a period of 30 days or more;

c. Any damage or destruction of the structure, by any means, to the extent of more than 50 percent of its structural replacement value prior to such damage or destruction;

d. Any enlargement or expansion of such structure or use;

e. Any alteration (beyond that necessary for routine maintenance and repair) or relocation of the structure on the premises, other than that which, in the sole discretion of the Director, is determined appropriate; or

f. A failure to register the structure or use within the allotted time period, as provided in below.

3. The owner of any such box, trailer, container, or structure legally established prior to May 12, 2011, and the user thereof (if different than the owner), must have registered such structure or use with the Director prior to December 30, 2011.

G. **Veterinary Office or Clinic.**

1. All veterinary offices or clinics shall be subject to the following requirements:

a. All facilities, including all treatment rooms, cages, pens, training rooms, and exercise runs, shall be within a completely enclosed, soundproof building.

b. Short-term overnight boarding associated with the medical treatment and post-operative care of animals shall be allowed, provided such boarding is contained within a completely enclosed building.

H. **Workshop.**

1. The use shall not exceed 5,000 square feet unless located within a vertically mixed-use building.

3-1-3-7 Industrial, Processing, Recycling, Storage, and Disposal Standards

A. **Brewery / Winery / Distillery.**

1. In the MX-S zoning districts warehousing is prohibited.

B. **Heavy Logistic Center Industry**

1. All buildings shall be a minimum of 300 feet from any residential district.

2. Landscaping and barriers shall be provided and located such that no part of parked vehicles will extend beyond the yard space or into the setback space from a lot line abutting a residential lot or separated therefrom by a street.
3. An Option B landscape bufferyard, per Section 4-6-5-3, Bufferyard Options, is required between the use and adjoining right-of-way.
4. Barriers shall be provided and located such that no part of parked vehicles will extend beyond the yard space or into the setback space from a lot line abutting a residential lot or separated therefrom by a street.

C. **Light Industry**.

1. **Bakery.**
   a. In the IL and IG zoning districts, no more than 50 percent of the gross floor area of a bakery shall be devoted to retail sales.
2. **Manufacturing, Light Trade and Technical Uses.**
   a. In the IL and IG zoning districts, the following shall apply:
      i. Loading and unloading of shipments shall be permitted.
      ii. The land uses inside the building shall preserve a commercial, retail or office character viewed from the outside.
      iii. All industry, manufacturing and production uses shall utilize the best industry standard, maintenance, and control available to maintain the lowest possible measurement of emission of odorous gases.
   b. In the MX-N, MX-S, MX-U, MX-T, and CG zoning districts:
      i. Primary manufacturing, processing, and fabrication uses shall be completely enclosed within a building.
   c. In the MX-N, MX-S, and MX-U zoning districts:
      i. If the use is located within 200 feet of a residential district, the use shall not operate between the hours of 9:00 PM and 7:00 AM.
3. **Office, General Contractor.**
   a. Office uses with storage related to construction shall only be permitted in the IL and IG zoning districts, and the following requirement shall apply:
      i. Any outdoor storage area shall be screened with an Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options.
4. **Research, Development, and Testing Laboratories.**
   a. In the CG, IL and IG zoning districts:
      i. Laboratories shall not contain or utilize toxic or explosive materials.
      ii. All facilities shall be completely enclosed.
5. **Warehousing and Distribution.**
   a. In the CG and IL zoning districts, retail sales in conjunction with a permitted warehouse establishment may be allowed subject to the following conditions:
      i. All retail sales shall be conducted within the same structure housing the principal warehouse use, and no outdoor retail sales activity shall be allowed.

ii. Parking for the retail accessory use shall be provided in accordance with the off-street parking standards for retail uses in Section 4-5-2-2, Parking Requirement Tables.

6. **Wholesale Establishments.**

a. Wholesale establishments with stock may be permitted in the IG zoning district except for the following:

i. Live animals;

ii. Commercial explosives;

iii. Flammable or combustible liquids are permitted provided their use, dispensing, mixing, and storage complies with all the requirements of the currently adopted edition of the applicable Building Code, Fire Code, Plumbing Code, Mechanical Code, and National Electrical Code and all applicable State and Federal laws;

iv. Flammable gases are permitted provided their use, dispensing, mixing, and storage complies with all of the requirements of the currently adopted edition of the applicable Building Code, Fire Code, Mechanical Code, Plumbing Code, and National Electrical Code, and all applicable State and Federal laws.

b. Retail sales in conjunction with wholesale establishments may be allowed, provided that:

i. Not more than 20 percent of floor area or sales volume of any individual user or tenant may be devoted to retail operations. Notwithstanding this 20 percent limitation, furniture and carpet wholesalers may have greater than 20 percent of their floor area or sales volume devoted to retail operations.

ii. All retail sales shall be conducted within the same structure housing the principal wholesale use, and no outdoor retail sales activity shall be allowed.

iii. Parking for the retail accessory use shall be provided in accordance with the off-street parking standards for retail uses as set forth in Section 4-5-2-2, Parking - Requirement Tables.

D. **Recycling Drop-Off (Attended).**

1. The facility shop shall be located at least 500 feet from a residential zone district. This requirement may be reduced or eliminated by the Director if the Applicant proves that the proposed use, site design, its traffic generation, and other external effects indicates a reduced separation will have no significant effect on the nearby residential zone district.

2. The use shall comply with the screening and enclosure requirements of Division 5-1-6-3, Outdoor Storage and Outdoor Retail Display.

E. **Resource Extraction (Minerals).**

The following applies in all zoning districts:

1. **Permitting Requirements.**

a. The Applicant shall be responsible for securing all other permits or approvals required by any other governmental agency that may have jurisdiction over the proposed use.

b. It shall be unlawful for any person, firm, or other entity to process, crush, blast or similarly treat earth materials on any approved borrow pit site.

c. In addition to the standards specified in this Section and in Chapter 2, Zoning Districts of this Code, the proposed use shall be evaluated using the applicable standards that the state or federal government use to evaluate a permit request for the specific use. Additionally, all annual or other reports required by another governmental agency shall be simultaneously submitted to the City.

2. **Mining Operations.**

a. Mining equipment, except for reservoir construction equipment, shall be considered mechanical equipment and, in lieu of the screening standards set forth in Article 4-6, Landscaping and Buffering, such equipment shall be subject to the following requirements:

i. All mining equipment and operation areas shall be screened from sight from adjacent properties or right-of-way by the use of berms or by other equivalent means; and

ii. All mining equipment shall be located behind building setback lines.

b. All roadways longer than 100 feet used for ingress and egress from the public roadway to the area of mining operations shall be cleaned and maintained to minimize the fugitive dust which is generated by vehicles.

c. All mining operations, except for reservoir construction, shall be at least 200 feet from the property line. No open pit mine shall be deeper than 200 feet. No reclaimed open pit mine shall be left deeper than 100 feet.

d. No finished grade shall exceed slopes of one foot of rise in three feet of horizontal distance. A diverse permanent vegetative cover shall be established on all disturbed areas to achieve erosion control equal to pre-mining levels. The cover shall be predominantly of native species. Disturbed areas shall be kept to a minimum. Reclamation shall commence within one growing season after slopes reach final grade.

e. Mining, processing, or transporting operations, except for reservoir construction, shall be within the time limits of 7:00 a.m. to 6:00 p.m., with no operations on Sunday. Maintenance operations are not subject to this provision.

f. The use of explosives is subject to all state and federal standards and restricted to a maximum of five calendar days per year. All blasting shall be conducted in a manner which will not cause a peak particle velocity on any adjacent property which exceeds one-half inch per second. A blast over pressure shall not exceed 130 db peak measured at 6 Hz or lower flat response at the property line.

g. Quarrying of hard rock aggregate is prohibited.

h. Sediment caused by accelerated soil erosion shall be removed from runoff water before leaving the site. Runoff shall not be discharged from the site in quantities or at velocities above those occurring before mining.

3. **Exempt Activities.** The following burrowing and hauling of earth material may be done without obtaining a conditional use permit from the City:

a. Minor projects which have cuts or fills each of which is less than five feet in vertical depth at its deepest point measured from the existing ground surface, which include the following:

i. Less than 50 cubic yards of earth material; or

ii. The removal of less than 10,000 square feet of vegetation.

b. Minimum excavation required in connection with a building or other structure authorized by a valid building permit.

c. Grading work being done pursuant to an approved grading plan in conjunction with an approved recorded plat, development plan or over lot grading plan being done on the same property.

d. Trenching incidental to the construction and installation of approved underground pipeline, septic tank, disposal lines, electrical or communication facilities, and drilling or excavation for approved wells or fence posts.

e. Grading or excavation in accordance with plans incorporated in an approved conditional use permit.

f. Maintenance and cleaning of ditches, lakes, ponds, and water storage reservoirs.

F. **Resource Extraction (Oil and Gas).**

1. Reserved.

G. **Salvage Yard.**

1. The following applies:

a. Salvage yards shall not be located on property adjacent to any of the following streets:

i. 52nd Avenue;

ii. 60th Avenue;

iii. Lamar Street; and

iv. Sheridan Boulevard.

b. The use shall not be located closer than 25 feet to an adjacent street right-of-way.

c. The subject property shall be surrounded by an Option C or D buffer, per Section 4-6-5-3, Bufferyard Options.

d. Best management practices for stormwater quality must be implemented and maintained on-site.

H. **Self-Storage.**

1. The following shall apply to all Self-Storage facilities:

a. Public access to any storage unit within 150 feet of any residential zoning district or lot containing a residential use in any mixed-use zoning district is not allowed between 10:00 PM and 7:00 AM.

b. The use is not allowed at the intersection of two arterial streets.

c. Self-storage facilities are subject to the design standards in Section 5-1-2-8, Industrial, Self-Storage, or Distribution.

2. In the MX-S and CG zoning districts:

a. All storage shall be within a building, and access to individual storage units shall be from interior corridors. Storage units with access from the exterior building may be permitted on non-street frontage facades. No outdoor storage of goods or vehicles is allowed.

b. The use shall be located a minimum of 150 feet from any residential zoning district.

3. In the IL and IG zoning districts:

a. The use may have multiple buildings with storage units and / or storage units in free-standing buildings.

b. Doors to individual storage units shall not be directly accessible from any street frontage.

c. Individual storage units shall face the interior of the site. This does not apply to storage units within an enclosed structure.

d. A residence for a caretaker is allowed, subject to the requirements of Section 5-1-6-7, Custodial Unit.

4. Operation and Activities.

a. The incidental retail sale of products associated with the business (e.g., boxes, moving supplies) is allowed.

I. **Storage Yard.**

1. In the IG zoning districts:

a. The use shall not be located closer than 25 feet to an adjacent street right-of-way.

b. No storage or accumulation of waste products, including paint, stain, oils, grease, or other flammable, toxic, or hazardous materials, or stagnant water, shall be permitted as part of any storage yard use if they exceed the currently adopted fire code requirements. Flammable liquids or gases in excess of 1,000 gallons shall be stored underground.

c. Suitable containers for rubbish shall be placed on the premises. *See* Section 5-1-6-5, Trash Collection and Compaction.

d. There shall be at least one 24 feet access drive that shall be wide enough to accommodate two vehicles side-by-side.

e. No storage yards shall be located closer than 300 feet from any lot line that abuts a residential zoning district or single-family detached residential uses in unincorporated Jefferson County.

f. In areas that adjoin a residential use, there is no height limit on the outdoor storage provided that the storage yard is screened from view from the closest point of the adjacent residential structure or right-of-way.

g. Permitted hours of operation shall be 7:00 AM to 7:00 PM.

h. There shall be no height restriction for machinery, vehicles, and cranes licensed, leased, and/or titled to a business conducted on the property.

i. Storage of customer vehicles for a period not to exceed 90 days is exempt from the screening height restrictions.

J. **Waste Removal Fleet Storage and Administration.**

1. In the IL and IG zoning districts:

a. The use shall not be located closer than 25 feet to an adjacent street right-of-way.

b. No storage yards shall be located closer than 300 feet from any lot line that abuts a residential zoning district or dwelling unit.

c. Permitted hours of operation shall be 7:00 AM to 7:00 PM.

K. **Waste Transfer Station.**

1. In the IG zoning district:

a. The use shall not be located within one-half mile of a residential zoning district.

b. The subject property shall be surrounded by an Option C buffer, per Section 4-6-5-3, Bufferyard Options.

3-1-3-8 Motor Vehicle Use Standards.

A. **Fueling / Service Station.**

1. **Fueling / Service Station Requirements**

a. When permitted:

i. The use shall be located within 660 feet of an intersection of arterial streets unless it is associated with a retail use (e.g., a grocery store or warehouse club) that is at least 45,000 square feet in floor area.

ii. No more than two service stations or convenience stores with fuel sales may be located within 660 feet of a single Arterial/Arterial intersection. Where more than two service stations or convenience stores exist at the time of the adoption of this Code, they shall be considered an allowed use.

iii. Vehicle access to such uses shall be limited to a maximum of one curb cut per street frontage.

iv. On-site vehicle access and circulation shall be designed so that adjacent residential uses or properties are not disturbed, either by day or night, by the movement of vehicles or the lights from vehicles.

v. Fueling pump canopies shall comply with the requirements of Subsection 5-1-2-3-C-9, Canopies and Port-Cochères.

vi. In the MX-S, MX-U and MX-T zoning districts, options for the site design of the fueling / service station are set out in Subsection 4-3-3-4F, Fueling / Service Station Site Design.

vii. A service station with a convenience store shall provide adequate space to allow a minimum of three cars to stack in a line for fuel dispensing services without using or obstructing any portion of an adjacent public sidewalk or right-of-way.

2. **Minimum Lot Dimensions.**

i. Minimum lot area: 12,000 square feet.

ii. Minimum lot width (street frontage): 120 feet.

iii. Limits on Number of Service Bays and Pump Islands. A service station or convenience store with fuel sales may have a maximum two service bays and two pump islands on a 12,000 square foot lot. One service bay or one pump island may be added for each additional 2,000 square feet of lot area, provided that the total number of service bays shall not exceed five per lot and the number of pump islands shall not exceed five per lot.

3. **Building and Equipment Setbacks and Buffers.**

i. Fuel pumps, pump islands, detached canopies, compressed air connections, and similar equipment, shall be set back a minimum of 40 feet from all street rights-of-way and from all property lines abutting a residential zoning district or a parcel containing residential uses.

ii. When the service station use abuts a residential zoning district, use, or property, an Option C or D buffer shall be required, per Section 4-6-5-3, Bufferyard Options.

4. **Service Station with Vehicle Repair.**
    a. When permitted:
        i. Hydraulic hoists, pits, and all lubrications, greasing, automobile washing, or repairing equipment shall be entirely enclosed within a building. When any such building or portion of a building faces, abuts, or is adjacent to residentially zoned property, the closest, adjacent building wall or face shall consist of a solid blank wall with no openings other than those required by applicable building codes.
        ii. All repair work, vehicle washing, lubrication, and installation of parts and accessories shall be wholly performed within an enclosed building or structure.
        iii. All vehicle parts, dismantled vehicles, and similar materials, and all discarded materials such as tires, cans, and drums, shall be stored within an enclosed building or totally screened from view by a solid, opaque fence. *See* Division 4-7-2, Fences and Divisional Walls for acceptable fence/wall materials.
        iv. All vehicles awaiting repair shall be stored onsite in approved parking spaces and under no circumstances shall such vehicles be stored outside in an inoperable condition or stored on or obstruct access to a public right-of-way.

B. **Motor Vehicle Repairs and Service, Heavy.**
1. When permitted:
    a. All repair and vehicle storage shall be completely enclosed within a building.
    b. An Option B buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and adjoining right-of-way.
    c. An Option C or D buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district or MX with residential uses.
    d. Overhead bay doors that face residential zoning districts shall be set back at least 60 feet from the residential zoning district boundary.
    e. The use shall not operate between 7:00 PM and 7:00 AM if it is located within 300 feet of a residential zoning district, measured from the outside building wall that encloses the use to the zoning district boundary.

C. **Motor Vehicle Repairs and Service, Light.**
2. In the MX-N, MX-S, CG, and IL zoning districts:
    a. All vehicle repair uses shall be conducted within a completely enclosed building.
    b.
    ~~b.~~ The use shall not operate between 7:00 PM and 7:00 AM if it is located within 300 feet of a residential zoning district, measured from the outside building wall that encloses the use to the zoning district boundary.
    c. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options is required between the use and any adjoining residential zoning district.
    ~~c.~~d. Storage of vehicles on the premises shall not exceed 15 days.
    ~~d.~~e. Open storage of wrecked or inoperable cars, discarded tires, auto parts, or similar materials shall be prohibited.
    ~~e.~~f. Garage bays shall not face a street.

~~B.~~D. **Motor Vehicle Storage.**
1. In the IL and IG zoning districts;

a. An Option B landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and adjoining right-of-way.

b. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district.

c. The use shall be located behind the principal building, unless the stored motor vehicles are inventory that is for sale or for rent.

~~C.~~E. **Motor Vehicle Towing Services.**

1. In the IL and IG zoning district:

a. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the yard and adjoining right-of-way and any adjoining residential zone district.

b. Vehicular ingress-egress shall be limited to one point for each side of property abutting any street.

c. All vehicles and activities not within fully enclosed buildings shall be enclosed by a solid fence or wall at least six feet in height, including point of ingress or egress.

d. No vehicle repair, maintenance, or body work shall take place.

2. In the IL zoning district:

a. The site shall not be more than two acres in size.

~~D.~~F. **Motor Vehicle Wash.**

1. Motor vehicle wash facilities including automotive detail facilities shall comply with the following conditions:

a. **General Requirements.**

i. A motor vehicle wash facility is prohibited at the intersection of two arterial streets, unless it is located in a center occupying at least two acres and containing other commercial establishments occupying at least 12,000 square feet gross floor area.

ii. The motor vehicle wash facility, including all driveways, entrances and appurtenant structures, must be set back a minimum of 20 feet from any adjacent street. The entire 20-foot setback must be landscaped to provide a buffer from adjacent streets.

iii. No motor vehicle wash facility shall be located on a corner lot.

b. **Open Bay Motor Vehicle Wash Facility.**

i. No new motor vehicle wash facility may be located within one-half mile of any other existing motor vehicle wash facility having two or more car wash bays within the city limits of Arvada.

c. **Enclosed Motor Vehicle Wash Facility.**

i. All enclosed motor vehicle washing bays must have bay doors. No bay door shall face the adjacent street or an adjacent residential district.

ii. All enclosed motor vehicle wash facilities must be self-contained, except those services such as drying, polishing or vacuuming which may be performed outdoors. Exterior vacuums must have the machinery located within the main wash building with only vacuum hoses located outside.

~~E.~~G. **Parking Lot Surface, Stand-Alone.** Where identified as a conditional use, a stand-alone surface parking lot shall be subject to the following requirements:

1. A stand-alone surface parking lot shall not front an arterial or collector street.

2. The stand-alone surface parking lot shall meet all the landscaping requirements of Article 4-6, Landscaping and Buffering.

~~2.~~3. A stand-alone surface parking lot associated with an adjacent primary use shall also comply with the requirements of Section 4-5-3-4, Off-Site Parking.

~~F.~~H. **Parking Garage, Structured.** Refer to Section 5-1-6-8.

~~G.~~I. **Vehicle Equipment Sales or Rentals.**

1. **Vehicle Sales and Rentals.**
   a. In the MX-S, MX-U, MX-T, CG, and IL zoning districts:
      i. All vehicles used for sales display or inventory must be stored indoors.
      ii. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district.
      iii. Overhead bay doors that face residential zoning districts shall be set back at least 60 feet from a residential zoning district boundary.
   b. In the MX-T zoning district, only automobile rentals shall be permitted and only in principal hotel and motel uses with surface parking limited to a maximum number of 10 parking spaces dedicated to the use.
2. **Equipment Sales and Rentals.**
   a. In the MX-S, MX-U, MX-T, CG, and IL zoning districts:
      i. An Option C or D landscape buffer, per Section 4-6-5-3, Bufferyard Options, is required between the use and any adjoining residential zoning district.
      ii. Overhead bay doors that face residential zoning districts shall be set back at least 60 feet from the residential zoning district boundary.

3-1-4-5 Food and Retail Truck Vending

A. **Generally.** Food and retail truck vending is allowed as provided in this Section.

B. **Where Permitted.**

1. Food and retail truck vending is permitted in the following areas and under the following circumstances:
   a. On private property as provided in Section 3-1-4-2, Temporary Uses by Zoning District;
   b. In any park or public space (regardless of zoning district), if approved by the governmental entity exercising ownership or control thereof; and
   c. In a public street right-of-way (regardless of zoning district), subject to the limitations established in Subsection D.2., below.
2. Notwithstanding any provision herein to the contrary, allowing food and retail truck vending in a park, public space, or public street right-of-way shall be in the sole discretion of the governmental entity exercising ownership or control thereof.

C. **Permit Required.** Except as otherwise provided herein, no person may engage in activities of food or retail truck vending without first obtaining a City of Arvada business license and a Food Truck Permit for food vendors or a Retail Vending Truck Permit. The approved temporary use permit shall be permanently displayed to the public in the food handling area of the food truck vending operation or in the retail area of a retail vending truck.

D. **Standards.** The following rules and requirements shall apply to all food and retail truck vending:

1. Hours of Operation. Hours of operation shall be between 6:00 a.m. and 11:00 p.m. unless a different time is specified in the temporary use permit.
2. Location.
    a. Operations shall not obstruct the visibility of motorists, nor obstruct parking lot circulation or block access to a public street, alley, or sidewalk.
    b. Operations shall be located at least 50 feet from any residential ~~zoning district~~use or mixed-use ~~zoning districts~~buildings where residential units are on the first floor as measured from the closest point of the food truck to the nearest property line of the residential unit, except as may otherwise be permitted pursuant to subsection B.1.c., where permitted above.
    c. Food and retail trucks may operate on private property provided they meet the following requirements:
        i. The operator must obtain prior written permission from the private property owner.
        ii. The food or retail truck must be parked on a paved surface outside of the public right-of-way.
    d. Operations are prohibited on public street rights of way, except for the following:
        i. Food and retail truck vending may be allowed in a public street right-of-way closed to vehicular traffic when a Special Event Permit has been issued for a special event requiring such closure.
3. Refuse.
    a. Operators shall be responsible for the storage and daily disposal of all trash, refuse, and litter. All areas used for food and retail trucks shall be maintained in a safe and clean condition.
    b. Operators shall not cause any liquid wastes used in the operation, with the exception of clean ice melt, to be discharged from the vehicle or structure.
    c. The food and retail trucks shall not be washed on location.
4. Health Department Certificate.
    a. Operators shall obtain a Health Department Certificate required by the Colorado Department of Public Health and Environment and other state and local agencies to operate a mobile retail food establishment.

3-1-5-3. Short-term rentals.

A. *License Required.* Short Term Rental is prohibited within the City unless a license has been duly issued therefore pursuant to this Section 3-1-5-3 and in compliance with the Code, including without limitation, Chapter 98, Article V, Division 2, Lodging License.

B. *Application.*

1. *Requirements.* An application for a license shall be submitted to the Director and shall be signed by the fee owner of record of the property to be licensed or an individual authorized in writing by the fee owner of record. All license applications shall be submitted on a form supplied by the Director, which shall include such information as is reasonably necessary for the Director to act on such application, together with an application fee as authorized under Section 74-31 of the Code. The applicant must

specify which portions of the Dwelling Unit, Dwelling Unit or Accessory Dwelling Unit, Residential ("ADUR") will constitute the licensed premises available for use by renters. A license is not valid until the application fee is paid and accepted by the City.

2. *Certification.* The applicant shall self-certify that the information on the application is accurate and truthful under penalty of perjury under the laws of the State of Colorado. Applicants shall inform the Director in writing of any material change to the information submitted on an application for a license within 30 calendar days of such change.

C. *Term of License and Renewal.* ~~An application fee shall be received by the City prior to issuance of a license.~~ Licenses issued pursuant to this Section shall be valid for a period of one calendar year from the date of issuance. Licenses must be renewed annually. Applications for renewals of a Short Term Rental license are subject to all application, fees, licensing, and operation requirements set forth in this Section that apply to new licenses. In the Financial Officer's discretion, after consultation with the Director, the Financial Officer may impose conditions upon a license at the time of renewal to address non-compliance with the terms of the license, the provisions of this Section, or any other applicable provision of federal, state, or local law. Failure to comply with such conditions may result in suspension, revocation, or non-renewal of the license.

D. *License Regulations.*

1. *Compliance.* The licensee shall comply with all applicable Code provisions and state and federal law including, but not limited to, Chapter 18, Buildings and Building Regulations, ~~and~~ Chapter 38, Article III, Nuisances, and Chapter 98, Taxation.

2. *Restrictions.* The licensee shall ensure that renters of a Short Term Rental Unit shall only be allowed access to the portions of the Dwelling, Dwelling Unit or ADUR identified in the license.

3. *Local Contact Person.* The licensee must designate on the application a local contact person who shall be available to respond to the property within one hour of being notified by the city of a complaint about the condition of the property or the conduct of short term tenants. The local contact person must be available to respond as set forth herein 24 hours per day, seven days per week during any term the Short Term Rental Unit is occupied by or rented to a short term tenant, must be able to provide access to the licensed premises, and must be authorized to make decisions about the licensed premises. Should the person designated as the local contact person change, the licensee must, within seven days of the change, update the license on file with the city.~~During the term that a Short Term Rental Unit is occupied by a short-term tenant, the owner and/or the local contact person designated by the owner shall be available 24 hours per day, seven days per week, for the purpose of responding within one hour to complaints regarding the condition or operation of the Short Term Rental Unit or the conduct of short term tenants. If the local contact person designated by the owner changes, then the owner shall update the license on file within five business days. For the purposes of this section, "local contact person" means an individual located within 30 miles of the Short Term Rental Unit, during the entire length of the Short Term Rental period, who has access to the licensed premises and is authorized to make decisions regarding the licensed premises.~~

4. *Brochures.* Each Short Term Rental Unit shall provide two brochures to its guests:

   a. The first brochure shall include the licensee's contact information, the local contact party's contact information, and any necessary emergency contact information. The brochure shall also provide information pertinent to the neighborhood where the Short Term Rental Unit is located including, but not limited to, parking restrictions, trash collection schedule, relevant water restrictions, fire evacuation routes, and any other information, as required by the Director, applicable to the Short Term Rental Unit and the surrounding neighborhood.

   b. The second brochure will be provided by the City and include relevant local ordinances, rules, and regulations that apply to all residences in the City. The licensee must display the City's brochure in each Short Term Rental Unit as it is made available and updated by the City.

E. *Licensing Requirements.*

1. *Number of Short Term Rentals Units per lot.* Licensees are limited to one Short Term Rental Unit per property. If a lot contains more than one legal Dwelling, Dwelling Unit or ADUR, only one Dwelling, Dwelling Unit or ADUR on such lot is eligible for licensure as a Short Term Rental Unit.

2. *Permitted structures.* Short Term Rental Units are allowed in primary and accessory structures with finished living space. All structures shall comply with the regulations for primary and accessory structures, including maximum size, height, lot coverage, and setbacks, for the property's zoning district. In the case of a multifamily property, the ~~property owner~~licensee is allowed one Short Term Rental Unit. In the case of condominiums or buildings held in similar common ownership, each ~~owner~~ licensee shall be limited to one Short Term Rental Unit per property.

3. *Reservations.* Only one Short Term Rental reservation to one party at a time is allowed.

4. *Parking requirements.* One additional on-site parking space shall be required if a portion of a primary structure is used for Short Term Rental.

~~5.~~ *Safety requirements.* Each Short Term Rental Unit shall be equipped with an operational smoke detector, carbon monoxide detector, and fire extinguisher on the licensed premises. ~~The Director or his or her designee may inspect the Dwelling, Dwelling Unit or ADUR prior to issuance of a license and during the term of any license issued to verify compliance with such requirements, Code provisions and state and federal law. Refusal by the applicant to allow such inspection shall be grounds for denial, non-renewal or revocation of a license.~~

6. *Occupancy.* The occupancy of a Short Term Rental Unit shall not exceed the total number of unrelated persons that are otherwise permitted to occupy property in the City.

7. *Prohibited uses.* Use of the Short Term Rental Unit for any commercial or large social events or gatherings, such as weddings, is prohibited.

8. *Trash collection.* The ~~owner~~ licensee shall maintain weekly residential trash collection services for the Short Term Rental Unit.

~~9.~~ *Number of days in use.* No Short Term Rental may be occupied by guests for more than 240 days in any 365 day period.~~The maximum number of days per calendar year that a Short Term Rental may be occupied by guests is 240~~. Upon renewal of the license~~By December 31st of each calendar year~~, the ~~Owner~~ licensee shall provide to the City the number of days that the Short Term Rental was occupied by guests during the previous 365 days. The ~~Owner~~ licensee shall certify that the number reported is accurate.

10. *Number of Short Term Rentals per ~~Owner~~Licensee.* No applicant may operate more than three individual properties as short term rentals within the City at any one time. Licensee shall certify compliance with this requirement on each application submitted to the City. ~~By December 31st of each calendar year, the Owner shall certify that the number operated is in accordance with this regulation~~.

F. *Refusal to Grant, Suspension, Revocation, Nonrenewal of License.* The Director may refuse to grant an initial license, or suspend, revoke, or not renew any license requested or issued pursuant to this Section if the Director determines that any of the following have occurred: (i) fraud, material misrepresentation or false statement in the initial application for the license or any renewal application; or (ii) failure to comply with the terms or conditions of the license, the provisions of this Section, or any other application provision of federal, state, or local law including, but not limited to, the Arvada City Code.

1. *Authority.* In addition, ~~f~~ the Director may ~~finds that a violation of any provision of this Section exists, the Director, after notice to the licensee, may take any one or more of the following actions to remedy the violation:~~

~~a. Impose a civil penalty according to the following schedule:~~

~~(i) For the first violation of the provision, $150.00;~~

~~(ii) For the second violation of the same provision, $300.00; and~~

(iii) For the third violation of the same provision, $1,000.00.

~~b. Revoke the license;~~

c. Issue any order reasonably calculated to ensure compliance with this Section.

2. *Remedies.* The Director's authority under this Section is in addition to any other authority the Director has to enforce this Section, and election of one remedy by the Director shall not preclude resorting to any other remedy as well.

a. The Director shall not accept a new application from the same licensee for the same Dwelling, Dwelling Unit or ADUR after revocation of a license:

(i) For at least one year following the revocation; and

(ii) Unless the applicant demonstrates compliance with all applicable laws and licensing requirements.

~~3. All licensed premises shall be subject to inspection by the Director or his or her designee for the purpose of investigating and determining compliance with the requirements for any license issued under this Section. Where any part of the licensed premises consists of a locked area, such area shall be made available for inspection as provided hereunder, without delay, upon request. Refusal to allow an inspection may result in the license being revoked subject to the following Subsection 5.~~

3~~4~~. *Appeal.* An applicant or licensee may appeal any decision to refuse to grant, not renew, or suspend his or her ~~application or~~ license to the City Manager within 14 ~~consecutive calendar~~ days from the City providing notice of the decision. The City Manager's decision shall be final.

4~~5~~. *Administrative Hearing.* A~~n applicant~~licensee may appeal any decision to revoke his or her license through the City's Administrative Hearing procedure as provided in Chapter 2, Article V, Division 3 of the Arvada City Code. The a~~A~~ppeal~~s~~ must be received within 14 ~~consecutive calendar~~ days from the City providing notice of the revocation.

G. *Administration.* The Financial Officer and Director shall administer the provisions of this Article and are authorized to jointly promulgate rules and regulations for its administration and implementation.

1. *Authority to inspect.* The Director or his her designee may inspect the property, dwelling, dwelling unit, or ADUR prior to the issuance of a license or a license renewal and at any point during the duration of the Short Term Rental license term to ensure compliance with the provisions of this Section or with any other applicable local, state, or federal laws. The Director or his or her designee may inspect the licensed premises for the purpose of investigating and determining compliance with the requirements for a license issued under this Section, the provisions of this Section, or with any other applicable local, state, or federal law. Where any part of the property, dwelling, dwelling unit, ADUR, or licensed premises consists of a locked area, such area shall be made available for inspection as provided hereunder, without delay, upon request. Refusal to allow an inspection may result in the non-issuance of a license, or in the suspension, revocation, or non-renewal of the license for that licensed premises.

2. *Violations and Penalty.* It shall be unlawful for any person to violate a provision of this section. Violators shall be subject to the penalties as contained in section 1-5 of the Arvada City Code and may also be subject to civil remedies. A separate offense shall be deemed committed upon each day such person is in violation of this chapter unless otherwise provided in this chapter.

4-2-1-4 Subdivision Requirements and Standards

A. **General Requirements.**

1. Every subdivision shall comply with applicable zoning district, design and development standards in this LDC.

2. Every subdivision shall comply with all other ordinances and regulations of the City of Arvada.
3. Public infrastructure shall be constructed in accordance with the City of Arvada Engineering Code of Standards and Specifications as approved by the Director.

B. **Minimum Standards.** The standards in this Article are minimum standards. The City may impose more restrictive standards when it finds that they are necessary to conform the design of a proposed subdivision to sound engineering or design standards or other standards in this LDC.

C. **Buildable Lots.** All lots created through the subdivision process shall be developable and conform to the minimum zoning, development, and floodplain standards in this LDC. No subdivisions shall create lots that prohibit development due to configuration of the lots, steepness of terrain, location of watercourses or floodplain, natural physical conditions, or other existing conditions.

D. **Layout and Design.** The design and layout of the lots shall be dependent upon topography, natural vegetation, soil conditions, drainage, street traffic, or other conditions. The following standards shall apply to:

1. A subdivision of two or more lots;
2. A division of a lot; or
3. Combining lots.

E. **Lot Size and Configuration.**

1. **Lot Area.** The minimum area and dimensions of all lots shall conform to the requirements of the zoning districts and development standards relating to the zoning district in which the lot is located. *See* Chapter 2 of this Code.
2. **Lot Lines.** Side lot lines shall be substantially at right angles or radial to street lines, except where other terrain makes such design impractical.
3. **Double Frontage Lots.**
    a. Double frontage lots are discouraged in new subdivisions except where necessary to provide separation of residential development from parkways and arterials, or to overcome specific disadvantages of topography and orientation.
    b. If approved, double frontage lots shall have an average lot depth of not less than 130 feet.
    c. Unless waived by the Director, the owner / developer shall construct fences along the rear of double frontage lots. Such fences shall be six feet high, and composed of cedar picket fencing with brick posts not more than 60 feet apart, unless an alternate design or material is approved by the Director.
4. **Flag Lots.** Flag lots and other irregularly shaped lots are discouraged in new and existing subdivisions.
5. **Corner Lots.** Corner lots may be required to be wider than interior lots to provide for setback requirements.

F. **Drainage.** Lots shall be designed and located to provide positive drainage away from all buildings, shall comply with the standards in Division 4-1-3, Stormwater and Drainage Control, and shall allow for the infiltration of storm water runoff to the maximum extent feasible.

G. **Access.**

1. Every residential lot shall abut a public or private street or access easement. Access to residential lots shall be from local streets except as specifically authorized by the Director.

2. For subdivisions, at least two points of vehicular access into a proposed subdivision shall be provided, where feasible, unless it can be shown to the satisfaction of the Director that legal, topographical, and / or engineering constraints preclude such access. The Director may allow for additional access supported by traffic impact study and meets all other design criteria.
3. For lot splits, shared common access shall be provided to the maximum extent practicable.

H. **Block Layout and Length.**

1. Blocks shall normally be at least 400 feet in length and not more than 1,200 feet in length. The Director may approve a shorter or longer block length when necessary to accommodate natural features such as steep slopes, environmentally sensitive lands, and pedestrian linkages.
2. Block lengths and widths shall be suitable for the uses contemplated and the zoning requirements pertaining to minimum lot sizes and dimensions.
3. In blocks over 1,000 feet long, pedestrian, bicycle, and equestrian crosswalks may be required. Said crosswalks shall normally require a six and one-half foot width.
4. Blocks along designated or planned parkways or arterial streets shall not be less than 660 feet in length, unless approved by the Director.

I. **Street Design.** All public and private streets shall comply with the Article 4-4, Access, Circulation, Mobility, and Utilities, City of Arvada Engineering Code of Standards and Specifications, and the following standards:

1. **Coordination of Streets.**
   a. All new collector and local streets shall connect with surrounding streets at safe and convenient locations as required by the Director to allow convenient movement of traffic and reasonable access for emergency vehicles.
   b. When connections to surrounding streets are proposed or required by the City, public right-of-way shall be dedicated and streets developed to existing paved rights-of-way.
   c. When developing adjacent to an existing RA orRN-32.5 zoning district where there is no paved street between the subdivision and an existing paved street, an interim street, improved in accordance with local street standards, shall be constructed by the Applicant for developments with densities in excess of one residential unit per acre of land.
   d. Whenever possible, proposed intersections along one side of a street shall coincide with existing or proposed intersections on the opposite side of such street. Where a centerline offset (jog) occurs at an intersection, the distance between centerlines of the intersecting streets shall be not less than required by the City of Arvada Engineering Code of Standards and Specifications.
   e. The street pattern shall not cause adjacent property to be landlocked nor prevent access to public land.
2. **Street Intersections.**
   a. Streets shall be arranged in relation to existing topography to produce streets of reasonable gradient to facilitate adequate drainage and to produce desirable lots of maximum utility.
   b. Where a subdivision abuts or contains the right-of-way of a drainage way, a limited access highway, or an irrigation ditch, or abuts a commercial or industrial land use, the Director may require the location of a street approximately parallel to and on each side

of this right-of-way at a distance suitable for appropriate use of the intervening land. This distance shall be determined with due regard for approach grades, drainage, bridges or future grade separations.

3. **Street Design Standards.**
   a. Streets shall be related appropriately to the expected use of the property. Minimum requirements for street right-of-way, pavement width, and other standards for public and private streets are set forth in the City of Arvada Engineering Code of Standards and Specifications.
   b. Other designs and materials may be required for the construction of streets, curbs, and sidewalks when, in the determination of the Director, such methods would be more environmentally desirable or more in keeping with the design of the development or neighborhood.
   c. Turnarounds shall be provided at the ends of cul-de-sacs and at elbows on one-way streets. Turnarounds shall meet the minimum requirements of the Fire Protection District.

J. **Street Naming and Traffic Control Signs.**
1. **Continuation of Existing Names.** The City will assign a name subject to final plat, site plan or final development plan approval.
2. **Street Signage.**
   a. All streets in a subdivision shall be named and identified by signs installed at every street intersection.
   b. These signs shall be standard street signs as indicated in the current edition of the Manual on Uniform Traffic Control Devices.
   c. All traffic control signs, as well as street name signs, required in a subdivision shall be provided and installed by the City at the expense of the subdivider in conformance with the current edition of the Manual on Uniform Traffic Control Devices, and any relevant Colorado state supplements.

K. **Sidewalks, Trails and Bicycle Paths.**
1. **General Requirements.**
   a. The layout and design of an interconnected system of sidewalks, trails, and/or bicycle paths shall be consistent with the City of Arvada Transportation Plan and Bicycle Plan, as amended, and all other adopted plans and policies.
   b. All subdivisions shall comply with the development standards set forth in Section 4-4-2-1, Pedestrian and Bicycle Access and Circulation.
   c. All subdivisions shall include an interconnected system of sidewalks, trails and or bicycle paths that directly connects to all uses, lots, open space areas, and parks.
2. **Trails.**
   a. The owner/developer shall provide and construct pedestrian, bicycle, or equestrian trail rights-of-way in compliance with Section 4-4-2-1, Pedestrian and Bicycle Access and Circulation, and Section 8-4-3-6, Park and Trail Dedications and Fees-in-Lieu. Additional trail rights-of-way may be required where necessary for access to parks, schools, shopping areas, or other community facilities.
   b. Trails shall be eight feet wide, unless a wider trail is required by the City. All trails between lots shall be located within a minimum 40-foot wide landscaped strip, which

40-foot wide strip may be dedicated to the City or set aside as private, amenitized ~~common open space~~landscape surface area.

4-2-2-1 Cluster Subdivisions

A. **Generally.** This Division provides optional standards for cluster subdivision development to create more compact development in order to preserve and protect sensitive lands, create ~~common open space~~amenitized landscape areas, and to implement the Comprehensive Plan and/or adopted specific area plans. A cluster subdivision is a residential or mixed-use subdivision in which some or all of the lots are allowed to be smaller (in area and width) than otherwise required for the underlying zoning district, in exchange for permanent protection of sensitive lands and/or ~~common~~ open space.

B. **Zoning Districts Where Allowed.**

1. The cluster subdivision option is available in the R6, R13, and R24 zoning districts.

C. **Minimum Parcel Size.** The minimum parcel size for a cluster subdivision shall be three acres.

D. **Cluster Subdivision Development Standards.**

1. All other standards in the LDC shall apply to cluster subdivisions unless modified by this Section.

E. **Identification and Maintenance of Protected Lands.**

1. Protected lands as defined in Section 4-1-4-2, Limits of Development, shall be identified on the final subdivision plat with a notation that indicates that those lands shall not be used for future development.
2. Protected lands shall be identified with appropriate permanent signage markers in order to distinguish these areas from private lots.
3. Protected lands shall be permanently maintained and preserved as:
    a. Open space tracts with deed restrictions;
    b. Land dedicated to the City;
    c. Land protected through a conservation easement; or
    d. Land protected by other means approved by the City.
4. For any protected land not dedicated to the City, the developer shall provide a permanent mechanism acceptable to the City Attorney for the primary purpose of conservation, preservation, and management of protected lands.
5. There shall be no further subdivision of land in an area approved for cluster subdivision; however, dedication of easements for public purposes may be permitted.

F. **Use of Protected Lands.**

1. Protected lands shall be left in an undisturbed natural state or landscaped pursuant to Section 4-6-5, Landscape Areas and Bufferyards.
2. The protected lands shall be used for low-intensity recreation, agriculture, buffers, critical wildlife habitat, or other passive park or open space purposes.
3. The use of protected lands may be further limited or controlled at the time of final approval where necessary to protect adjacent properties.

G. **Review and Approval of Cluster Subdivisions**.

1. The review and approval of cluster subdivisions shall follow the procedures for preliminary and final plats. The applicable procedure is dependent on the number of lots proposed in the cluster subdivision.

4-3-2-2 Landscape Surface Area

Generally. Development shall be designed with landscaped areas that support the resource values of the natural open space in terms of its ecological function (e.g., habitat, water quality enhancement, energy efficiency, etc.), aesthetic contribution, recreational value, and buffering value in accordance with Article 4-6 Landscaping and Buffering.

Site Design. Site design shall be organized to include, protect or enhance the natural open spaces areas and landmark features of the site.

Enhancement of Open Space / Open Space Corridors. Landscaped areas should be organized so as to create integrated systems that connect with dedicated school lands, parklands, other open spaces, or public lands or trails within the subject property or on adjoining property.

Natural Resource and Hazard Areas. Natural resources such as water features including lakes, natural ponds, rivers, streams, wetlands, riparian areas, drainage ways, ditches, and flood hazard areas and vistas of natural features including distant peaks and ridges, steep slopes, existing tree canopy, wildlife habitat areas should be undisturbed.

4-3-2-3 Landscape Surface Area, Amenitized

A. **Generally.** Sometimes referred to as "common open space." Development shall be designed with amenities for the common use or enjoyment of residents, employees, or guests of the development. Any portion of the area intended to meet requirements of small urban parks (Section 4-3-3-4 Mixed-Use) must be publically accessible. Amenities may include:
   1. Passive recreational facilities such as trails, community gardens, courtyards with seating, shaded picnic areas, scenic areas, open grassy areas large enough for recreation, or similar common areas; or
   2. Active recreational facilities such as pools, tennis courts, playgrounds, and clubhouses; or
   3. Commercial outdoor seating and dining areas, or similar common areas serving employees and/or guests.

B. **Accessibility.** Areas shall be accessible to all residents, employees, or guests of a development and meet all design requirements of the Americans with Disabilities Act (ADA).

~~4-3-2-2 Common Open Spaces~~

~~**Generally.** Development shall be designed to include common open spaces and amenities for the enjoyment of residents, employees, and the public in a manner that supports the resource values of the open space in terms of its ecological function (e.g., habitat, water quality enhancement, energy efficiency, etc.), aesthetic contribution, recreational value, and buffering value.~~

~~**Formal Open Spaces.** Parks, squares, plazas, courtyards, greens, and other formal gathering open spaces, when required, shall be:~~

- ~~Situated as focal points; and~~
- ~~Visible and accessible from streets, sidewalks, and / or trails.~~

~~**Site Design.** Site design shall be organized to include, protect or enhance the natural open spaces areas and landmark features of the site.~~

~~**Enhancement of Open Space / Open Space Corridors.** Open space should be organized so as to create integrated systems that connect with dedicated school lands, parklands, other open spaces, or public lands or trails within the subject property or on adjoining property.~~

~~**Natural Resource and Hazard Areas.** Natural resources such as water features including lakes, natural ponds, rivers, streams, wetlands, riparian areas, drainage ways, ditches, and flood hazard areas and vistas of natural features including distant peaks and ridges, steep slopes, existing tree canopy, wildlife habitat areas should be undisturbed.~~ **Stormwater Management Devices.** ~~Land area occupied by stormwater management including retention and detention ponds and bioretention areas (filters or rain gardens) may be treated as an open space site amenity if the area includes at least one of the following or a combination of the following:~~

- ~~Access and pedestrian elements, such as paths and benches, that support passive recreation uses.~~
- ~~Gentle slopes, vegetative landscaping, fountains, or water visible water circulation devices, and visually-attractive low fencing or other elements that make stormwater management a site amenity.~~

~~**Passive and Active Recreational Areas.** Open space areas for passive and active recreational purposes, such as pools, playgrounds, tennis courts, trails, ball fields, and clubhouses, including required public parks and trails should be included in common open space areas.~~

~~**Stormwater Management Devices.** Land area occupied by stormwater management including retention and detention ponds and bioretention areas (filters or rain gardens) may be treated as an open space site amenity if the area includes at least one of the following or a combination of the following:~~

- ~~Access and pedestrian elements, such as paths and benches, that support passive recreation uses.~~
- ~~Gentle slopes, vegetative landscaping, fountains, or water visible water circulation devices, and visually-attractive low fencing or other elements that make stormwater management a site amenity.~~

~~**Formal Plantings and Gardens.** Formally planted and regularly maintained open areas that provide passive recreation opportunities, including arranged plantings, gardens, community gardens, green roofs, gazebos and similar structures, and/or roof gardens shall have:~~

- ~~At least one direct access to a building, or to a street, bikeway, or walkway accessible to the public or the development's occupants and users.~~
- ~~Such feature shall be centrally located and compliment the landscape design to the surrounding development.~~

4-3-3-2 Residential

A. **Generally.** The standards of this Section apply to residential developments that include more than 10 dwelling units, located in all residential zoning districts and the MX and OT zoning districts, where single-family, duplexes, townhomes, multiplex, and multifamily are permitted, as provided in the following Subsections.

B. **Arrangement of ~~Open Space~~Landscape Areas and Buildings.**

1. Open spaceAmenitized landscape areas shall be provided to the extent practicable and situated so that ~~open space~~landscaped areas and outdoor recreation amenities are centrally located within the development.
2. Principal buildings, such as club houses and recreational facilities, and landscaping shall, to the extent practicable, be located and designed so that residents can easily observe the buildings, ~~common open spaces~~landscaped areas, circulation paths, and access points into the development.

C. **Parking.** For multiplex, townhome and multifamily development, at least 50 percent of required off-street parking shall be provided in garages or carports, rather than surface lots. Where surface parking lots are used, they shall to the extent practicable be located between or behind buildings, rather than adjacent to street frontages.

D. **Single-Family Detached, Duplex, and Multiplex.**

1. **Generally.** Single-family detached, duplex, and multiplex residential subdivisions shall be designed to mitigate the impacts of streets and paved areas on the neighborhood, and to provide comfortable alternative routes for pedestrians and bicyclists, including continuous sidewalks, tree-lined streets, and pedestrian-scaled details.
2. **Creation of Neighborhoods.** Residential development that includes more than 200 dwelling units shall be designed to create identifiable "neighborhoods" of 30 to 100 units.
3. **Configuration of Lots.** Lots shall be configured to maximize the number of lots that are:
   a. Within close proximity to an ~~"useable" common open space~~amenitized landscape area (e.g., playground or trail); and
   b. Connected by trails or common greens that do not cross streets.

E. **Townhome.**

1. **Creation of Neighborhoods.** Residential development that includes more than 200 dwelling units shall be designed to create identifiable "neighborhoods" of 30 to 100 units.
2. **Configuration of Lots.** Lots shall be configured to maximize the number of lots that are:
   a. Within close proximity to an amenitized landscape area ~~"useable" common open space~~ (e.g. playground or trail); or
   b. Connected by trails or common greens that do not cross streets.
3. Buildings shall front on and align with:
   a. Adjacent streets; or
   b. Meet the minimum Non-Street Frontage Perimeter Setbacks identified in Table 2-1-8-7, Townhome Building Standards.
4. **Connectivity.**
   a. Where there is a sidewalk, separation between buildings shall be a minimum of 20 feet wide to allow for a minimum five foot wide sidewalk and landscaping

F. **Multifamily.** The standards of this Subsection shall apply to all new multifamily residential development.

1. **Street Connectivity.**
   a. Multifamily sites of 10 acres or more shall include a minimum of one public street (or private drive that is built to City street standards), that is continuous through the subject property, and that connects to a public street on both ends.

b. The Director may waive this requirement for a through-access street or drive, if it is demonstrated that:

i. There are adequate alternatives available for residents and vehicles to travel through the subject property to adjacent properties and developments; or

ii. There are no opportunities for a through-street to safely make such connections.

2. ~~**Common Open Space**~~**Landscape Areas.** Landscape areas ~~Common open space~~ shall be provided as follows:

a. Large ~~open space~~landscaped areas should be the fundamental organizing element of the site. ~~Common open space~~Landscaped areas should be well defined by buildings and streets. Buildings should be oriented in such a way as to create courtyards and open space areas.

b. Large existing trees and other natural features should be integrated into the ~~open space.~~landscape areas.

c. Common open space~~Landscape areas~~ should be centralized and directly accessible to a majority of the surrounding units. Where possible, it should be linked to adjacent parks, paths, and open space areas.

d. The ~~open space~~landscape areas shall be useable, non-riparian areas with slopes not exceeding 3:1.

3. **Site Amenities.** In conjunction with the ~~common open space~~landscape surface area requirements, and the required small urban parks in the MX-S, MX-U and the MX-T zoning districts (*See* Subsection 4-3-3-4E), all multifamily projects shall provide site amenities from the list below for the residents. Amenities shall be centrally located for a majority of the residents, and may be located within the ~~common open space~~landscape areas. Multifamily projects with less than 50 units shall provide two of the amenities from the list below. Multifamily projects with more than 50 units shall provide three of the amenities from the list below.

a. Plaza.

b. Swimming pool.

c. Sports court, such as tennis, basketball, or volleyball.

d. Natural open space area with benches.

e. Jogging trail.

f. Fountain, art, or sculpture.

g. Other amenity as approved by the Director

4-3-3-3 Clustered Small Housing

A. **Generally.** The standards of this Section apply to developments of the clustered small housing types that are described in Section 2-1-8-9, Clustered Housing Types.

B. **Common Green.**

1. Clustered housing types shall be organized around one or two ~~common open space~~amenitized landscape areas ("green(s)"), with no dimension that is less than the larger of:

a. 1.5 times the height of the tallest building that fronts on the common green; or

b. 20 feet, for micro homes or 30 feet for cottages.

2. The common green(s) shall be developed and maintained to provide for passive and/or active recreation activities for the residents of the housing cluster.
3. The common green(s) shall be centrally located and easily accessible to all dwelling units within the cluster.
4. The common green(s) shall be surrounded by clustered housing types on at least two sides, which do not have to be opposite sides.
5. Stormwater management facilities are allowed within a common green, if they do not adversely impact access to or use of the common green for all-season pedestrian access to the dwelling units, and for anticipated active and passive recreation activities.

C. **Front Porches.**

1. Cottages. Each cottage dwelling unit shall have a front porch that is not less than seven feet in any dimension.
2. Micro Homes. Each micro home shall have a front porch that is not less than five feet in any dimension.

D. **Private Entry Yards.**

1. Each dwelling unit may have a private entry yard, in front of the building elevation that contains the primary entrance to the dwelling unit, that is:
   a. Not more than 10 feet deep; and
   b. Enclosed with a fence that is not more than 36 inches in height in front of the front building plane, and not more than 60 inches in height behind the front building plane.
2. Private entry yards may border the common greens, but are not included in the dimensions of the common green.

E. **Configuration.** Housing clusters shall relate to both the street and to a common green, in that:

1. Each building that is constructed along the principal street side of the subject property shall include architectural features that provide visual continuity with adjoining properties and visual interest from the street, such as a primary or secondary entrance or porch that is oriented to the street.
2. Not less than 50 percent of the dwelling units shall front on a common green.

F. **Pedestrian Network.**

1. Pedestrian connections shall link all buildings to the street, common green(s), and parking areas.
2. Pedestrian connections from parking areas to common buildings and the front doors of dwelling units shall traverse a common green.
3. If housing clusters share a common building, *see* Subsection G., below, the pedestrian network shall connect the housing clusters.

G. **Common Building.** A common building with amenities is allowed within clustered housing developments. Amenities may include a kitchen, meeting area, common dining area, indoor recreation facilities, storage (provided that other amenities are also provided in the building), and up to two guest bedrooms. Up to two housing clusters that are connected with pedestrian pathways may share a common building, unless the size of the common building and provided amenities are designed to accommodate additional clusters, the common building is centrally located and within 600 feet of all dwelling units, and the common building is connected to the clusters by pedestrian pathways.

H. **Individual Storage Buildings.** One individual storage building is allowed for each dwelling unit, provided that:

1. The storage building is not more than 10 feet in height, measured from grade to the peak of the roof;
2. The storage building is not more than 80 sf. in floor area;
3. The storage building is located behind the dwelling unit, and set back:
    a. 20 feet from any street; and
    b. five feet from any boundary of the housing cluster and
4. The storage building is screened from the street and a common green.

I. **Parking Design.**

1. **Generally.**
    a. Required parking shall be provided in shared surface parking lots, covered parking spaces in shared parking lots, shared detached garage buildings, or directly accessed from an alley.
    b. No parking space or drive aisle shall be located between a front building elevation and a common green.
    c. For alley accessed parking, parking spaces shall be located between the alley and rear building planes, and shall not extend into side or front yards of individual buildings.
2. **Surface Parking and Covered Parking Spaces.**
    a. Surface parking and covered parking spaces shall be set back from streets as provided in Section 2-1-8-9, Clustered Housing Types.
    b. Surface parking and covered parking spaces shall be screened from the street and the common green(s) and from individual units with a parking lot bufferyard as provided in Section 4-6-6-3 Parking Area Landscape.
    c. Surface parking spaces shall be distributed on the site to minimize visual impacts and optimize access to individual units.
3. **Shared Detached Garage Buildings.**
    a. Shared detached garage buildings may not exceed four overhead doors per building, and a total floor area of 1,200 square feet.
    b. Shared detached garage buildings shall be reserved for the parking of vehicles owned by the residents of the development.

Figure 4-3-3-3: Cluster Development

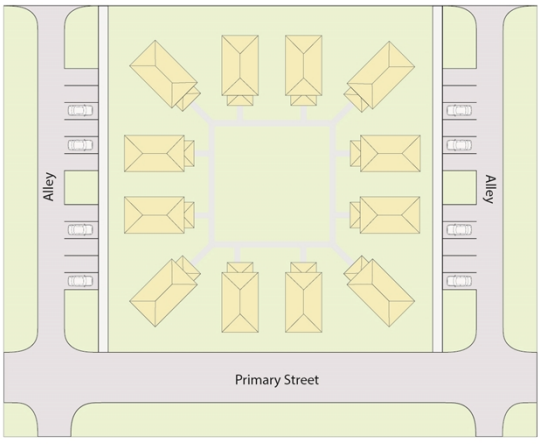


Table 4-5-2-2A: Residential Land Use Parking Standards	
Land Use	**Minimum Required Parking**
Standard Housing Types	
Single-Family Detached or Duplex	2 sp. / du[1]
~~**Duplex or**~~ **Townhome**	2.2 sp. / du[1]
Multifamily and Multiplex	efficiency units: 1.4 sp. / du 1 BR units: 1.6 sp. / du 2 BR units: 2.1 sp. / du[1] 3+ BR units: 2.5 sp. / du[1]
Multifamily, Affordable[2]	efficiency units / 1 BR units: 1.4 sp. / du 2 + BR units: 2.0 sp. / du[1]
Multifamily, Senior[3]	1 sp. / du
Clustered Housing Types	
Micro Home	1.25 sp. / du
Cottage	2.25 sp. / du
TABLE NOTES: **[1] Tandem spaces may be counted towards this requirement.** **[2] Projects that receive Low Income Housing Tax Credits.** **[3] Age restricted projects for residents 62 years and older.**	

4-5-3-1 General Design Principles

Generally. Circulation systems within a subject property shall provide for continuous traffic flow with efficient, non-conflicting movement throughout the site.

Vehicular-Pedestrian Conflicts.

Conflicts between areas of significant pedestrian movement and vehicular circulation shall be minimized.

Required drive-through stacking areas shall not intersect with pedestrian access to a public entrance of a building.

Configuration of Parking Lots. If differentiated, short-term and long-term parking shall be clearly signed, and short-term parking areas shall generally be located closer to the primary public entrances of principal buildings.

Parking lots and loading areas shall have access from a clearly defined drive aisle not less than 18 feet in width for one-way traffic and 24 feet in width for two-way traffic.

Parking spaces shall be marked on the pavement surface with striping, or change of color or material.

Parking in the Front Setbacks. Parking shall not be permitted within the front setback or frontage zone on any lot, except for single-family detached and duplex lots and multiplex sites with parking on paved driveways.

Parking Areas Surface. All off-street parking spaces and areas required by Division 4-5-2-2, Parking Requirements Tables, vehicular access and drive aisles, and stacking areas shall be surfaced with asphalt, concrete or other approved equivalent surface. Recycled asphalt, gravel, or similar compacted materials are not an acceptable parking surface.

The surfacing requirements above shall not apply to access drives on lots or tracts within the RA zoning district when the access drive is more than 100 feet in length or utilized for an accessory agricultural use.

Any area used to park vehicles on a single-family or duplex lot, which is not an off-street parking space required by Table 4-5-2-2A, Residential Land Use Parking Standards, shall be clearly delineated, improved with concrete, asphalt, stone pavers, gravel or rock (provided the installation is sufficient to support vehicles), maintained free of weeds and display no visible dirt surface. However, no more than 60 percent of the front or street side yards shall be paved with an impervious material.

4-5-3-4 Off-Site Parking

A. **Generally.** In lieu of locating parking spaces required by Division 4-5-2, Parking and Loading Calculations, on the lot that generates the demand for the required parking, parking spaces may be provided on any lot or premises controlled, *i.e.*, by fee-simple ownership, easement interests, lease interests, or participation in a parking district or other joint venture to provide centralized off-street parking, by the owner of the use that generates the parking demand, provided that:

1. The parking spaces are within ~~3~~200 feet of the boundaries of the property generating such parking requirements and no required off-street parking space within said parking lot is more than 500 feet from the property it is serving; and
2. The parking spaces are not already counted towards the parking requirements of another use after application of Section 4-5-2-4, Shared Parking, Section 4-5-2-5, Parking Credits and Reductions, or Section 4-5-2-6, Parking Studies, as may be applicable.

B. **Exceptions.** Off-site parking is not allowed in:

1. Residential zoning districts, except that manufactured home parks and clustered housing types may utilize centralized parking; and
2. Locations in which a street with more than two lanes separates the off-site parking area from the subject property.

4-5-3-6 Vehicle Stacking

A. **Generally.** Vehicle stacking spaces are used to measure the capacity of a drive-through lane to hold cars while transactions are taking place at drive-through stations. Adequate space must be provided for on-site stacking, storage and queuing of vehicles.

1. The required stacking distance for the site may be distributed between access points serving the site, provided a minimum stacking of 20 feet is provided at all access points.
2. Stacking spaces must be a minimum of 8.5 feet in width and 20 feet in length.
3. Electronic devices such as loudspeakers, automobile service order devices, and similar instruments shall not be audible beyond the property line adjacent to a residential zone district.
4. Stacking spaces for internal drive-through services shall be measured from the point of service and within a designated drive aisle.
5. Required vehicle stacking spaces shall not interfere with access to parking spaces.

B. **Drive-Through.** Uses that include drive-through service shall provide the following minimum number of stacking spaces:

1. **Financial institutions, drive-through convenience retail, fueling stations, and pharmacies.** Three stacking spaces.
2. **Drive-through restaurants.**
   a. If two service windows are provided (one for payments and one for pick-up):

i. Four stacking spaces to each menu board;

ii. Three stacking spaces between the menu board and the first window, including the position at the first window; and

iii. Two spaces between the first window and the second window, including the position at the second window (*See* Figure 4-5-3-6, Illustrative Stacking Requirements).

b. If one service window is provided, for both payments and pick up:

i. Six stacking spaces to the menu board; and

ii. Three stacking spaces between the menu board and the service window.

3. **Drive-through only uses in buildings with less than 300 square feet of gross floor area and no separate menu board.** Three stacking spaces per service window.

4. **Dry cleaners.** Two stacking spaces per service window.

5. **Vehicle wash.**

a. Two stacking spaces for each bay in a self-service vehicle wash facility;

b. Five stacking spaces for each in-bay or conveyor vehicle wash facility; and

c. If the facility provides detailing, manual drying or polishing, and / or vacuuming, sufficient area to provide those services without creating additional demand for stacking at the vehicle wash entrance.

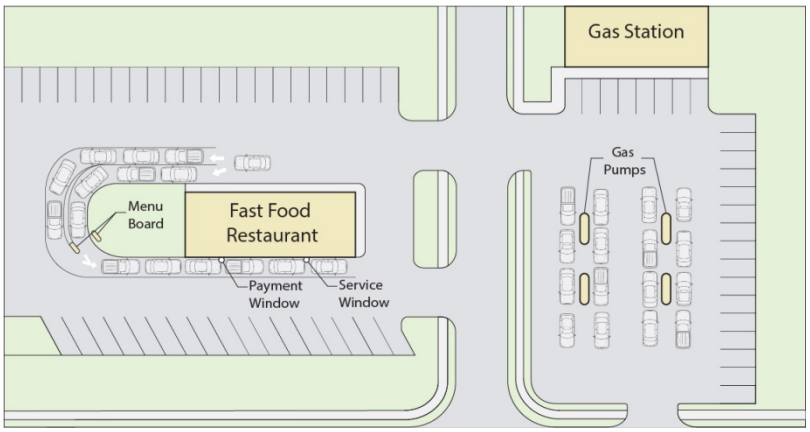
6. **Other Uses.** The determination by the Director of stacking spaces necessary for other uses may require a queuing study conducted by a qualified transportation planner or traffic engineer at the Applicant's expense.

C. **Design.**

1. Stacking lanes shall be clearly marked, and shall not interfere with on-site or off-site traffic circulation, or access to parking spaces.

2. Stacking areas shall not be located in the front setback or side street ~~setback unless there is a grade change of at least five feet between the centerline of the street and the stacking area or alternatively, a Bufferyard Option in Division 4-6-5-3 is installed between the stacking lane and the street~~.

Figure 4-5-3-6: Illustrative Stacking Requirements



4-5-3-7 Design and Use of Off-Street Loading Areas

A. **Generally.** All required off-street loading spaces shall be designed, constructed, and maintained in accordance with the standards and requirements of this Section.

B. **Location.**

1. Loading spaces shall be located on the same lot as the building or structure to which they relate.
2. No loading space shall be located in any front setback area.
3. Except where alley loading or over-the-curb loading is allowed, loading areas shall be located and designed to ensure adequate on-site maneuvering area for delivery vehicles.
4. No loading area shall be designed in a manner that would allow any vehicle to extend into any front setback area or adjacent to any residential zone district while being loaded or unloaded.
5. Trucks parked in loading areas shall not encroach into required parking spaces or building setbacks.
6. Parked trucks loading or unloading materials shall not block travel lanes in parking lot or fire lanes.

C. **Buffering.** Drive-through stacking areas and loading areas, including overhead doors, oriented so to face a residential zone district or a public right-of-way shall be screened from view from all property lines and adjacent streets to the greatest extent possible, as determined by the Director, by the following:

1. By an opaque fence or wall between ~~6~~six feet and ~~8~~eight feet in height that incorporates at least one of the predominant materials and one of the predominant colors used in the principal building. The fence or wall may exceed ~~8~~eight feet in height when there is a difference in grade between the street and loading area to effectively screen the area. (For a drive-through stacking area, a fence or wall shall only be used when the area is adjacent to a residential zone district.)
2. A landscape berm may be used instead or combined with the required fence or wall.
3. If such areas are covered, then the covering shall include at least one of the predominant exposed roofing colors on the principal building.

~~3.~~

D. **Surfacing.** All required off-street loading spaces and access drives shall be improved with an asphaltic, concrete, or equivalent surface and shall be graded and drained in order to dispose of all surface water accumulation within such areas, as well as any associated parking area.

E. **Alleys.** All alleys that are used for loading shall meet the City of Arvada Engineering Code of Standards and Specifications.

4-5-3-8 Bicycle Parking Design

A. **Generally.** The bicycle parking spaces that are required by Section 4-5-2-8, Bicycle Parking, shall be designed according to the standards of this Section. The purpose of these design standards is to ensure that bicycle parking is convenient to bicyclists and provides security from theft and damage.

B. **Standards.**

1. ~~**Generally.**~~ Bicycle parking shall be designed to ensure that it is convenient to bicyclists and secured from theft and damage. ~~so that bicycles maybe securely locked and safeguarded from accidental or intentional damage. Bicycle parking shall be provided using bicycle racks that meet the following standards:~~

   a. Bicycle parking shall be securely locked and safeguarded from accidental or intentional damage.

   b. Each required bicycle parking space shall be accessible without moving another bicycle.

   c. There shall be an aisle at least five feet around the perimeter of all bicycle parking areas to allow room for bicycle maneuvering.

   ~~a. A U-shaped bike rack or variation thereof that allows for the bike to be locked to the rack by the frame and at least one wheel;~~

   ~~b. A bicycle that is six feet long can be securely held with its frame supported so that the bicycle cannot be pushed or fall in a manner that will damage the wheel components; and~~

   ~~c. The racks are securely anchored to a hard surface.~~

~~2. Each required bicycle parking spaces shall be accessible without moving another bicycle.~~

~~C. There shall be an aisle at least five feet around the perimeter of all bicycle parking areas to allow room for bicycle maneuvering.~~

~~D.~~C. **Short-term Bicycle Parking.** Short-term bicycle parking facilities or racks shall accommodate securing a bicycle using an industry-standard bike lock.

1. Short-term bicycle parking spaces shall be located within 50 feet of the main entrance to the building. Where there is more than one main entrance to a building, short-term spaces should be split between building entrances.

2. Bicycle racks shall meet the following standards:

   a. A U-shaped bike rack or variation thereof that allows for the bike to be locked to the rack by the frame and at least one wheel;

   b. A bicycle that is six feet long can be securely held with its frame supported so that the bicycle cannot be pushed or fall in a manner that will damage the wheel components; and

   c. The racks are securely anchored to a hard surface.

~~2.~~3. **MX Zoning Districts.** Multifamily ~~R~~residential, mixed-use, and office uses in the MX-N, MX-S MX-U and MX-T zoning districts shall provide bicycle parking in locations ~~that~~ where at least 50 percent of the required spaces, when more than three are required, are covered, secure, and illuminated. Such bicycle parking areas shall be maintained by the property owner, a property owners' association, or a metropolitan district.

~~3.~~4. **OT and CG Zoning Districts.** Multifamily, schools, retail, and office uses in the OT and CG zoning districts shall provide bicycle parking locations that are secure, illuminated and along traveled ways.

~~E.~~D. **Long-term Bicycle Parking**. Long-term bicycle parking shall be in a secure and weather-protected place ~~to park bicycles~~. Long-term parking does not have to be provided on site; however long-term bicycle parking must be within a reasonable distance of a site in order to encourage bicycle use.

1. Long-term bicycle parking is not required on a site when:
   a. Non-residential gross building area is less than 5,000 square feet; or

b. There are ten or fewer residential units in a development or redevelopment.

2. Long-term bicycle parking, when required, shall be located within 50 feet of a building entrance and be visible from the building entrance. If the location of the bicycle parking is not obvious from the building entrance, signs shall be posted that indicate the location of bicycle parking.

~~2.~~3. Long-term bicycle parking is require to be covered and shall be at least one of the following:~~on the site, either in the building or parking garage~~.

a. In a locked room;

b. In a bicycle locker;

c. U~~Covered bicycle parking may be provided inside buildings, u~~nder roof overhangs or awnings;

~~a.~~d. In an area that is enclosed by a fence with a locked gate;

e. A free standing building;

f. Within view of an attendant or security guard; or

g. In an area that is monitored by a security camera.

~~b.~~h. , in bicycle lockers, or within or under other structures. When covered bicycle parking is not located within a building or locker, the cover shall be:

~~i. Designed to protect bicycles from precipitation;~~

High enough to provide at least ~~ten feet of clearance above the floor or ground; and~~

~~ii. Posted with a sign indicating the location of the bicycle parking when not directly visible at a transit facility or main building entrance.~~

~~3. To provide security, a long-term facility bicycle parking shall be in at least one of the following locations:~~

~~a. In a locked room;~~

~~b.~~i. In an area that is enclosed by a fence with a locked gate;

~~F.~~E. **Surfacing and Clear Area.**

1. The surface of bicycle parking spaces shall be of hardscape material such as asphalt, concrete, or other materials approved by the Director.

2. Racks shall be bordered by physical barriers or located a sufficient distance from motor vehicles to prevent damage to parked bicycles.

~~3. Racks shall be installed with sufficient clearance from obstructions so that they can be used according to their design.~~

~~4. A clear area of three feet minimum shall be maintained on the parking side of the bicycle rack (both sides if the rack is designed and installed to be accessed from both sides). The clear area is measured away from the rack, from the furthest point of the back wheel of a six-foot long bicycle parked in the fashion for which the rack is designed.~~

~~G. Location of Bicycle Parking Spaces. Bicycle parking facilities should be located within 50 feet of a building entrance and be visible from the building entrance. If the location of the bicycle parking is not obvious from the building entrance, signs shall be posted that indicate the location of bicycle parking.~~

4-6-3-1 Applicability

A. **Generally.** All new construction, including building expansions that increase the footprint of a building by 25 percent or more, and modification to an existing landscape area shall comply with the standards in this Article.

B. **Exceptions.** Exceptions to this Article are allowed under the following circumstances:

1. **Interior Tenant Improvement.** The landscaping requirements of this Article shall not apply to existing structures where interior tenant improvements occur and where there is no addition to the number of parking spaces provided.
2. **Existing Structures.** Where existing structures are situated so as to preclude the installation of required landscaping, the Director may authorize reductions for the required landscaping.
3. **Physical Limitations of the Site.** The Director may authorize modifications to landscaping requirements for structure additions or tenant improvements where landscaping requirements are not feasible due to physical limitations of the site. Where the landscaping requirements have been modified, the landscaping shall be relocated in the following manner:
   a. To another portion of the lot;
   b. Along a property line; or
   c. To an area, including a nearby public park or other City-owned property, as determined by the Director upon review with the owner or developer.
4. ~~**Single-Family Detached and Duplex.**~~ Single-family detached and duplex dwelling unit lotss, are exempt from landscaping requirements, provided the initial development of the subdivision contains nine or fewer lots of single-family and/or duplex. ~~Common open space~~Common landscape areas, bufferyards, water quality/detention basins, or streetscape areas, shall meet the applicable requirements of this Chapter.

C. **Site Changes**. Townhome, multiplex, multifamily, mixed-use, commercial, and industrial uses that are part of larger project shall be required to submit a site plan for the area that is disturbed that meets the requirements of this Article. The Director may require that a site plan covering the entire project area be submitted.

D. **Parking lot Reconfiguration**. Modifications to any existing parking lot in an amount greater than 20 percent, or expansions of an existing parking lot by 25 spaces or more shall meet the landscaping requirements of this Article for the area being modified or expanded.

4-6-3-2 General Landscaping Standards

A. **Landscape Plan Required.** A landscape plan with designated landscaped areas shall be submitted as a part of all development applications where landscaping, buffering, or screening is required, unless the applicable Decision-Making Body determines that compliance with the provisions of this Article can be demonstrated without the use of a landscape plan. Final landscape plans shall be stamped, signed and dated by a State of Colorado Registered Landscape Architect for all projects except residential minor subdivisions as defined in Subsection B.4 above or where the Director determines the scope of the project does not warrant such plans.

~~B. **Landscape and Open Space Requirements.** Landscaped areas may count toward satisfying usable open space requirements specified for the MX-N, MX-S, MX-U, MX-T, CG, IL, and IG zoning districts (*See* Division 2-1-4, Mixed-Use Districts, and Division 2-1-6, Commercial and Industrial Districts).~~

~~C.~~B. ~~**Minimum Landscape Area**~~**Vegetative Coverage.** Landscaped areas shall be covered with shrubs in combination with lower water consuming ground-level plants, ornamental grasses, or turf for at least 75 percent of the landscape area, at maturity.

~~D.~~C. **Detention and Retention Ponds.** Detention and retention ponds shall be physically, functionally and visually integrated into adjacent landscape uses through the use of topography, building and parking lot placement, plantings, permanent water features, recreational or open space amenities, or other methods. Slopes shall not exceed a 4:1 ratio or be flatter than 2 percent.

~~E.~~D. **Steep Slopes.** Grading in landscaped areas shall not exceed slopes greater than 6:1 in the amenitized area~~portions~~ of Small Urban Parks and 4:1 for all other areas, except that public maintained shrub beds and native grass areas shall not exceed 3:1 slope.

~~F.~~E. **Alternative Requirements for Hardscape Features.**

1. In mixed-use and nonresidential districts, pedestrian walks and other hardscape landscape features and amenities, such as Small Urban Parks, outdoor seating areas, and plazas with recreation and entertainment areas, water features, and public art, may comprise up to 50 percent of the landscape area.
2. The Director may approve a greater percentage of hardscape features based on the consideration of the proposed development, mix of uses, and the quality of the proposed landscape design.

4-6-5-2 Bufferyard Purpose and Applicability

A. **Purposes of Bufferyards.** A bufferyard is a landscaped area between two differing land uses and is designed to provide a transition between the uses, mitigate or minimize potential nuisances such as noise, light, and glare, protect the character of an area, and protect natural resources from impacts of nearby development.

B. **Applicability.**

~~1. **Uses Requiring a Bufferyard.** The following uses require a bufferyard per 4-6-5-3, Bufferyard Options:~~

~~2. Where directly adjacent to single-family detached dwelling or duplex dwelling, or a RN zoning district:~~

~~a. Multifamily and other attached residential buildings;~~

~~b. Mixed-use buildings;~~

~~c. Nonresidential buildings;~~

~~d. Drive-through facilities; and~~

~~e. Industrial manufacturing, processing uses, and storage uses in the IL and IG zoning districts.~~

~~f. Where directly adjacent to a multifamily or other attached residential building or a mixed-use building with residential component:~~

~~i. Drive-through facilities; and~~

~~ii. Industrial manufacturing, processing uses, and storage uses in the IL and IG zoning districts.~~

1. **Uses Requiring a Bufferyard.** The following uses require a bufferyard per Section 4-6-5-3, Bufferyard Options, where directly adjacent to a single-family detached dwelling, duplex dwelling or multiplex, or a RN zoning district:

a. Multifamily and townhomes;

b. Mixed-use buildings;

c. Non-residential buildings;

d. Drive-through facilities;

e. Industrial manufacturing and processing uses, and storage uses in the IL and IG zoning districts; and

f. Dead-end drives and turnarounds.

2. **Additional Uses Requiring a Bufferyard.** The following uses require a bufferyard per Section 4-6-5-3, Bufferyard Options, where directly adjacent to a multifamily, townhomes, ~~,~~ or other attached residential buildings or a mixed-use building with a residential component~~:~~:

a. Drive-through facilities; and

b. Industrial manufacturing, processing uses, and storage uses in the IL and IG zoning districts.

4-6-6-2 Street Bufferyards

A. **Street Bufferyards in Setbacks.**

1. In the CG, IL and IG zoning districts, and multifamily in the R13 and R24 zoning districts, the front setback shall be landscaped in accordance with Sections 4-6-6-4, Foundation Plantings and 4-6-6-5, General Landscape Areas .

2. In the MX and OT zoning districts, if the principal building is set back more than five feet from the property line, then that area shall be landscaped in accordance with Sections 4-6-6-4, Foundation Plantings and 4-6-6-5, General Landscape Areas. If the building is set back less than five feet, the area shall be hardscaped with paving materials such as concrete, pavers or other quality paving materials, or landscaped with shrubs and ground-level plants. The remainder of all setbacks shall be landscaped in accordance with Sections 4-6-6-4, Foundation Plantings and 4-6-6-5, General Landscape Areas.

4-6-6-3 Parking Area Landscaping

A. **Generally.** Surface parking lots shall be landscaped to reduce the apparent size of the parking area; prevent views of long rows of parked cars; create an impression of smaller, connected parking lots; provide shade for parked cars; reduce the heat island effect of an urbanized area; and define pedestrian access ways, according to the standards of this Section.

B. **Exceptions.**

1. The surface parking lot landscape requirements of this Section do not apply to:

a. Parking lots in the IL and IG zoning districts if the subject property is located south of West 60th Avenue and east of or adjacent to Lamar Street; or

b. Surface parking lots with 24 or fewer parking spaces and with 12 or fewer parking spaces in a row.

2. The access point landscape requirements of this Section do not apply to driveways that provide access to individual single-family detached, duplex, multiplex, or townhome lots.

C. **Perimeter Landscape Buffer.**

1. **Required Perimeter Landscape Buffer.**

a. Parking lots adjacent to single-family detached, duplex, multiplex, or townhome uses shall meet the Option C or D bufferyard in Division 4-6-5-3, Bufferyard Options.

2. **Exceptions.**

a. The requirements for perimeter landscaping do not apply at points of ingress or egress to the surface parking lot, or to points of cross-access among properties that share a parking lot.

D. **Required Surface Parking Lot Landscape Areas.**

1. Landscaping shall be installed in the following required landscape areas:

a. Landscape islands are required at the end of each row of parking spaces in each parking module;

b. Landscape islands are required and must be distributed throughout the parking lot, at a rate of at least one landscaped island for each 12 consecutive parking spaces;

c. Vegetated entry medians are required with a minimum of at least 300 square feet in surface area and a minimum five feet in width (not including curbs), if the surface parking lot contains 180 or more parking spaces;

d. Landscape strips are required at least ~~12~~ 14 feet in width (not including curbs) that separate groups of parking modules (along their long edges) into "cells" as provided in Table 4-6-6-3, Parking Module Separation Requirements.

Figure 4-6-6-3: Parking Module Separation Diagram

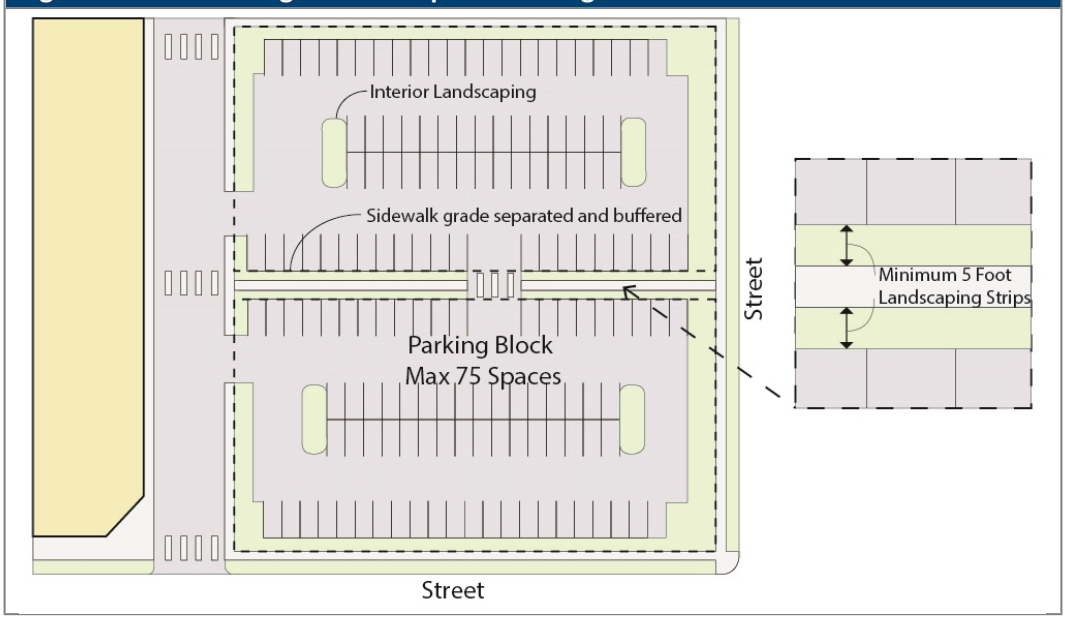


Table 4-6-6-3: Parking Module Separation Requirements

Predominant Type of Land Use	Maximum Number of Parking Spaces in Cell
Residential	50
Nonresidential (except Industrial)	75
Industrial	100 if the parking area is located within 300 feet of a public street; otherwise, no maximum

2. Landscape islands that are used to meet the requirements of Subsection D.1.a. and D.1.b., above, shall be at least eight feet in width (not including curbs) and 16 feet in length, and

may be combined (eight feet in width by 32 feet in length) at the ends of adjacent parking modules.

3. Landscape strips may include sidewalks (and landscape islands may be crossed by sidewalks), but the sidewalks shall not be counted as required landscape areas for the purposes of the calculation of planting requirements (*see* Subsection E., below).
4. A raised sidewalk to connect the parking area with major building entries should be provided between the cells with a five foot planting strip on both sides of the sidewalk. An alternative layout is a sidewalk connection with a central five foot wide landscaped area, flanked with sidewalks on both sides.

E. **Minimum Planting Requirements.** Required surface parking lot landscape areas shall be planted with one shade tree or two ornamental trees, plus eight shrubs per 300 square feet of required landscape area.

4-6-6-5 General Landscape Areas

A. **Generally.** Except as provided in Subsection B., below, the landscaping requirements of this Section apply to all permeable areas of the subject property that are not otherwise a designated required planting area pursuant to Division 4-6-5, Landscape Areas and Bufferyards or Section 4-6-6-1, Street Trees, through Section 4-6-6-4, Foundation Plantings, inclusive.

B. **Exceptions.** The requirements of this Section do not apply to:

1. Preserved open space; and
2. Irrigation canals, irrigation ditches, reservoirs, and appurtenant maintenance areas (whether owned in fee simple or as easements).

C. **Planting Requirements.** General landscape areas shall be planted with at least:

1. One ~~large~~ canopy or evergreen tree, or two ornamental trees per ~~2~~3,000 square feet of ~~permeable~~ landscape surface area;
2. A minimum of ~~One small tree or one evergreen per 1,500 square feet of permeable area~~10 percent of all trees shall be evergreen; and
3. 75 percent vegetative ground coverage at maturity, excluding tree canopy.

D. **Shrub Requirements.** Shrubs shall be planted at a maximum spacing of five feet on center.

E. **Planting on Steeper Slopes.** On slopes greater than 3:1, the following can be planted:

1. Trees and shrubs; and
2. Groundcovers.

4-7-2-1 Fences and Divisional Walls

A. **Generally.** All fences and divisional walls shall comply with the requirements of this Division.

1. If a proposed fence or divisional wall is located directly adjacent to a zoning district boundary or on a shared property line, the less restrictive standards shall apply.

B. **Permits Required.** All fences and divisional walls require fence permits, except for the following:

1. Repair of a fence section not greater than eight linear feet in length.

C. **Height.** All fences and divisional walls shall comply with the maximum heights shown in the following Table 4-7-2-1, Maximum Height of Fences and Divisional Walls Within Required Setback Areas, unless a different maximum height is explicitly permitted:

1. By this Code or approved through the Minor or Major Modification, or PUD approval process;
2. For an activity field (*i.e.,* tennis court, baseball, football, soccer fields) at the discretion of the Director; or
3. For fences associated with a Utility, Major for security purposes, at the discretion of the Director.

D. **Location.** All fences and divisional walls may encroach into required yards and setbacks. Fences and wall shall not:

1. Be constructed within a public right-or-way or areas to be dedicated for public right-of-way unless a revocable permit is approved;
2. Conflict with sight distance visibility of intersections or points of ingress/egress;
3. Block or divert a natural drainage flow onto or off of any other property;
4. Block access within an access easement; and
5. Encroach into a utility easement, unless the easement holder has provided written consent. (This specific requirement shall only apply to masonry walls.)

Figure 4-7-2-1A: Fence and Division Wall Location Diagram

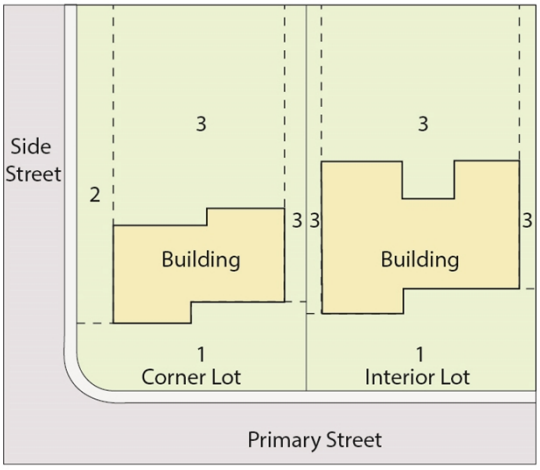


Table 4-7-2-1 : Maximum Height of Fences and Divisional Walls Within Required Setback Areas

Zoning District	Setback		
	Area 1 Front	Area 2 Street Side	Area 3 Rear & Interior Side
OS, RA, RN, R6, R13, R24, MX-N	3 ft.[2]	3 ft.[2,3,4]	6 ft.[4,9]
MX-S, CG	3 ft.[2]	3 ft.[2,5]	6 ft.
MX-U, MX-T	3 ft.[2]	3 ft.[2,5]	6 ft.

Table 4-7-2-1 : Maximum Height of Fences and Divisional Walls Within Required Setback Areas			
Zoning District	**Setback**		
	Area 1 Front	**Area 2 Street Side**	**Area 3 Rear & Interior Side**
OT Zoning Districts	3 ft. [5,6,7,8]	3 ft. [5,6,7,8]	3 ft. [8]
IL	6 ft.	6 ft.	6 ft.
IG	6 ft.	8 ft.	8 ft.
PUD	Per the approved PUD. If no standards were identified as part of the approved PUD, then the fence standards for the closest zoning district shall be utilized.		

TABLE NOTES:

[1] *See* Figure 4-7-2-1A, Fence and Divisional Wall Location Diagram.

[2] Height may be increased to 4 ft. if the fence is at least 50 percent transparent when viewed at a perpendicular angle.

[3] Height may be increased to 6 ft. (regardless of opacity) if the fence is set back at least 6 ft. from the property line or 6 ft. from the back of adjacent sidewalk, whichever is greater.

[4] Height may be increased to 8 ft. for divisional walls that face arterial streets.

[5] Height may be increased to 6 ft. if a minimum of 50% open for school yards.

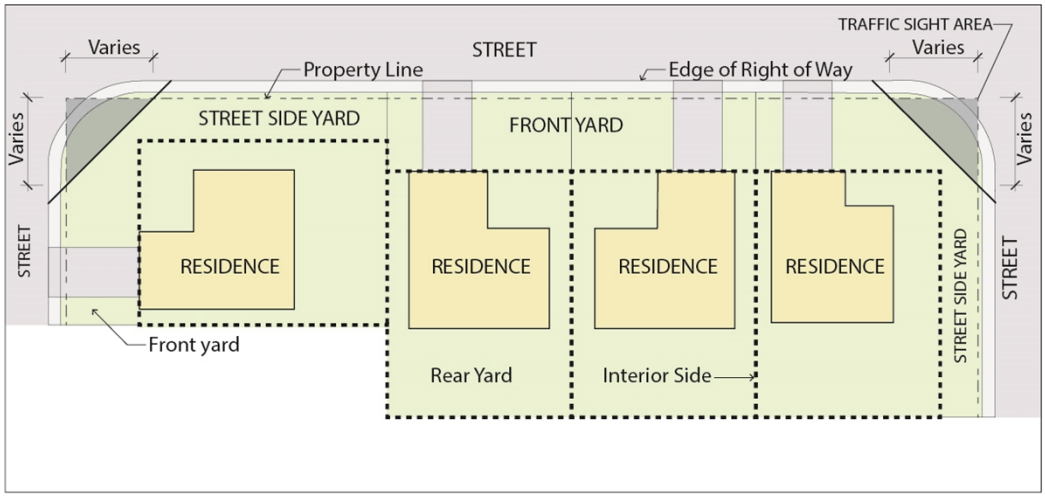
[6] Height may be increased to 4 ft. if a minimum of 50% open for single-family, duplex or multiplex building types.

[7] Height may be increased to 4 ft. if a minimum of 50% open for mixed-use building type outdoor dining areas.

[8] Height may be increased to 6 ft. except within any McIlvoy Park Frontage zone or any side or rear setback adjacent to McIlvoy Park or Olde Town Plaza, or where it would extend in front of a building within any frontage zone.

[9] Maximum height is 6 ft. for rear yards on double frontage lots.

Figure 4-7-2-1B: General Fence Location



E. **Setbacks from Streets, Sidewalks, Open Space, Trails, and Multi-Use Pathways.**

1. No solid fence or divisional wall that is between four and eight feet in height shall be installed closer than:
   a. Eight feet from the flowline of a street; and
   b. Five feet to the nearest edge of a sidewalk, open space corridor less than 15 feet wide, trail, or multi-use pathway.
2. No solid fence or divisional wall that is more than eight feet in height shall be installed closer than:
   a. Ten feet from the flowline of a street; and
   b. Eight feet to the nearest edge of a sidewalk, open space corridor less than 15 feet wide, trail, or multi-use pathway.
3. Fences that exist in the condition identified in Subsection E1 and E2 above prior to the adoption of this Code shall be considered conforming.
4. The area between the fence or divisional wall and the street, sidewalk, trail, or multi-use pathway shall be landscaped with shrubs, groundcover, perennials, ornamental grasses, or turf materials that provide contrast with the sidewalk. Inorganic ground cover such as river rock, cobble rock, or gravel may be used as part of the landscape provided that the ground cover, ornamental grasses or turf which are planted achieve 50 percent coverage at maturity. Hardscape materials are allowed only at points of access through the fence or divisional wall.
~~4.~~5. Vehicular gates adjacent to streets and sidewalks shall be located a minimum of 18 feet from the sidewalk or the property line, whichever is greater, and shall not open outward from the private property.
~~5.~~6. Fences shall comply with the sight triangle requirements of Section 4-4-3-3, Intersection Visibility.

F. **Design of Street-Facing Fences or Divisional Walls.**

1. All fences or divisional walls adjacent to a street, open space, trails, and multi-use pathways, the finished surface of the fence shall face towards the street frontage. Non-decorative elements such as fence posts and supporting structures, when visible on one side and not the other, shall face inward.
2. No portion of any front yard setback may be fenced for use as an animal pen or dog run.

G. **Perimeter Fence and Walls.** Perimeter fences and walls along arterial streets or railroad tracks may be constructed up to eight feet in height. Perimeter fencing shall be constructed of Western Red Cedar wood or other material approved by the Director, or masonry. Masonry fence posts two foot by two foot in size, shall be located at property corners but no further than 100 feet apart on-center, and with sloped column caps to drain water to the sides of the posts.

H. **Security Fencing.**

1. No barbed wire or other sharp-pointed fences or similar security devices on divisional walls shall be installed on any property, except:
   a. In the IL or IG zoning districts that is used for industrial purposes, upon demonstration to the Director or the Decision Making Body that a substantial security need justifies the installation; or
   b. In the RA or OS zoning districts on property that is used for agricultural purposes.

2. Electrically charged fences are not allowed unless necessary for livestock control in an RA zoning district.

I. **Relationship to State Statutes or Regulations.**

1. Where the Colorado statutes or implementing administrative regulations require fencing or divisional walls that are taller than those that are allowed by Table ~~2-3-6-24~~-7-2-1, Maximum Height of Fences and ~~Garden~~Divisional Walls ~~w~~Within Required Setback Areas, the Director may approve the increased fence or divisional wall height in accordance with the statutes or implementing administrative regulations.
2. If the fence or divisional wall is located within Area 1 or Area 2 as shown in Figure ~~2-3-6-24~~-7-2-1A, Fence and Divisional Wall Location Diagram, then where feasible and consistent with the statute or regulation, the Director shall require landscaping or design treatments to mitigate the visual impacts of the increased height of the fence or garden wall when viewed from the public streets. Mitigation measures may include, but are not limited to, tree, shrub, or hedge plantings; material and color selections that de-emphasize the fence or garden wall; transparency; and additional setbacks for the fence or divisional wall.

J. **Fence and Wall Materials.**

1. Fences and divisional walls shall be made of high quality, durable materials that require low maintenance and are complementary with the overall design of the principal building and site landscape. The following materials are allowed:
   a. Wood and composite wood;
   b. Non-reflective plastic and vinyl fencing;
   c. Natural stone, stacked stone, brick, stucco, decorative concrete masonry blocks that replicate the appearance of brick, stone, stucco and CMUs;
   d. Metal iron, metal picket and other metals simulating the appearance of wrought iron, chain-link fencing or aluminum or wrought iron decorative fencing;
2. The Director may approve other materials that are equal to or surpass the materials listed in this Subsection J. in terms of durability, maintenance, and aesthetics.
3. Prohibited Material. Sheet plastic, sheet metal, chicken wire, fabric materials, fiberboard, garage door panels, snow fencing, rope, plywood fences, PVC pipes, and miscellaneous materials not commonly used with residential fences are not allowed.

K. **Maintenance.** All fences and divisional walls shall be maintained in good condition at all times.

4-8-2-2 General Design Standards

A. **Shielding of Lights.** Luminaires shall be shielded and directed to avoid glare and overspill onto adjacent property.

1. All exterior light fixtures shall be full cutoff fixtures that are directed downward (90 degrees from true vertical) and shall have flat lenses, emitting no more than 10 percent of the total lumens between 80 and 90 degrees from true vertical. Fixtures shall be configured so that lights do not cause glare.
2. All light fixtures on structures, poles, bollards, stands, or mounted on a building shall have a shield, adjustable reflector, and/or non-protruding diffuser to shield the light source from sight from adjacent residential zoning districts.

Figure 4-8-2-2: Light Fixtures Examples

B. **Maximum Spill Light Illumination Levels.** Except for public street lighting, all exterior lighting and indoor lighting visible from outside shall be designed to minimize adverse impacts on adjacent properties by minimizing glare and limiting light at the property line and located so that the maximum illumination measured in foot candles at ground level and for mixed-use development without property lines shall be measured a line half-way between buildings of differing uses and shall not exceed the standards in Table 4-8-2-2A, Maximum Illumination Levels.

Table 4-8-2-2A: Maximum Spill Light Illumination Levels at Property Line

Type of Use ~~Abutting a Lot Line~~	Maximum Illumination level at Lot Line (Foot Candles)
Single-family dwelling and duplex residential property line in RA, RN, R6, R13, R24, OT districts (-single-family, duplex, multiplex building types), and OS	**0.3~~5~~**
Attached dwelling and multifamily residential property line (except mixed-use buildings~~dwelling~~)	**0~~1~~.8~~0~~**
Mixed-use buildings and non-residential property lines	**1~~2~~.0**
Industrial	**1~~3~~.5~~0~~**

1. **Maximum Illumination and Lighting Uniformity.**

a. Lighting ~~of pedestrian and vehicular use areas (e.g., parking lots, plazas, and sidewalks)~~ shall have a uniformity ratio of ~~three~~ ten to one (maximum to minimum).

b. No single lamp shall exceed:

i.-All zone districts except IL~~G~~ and IG~~L~~ – 16,000 lumens

~~ii.~~ IL and IG zone districts - 20,000 lumens.

2.Maximum Light Levels.

~~a.~~ The maximum allowed light levels at any point on the property (as measured in foot candles) shall not exceed the following limits:

Pedestrian areas (when not adjacent to parking lots)	3 Ffoot Ccandles
Multiplex, Townhome, and Multifamily Building Entries	8 Foot Ccandles
Parking lots, and all other non-residential use areas	8 Ffoot Ccandles
Service Canopies (fuel stations, ATMs, Drive-Thru's, etc.)	20 Ffoot Ccandles

C. Maximum **Height.** The height of exterior light fixtures, whether mounted on poles, walls, or by other means, shall comply with the standards in Table 4-8-2-2B, Maximum Height for Exterior Lighting.

Table 4-8-2-2B: Maximum Height for Exterior Lighting

Base Zoning District	Maximum Height[1]
OS, RA, RN, R6, R13, R24, OT, MX-N, MX-S	22 feet
CG, MX –U, MX-T, IL, IG	35 feet

TABLE NOTES:
[1] **Porch and balcony lights on residential buildings are exempt from the maximum height.** ~~Lighting~~

D. **Motion-Activated Security Lighting.**

1. Motion-activated security lighting may emit up to 3,000 lumens per fixture.
2. Not more than one motion-activated security light fixture is allowed per 60 linear feet of building elevation.
3. Security lighting shall be timed to turn off after not more than five minutes after motion activation.

E. **Outdoor Sports or Performance Venue.** Lighting fixtures for outdoor sports areas, athletic fields, and performance areas shall be equipped with a glare control package (e.g., louvers, shields, or similar devices) and aimed so that their beams are directed and fall within the primary playing or performance area.

1. Lighting fixtures may not be more than 40 feet in height.

~~F. **Parking Lot Lighting.**~~

~~1. Maintained average horizontal illuminance values in parking lots during times when the parking lot is in use shall not exceed four foot candles.~~

~~2. The average horizontal illuminance within the parking area shall not exceed 3.5 foot candles when the associated business(es) is closed.~~

~~G.~~F. **Pedestrian Area Lighting.**

1. Pole lLight fixtures for plazas, small urban parks, sidewalks, walkways, trails, and bicycle paths outside of or not adjacent to vehicular surface areas (i.e., parking lots or streets) shall:
   a. Provide at least 1~~.5~~ foot candle~~s~~ of illumination, but not exceed three foot candles; and
   b. Have a maximum height of 15 feet.
   ~~b.~~c. No single lamp shall exceed 10,000 lumens.
2. Pedestrian bollard lamps shall be mounted no higher than four feet above grade and shall not exceed 3 foot candles.

a. No single lamp shall exceed 900 lumens. ~~for any single lamp~~.

~~H.~~G. **Wall Pack Lights.** Wall packs on the exterior of the building shall be fully shielded (e.g., true cut-off type bulb or light source not visible from off-site) to direct the light vertically downward and have a maximum of 1600 lumens.

~~I.~~H. **Awnings.** Awnings used for building accents over doors and windows shall not be internally illuminated (i.e., from underneath or behind the awning) unless the awning material is entirely opaque.

~~Service~~ **Canopy Lighting.** Canopy lighting for uses that shelter outside work, full- service areas or porte-cocheres shall have all light fixtures flushed mounted or recessed into the canopy and equipped with flat lenses.~~:~~

1. A~~all light fixtures flushed mounted or recessed into the canopy and equipped with flat lenses.; and~~

   ~~A light distribution that does not exceed a 10:1 ratio between the average light levels under the canopy and the average light levels of the area outside the canopy.~~

~~J.~~I. **Decorative Lighting.**

1. Decorative lighting shall be permitted to enhance the appearance of a building and / or landscape feature provided that:
   a. All light is cast against the building surface or downward onto a landscape feature;
   b. All decorative lighting is directed away from residential uses located within 50 feet of the building façade on which the decorative lighting is mounted and is shielded to reduce light trespass on adjacent uses;~~.~~
   c. The lamp is not visible from adjacent properties, pedestrian or vehicular traffic; and
   d. The decorative lighting does not exceed 1600 lumens.
2. Unshielded Tivoli and patio string lighting with no more than 200 lumens per foot provided that the lighting is turned off between 11:00 PM and 6:00 AM.

J~~I~~ . Pole and Fixture Color.

1. All poles and fixtures (luminaires) shall be of dark colors including, but not limited to, black, dark gray, dark green or brown. Reflective or light colored poles and fixtures are not allowed.

5-1-2-2 Evaluation of Aesthetic Consistency

A. **Generally.** Where the standards of ~~this Division,~~ Division 5-1-5, Supplemental Standards for Residential Land Uses (Except Multifamily), or Division 5-1-6, Supplemental Standards for Nonresidential and Multifamily Land Uses, require aesthetic consistency, aesthetic consistency shall be evaluated in accordance with the standards of this Section.

B. **Roof Pitch and Form.** As to roof pitch, "consistency" means a roof pitch within 1:12 of the slope of the primary roof structure of the principal building.

C. **Roofing or Cladding Materials.** As to roofing and cladding materials, "consistency" means a material that is not obviously different in terms of texture or color from a material used for the same purpose on the principal building.

D. **Window Styles, Window Orientation, and Doors.** As to window styles, window orientation, and doors, "consistency" means windows or doors with a design and aspect ratio that is not materially different from windows or doors on the principal building.

E. **Color Palette.** As to color palette, "consistency" means colors that are:
   1. The same as the principal building;
   2. Complimentary to the predominate color(s) of the principal building;
   3. Monochromatic variants of the primary color(s) of the principal building;

5-1-2-3 General Building Design Standards

A. **Building Orientation.** ~~All~~Primary buildings shall emphasize the location and importance of the entryways.

1. The main entrance or a courtyard leading to the main entrance of each principal building shall be located on the front facade.
2. On corner lots, the main entrance shall face one of the streets or be oriented to the corner.

B. **Massing.** Primary ~~B~~buildings shall be designed to avoid a monolithic appearance when viewed from the street.

C. **Facade Materials and Design.**

1. **General Requirements.**
   a. All building exterior finish materials shall be durable and consistent with the architectural style for that building.
   b. Where lap siding is used, it shall have a maximum nine-inch exposed board face.
   c. Siding material shall be continued down to within nine inches of finished grade on any elevation, except that siding shall be allowed to step to follow grade:
      i. Between six to 24 inches; or
      ii. Within 24 inches maximum from finished grade.

   ~~ii.~~d. Vinyl Siding shall be a VSI (Vinyl Siding Institute) certified product.

2. **Prohibited Materials.** The following materials are prohibited:
   a. Highly reflective opaque materials;
   b. Natural cinder block, unfinished or smooth concrete block / masonry units or concrete wall;
   c. Metal panels with a corrugated appearance with exposed fasteners; and

   ~~d. Vinyl siding.~~

   ~~e.~~d. Unlisted materials that are unsuitable for exterior building applications as determined by the Director.

3. **Other Materials.** The Director may permit materials that are not listed in this Section as either allowed or limited, provided that the Director finds that they have comparable aesthetic qualities, durability, and maintenance characteristics. The Director may prohibit materials that are not listed in this Section if the Director finds that they do not have aesthetic qualities, durability, and maintenance characteristics that are comparable to the materials that are allowed or limited under this Section.
4. **Side and Rear Facade Design.** Where a side or rear facade of a residential building abuts streets, parks, or open spaces, the facade shall be designed to provide human scale by the use of all of the following:
   a. At least one change in the vertical or horizontal wall plane within 20 feet above grade;
   b. At least one change in the color or material of the wall;
   c. Provision of windows, a porch, or a balcony; and
   d. Detailing the wall with reveals, belt courses, cornices, projections, or other devices.
5. **Rear Facade Design for Double-Frontage Lots.**

a. Double-frontage lots shall be required to meet the standards in Section 2-1-10-5, Double-Frontage Lots, for building setbacks or stepped setbacks for taller buildings.

b. Structures of two stories or more shall incorporate at least one of the following rear elevation treatments:

i. The building façade on the rear elevation shall have brick, stone, or stucco cladding in a minimum amount equivalent to 50 percent of the façade, (excluding windows, doors, trim and vents) from the average grade to the highest eave or 9'-6" above the average grade, whichever is lowest; or

ii. At least 50 percent of the area of the building facade shall have a minimum four-foot horizontal difference (plan view) in the rear wall plane at the height of one of the floors.

6. **360-Degree Architecture.** All buildings shall incorporate the following design standards to create architectural interest.

a. **Materials.**

i. Where brick, stone, or stucco cladding is used, they must be applied to the building facade in a manner which begins and ends at edges related to the structure of the building (such as a window sill level, floor plane lines, or interior corners of projection or similar elements). All brick, stone or stucco cladding shall wrap around all outside building corners a minimum of two feet, and must wrap all sides of a column on which it is used. An architectural treatment shall be used to transition from brick, stone, or stucco to other materials.

b. **Windows and Doors.**

i. Windows are ~~required~~encouraged on all elevations, except as provided in Division 2-1-8-5, Zero Lot Line, and unless restricted by the Building Code. On facades facing streets, parks, or open space, a minimum of 20 percent of the façade shall be windows. A greater percentage of windows may be required by other sections of this Code.

ii. Window and door openings shall be articulated on all elevations of the building through the use of:

a. Shutters, awnings or canopies;

b. Decorative lintels and/or sills (such as projecting, recessed, those constructed of materials other than the principal building material or ornamentation);

c. Overhangs; or

d. Surrounds and trims.

7. **Façade and Roof Color.** Colors used on building exteriors should integrate a building's various design elements or features.

a. Walls should be subdued in color and not reflective. Bright colors should be used sparingly and limited to accenting a building, and should not be used to act as signs or create "sign buildings". Monotonous color palettes are strongly discouraged.

b. All building projections, including, but not limited to, gutters, downspouts, chimneys, flues and vents, shall match in color the permanent color of the surface from which they project or match the building's trim color.

8. **Rooflines.**

a. Building rooflines visible from a public street, park, or open space shall incorporate features to create a varied and visually distinctive roof form through features, such as prominent cornice or fascia, stepped roofs, emphasized dormers, chimneys, gables, or an articulated roofline.

b. Roof slopes, excluding covered porches and patios, shall have a minimum pitch of 2:12 unless screened with a parapet wall. Subordinate roofs can be of a lesser pitch. A building of a style that is traditionally associated with flatter roofs, such as Prairie or Modern style, may be allowed as determined by the Director.

c. The maximum length of a continuous roof ridgeline is 35 feet. Roofs with dormers and other architectural details are exempt from this requirement.

d. Pitched roofs shall have a minimum eave overhang of at least one-foot.

9. **Canopies and Port-Cochères.** Canopies and port-cochères that cover vehicular use areas, service areas, or outdoor storage areas shall meet the following standards:

a. The same architectural treatments utilized on the principal building in terms of cladding materials, roof pitch, roofing materials, and color scheme shall be used on canopies and port-cochères.

b. A maximum of 25 percent of each canopy fascia area visible from a public street may be internally illuminated, and no portion of any fascia may be externally illuminated. Each side of a canopy shall be considered a separate fascia area.

10. **Rooftop, Wall Mounted and Ground Mounted Mechanical Equipment, Flues and Exterior Building Elements.**

a. **Screening.**

i. Rooftop mechanical equipment and appurtenances should all be screened from a public street through the use of parapets or enclosures that are equal to, or greater than, the height of the equipment to be screened. The parapet or enclosure shall use one of the predominate materials or colors used on the primary façade of the building.

ii. The Director may reduce or waive these screening requirements for building elevations that face substantial changes in grade that make screening impracticable if relocation of the mechanical equipment to a less conspicuous location is also impracticable.

iii. All air conditioning compressors shall be completely screened. Screening enclosures shall use at least one of the predominant materials used in the facades of the primary structure where feasible, and one of the predominant colors used in the primary structure.

iv. All rooftop and wall vents and flues on a pitched roof or extending above the top of the nearest parapet shall be painted with one of the predominant colors used in the primary structure.

v. Wall-mounted utility equipment and meters shall be screened from view from a public street and shall be painted a color to blend with the building façade.

b. **Noise attenuation.** Equipment that generates noise perceptible at the adjacent street or property line shall be baffled or otherwise attenuated to direct unavoidable noise upward.

5-1-2-4 Building Design Standards Applicable to Single-Family Detached, Duplex, and Multiplex

A. **Generally.** In addition to Section 5-1-2-3, General Building Design Standards, the following standards shall apply to new development or redevelopment of single-family detached, duplex, and multiplex units in all zoning districts.

B. **Front Façade Design**. In new development of single-family detached and duplex buildings, the front façade shall have significant variation as defined below:

1. No identical home elevation shall be repeated directly across the street or adjacent to the other home.
2. No identical model elevation shall be repeated more than once every three lots.
3. Distinct elevations shall be provided by incorporating at least three of the following:
    a. The use of different materials and color on the front facade;
    b. Variations in the front wall plane;
    c. Vary the size and location of the front porch;
    d. A variation of building types;
    e. The overall width of the front façade elevation differs by more than four feet;
    f. The overall height of the front façade elevation differs by more than four feet; and
    g. Windows size and shapes are substantially different.

C. **Garages.** All garages for single-family detached and duplex buildings shall comply with Section 5-1-2-2, Evaluation of Aesthetic Consistency, and are subject to the following:

1. For each new development containing ten or more single-family or duplex dwelling units in all zoning districts, 50 percent of the total number of lots in the subdivision that have a street-accessed garage shall use at least one of the following garage variations:
    a. Recessed garage doors facing the street shall be recessed a minimum of four feet behind the front wall plane of the house.
    b. Side-loaded garages shall be located at a right angle to the street. The design of the garage wall facing the street shall have the same predominate materials used on the front façade.
    c. Rear garages shall be located to the rear of the property either as a detached structure or part of the house. If constructed as part of the house, the part of the house, the front wall of the garage shall be setback at least 15 feet behind the front façade of the house.
2. Front loading, front-facing garage~~s~~ doors shall not constitute more than 50 percent of the total width of the building.
3. No more than three garage bays shall face the street, except when the bays are located behind the principal buildings.
4. When more than two garage bays exist, all garages doors that face a street shall include at least one two-foot-wide column or a two-foot façade setback separating each garage door.

5-1-2-6 Nonresidential and Mixed-Use Design Standards

A. **Generally**. This Section shall apply to any new nonresidential development, mixed-use development, redevelopment, or building expansion in all zoning districts. In addition to Section

5-1-2-5, Building Design Standards Applicable to Townhomes and Multifamily, the following standards shall apply to new development or redevelopment of multifamily and townhome units in the MX zoning districts. In the OT Zoning District, these standards may be modified through the design review process based on the standards in the Olde Town Building Form Standards and Design Guidelines for Olde Town.

B. **Building Orientation and Configuration.**

1. Structures shall be arranged so that the primary facade, or each facade with a main pedestrian entry, orients onto a public or private street, a public park, open space or common green, plaza, courtyard, private street-like drive, or a pedestrian passage, in the following order of priority:
    a. A public or private street;
    b. A pubic park, open space or common green;
    c. A plaza or courtyard; or
    d. A pedestrian walkway.

C. **Single-Story Commercial and Mixed-Use Developments.**

1. Commercial and mixed-use developments shall break up supporting commercial buildings into a cluster of individual pad and liner buildings at intersections and street edges.
2. Pad and liner buildings located within the frontage zone shall be designed to be "double-fronted", where at least one entrance shall face the street or public space, following the order of priority in B.1 above. Secondary entries can be oriented to the parking lot.
3. Large commercial or large format buildings with a minimum of 50,000 square feet of gross area, such as a grocery store or big box retail building, may be placed internal to the site.

D. **Multi-Building Developments.**

1. Multi-building developments that have three or more buildings shall be organized to create pedestrian-friendly spaces and streetscapes. This should be accomplished by placing buildings to:
    a. Frame and emphasize the corners of street intersections, development entry, or a primary pedestrian street within the development;
    b. Frame and enclose parking areas on at least two sides;
    c. Frame and emphasize a plaza, pocket park, square, or other outdoor gathering spaces for pedestrians; and / or
    d. Frame and emphasize other site improvements as approved by the Director.
2. Developments composed of multiple buildings totaling 100,000 square feet or more of gross floor area shall be configured to break up the site into a series of smaller blocks.

E. **Building Design.** The following building design standards are intended to provide architectural interest.

1. **Design of Facades.**
    a. The first floor façade of all buildings, including structured parking facilities, shall be designed to encourage and complement pedestrian-scale interest and activity through the use of elements such as windows, awnings, and other similar features.
    b. Architectural features and treatments shall not be limited to a single façade. All visible sides of a building, whether viewed from public or private property, shall display a

similar level of quality and architectural interest, with elements such as windows, awnings, a variety of exterior materials, reveals, and other similar features.

2. **Horizontal and Vertical Articulation.**

   a. **General Standards.** All buildings shall be designed to include horizontal and vertical articulation by incorporating the following elements ~~such as~~:

      i. Single story commercial buildings shall use at least three of the horizontal articulation methods listed below at an interval of 50 feet or less on each façade.

      ii. Single story industrial buildings shall use at least two of the horizontal articulation methods listed below at an interval of 100 feet or less on each.

      iii. All multi-story commercial, mixed-use, ~~and~~ multifamily ~~buildings~~, and industrial buildings in the I-L zoning district, shall use at least two of the ~~horizontal~~ articulation methods listed below at an interval of 50 feet or less on each street-facing building façade.

   b. **Articulation Methods.**

      i. Visual breaks in the façade by incorporating a horizontal wall plane offset or projection of at least three feet extending for at least 20 percent of the average width of the primary façade.

      ii. A change in materials, colors, textures, or pattern.

      iii. A change in window sizes, styles, or placement across the façade.

      iv. A change in roof or parapet height of a least three feet, or a change in roof form.

      v. Incorporation of a wall notch in combination with at least one option from (i.-iv.) above. Wall notches shall be a minimum of three feet deep and eight feet wide and shall total at least 20 percent of the façade length.

      vi. Use of masonry such as brick or stone, or other durable material to delineate the ground floor.

      vii. Use of an arcade, gallery or colonnade to accentuate the ground floor.

      viii. Use of enhanced architectural detailing or fenestration.

      ix. Use of cornices or projecting roof lines.

      ~~ix.~~x. For multi-story buildings, the horizontal interval may exceed 50 feet if building material changes and/or articulation occur above the first floor.

Figure 5-12-21-6: Horizontal and Vertical Articulation

Acceptable Not Acceptable

F. **Building Transparency.** The entire ground floor of all buildings located within ~~the~~a required building frontage zone that faces a public or private street shall provide transparency to increase pedestrian interest by incorporating window and door openings so that the uses are visible from and to the street. The following shall apply:

1. At least 40 percent of the façade between two feet and 10 feet above grade, must be transparent.
2. Up to 20 percent of the building transparency requirement may be satisfied with permanent art displays.

G. **Roofs Materials and Roof Form.**

1. **Roof Materials.** Visible roofs may be constructed of conventional asphalt (3-tab) roofs, architectural metal, or other acceptable material, but roofs constructed of clay or concrete tiles, slate, Masonite, or heavy duty/hail resistant dimensional composition are preferred. All composition shingle roofing shall be constructed using high profile, textured shingles.
2. **Roof Form.**
   a. Where sloped roofs are used, at least one of the following elements shall be incorporated into the design for each 100 linear feet of roof to avoid long, flat roof surfaces:
      i. Projecting gables,
      ii. Dormers,
      iii. Hips,
      iv. Vertical elevation change in roof height of at least two feet, or
      v. Other similar techniques as approved by the Director.
   b. Where flat roofs are used, the design or height of the parapet shall include at least one change in setback or height of at least two feet along each 100 linear feet of façade.
   c. On all structures exceeding three stories in height, all pitched roofs shall be internally drained, and external scuppers and wall drains shall be prohibited.
   d. All sloped roofs shall have overhanging eaves of at least one foot in depth, and roofs with a pitch of less than 2:12 shall be screened by a parapet wall.

Table 5-1-4-3: Mini-Structure Standards		
Attribute	**Standard**	**Exception**
Size (max)	200 sf.	
Height (max)	12 ft.	Tree Houses
Number of Mini-Structures	Maximum 2	Not limited for the following land uses: Amusement, Outdoor; Recreation, Outdoor; Stables and Riding Academies; Cemetery; Day Care Center; Public Lands, Parks, or Buildings; Schools (all); Storage Yard; Community Agriculture
Location of Mini-Structures	Not allowed in front yard; Not attached to principal building	Allowed in the front yard for Recreation, Outdoor; Cemetery; Public Lands, Parks, or Buildings; Schools (all); Storage Yard; Community Agriculture
Design	Roofed structures shall be compatible with principal building in terms of materials and colors	-
Use	Cannot be used for vehicle storage	-

5-1-5-2 Accessory Dwelling Units

A. **Generally.** Accessory Dwelling Units ("ADUs") are allowed in conjunction with all single-family detached dwellings in residential, OT and MX zoning districts, subject to the standards in this Section.

B. **Conformance to Development Standards.** ADUs must meet the same development standards that are required for the principal dwelling unit, except as provided in this Section.

C. **Classification of ADUs.** For the purposes of this LDC, ADUs are classified as follows:

1. **Type A**. A Type A ADU is detached from the principal dwelling unit. It is considered a separate dwelling unit for the purposes of the Building Code.
2. **Type B**. A Type B ADU is located inside in basements, the upper story, or attached to the principal single-family detached building, but the occupants of the ADU and principal dwelling unit do not live together as a single household unit. A Type B ADU is typically rented. Type B ADUs typically have a separate access from the principal dwelling unit. A Type B ADU and the principal dwelling unit into which it is integrated are considered separate dwelling units for the purposes of the Building Code.

D. **Parking.**

1. One on-site parking space shall be required for an ADU, in addition to any required parking for the principal dwelling unit.
2. The required parking space may be in tandem with other required spaces.
3. Garage space that is constructed for use by the occupant(s) of the ADU shall not exceed 250 square feet.

E. **Unit Size and Configuration.**

1. Except as provided in Subsection E.2., below, ADUs shall be:
   a. No larger than 40 percent of the living space of the principal building; and
   b. Within the lot size and floor area ranges set out in Table 5-1-5-2, Maximum Floor Area of Accessory Dwelling Unit.

Table 5-1-5-2: Maximum Floor Area of Accessory Dwelling Unit	
Lot Size	**Maximum Floor Area**
6,000 sf. or less	600 sf.
Greater than 6,000 sf. and up to 12,499 sf.	850 sf.
12,500 sf. to 1 acre	1,000 sf.
Greater than 1 acre	1,200 sf.

2. The limitations of Subsection E.1., above, shall not apply to ADUs that are located within the footprint of an existing home as long as the ADU is not larger than 50 percent of the floor area of the principal dwelling unit, including the basement. For example, if a home has a 1,000 square foot basement, an ADU could be established in the basement if the rest of the principal dwelling is at least 1,000 square feet.
3. ADUs shall be designed and configured as studio, one bedroom, or two bedroom units.

F. **Location.** Type A ADUs shall be located as follows:

1. For interior lots, at or behind the front plane of the primary building.
2. On corner lots, ~~Type A ADUs shall be set back~~ ten feet behind the facade of the principal building along both street frontages.

~~F.~~G. **Number of Accessory Dwelling Units per Lot.** Only one ADU is allowed for each residential lot.

~~G.~~H. **Design.** The appearance of ADUs built as additions to the existing principal building or as separate structure should continue the residential character and appearance of the principal building.

1. **Type A ADUs.**
   a. Type A ADUs shall be clearly subordinate to the principal building in terms of floor area..
   b. Windows that face an adjoining residential property should be designed and configured to protect the privacy of neighbors, unless fencing or landscaping is provided that adequately accomplishes the same purpose.
   c. Type A ADUs should be designed in a manner that is aesthetically consistent with the principal building in at least four of the following:
      i. roof pitch;
      ii. roof form;
      iii. roofing materials;
      iv. cladding materials;
      v. window styles and window orientation;
      vi. doors; and
      vii. color palette.
2. **Type B ADUs.** Type B ADUs are integrated into the principal building. If the ADU involves a modification to the exterior of the building, the modification shall be subject to the same design standards as Type A ADUs (Subsection H.1., above). If the entrance to the ADU is visible from an adjacent street, it shall be designed in a manner as to be clearly subordinate to the entrance of the principal dwelling.

~~H.~~I. **Outdoor Areas.** The subject property shall provide accessible outdoor space and landscaping for both the principal dwelling unit and the ADU.

~~I.~~J. **Utility Service Requirements.** ADUs must be connected to the utilities (except telephone, television, electrical, and internet) of the principal dwelling unit and may not have separate services.

~~J.~~K. **Owner Occupancy.**

1. The property owner, as reflected in title records and evidenced by voter registration, vehicle registration or other similar means, must occupy either the principal dwelling unit or ADU.
2. The Director may waive this requirement for temporary absences of less than one year provided that the owner has maintained the permitted use for a minimum of two years and submits proof of the temporary absence.

~~K.~~L. **Deed Restriction.** Before obtaining a building permit for an ADU, the property owner shall file with the County Clerk and Recorder, in a form acceptable to the Director, a declaration of restrictions in reference to the deed under which the property was acquired by the present owner stating that:

1. The ADU shall not be sold separately from the principal dwelling unit, nor shall the lot on which it is situated be subdivided unless such subdivision can be accomplished in accordance with all provisions of this Code;
2. The ADU shall be restricted to the approved size;
3. The certificate of occupancy for the ADU shall be in effect only so long as either the main residence, or the ADU, is occupied by the owner of record as their principal dwelling unit, subject to any temporary waiver granted pursuant Subsection L., above;
4. Lack of compliance with deed restrictions may subject the owner of the property to any and all penalties provided for in this Code;
5. The above restrictions are binding upon any successor in ownership of the property;
6. The deed restrictions shall lapse upon removal of the ADU. To effect this intent, and upon verification of such removal, the Director shall record appropriate documentation releasing such encumbrance. The property owner shall pay all required recording fees, and it shall be the Applicant's responsibility to ensure that such recording was successfully completed.

~~L.~~M. **Existing Development on Lot.** A single-family detached dwelling unit must exist as a principal dwelling unit on the lot or be constructed simultaneously with the ADU. A certificate of occupancy will only be issued for an ADU after it has been issued for the principal dwelling unit.

5-1-5-3 Accessory Buildings

A. **Generally.**

1. Storage sheds, studios, cabanas, stables, loafing sheds, barns, and detached garages requiring a building permit shall comply with the standards of this Section. Accessory dwelling units are subject to Section 5-1-5-2, Accessory Dwelling Units, and not this Section.
2. Stables, loafing sheds, and barns are allowed only in RA and RN-32.5 zoning districts.
3. Except for barns and stables, each Accessory Building shall have a square footage area that is less than the footprint of the living area, excluding attached garage square footage, of the principal dwelling unit.

B. **Number.** The maximum number of Accessory Buildings that may be constructed or installed upon a residential lot is based on the zoning district and lot size, and shall be as set forth in Table 5-1-5-3A, Maximum Number of Accessory Buildings.

Table 5-1-5-3A: Maximum Number of Accessory Buildings	
Zoning District	Maximum Number of Accessory Buildings
RN-4	2
RN-6, RN-7.5, RN-D	3
RN-12.5	4
RN-32.5	6
RA: lot less than 5 acres	6
RA: lot 5 acres or larger	7
PUD	Per the approved PUD. If no standards were identified as part of the approved PUD, then the maximum number for the closest zoning district shall be utilized.
R6, R13, R24, OT Form, and MX Zoning Districts and Lot Type	
Small Urban, Urban	-
Small General	2
General, Small Suburban, Suburban,	3
Cluster	1

C. **Building Coverage.** Accessory Buildings are counted towards the combined square footage of the principal building footprint and accessory structure(s) and shall not exceed the zoning district maximum lot coverage limitations.

D. **Height.** Accessory Buildings shall not exceed the maximum height for accessory buildings identified in the zoning districts in Chapter 2, Zoning Districts.

E. **Location.**

1. **All Zoning Districts except RA.** Accessory Buildings shall be:
   a. Located ~~outside of~~within the setbacks identified in the zoning districts. (*See* Chapter 2, Zoning Districts); and
   b. Set back ~~on the same~~at or behind the front plane as the nearest front façade of the principal building.
2. **RA Zoning District.** Accessory Buildings may be located in any yard, and must meet the required setbacks.
3. **Accessory Buildings**. With the exception of non-residential gas station canopies, gas station or car wash facilities where allowed, and security/entry booths, accessory buildings shall not be in the front or side yards.

F. **Design.** The design of ~~detached garages~~accessory buildings shall be aesthetically consistent with the design of the principal building. *See* Section 5-1-2-2, Evaluation of Aesthetic Consistency, for applicable standards.

5-1-6-2 Drive-Through Facilities

A. **Generally.** Drive-through facilities are subject to the standards of this Section.

B. **Design Standards.**

1. **Location.** Uses with drive-through facilities shall be located on properties with frontage on an arterial or collector street. Drive-through facilities are prohibited in the OT zoning district.

2. **Speakers.**

   a. Speakers shall not be oriented towards an adjacent residential zone district unless an intervening building exists. Where an intervening building does not exist, the following shall also apply to minimize the speaker noise impact on an adjacent property:

      i. If the speaker is located within 15 feet or more of the property line, a solid wall with a minimum height of 6 feet shall be installed on the property line.

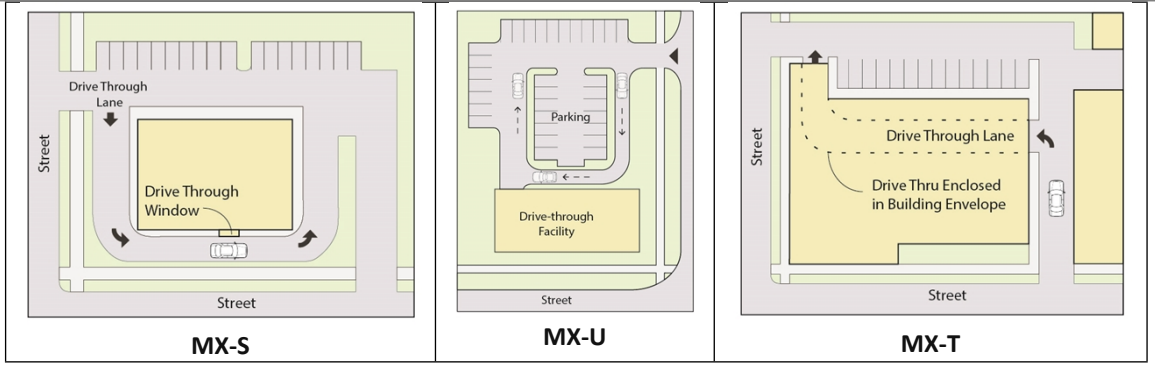
3. **CG and MX Zoning Districts.** In CG and MX zoning districts, a drive-through facility shall be subject to the following:

   a. In CG and MX-S zoning district, a drive-through lane may be located in the area between a building and a public street. The drive-through lane shall be screened from the public street by ~~landscaping~~an Option B bufferyard, per Division 4-6-5-3, Bufferyard Options, or a low decorative wall to a minimum height of 48 inches. If a low screen wall is installed, the construction material shall be aesthetically consistent with the first floor exterior color and materials used on the principal building or provide a comparable level of quality.

   b. In the MX-U zoning district, a drive-through lane shall not be located in the area between a building and a public street. The drive-through windows shall not face a public street.

   c. In the MX-T zoning district, a drive-through lane shall be designed so that it is enclosed within the envelope of the building, the drive through windows are not visible from adjacent public streets and the drive-through lane shall not be located in the area between a building and a public street.

Figure 5-1-6-2: Illustrative Drive-Through Facilities in the MX



C. **Stacking.** Drive-through lanes shall meet the applicable requirements of Section 4-5-3-6, Vehicle Stacking. Additional stacking may be required if the Director finds that, based on pertinent data, the drive-through configuration would likely otherwise create congestion on adjacent streets due to queuing at the drive-in or drive-through stations.

5-1-6-5 Trash Collection and Compaction

A. **Generally.** Nonresidential, mixed-use, multifamily, and clustered small housing development shall include a designated trash collection and / or compaction area, which shall be located and designed to ensure adequate on-site maneuvering area for trash collection vehicles. Residential

subdivisions may include designated trash collection and / or compaction areas, which, if provided, must also comply with the standards of this Section. Trash collection dumpsters shall not be allowed on individual single-family or duplex lots, unless on a temporary basis associated with construction projects for which a building permit has been issued.

B. **Location.**

1. Each trash collection, including recycling bins, or compaction area shall be located not less than 20 feet away from lots used for single-family detached, duplex, multiplex, or townhome uses, and at least 20 feet away from streets, sidewalks, and internal pedestrian circulation systems. Such areas shall be located on the site in the following order of priority (highest priority listed first, and higher order priorities are eliminated only if infeasible):
    a. In a screened enclosure that is connected to or adjacent to the rear of the principal building;
    b. In the rear yard; or
    c. In the interior side yard;
2. Trash collection, recycling bins, or compaction areas shall not be located more than 200 feet from the entrances of uses that they are intended to serve.

C. **Enclosures.** Each such trash collection area shall be screened from view from all property lines by a non-combustible screen or wall between six feet and eight feet in height. The access to this enclosure shall be screened with an opaque gate. Screening fences and walls (not including gates) shall be aesthetically consistent with one of the predominant materials and one of the predominant colors used in the principal building. Chain-link gates with metal cladding are prohibited.

5-1-6-7 Custodial Unit

A. **Generally.** The standards of this section apply to self-storage and kennel facilities with a dwelling unit for an on-site resident manager.

B. **Design Standards.** Self-storage and kennel facilities with one on-site resident manager/caretaker dwelling shall be meet the following standards:

1. The resident manager / caretaker dwelling unit shall be incorporated into and occupy space on the premises of the self-storage or kennel facility;
2. One off-street, covered parking space shall be required for the exclusive use of the resident manager / caretaker.
3. A landscaped private recreation area, with a minimum area of 750 square feet, shall be provided within the self-storage or kennel facility for the exclusive use of the resident manager / caretaker. The landscaped recreation area shall include:
    a. A minimum of one 2.5 inch caliper shade tree, turf shrubs, and recreation equipment.
    b. Recreation equipment shall consist of picnic table and barbeque facilities, or other comparable equipment for use by the resident manager/caretaker.

5-1-6-9 Electric Vehicle (EV) Charging Stations

A. **Generally**. The standards of this section shall apply to new developments containing parking stalls or other spaces on-site dedicated to the use of such spaces for the charging of electric vehicles. TAdditionally these standards shall also apply to existing sites that make modifications to build or plan for EV charging stations.

B. **Location**

1. For ~~any~~ single-family, duplex, or multiplex use, EV charging stations shall be located inside a garage or carport.
2. For ~~In any~~ townhome, multifamily, or cottage-home use, EV charging stations and equipment shall be located either in a garage or in a location internal to the site.
3. For ~~all~~ any mixed use and non-residential uses containing ten or fewer EV charging stations, all charging stations and equipment may be allowed anywhere on site provided:
   a. All equipment adheres to the required minimum parking front setback from all public and private streets.
4. For ~~all~~ mixed use and non-residential uses containing more than ten EV charging stations, all charging stations and equipment shall comply with the requirements of Subsection 4-3-3-4(F), Fueling/Service Station Site Design.
5. In the~~any~~ OT zone district, EV charging stations and equipment shall be located either in a garage or internal to the site, behind a building or buildings, and not visible from a public street.
6. EV charging stations and equipment may not be located in any portion of a required small urban park or buffer yard.

C. **Sitting, Site Design, and Screening**

1. If located along a public or private street, a Option ~~Type~~ B bufferyard per Division 4-6-5-3, B~~b~~uffer-yard Options between all equipment and the front property line shall be provided.
2. The installation of an EV charging station shall not reduce the size of the parking stall in which it is being installed ~~for~~ below the minimum size required in Subsection 4-5-3-2, Parking Space and Aisle Standards.
3. Concrete wheel stops shall be used between the parking space and the equipment if the parking is not parallel.
4. If a canopy will be used, the canopy shall comply with the requirements of Subsection 5-1-2-3-C9, Canopies and Porte-Cochers.
   a. In any MX zone district if a canopy is used, the canopy shall comply with the requirements of Subsection 4-3-3-4-F, Fueling/Service Station Site Design.
5. Parking spaces used for EV charging shall be signed for EV vehicles only.

Table 6-1-5-2: Detached Permanent Signs

Type of Sign / Standards	Sign District			
	Olde Town (OT)	Mixed- Use, Commercial-Industrial (MX, C, I)	Multifamily Residential (RM)	Single-Family Residential (R)
Primary Detached Signs				
Max. #	1 per property	1 per 600 lf. of property frontage or fraction thereof	*See* "Other Standards," below	*See* "Other Standards," below
Max. Sign Area	Generally: 32 sf. mixed-use form In the OT District on property that is developed with a	Aggregate primary detached sign area shall not exceed 10 sf. plus 1 sf. per 4 lf. of property frontage, up	25 sf. per sign, plus 1 sf. per 2 lf. of additional setback from property lines, up to a maximum of	25 sf. per sign, plus 1 sf. per 2 lf. of additional setback from property lines, up to a maximum of

Table 6-1-5-2: Detached Permanent Signs				
Type of Sign / Standards	**Sign District**			
	Olde Town (OT)	**Mixed- Use, Commercial-Industrial (MX, C, I)**	**Multifamily Residential (RM)**	**Single-Family Residential (R)**
	building with a single-family detached , duplex or multiplex form: 8 sf. For all other forms: 20 sf.	to a maximum of 125 sf.	50 sf. per sign	50 sf. per sign
Max. Sign Height	Single-family detached, duplex or multiplex form: 4 ft. For all other forms: 6 ft.	Less than 200 lf. of property frontage: 6 ft. 200 to 600 lf. of property frontage: 12 ft. More than 600 lf. of property frontage: 24 ft.	6 ft.	6 ft.
Allowed Lighting	External	External or internal	External	External
Setbacks and Spacing	No encroachment upon sidewalk 2 ft. from property lines 6 ft. max from building walls and vehicular use areas	4 ft. from vehicular use areas, sidewalks, trails, multi-use pathways, and property lines 12 ft. from building walls	2 ft. from sidewalks, trails, multi-use pathways, curbs, and vehicular use areas	2 ft. from sidewalks, trails, multi-use pathways, curbs, and vehicular use areas
Other Standards	Except in the OT-RR Zoning District, cabinet signs are not allowed. Must be installed in permeable landscaped area or hardscaped pedestrian plaza that extends at least 4 ft. from the base of the sign in all directions	Must be installed in permeable landscaped area that extends at least 4 ft. from the base of the sign in all directions	Allowed at points of entry into residential subdivisions or multifamily developments on properties where signs are present on the effective date or where designated on approved final plat, approved final development plan, or approved site plan	Allowed at points of entry into residential subdivisions or multifamily developments on properties where signs are present on the effective date or where designated on approved final plat, approved final development plan, or approved site plan
Secondary Detached Signs				
Max. #	1 per vehicular ingress point	1 per vehicular ingress point	1 per vehicular ingress point	Not allowed
Max. Sign Area	4 sf.	600 lf. of property frontage or less: 4 sf. More than 600 lf. of property frontage: 8 sf.	4 sf.	NA
Max. Sign Height	3.5 ft.	600 lf. of property frontage or less: 3.5 ft. More than 600 lf. of property frontage: 6	3.5 ft.	NA

Table 6-1-5-2: Detached Permanent Signs				
Type of Sign / Standards	Sign District			
	Olde Town (OT)	Mixed- Use, Commercial-Industrial (MX, C, I)	Multifamily Residential (RM)	Single-Family Residential (R)
		ft.		
Allowed Lighting	External	External or internal	External	NA
Setbacks and Spacing	At least 2 ft. from property lines	At least 2 ft. from property lines	At least 2 ft. from property lines	NA
	Not more than 4 ft. from inside of curb of vehicular ingress or egress point	Not more than 4 ft. from inside of curb of vehicular ingress or egress point	Not more than 4 ft. from inside of curb of vehicular ingress or egress point	

8-1-1-1 Director of Community and Economic Development

A. **Generally.** The Director of Community and Economic Development ("Director") is the member of the City Staff who carries out the planning and zoning functions of the City. The Director shall designate staff members to manage applications through the review process and be points of contact for Applicants. The Director may also delegate review responsibilities to managers or other professional-level staff, or, as appropriate, to consultants selected by the City.

B. **Duties and Responsibilities.** The Director shall be responsible for the administration of this LDC and the regulations contained herein.

1. The Director shall have the authority to:

   a. Interpret and apply the provisions set forth in the LDC, other regulations adopted by the City and planning and engineering best practice. The Director shall have the authority to prepare and update Development Procedures, which may include a checklist for each type of development application, setting forth the information that Applicants must submit in order for the City to review development applications, permits and other developmental approvals under this Code, an application review schedule, fees and other relevant and appropriate materials related to the administration of this Code.

   b. Make district boundary interpretations when uncertainty as to the district boundaries exists.

   c. Make each of those decisions shown as a decision of the Director in 8-2-2-2, Decision-Making Tracks by Application Type.

   d. Review and make recommendations on development applications reviewed and acted upon by the Planning Commission, City Council or other Decision Makers, as applicable, as shown in 8-2-2-2, Decision-Making Tracks by Application Type.

   e. Review all land-use activities, plans involving land-use activity, or applications for land-use activity that are subject to either the Design Guidelines for Olde Town Arvada or the guidelines designated as "mandatory" within the Design Guidelines for the Reno Park Addition Historic District, and take final action to approve, approve with conditions, or deny the issuance of a (CCDG), as appropriate.

~~e.~~f. Accept land dedications and easements associated with development applications concerning which final approval has been granted by the Director.

2. The Director shall:
   a. Review applications for Sign Permits and taking final action to approve, approve with conditions, or deny on such applications.
   b. Maintain the Official Zoning Map, including updates to reflect rezonings.
   c. Administer the provisions of this LDC and approvals granted hereunder, and coordinate with the Code Enforcement, Neighborhood Services and the City Attorney with regard to enforcement of this LDC.
   d. Make recommendations regarding amendments to this LDC and to the Comprehensive Plan and other land use or strategic plans approved or adopted by the City.
   e. Develop or supervise the development of master plans, special area plans, or strategic plans, however titled, as directed by the Planning Commission.
   f. Provide expertise and technical assistance to the advisory and decision making bodies under this Code, upon request, and as appropriate.
3. The Director shall also determine:
   a. Whether the proposed development creates a need for off-site public improvements;
   b. Whether required development-related agreements (*see* Division 8-4-5, Development-Related Agreements and Covenants) comply with the requirements of this LDC and the Arvada Municipal Code with respect to the identification of required public improvements and the security provided for said public improvements; and
   c. Whether proposed public improvements and drainage plans comply with applicable engineering standards.
   d. Review applications for revocable right-of-way permits and determine as to whether and to what extent the requested encroachment will or could interfere with municipal or public use of the right-of-way.

8-1-2-2 Planning Commission

A. **Powers and Duties; Generally.**
   1. *Decisions*. The Planning Commission shall hear and find facts as to whether the following types of applications comply with the requirements of this LDC:
      a. Alternative Sign Programs
   2. *Recommendations*. The Planning Commission shall consider and recommend to the City Council approval, approval with conditions, or disapproval of the following types of applications or petitions:
      a. Annexations;
      b. Height Exceptions;
      c. Major Subdivision Preliminary Plats;
      d. Major Modifications;
      e. Zoning and Rezoning;
      f. Conditional Uses;

~~f.~~g. PUD Development Plans (Planned Unit Developments);

~~g.~~h. Conbined PUD Development Plans / Final Development Plans (Planned Unit Developments); and

~~h.~~i. Vacation of Right-of-Way and Access Easements.

B. **Powers and Duties; Initiated Land Development Code Amendments and Other Duties.** The Planning Commission may also initiate proposed changes to the LDC and advise the City Council on such proposed changes, and shall perform such other duties as the City Council may be ordinance, resolution or motion prescribe.

C. **Powers and Duties; Comprehensive Plan.**

1. *Comprehensive Planning*. Upon request by the City Council, the Planning Commission shall have the power to prepare a Comprehensive Plan as a guide for future zoning and rezoning and shall have lawful and comprehensive studies made in conjunction therewith. Any plan so prepared shall be made with the general purpose of carrying out the objective of providing for the considered planning and orderly physical development of the City and applicable surrounding areas. The Planning Commission shall also actively promote implementation of any such Comprehensive Plan and other adopted plans, through its powers and duties as set out in this Section.

2. *Other Plans*. Upon request by the City Council or the Director, the Planning Commission shall be responsible for adopting other land use plans, open space/parks/trails plans, special area plans, corridor plans, and similar plans, and any updates or amendments to such plans. The Planning Commission shall also actively promote implementation of the Comprehensive Plan and other adopted plans, through its powers and duties as set out in this Section.

8-2-2-1 Development Approval Required

A. **Generally.** Unless specifically exempt from the application of this LDC, development approval is required for all:

1. Development;
2. Redevelopment;
3. Qualifying "land use activity" within areas that are subject to Design Guidelines (*see* Section 8-3-~~4-5~~5-4, Certificate of Compliance with or Waiver from Design Guidelines); or
4. Re-grading of:
   a. Nonresidential property; or
   b. Property within the Special Flood Hazard Area.

B. **Temporary Uses and Special Events.** Certain temporary uses and special events require Temporary Use Permits. *See* Division 3-1-4, Temporary Uses.

C. **Encroachments into Public Rights-of-Way.** Certain encroachments may be allowed in or over public rights-of-way pursuant to an approved revocable right-of-way license.

Table 8-2-2-2A: Decision-Making Tracks

Track	Decision-Maker	Public Hearing	Public Outreach		Administrative Appeal To
			Neighborhood Meeting	Notice	
Track	Director[1]	No	No[3]	Yes[4]	Planning Commission

1					or City Council (*See* Section 8-2-5-2, Appellate Body)
Track 2	Director[2]	Planning Commission	Yes	Yes	City Council
Track 3	Planning Commission	Planning Commission	Yes	Yes	City Council
Track 4	City Council	City Council[5]	No	Yes	-
Track 5	City Council	Planning Commission; City Council	Yes[6]	Yes	-
Track 6	Floodplain Administrator	Floodplain Administrator	No	Yes	Floodplain Hearing Officer
Track 7	Floodplain Hearing Officer	Floodplain Hearing Officer	No	Yes	-
Track 8	Board of Adjustment	Board of Adjustment	No	Yes	-
Track 9	Informational only to Planning Commission and City Council	No	No	No	-

TABLE NOTES:
[1] For Public Improvements Construction Drawings for private development, and is not appealable to the Planning Commission; for Floodplain Development Permits, the decision is by the Floodplain Administrator, and is appealable to the Floodplain Hearing Officer.
[2] Planning Commission fact-finding is not advisory. Director must issue decision on facts found by Planning Commission as to application's compliance with the applicable standards of this LDC.
[3] At the discretion of the Director, a neighborhood meeting may be required to inform residents of the proposed development in their neighborhood.
[4] Notice required for Track 1 reviews only as required by Section 8-2-3-8, Notice of Administrative Application. **The Director shall have the discretion to waive the notice requirement or reduce the notice distance for applications determined to have minimal impact on the notice area.**
[5] Public hearing not required for Revocable Right-of-Way License Agreements.
[6] The Director shall have the discretion to waive the neighborhood meeting requirement for applications determined to have minimal impact on the notice area.

Table 8-2-2-2B: Decision-Making Tracks by Application Type

Application Type	Required For	Exceptions	Reference	Decision-Making Track	Submittal Type
1. Annexation, Zoning, and Rezoning					
Annexation	Annexing property into the City	-	Division 8-3-3, Annexation and Disconnection	Track 5[1]	Project
Disconnection	Removing property from the City limits	-	Division 8-3-3, Annexation and Disconnection	Track 5[1]	Project
Zoning or Rezoning	Changing the zoning designation of land within the City or establishing initial zoning for land being annexed into the City	-	Division 8-3-4, Zoning and Rezoning	Track 5	Project
2. Land Use					

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	**Required For**	**Exceptions**	**Reference**	**Decision-Making Track**	**Submittal Type**
Limited Use	Establishing a limited use	-	Division 3-1-3, Use-Specific Standards for Primary Land Uses, as applicable to the use	Track 1	Project
Conditional Use	Establishing a conditional use	-	Division 3-1-3, Use-Specific Standards for Primary Land Uses, as applicable to the use; and Section 8-3-5-1, Conditional Use	Track 5	Project
Temporary Use / Special Event	Commencing / conducting certain temporary uses on a subject property	-	Division 3-1-4, Temporary Uses, as applicable to the temporary use or special event; and Section 8-3-5-5, Temporary Use Permit	Track 1	Permit
3. Certificate of Compliance, Site Plans and Site Development					
Certification of Compliance with Design Guidelines	Verifying compliance with or waiver from applicable Design Guidelines, if the subject property is located in an area that is subject to Design Guidelines (e.g., Olde Town or Reno Park)	As provided in the applicable design guidelines document; *see* Appendix A: Design Guidelines for Olde Town Arvada; and Appendix B: Design Guidelines for the Reno Park Addition Historic District	Applicable design guidelines document; *see* Appendix A: Design Guidelines for Olde Town Arvada; and Appendix B: Design Guidelines for the Reno Park Addition Historic District; and Section 8-3-5-4, Certificate of Compliance with Design Guidelines	Track 1, if not processed with another application type; otherwise same track as related application. *See* Sec. 8-3-5-4, Certificate of Compliance with Design Guidelines	Project
Master Development Plan	Establishing or modifying a plan for a phased project to ensure compliance with the LDC	-	Section 8-3-5-2, Master Development Plan	Track 1	Project
Site Plan or Site Plan Amendment	Establishing or modifying the physical layout of a subject property, including infrastructure, development and architectural standards, parking and loading, landscaping, lighting, grading, drainage, , major structure footprints, and building footprints	Single-family detached and duplex housing types on individual lots in a subdivision of nine or fewer lots. Accessory dwelling units and accessory buildings	Applicable provisions of Chapter 2, Zoning Districts; Chapter 3,Use Regulations;; Chapter 4, Environmental and Site Design; and Chapter 5Building Design	Track 1	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	**Required For**	**Exceptions**	**Reference**	**Decision-Making Track**	**Submittal Type**
Floodplain Map Amendment	Changing the boundaries of a special flood hazard area	-	As provided by federal regulation	Track 6, as provided by federal regulation	Project
Floodplain Development Permit	Authorizing development within the floodplain or floodway	-	Applicable provisions of Division 4-1-2, Floodplain Regulations; and Section 8-3-5-6, Floodplain Development Permit	Track 6 (*see* footnote 1 of Table 8-2-2-2.A., above)	Permit
Miscellaneous Structure Permit	Authorizing the construction or installation of fences, walls, decks, retaining walls, garden walls, accessory buildings, accessory structures or sheds	Mini-structures less than 200 square feet	Section 8-3-5-7, Miscellaneous Structure Permit-	Track 1	Permit
Revocable Right-of-Way License Agreement	Authorizing encroachments within public rights-of-way (e.g., signs, outdoor dining areas, etc.)	Temporary structures that are approved by Temporary Use or Special Event Permits	Section 8-3-5-7, Revocable Right-of-Way License Agreements	Track 4	Project
4. Wireless Communications Facilities					
Small Cell Facilities Permit	Authorizing the co-location of wireless communications facilities; authorizing small-cell facilities in the right-of-way	-	Chapter 7, Wireless Communications Facilities; and Division 8-3-6, Wireless Communications Facilities	Track 1, as modified by Division 8-3-6, Wireless Communications Facilities	Permit
Base Stations and Alternative Tower Structures	Authorizing the installation of a new wireless communications facility on private property	-	Chapter 7, Wireless Communications Facilities; and Division 8-3-6, Wireless Communications Facilities	Track 1, as modified by Division 8-3-6, Wireless Communications Facilities	Project
Free-standing Towers	Authorizing the new installation of a freestanding wireless communications tower	-	Chapter 7, Wireless Communications Facilities; and Division 8-3-6, Wireless Communications Facilities	Track 5, as modified by Division 8-3-6, Wireless Communications Facilities	Project
5. Signs					
Sign Permit	Installing or displaying a sign (may also require Certification of Compliance with Design Guidelines)	Exceptions and exemptions listed in Sec. 6-1-2-2, Exemptions and Partial Exemptions; and Sec. 6-1-2-3, Permit Exceptions	Chapter 6, Signs, or an approved Alternative Sign Program; and Section 8-3-7, Sign Permits	Track 1	Permit

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	**Required For**	**Exceptions**	**Reference**	**Decision-Making Track**	**Submittal Type**
Alternative Sign Program	Establishing a specific signage program for a particular subject property or development, which may modify some of the standards of Chapter 6, Signs	-	Chapter 6, Signs; and Section 8-3-7-2, Alternative Sign Programs	Track 2	Project
6. Subdivisions, Plats, and Vacations					
Major Subdivision Concept Plan	Providing the City with a generalized land use plan and layout for the area proposed to be included within a subdivision	This review process is available at the Applicant's option	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 9	Project
Major Subdivision Preliminary Plat	Establishing the preliminary layout of lots, streets, utilities, and open spaces within a subdivision, prior to approval of a major subdivision final plat for 10 or more lots.	-	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 5	Project
Major Subdivision Final Plat	Establishing the final layout of the lots, tracts, streets, alleys, and easements within a subdivision for 10 or more lots	-	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 1	Project
Minor Subdivision Plat	Establishing the specific layout of the lots, tracts, streets, alleys, and easements within a subdivision that including nine or fewer new lots or tracts	-	Applicable standards of Chapter 2, Zoning Districts; Chapter 4, Environmental and Site Design; and Chapter 9, Nonconformities	Track 1	Project
Vacation of Right-of-Way	Extinguishing Right-of-Way that is held by the City	-	Division 8-3-9, Vacation of Rights-of-Way; Termination of Easements	Track 4	Project
Vacation of Easement	Extinguishing an easement that is held by the City	-	Division 8-3-9, Vacation of Rights-of-Way; Termination of Easements	Track 1	Project
7. Infrastructure Development and Public Improvements					
Public Improvement Construction Drawings	Approving construction drawings for wastewater,	Landscaping on individual lots used for single-family detached	Engineering Code of Standards and Specifications; Division 8-4-4, Public	Track 1 (*see* footnote 1 of Table 4-3-2-2A., above)	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	**Required For**	**Exceptions**	**Reference**	**Decision-Making Track**	**Submittal Type**
	water, stormwater, street, and landscaping improvements	and duplex housing types	Improvements, Warranties and Utilities		
Development Agreement	Setting out the timing and terms for the installation of public and private improvements, and providing for security to ensure that the improvements are constructed and warranted	-	Division 8-4-5, Development-Related Agreements and Covenants-	Track 1	Project
Formation of Reimbursement Assessment District and Metropolitan District	Creating reimbursement assessment districts for financing public improvements	Development that does not require a reimbursement assessment district, as determined by the Applicant	-	Track 4	Project
Out-of-City Utility Request	Any request for City provision of utility service to property outside City limits	-	Section 8-3-5-8	Track 5	Project
8. Planned Unit Developments					
PUD Sketch Plan	Providing the City with an early, informal, and generalized land use/site plan for the area proposed to be included within a PUD	This review process is available at the Applicant's option	Section8-3-10-5, PUD Sketch Plan	Track 9	Project
PUD Development Plan	Establishing the types and total amount of development proposed within a PUD (dwelling units, land uses, and nonresidential floor area), as well as the proposed general plan for pedestrian and vehicular circulation within and connecting to the PUD; may run concurrently with preliminary plat application	-	Section 8-3-10-6, PUD Development Plan	Track 5	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	**Required For**	**Exceptions**	**Reference**	**Decision-Making Track**	**Submittal Type**
PUD Final Development Plan	Establishing or modifying the physical layout of a subject property, including infrastructure, development and architectural standards, parking and loading, landscaping, lighting, grading, drainage, , major structure footprints, and building footprints in accordance with an approved PUD Development Plan		Section 8-3-10-6, PUD Unit Development Plan	Track 1	Project
9. Interpretations, Variances, Modifications, Exceptions, and Interpretations					
Administrative Minor Modifications	Authorizing a minor variation to the standards of the LDC	-	Section 8-3-11-3, Administrative Minor Modifications	Track 1	Project
Major Modification	Authorizing a major variation to the standards of the LDC	-	Section 8-3-11-4, Major Modifications	Track 5	Project
Reasonable Accommodations	Authorizing a minor variation to the standards of this LDC	-	Section 8-3-11-5, Reasonable Accommodations	Track 1	Project
Official Interpretations	Providing an official written interpretation of the provisions of this LDC	-	Section 8-3-11-7, Official Interpretations	Track 1	Project
Height Exception	To exceed building or structure height standards in the LDC	-	Section 8-3-11-1, Height Exceptions	Track 5	Project
Variance or Exception to Standards	Authorizing a departure from the strict application of the standards in the LDC	Where other methods exist for authorizing the modification, such as an administrative minor modification, floodplain variance; or where standards are statutory requirements (e.g., state-mandated	Section 8-3-11-2, Variances	Track 8	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	**Required For**	**Exceptions**	**Reference**	**Decision-Making Track**	**Submittal Type**
		subdivision monumentation standards)			
Floodplain Variance	Authorizing a departure from the strict application of Division 4-1-2, Floodplain Regulations	-	Section 8-3-11-6, Floodplain Variances	Track 7	Project
10. Vested Rights					
Early Vested Rights	Obtaining vested rights prior to the approval of a site-specific development plan	-	Section 8-3-12-1, Early Vested Rights	Track 4	Project
Vested Rights (and Extension)	Obtaining vested rights in accordance with Article 68 of Title 24, C.R.S., as amended	-	Section 8-3-12-2, Vested Rights	Track 4	Project
11. Amendments and Terminations					
Annexation Agreement Amendment	Amending an annexation agreement	-		Track 4	Project
Major Comprehensive Plan Amendment	Amending text or Future Land Use Map, where amendment does not fall within the category of "minor"	-	-	Track 3	Project
Minor Comprehensive Plan Amendment	Correcting obvious errors (either text or mapping), and updating outdated data without changing policy	-	-	Track 1	Project
Major LDC Amendment	Changing procedures or standards in the LDC, where amendment does not fall within the category of "minor"	-	-	Track 5	Project
Minor LDC Amendment	Correcting non-substantive clerical or formatting errors in the LDC text or maps, or adding or correcting illustrations	-	Section 8-3-2-2, Text Amendment Requirements	Track 1	Project
Abandonment of	Terminating a	-	-	Track 1 if	Project

Table 8-2-2-2B: Decision-Making Tracks by Application Type					
Application Type	**Required For**	**Exceptions**	**Reference**	**Decision-Making Track**	**Submittal Type**
Development Approval	development approval without a replacement development approval			development never commenced and there is no development agreement	
TABLE NOTES: [1] As modified by Colorado law pertaining to annexation and disconnection.					

8-2-3-4 Neighborhood Meetings

A. **Purposes and Intent.**

1. *Purposes*. The purposes of the neighborhood meeting are:
   a. To educate and inform City residents, businesses and organizations of pending development proposals in and near their neighborhood;
   b. To encourage an Applicant to pursue early and effective communications with the affected parties in conjunction with the proposed development prior to submitting applications, giving the Applicant an opportunity to understand and attempt to mitigate any documentable adverse impact of the proposed development on the community;
   c. To provide residents and property owners a forum to work together to resolve potential concerns at an early stage of the process; and
   d. To facilitate ongoing communication between the Applicant, interested residents and property owners, businesses and organizations, the Director, and City officials throughout the development review process.
2. *Intent*. Neighborhood meetings are forums in which the Applicant and community members should strive to work together in good faith. However, they are not required to achieve consensus on all aspects of the applications, nor to supplant or add to or subtract from the standards of this LDC. The Applicant is primarily responsible for describing the development and answering questions about the development and potential impacts on the community. City staff is primarily responsible for describing applicable review procedures and opportunities for public input.

B. **Notice.** Notice of the neighborhood meeting shall be prepared by the Applicant per the requirements of Division 8-2-4, Required Notices. Notification of the neighborhood meeting shall be sent by mail and electronically to those registered neighborhood groups that have boundaries within one-half mile of the project site, and to property owners within 500 feet of the project site at least 15 calendar days before the meeting date.

C. **Conduct of Meetings.**

1. The Applicant shall be responsible for scheduling the neighborhood meeting at a time when a Director's staff member can attend, coordinating the meeting, and if necessary retaining an independent facilitator. All neighborhood meetings shall be convened at a place in the vicinity of the proposed development.
2. At the meeting, the Applicant or Applicant's representative shall present information about the land uses, site layout, building size and height.

D. **Neighborhood Meeting Summary.** ~~If a neighborhood meeting is required, t~~The Applicant shall include a written neighborhood meeting summary on the results of the neighborhood meeting with the formal application. At a minimum, the neighborhood meeting summary shall include the following information:

1. Proof of mailing notification for the dates and locations of all meetings where participants were invited to discuss the Applicant's proposal;
2. Copies of the sign-in sheets;
3. A summary of topics discussed by the Applicant and concerns, issues, and problems expressed by participants; and
4. A summary of:
   a. How the Applicant has addressed identified issues; and
   b. Issues that cannot or should not be addressed, and why those issues cannot or should not be addressed.

8-2-3-8 Notices of Administrative Application and Administrative Decision

A. **Purpose and Intent.**
1. *Purpose.* The purpose of the notice of administrative application and administrative decision is to inform City residents, businesses and organizations of pending development applications and the date a decision will be made on a development application.
2. *Intent.* The notice of application is intended to provide contact information for the Applicant and City staff where interested members of the community can request information and ask questions regarding a pending development application and provide comments to the Director prior to a decision being made.

B. **Notice of Administrative Application.** The notice ~~of application~~ shall be prepared by the Applicant per the requirements of Division 8-2-4, Required Notices, for Master Development Plans, Site Plans and Minor Subdivision Final Plats.

C. **Notice of Administrative Decision.** A notice may be required at the discretion of the Director. If notice is required, it shall be prepared by the Applicant per the requirements of Division 8-2-4, Required Notices.

Table 8-2-3-134: Time Limitations

Approval Type	Time Limitation
Conditional Use	5 years
Temporary Use Permit / Special Event Permit	as specified in the permit
Certificate of Compliance with Design Guidelines	3 years, 1 year for signs
Site Plan and Master Development Plan	3 years
Floodplain Development Permit	24 months
Free-Standing Tower	24 months; or as specified in the permit
Miscellaneous Structure Permit	6 months
Sign Permit	1 year

Alternative Sign Program	3 years
Major Subdivision Preliminary Plat	3 years
Public Improvement Construction Documents	2 years
Development Agreement	as specified in development agreement
Reimbursement Assessment District	as specified in documents establishing Reimbursement Assessment District
PUD Development Plan/Final Development Plan	5 years or as specified by development agreement
Height Exception	3 years
Variance	2 years[1]
Minor Modifications from Zoning District and General Development Standards	as specified in approval documents
Minor Modification	as specified in the approval documents
Major Modification	as specified in the approval documents
Floodplain Variance	24 months
Vested Rights (and Extension)	36 months[2]
Base Station, Alternative Tower Structure and Freestanding Tower	1 year if site not constructed
Small Cell Facility	Specified as defined in the MLA for each carrier-
TABLE NOTES: [1] Or at such alternative time specified in the approval. In addition, a variance that has been not been utilized shall automatically lapse and have no further effect if the rights granted by it are discontinued for 180 consecutive days. [2] Unless specified otherwise in the approval or by development agreement.	

8-2-4-1 General Notice Requirements

A. **Computation of Time.** In computing any period of time prescribed for the purpose of giving notice under this Division, the day of the publication, mailing, or posting shall be included. The day of the meeting or hearing shall not be counted. Saturdays, Sundays, and legal holidays shall be counted as any other day.

B. **Notice Cost.**

1. All costs for providing mail and posted notice as required by this Division shall be the direct responsibility of the Applicant.
2. The City shall provide published notice. The cost of such notice shall be included in the development review fee.

C. **Applicant's Certification.** Prior to the event that is the subject of a public notice, the Applicant shall provide the Director with an executed affidavit certifying that the requirements as to the Applicant's responsibility for the applicable forms of notice under this Division have been met. The Director shall make available sample certifications that address all applicable forms of public notice required by this LDC.

D. **Failure to Provide Notice; Defective Notice.**

1. Failure to timely provide the required affidavit, or evidence that a mailing list or notice letter was defective, may be cause to suspend the review process until proper notice is provided. Such suspension may be ordered by the Director or body that is responsible for the meeting,

hearing, or decision (*e.g.*, neighborhood meeting, public hearing, or staff decision) that is the subject of the notice.

2. Minor defects in any notice shall not impair the notice or invalidate proceedings pursuant to the notice if a *bona fide* attempt has been made to comply with applicable notice requirements. ~~Minor defects in notice shall be limited to errors in a legal description or typographical or grammatical errors that do not impede communication or the notice to affected parties. However, in all cases, the requirements for the timing of the notice and for specifying the time, date, and location of a hearing shall be correctively conveyed.~~In any case in which a question arises at the public hearing regarding the adequacy of notice, consideration shall be given to the nature and extent of the deficiency, the probability of confusion resulting from the deficiency, and the type and variety of notice successfully accomplished in determining whether substancial compliance with the notice requirements of this Code has been met

E. **Continuation of Hearings and Neighborhood Meetings.** A hearing or neighborhood meeting for which proper notice was given may be continued to a later date without again complying with the public notice requirements of this Division (unless required by Director), provided that the date, time, and location of the continued hearing or meeting is announced to the public at the time of continuance.

8-2-4-2 Required Notice by Application Type

Public notice of administrative applications, neighborhood meetings, or scheduled public meetings or public hearings shall be provided as set out in Table 8-2-4-2, Notice Requirements by Application Type. If an application type is not listed, then no notice is required, unless it is determined to be necessary by the Director.

Table 8-2-4-2: Notice Requirements by Application Type				
Table Key: — **Not Required or Not Applicable** ✓ **Required**				
Application Type	**Notice Type**			
	Published	**Posted**	**Mailed[2]**	**Internet[3]**
1. Annexation, Zoning and Rezoning				
Annexation or Disconnection[1]	✓	✓	✓	✓
Zoning or Rezoning	✓	✓	✓	✓
City Initiated Remapping	✓	—	—	—
2. Land Use				
Conditional Use	✓	✓	✓	✓
3. Site Plans and Site Development				
Master Development Plan	—	—	✓	✓
Site Plan	—	—	✓	✓
4. Wireless Communications Facilities				
Major Wireless Communications Facility Permit	—	✓	✓	✓
5. Signs				
Alternative Sign Program	✓	✓	✓	✓
6. Subdivisions, Plats, and Vacations				
Major Subdivision Preliminary Plat	✓	✓	✓	✓
Vacation of Right-of-Way and Public Easements	✓	✓	✓	✓
7. Infrastructure Development and Public Improvements				
Formation of Reimbursement Assessment District	✓	—	✓	✓
8. Planned Unit Developments				
PUD Preliminary Development Plan	✓	✓	✓	✓
9. Variances, Modifications, Exceptions, and Conversions				
Height Exception	✓	✓	✓	✓
Variance	✓	✓	✓	✓
Major Modification	✓	✓	✓	✓
Floodplain Variance	—	—	✓	✓
10. Vested Rights				
Vested Rights (and Extension)	✓	✓	✓	✓
11. Amendments				
Land Development Code Text Amendment	✓	-	-	✓
Major Comprehensive Plan Amendment	✓	—	—	✓
Major PUD Amendment	✓	✓	✓	✓
TABLE NOTES: [1] As required by applicable provisions of C.R.S § 31-12-101, et seq. [2] *See* Subsection 8-2-4-4, Statutory Mineral Estate Notices [3] *See* Subsection 8-2-4-3D, Internet Requirements				

A. **Generally.** Contents of the public notice will be determined by the Director.

B. **Public Notice Contents.** All notices required by this Section shall:

1. Indicate the time and place of the public hearing or meeting, if necessary, except for a Notice of Administrative Application;

2. Sufficiently describe the property involved; for example, by legal description, general vicinity, street address, size, and/or nearest cross street;
3. Describe the nature, scope, and purpose of the application or proposal being advertised;
4. Indicate that interested parties may appear and the manner, extent and timing of public participation permitted (*e.g.*, filing written comments with the Director, speaking at the scheduled hearing or meeting, etc.), except for Notice of Administrative Application; and
5. Indicate where additional information can be obtained.

C. **Appeal Notices.** Notices of a pending appeal must include a copy of the petition for appeal and a date, time, and location for the appeal hearing, and either a copy of the rules of procedure for the Appellate Body or instructions regarding how to obtain a copy. Such notices shall be mailed to the Applicant (if different from the appellant), the appellant, and any person or entity that has applied for party status.

D. **Vested Rights Notices.** Notice of a decision to grant vested rights shall be published in accordance with the requirements of C.R.S. § 24-68-101, as it may be amended from time to time.

8-2-4-3 Specific Requirements by Notice Type

A. **Mailed Notice.**

1. *Mailing List*. The Applicant shall submit a mailing list to the Director, including the names and addresses of all property owners of record of all properties within the Area of Notification described below. If there are homeowners associations and/or neighborhood organization registered with the City within the Notice Area, the Applicant shall also notify them. The list shall be compiled from the names and addresses that appear in the records of the applicable County Assessor not more than 30 days before the date the list is submitted to the Director.
2. *Method of Mailing*. Mailed notice shall be mailed first-class, postage pre-paid by the Applicant, at the Applicant's expense, to all property owners on the mailing list.
3. *Affidavit of Compliance*. An affidavit of the Applicant's compliance with the mailing notice requirements shall be provided to the Director prior to the decision or public hearing to which the notice relates.
4. *Preparation/Timing of Notice.* When the provisions of this Code require that written or mailed notice be provided, the Applicant shall be responsible for preparing the written notice, and for mailing the notice at the Applicant's expense. All written notice shall be mailed at least fifteen days prior to the public hearing. Notices shall be prepared pursuant to a written notice form provided by the City.
5. *Deadlines.* For decision-making Tracks 2 through 5 and Track 8 , mailed notices shall be postmarked no later than 15 days before a neighborhood meeting, a public hearing, or an appeal hearing. For decision-making Tracks 1, 6, or 7, mailed notice of administrative application shall be postmarked no later than five days after acceptance of an application. For a notice of administrative decision, mailed notice shall be postmarked no later than ten days prior to the decision date.
6. *Notice Area.*
    a. For purposes of public hearings before the City Council or the Planning Commission, and Notice of Administrative Application, notice shall be mailed to all property owners that are within 500 feet of the boundary of the property that is the subject of the

application, except as otherwise provided herein. Ownership information shall be obtained from the applicable County Assessor's Office(s). Where an adjacent property is owned by a subdivision or condominium association, notification shall be to the board of directors of such association, and in addition, to the owners of all units immediately adjacent to the subject property. For street and alley right-of-way and public vehicular access easement vacations, mailed (written) notice shall be sent to all owners of property abutting the right-of-way or access easement to be vacated. Written notice shall also be mailed to any homeowners associations and other neighborhood organization with a known interest in the subject area, or to others who have filed a timely request to receive written notice.

b. *Notices for Board of Adjustment*. For purposes of public hearings before the Board of Adjustment, notice shall be mailed to all property owners that are adjacent to the property that is the subject of the application. Ownership information shall be obtained from the applicable County Assessor's Office(s). Where an adjacent property is owned by a subdivision or condominium association, notification shall be to the board of directors of such association, and in addition, to the owners of all units immediately adjacent to the subject property.

c. *Changes to Notification Area*. The Director shall have the sole discretion to expand or contract the notification area based on a consideration of the complexity of the project, the geographic reach of potential adverse impacts, the extent of neighborhood compatibility issues, and similar factors.

B. **Published Notice.** When the provisions of this Code require that notice be published, the City shall be responsible for preparing the content of the notice, and the City shall ensure that notice is published in a newspaper of general circulation in the City, at the Applicant's expense. Notice shall be published at least 15 days prior to any public hearing by the Planning Commission or Board of Adjustment, and at least seven days prior to any public hearing by the City Council.

C. **Posting Requirements.**

1. *Signs to be Posted by Applicant*. Posted notice shall be provided on signs provided by the City at the Applicant's expense. It is the Applicant's responsibility to post the sign(s) on the subject property and ensure that they remain in place from the date of posting to the date of the public hearing.
2. *Minimum Requirements*. Posted notice shall be provided with one sign per street frontage of the applicable property. Additional posting may be required at the Director's discretion. Signs shall be located so that they are clearly visible from the adjoining street. Applicants shall remove all notification signs within one week after the public hearing.
3. *Deadline for Posting*. Notices shall be posted not less than 15 days before the public hearing date.
4. *Affidavit of Compliance*. An affidavit of the Applicant's compliance with the posted notice requirements shall be provided to the Director prior to the public hearing.
5. *Posting Log/Maintenance of Signs.* The Applicant shall be responsible for checking the posted signs each day of the posting period and for keeping a log, to be filed with the City at the time of, or prior to, any public hearing on the matter. If a sign has been removed, destroyed, or has fallen, the sign shall be replaced by the Applicant within 48 hours or by the close of the next business day, whichever period is longer. The Applicant shall sign a statement that the sign(s) were checked daily by the Applicant or the Applicant's representative, and the above-stated procedures were followed. Failure to comply with the

required posting procedure may require the public hearing to be rescheduled. Such delays shall not prejudice the City regarding the City's compliance with required times to act set forth in this Code.

6. *City-Initiated Rezoning That Affects Multiple Ownership.* The posting of signs shall not be required when an amendment to the Official Zoning Map is initiated by the City and affects multiple ownerships. At the City's option, notice of a rezoning that affects multiple ownerships may be posted at City Hall.

D. **Internet Requirements.** The Director will create and maintain web pages upon which the Director may provide timely notice of applications. If a notice is missed by the Director, it shall not void the hearing or approval.

8-3-5-3 Site Plan and Site Plan Amendment

A. **Generally.** The purpose of the Site Plan or Site Plan Amendment is to ensure compliance with the development and design standards and provisions of this Code, while encouraging quality development in the City reflective of the goals, policies, and objectives found in the Comprehensive Plan.

B. **Site Plans.** All applicable provisions of this Division apply unless specifically listed. A Site Plan is required before a building permit may be issued for all development in the City except those listed below:

1. Single family detached homes or duplex units in a subdivision of nine or fewer lots within a residential zoning district and that are not part of land for which a Master Development Plan has been approved;
2. Permitted additions to existing single-family detached dwellings or duplex units; and
3. Interior improvements and tenant finish.

C. **Approval Criteria.** A Site Plan or Site Plan Amendment shall be reviewed for compliance with the following criteria:

1. The application complies with the applicable standards of this LDC, other adopted City regulations, any approved Master Plan that includes the property, and any conditions specifically applied to development of the property by the Planning Commission or City Council in a prior decision affecting the property;
2. The application is consistent with the Comprehensive Plan;
3. The City's existing infrastructure and public improvements, including but not limited to its water, wastewater, street, trail, and sidewalks systems, have adequate capacity to serve the proposed development, and any burdens on those systems have been mitigated to the degree practicable;
4. The application will preserve and protect natural areas, ridgelines, swales, natural landforms, water quality and wildlife habitat of riparian corridors, wetlands and floodplains affected by the proposed development and integrates those areas into site design where practicable;
5. The application will improve or expand multi-modal connections with adjacent sites, neighborhoods, and urban centers;
6. The application is similar to surrounding uses in terms of size, scale and building façade materials;
7. The application mitigates any adverse impacts on the surrounding area to the degree practicable; and

8. Within the MX, R6, R13 and R24 zoning districts, townhome and multifamily residential uses shall provide appropriate amenities, including recreational facilities, pedestrian facilities, unique aesthetic features and quality design.

~~8.~~ .

8-3-8-7 Acceptance of Dedications

A. **Generally.**

1. **Major Subdivision Final Plats.** All major subdivision final plats ~~and minor subdivision plats~~ shall be executed by all owners of property within the boundaries of such plat, the surveyor, the attorney or title company who examined the title, and any and all lienholders. Following the approval of a major subdivision final plat ~~or a minor subdivision plat, or conditional approval of such plat after all conditions are met~~, the plat, which shall have all permitted exceptions, waivers, or variances expressly noted thereon, shall be signed by the Director, the City Engineer, and the City Attorney. Dedication, approval, certification, and signature blocks shall be in a form approved by the City Attorney.

~~F.~~2. **Minor Subdivision Plats**. All minor subdivision plats shall be executed by all owners of property within the boundaries of such plat, the surveyor, the attorney or title company who examined the title, and any lienholders. Following the approval of the minor subdivision plat, the plat, which shall have all permitted exceptions, waivers, or variances expressly noted thereon, shall be signed by the Director. Dedication, approval, certification, and signature blocks shall be in a form approved by the City Attorney.

~~A.~~B. **Method of Acceptance of Dedications; Limitations.** Full execution of the approved major subdivision final plat or minor subdivision plat shall constitute the City's acceptance of any fee-simple dedication or grant of easement to the City as is referenced on the plat. Acceptance of dedications does not constitute final acceptance of public improvements constructed thereon.

8-4-3-6 Park and Trail Dedications and Fees-in-Lieu

A. **Generally.** The park and trail dedication and fee-in-lieu requirements are intended to:

1. Provide adequate parks, trails, and associated facilities, which significantly contribute to the community character of Arvada, and provide recreation and mobility opportunities for its residents;
2. Recognize that new residences generate additional demands and burdens on the City's existing parks and trails system and the need for additional such amenities;
3. Recognize that the necessity for, and cost of, new or expanded parks and trails facilities is properly and proportionally attributable to and should be paid for by new residential development, in accordance with the needs and burdens generated by such development;
4. Institute dedication requirements sufficient to meet the need for, and cost to develop and improve, new or expanded parks and trails generated by new residential development; and
5. Provide a dedication methodology that closely approximates the additional park and trail needs and burdens generated by new residential development, links the requirements and fees to be imposed to the additional needs and demands upon the parks and trails system generated by new residential development; and imposes exactions of land for park and trail

purposes (or payment in lieu thereof) and payment of park development fees that are roughly proportional to the demands and burdens created by new residential development.

B. **Applicability.** Applicants for new residential development shall provide public land dedications for park or trail purposes or payments of fees-in-lieu of such dedications, as provided in this Section.

C. **Park Land Dedication.** The owner of land to which these provisions apply shall, at the option of the City:

1. Satisfy such combination of dedication and payment in lieu of dedication that, consistent with the provisions of this Section, the City determines appropriate.
2. Pay to the City the cash equivalent of the fair market value of the land otherwise required to be dedicated pursuant to this Section; or
3. Convey to the City in fee simple not less than 10 acres per 1,000 projected population in the new residential development.

D. **Standards for Dedicated Park Land.** Park land that is dedicated pursuant to the standards of this Section shall be suitable for the purpose for which it is intended, as determined by the City.

E. **Park Land Fee-in-Lieu.** The park land fee-in-lieu shall be equal to the value of the area of land that would otherwise be required to be dedicated, calculated as provided in Section 8-4-3-4, Appraisal of Property Value.

F. **Public Trail Land Dedication.**

1. The owner / developer of new residential development shall, at the option of the City, dedicate in fee simple or in the City's discretion grant easements over and across, such land lying within the subject property as may be required, as determined by the City, to provide for the construction and maintenance of public trails that will serve and / or traverse the subject property as referenced in or depicted on the City's approved Arvada Parks, Trail and Open Space Master Plan, or Comprehensive Plan.
2. The owner / developer of new residential development shall further be required to construct all public trails that are dedicated pursuant to Subsection F.1., above.
3. Any trail dedication or construction required by the provisions of this Subsection shall comply with all applicable City design and construction standards, and shall conform to the locational requirements of this LDC.

G. **Credit for Trail Land Dedications.**

1. For purposes of satisfying the park land dedication requirements of Subsection C., above, in those developments where trails referenced in or depicted on the City's approved Arvada Parks, Trail and Open Space Master Plan, or Comprehensive Plan are proposed to be located, those trail dedications or grants of easements as are accepted by the City shall be credited against the park land dedication requirements of the development.
2. With respect to dedications or grants of easements for other public trails proposed within the development, but not referenced or depicted on the City's approved Arvada Parks, Trail and Open Space Master Plan, or Comprehensive Plan, the City may in its discretion, grant a credit, in whole or in part, against park land dedication requirements for such trail dedications or grants of easement.
3. Such credits as set forth herein shall not apply to proposed sidewalks or trails within street rights-of-way or on land within the development required to be dedicated for purposes other than park or trail use.

H. **Form of Land Dedication/Payment of In-Lieu Fees**.

1. All lands or interests required to be conveyed under this Division shall be conveyed to the City by proper dedication upon a plat or by general warranty deed, without restriction, and free and clear of any and all liens, restrictions, covenants, and encumbrances.
2. Cash-in-lieu payments shall be paid to the City in an account to be used solely for the acquisition and development of parks, trails, and recreation facilities reasonably proximate to the applicable residential development.

I. **Timing of Dedication or Payment-In-Lieu.** Any dedication of land, payment-in-lieu of dedication, or granting of an easement that is required pursuant to the provisions of this Section shall be satisfied in accordance with the following:

1. As to residential development in general, all requirements with respect to land dedication, payments-in-lieu, or trail easements shall be satisfied in full prior to, or as part of, the approval of the final plat, final development plan, or site plan or at such other time as may be required by the City. As to a non-PUD, but phased, development, the provisions of Subsection ~~I~~H.2., below, shall apply.
2. As to the phased development of a PUD project, all of the following shall apply:
    a. All park land dedication requirements shall be satisfied at the time of the approval of the site plan, PUD final development plan, minor subdivision plat, or major subdivision final plat for each phase of the development based upon the projected population for that phase, or at such other time as may be required by the City.
    b. Payments-in-lieu of park land dedication shall be satisfied at the time of the approval of the site plan, PUD final development plan, minor subdivision plat, or major subdivision final plat for each phase, based upon the nature and number of dwelling units contained within such phase and application of the land dedication and payment-in-lieu provisions of this Section, or at such other time as may be required by the City.
    c. Dedications or grants of easements for trail purposes pursuant to the provisions of this Section shall be satisfied prior to, or as part of, the approval of the minor subdivision plat or major subdivision final plat for each phase involving land which a trail or trails referenced in Subsection F., above, will traverse, or at such other time as may be required by the City.
    d. No revision or amendment to an approved development plan or final plat pursuant to which the required land dedication has been previously proffered and accepted by the City shall create a credit in favor of, or reduce the land dedication requirements applicable to an owner/developer, nor shall any such revision or amendment require the City to re-convey any portion of a previously accepted dedication, notwithstanding a decrease in the planned density of the development or any portion thereof.

11-1-1-1 Purpose of Article

A. The purpose of this Article is to provide general rules for measurement used in this Code.

11-1-1-2 Rules for Measurement

A. **Density**

1. *Net Density.* Net density shall be calculated by dividing the net acreage of a parcel by the minimum lot area required for each dwelling unit.
2. *Gross Density.* Gross density shall be calculated by dividing the gross acreage of a parcel by the minimum lot area required for each dwelling unit.

3. *Rounding.* When applying a density standard to a parcel land area, all resulting fractions shall be rounded to the next lower whole number.
4. *Maximum Density not Guaranteed.* The number of dwelling units allowed on a site is based on the presumption that all applicable standards shall be met. The maximum density established for a zoning district as identified in Chapter 2 is not a guarantee that such densities may be obtained, nor a valid justification for varying other dimensional or development standards.

B. **Lot Area**
1. Lot area is measured as the amount of gross land area contained within the property lines of a lot or parcel, but not including streets or rights-of-way.

C. **Lot Frontage (Lot Width)**
1. Lot frontage or width refers to the horizontal distance between the side lot lines as measured along a straight line parallel to the front lot line – the lot line abutting the street on which the property has its principal access – or the chord thereof. The minimum lot frontage or width shall be measured between the side lot lines along a line that is parallel to the front lot line and located the minimum front setback distance from the front lot line.

D. **Lot Coverage**
1. *General Rule.* Lot coverage is measured as the percentage of the total lot area covered by buildings. It is calculated by dividing the square footage of building cover by the square footage of the lot.
2. *Exemptions.* The following features shall not be counted for the purpose of determining lot coverage:
   a. Swimming pools and hot tubs.
   b. Uncovered decks less than 30 inches above grade.
   c. Mini-structures under 200 square feet in total area.

E. **Street Frontage**
1. Street frontage is measured between side lot lines along the street lot line. Lots that do not have frontage at the street right-of-way line will indicate a building setback line by a dashed line at the point where the lot has the required width, but in no case less than the setback normally required.

F. **Setbacks**
1. *General Rule.* Setbacks are measured between the lot line and the closest projection of a building or structure along a line at right angles to the lot line. Setbacks shall be unobstructed from the ground to the sky except as otherwise specifically allowed in Section 2-1-10-1, Exceptions to Setback Standards. Driveway length in the front setback ~~must be a minimum of 18 feet~~is measured from the back of sidewalk to the face of the garage measured along the centerline of the driveway apron. Parking in a rear setback shall meet the requirements set forth in Division 4-5-3, Parking and Loading Design.
2. *Setback Averaging.* Regardless of the minimum front setback required by the underlying zoning district, front setbacks may be reduced to the average of the existing setbacks of the lots that are on both sides of the subject lot. The following rules apply in calculating the average setback:
   a. Only the setbacks on the lots that abut each side of the subject lot and are on the same side of the street may be used. Setbacks across the street or along a different street may not be used.

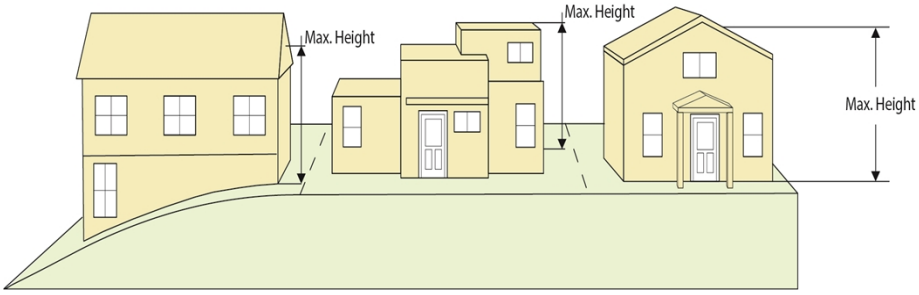
b. When one abutting lot is vacant or if the subject lot is a corner lot, then the average is of the setback of the non-vacant lot and the zoning district minimum setback.

G. **Floor Area Ratio (FAR)**

1. FAR is measured as the gross floor area of all buildings on a lot or parcel, divided by the lot area.

H. **Height**

1. *Building Height.* Building height is measured as the vertical distance between the point of measurement on the ground to the highest point of (1) coping of a flat roof, or (2) to the deck line of a mansard roof, or (3) to the mid-point of the highest gable of a pitched or hip roof. The point of measurement may be taken from the highest adjoining sidewalk or ground surface within a five-foot horizontal distance along the exterior wall of the building.
2. *Height, Fence or Wall.* The height of a fence or wall shall be measured as the vertical distance between finished grade on the highest side of the fence or wall to the top of the fence or wall.
3. *Height, Tower/Antenna/Other Structures (Not Buildings). See* Chapter 7, Wireless Communications Facilities.
4. *Exceptions to Height Limitations in All Districts. See* Section 2-1-10-2, Exceptions to Maximum Building or Structure Height.



I. **Distance or Spacing**

1. Whenever a regulation requires a proposed use or activity to be located a specified distance from an existing use, zoning district boundary, or activity, such distance or spacing requirement shall be measured as follows:
   a. For a proposed use that will be located in an individual structure or building, the required minimum distance shall be measured from the closest point of the structure or building housing the proposed use to the property line or the existing use, or activity, or the zoning district boundary, as applicable. Except that as applied to measuring distance between automotive wash facilities, the required distance shall be measured along street frontage and not by a straight line distance between the two structures housing such uses, as specified in the Code.
   b. For a proposed use that will be located within a building also occupied by other uses, such as within a shopping center, the required minimum distance shall be measured from the closest point of that portion of the building housing the proposed use to the property line of the existing use, or activity, or the zoning district boundary, applicable.

c. Drive-through lanes, drives for automobile service stations, and other similar areas accessory to a principal use subject to a distance or spacing requirement shall also be located outside the minimum distance required.

J. **Variation of Residential Dwelling Elevations**

1. Wherever it is required that the elevation of single family homes be varied every so many units, that requirement shall permit the first and last units within that specified number to be the same. For example, a requirement that home facades be varied "every fourth unit" shall require that the first, second, and third home elevations be different, but shall permit the first and fourth home elevations to be the same.

K. **Measurement of Brick and Stone Cladding**

1. The measurement shall be all of the area excluding windows, doors, garage doors from grade to the roof eve or top plate of the main portion of the structure.

L. **Measurement of Signs**

1. The measurement of signage shall be calculated in accordance with Chapter 6, Signs.

Division 11-3-3 Definitions

Clustered Subdivision
A cluster lot subdivision is a residential development win which lots are allowed to be smaller or narrow. Cluster lot subdivision is a design technique that concentrates buildings in specific areas on a site to allow the remaining land to be used for recreation or other ~~,~~ common use, ~~common open space,~~ or preservation of environmentally sensitive areas or agricultural uses.

Electric Vehicle (EV) Charging Station
A public or private parking space and all associated equipment, including electrical transformers, that is served by battery charging station equipment that has its primary purpose to transfer electric energy (by conductive or inductive means) to a battery or other energy storage device in an electric vehicle.

Food and Retail Truck Vending
Food and retail vending from a readily movable wheeled, motorized vehicle designed and equipped to serve food or sell retail goods or a wheeled, non-motorized trailer designed and equipped to serve food or sell retail goods, and towed by a motorized vehicle.

Fueling/~~-~~Service Station
Any building, land area, or other premises used for the retail dispensing or sales of vehicular fuels; Level 3 DC fast-charging or Level 2 charging of electric vehicles; towing of automobiles and light trucks; and including as an accessory use the sale and installation of lubricants, tires, batteries, brakes, mufflers, and similar vehicle repairs and accessory installations. The phrase “fueling/service station” does not include collision centers, or facilities that provide transmission repair, engine overhauls, or repair of heavy trucks or heavy motorized equipment. If a use that fits this definition also includes the sale of ready-to-eat food products (not intended for on-premises consumption), groceries and sundries, ~~or 3.2 beer,~~ such use shall be classified as a “convenience store.”

Landscape Surface Area
Area that is vegetated per the requirements of Article 4-6, Landscape and Buffering, or reserved for the use of outdoor pedestrian and / or non-vehicular recreation activity areas including sidewalks, trails, patios, and decks. Detention areas, buffers, and landscaping within a parking lot may be

included. Includes areas dedicated as amenitized landscape surface area and small urban parks. ~~Detention areas, buffers, and landscaping within a parking lot may be included.~~

~~**Open Space,**~~**Landscape Surface Area, Amenitized** ~~**Common**~~

Landscape surface area that is ~~Open space within or related to a development, not individually owned or dedicated for public use but generally owned and maintained by a homeowners association, that is~~ designed for ~~and intended for the~~ the common use or enjoyment of ~~the~~ residents, employees, or guests of the development. ~~of the development and their guests, and may include such complementary structures and improvements as are necessary and appropriate. Common open space may include trail areas, gardens, small parks, scenic areas, buffer areas, or similar common areas. Common open space may also include active recreational facilities such as pools, tennis courts, playgrounds, and clubhouses. Common open space shall not include driveways, sidewalks, and parking areas.~~

~~**Open Space, Common**~~

~~Open space within or related to a development, not individually owned or dedicated for public use but generally owned and maintained by a homeowners association, that is designed and intended for the common use or enjoyment of the residents of the development and their guests, and may include such complementary structures and improvements as are necessary and appropriate. Common open space may include trail areas, gardens, small parks, scenic areas, buffer areas, or similar common areas. Common open space may also include active recreational facilities such as pools, tennis courts, playgrounds, and clubhouses. Common open space shall not include driveways, sidewalks, and parking areas.~~

Outdoor Storage

Storage of materials, merchandise, stock, supplies, machines, operable vehicles, equipment, manufacturing materials, or chattels of any nature that are not kept in a structure having at least four walls and a roof, regardless of how long such materials are kept on the premises. This definition shall not apply to items for sale to the general public such as new and used cars, recreational vehicles, boats, landscape and building materials, where such items are permitted for sale in the zoning district in which they are located. "Outdoor storage" shall not apply to the storage of wrecked or inoperable vehicles. (*See* "salvage yard".) In addition, "outdoor storage" does not include outdoor parking of motor vehicles ~~regularly used in connection with the operation of an establishment or~~ parked for less than 48 hours for maintenance service.

Produce Stand

A temporary or permanent structure used for sale of produce and incidentally use for sale of related items which is located on property used for agriculture or community agriculture.

Retail Sales and Services, Type 1

A use involving the sale, lease, or rental of consumer, home, and business goods to consumers. Such uses include but are not limited to department stores, furniture stores, clothing stores, and establishments providing the following products or services: antiques, appliances, art, art supplies, beauty supplies, bicycles, books, magazines and newspapers, craft supplies, copies, costumes, dry goods, electronics, fabric, framing, garden supplies, gifts, groceries, hardware, home improvement goods, household products, jewelry, music, musical instruments, office supplies, party supplies, pet grooming, pet supplies, pharmaceuticals, phones, photography equipment, produce, signs, sporting goods, stationary, toys, and videos; and new automotive parts and accessories. The phrase also includes services such as banking, picture framing, installation of electronics (*e.g.*, audio systems and navigation

systems) into motor vehicles, real estate offices that are open for walk-in traffic; repairs of products sold by the establishment (*e.g.*, a computer store may also repair computers), repairs of consumer electronics, tattoo parlors, and comparable services that are not included in the definition of the phrase "Retail Sales and Services, Type 2." The phrase "Retail Sales and Services, Type 1" does not include uses that are classified or defined more specifically in this Code, including but not limited to "Retail Sales and Services, Type 2," "Restaurant," "Restaurant, Fast Food," "Adult Entertainment," "Adult Retail Sales," "Marijuana Uses," and "Vehicle / Equipment Sales or Rentals."

Retail sales and services, type 1 uses are generally conducted indoors. However, the phrase also includes uses in which not more than 25 percent of the area used for storage and display of products is located outside or in partially enclosed structures.

Sign, Canopy

A sign with one face affixed to a canopy. For purpose~~d~~ of this definition, a canopy is an attached or detached structure, open on at least one side, which is designed to provide overhead shelter from the sun or weather. Canopies include, but are not limited to, service station canopies, carports, porte-cocheres, arcades and pergolas.

City of Arvada
Community and Economic Development Department
PUBLIC HEARING STAFF REPORT

2021 Land Development Code Amendments
LDC2021-0001

NATURE OF REQUEST

The City of Arvada is requesting approval of an ordinance amending various sections of the Land Development Code to include changes and clarifications to make the Code easier to understand and administer.

BACKGROUND

The Land Development Code was adopted by City Council on May 18, 2020. It was later amended to allow for Short Term Rental properties within the City.

During the adoption of the Land Development Code, the City team committed to review the document following the first year of use and suggest changes and clarifications. The team presented the proposed amendments to the Planning Commission on September 7, 2021 and City Council on September 13, 2021 and again on December 13, 2021. Following the December meeting, it was determined that a majority of the changes could move forward to adoption. There are a handful of changes that require additional discussion and will, therefore, go through the adoption process as a second package of amendments.

PUBLIC NOTIFICATION

Division 8-2-4 of the Land Development Code requires public notification for all public hearings as follows:

Published Notice: At least 15 days prior to all public hearings, notice of the hearing must be published in a newspaper of general circulation in the City. The required notice has been published.

ALIGNMENT WITH CITY COUNCIL STRATEGIC PLAN

The project is consistent with the City Council Strategic Plan principles for the Community and Economic Development work system.

PROJECT ANALYSIS

Summary of Proposed Update

This amendment will modify the following (see redlined pages):

1. Table 2-1-3-3A to clarify the setback distance for alley-loaded garages.
2. Tables 2-1-3-4A, 2-1-3-5A, 2-1-3-6A, 2-1-4-1A to address the Landscape Surface Area and Landscape Surface Area, Amenitized requirements.
3. Section 2-1-3-4 to delete Urban Townhomes as a permitted housing type.
4. Table 2-1-5-4D to revise the Total Building Width in the Olde Town –GV and OW zoning districts.
5. Table 3-1-2-5 related to Animal Day Care/Training. This amendment would allow the use as Conditional in the RA Zoning District.
6. Section 3-1-3-5 to clarify that a caretaker residence is allowed for Kennel uses and to define the requirements for the residence.
7. Section 3-1-4-5 to allow the Food and Retail Truck vending distance to be measured from a home or building, rather than a zoning district boundary.
8. Section 3-1-5-3 to clarify regulations regarding short term rentals.
9. Sections 4-3-2-2 and 4-3-2-3 have been added to replace Common Open Spaces with Landscape Surface Area and Amenitized Landscape Surface Area to reduce confusion regarding the difference between active and passive landscape areas.
10. Table 4-5-2-2A to increase the townhome parking requirement from 2 to 2.2 spaces per unit to account for guest parking.
11. Section 4-5-3-1 to clarify the maximum percentage of a front yard area that can be paved with impervious material.
12. Section 4-5-3-4 to allow off-site parking to be located up to 500 feet from the property it is serving. Additionally, the distance the off-street property is located from the property it is serving is reduced from 300 feet to 200 feet.
13. Section 4-5-3-6 to clarify where drive-through stacking lanes can be located.
14. Section 4-5-3-8 to better differentiate between short and long term bike parking requirements.
15. Section 4-6-5-2 to revise the situations in which landscape bufferyards are required when new development is located adjacent to various dwelling unit types and RN zoning districts.
16. Table 4-7-2-1 to clarify how fencing standards are applied to properties zoned PUD.
17. Article 4-8 to simplify and clarify the exterior lighting requirements and standards to avoid continued confusion.
18. Section 5-1-5-2 to clarify that accessory dwelling units shall always be located at or behind the front plane of the primary residential unit regardless of the lot type.
19. Table 5-1-5-3A to clarify how accessory buildings are counted in PUD zoning districts.
20. Section 5-1-6-8 to add additional requirements and standards for electric vehicle charging stations to address the various types of facilities being developed.
21. Table 8-2-2-2A to add Director discretion regarding notice requirements and neighborhood meetings and to indicate that a public hearing is not required for a specific application type.
22. Section 8-2-4-1 to allow for more flexibility in determining what constitutes a minor defect in public hearing noticing.

23. Section 8-2-3-8 to provide for a notice of administrative decision.
24. Section 8-3-5-3 to expand the Site Plan approval criteria related to project amenities required in the R6, R13 and R24 zoning districts and townhome development in order to create more complete neighborhoods.
25. Article 11-3 to add or revise definitions including, but not limited to, Electric Vehicle Charging Station, Food and Retail Truck Vending, Fueling/Service Station, Landscape Surface Area and Landscape Surface Area, Amenitized, and Produce Stand.

Many other smaller changes, spelling errors and erroneous references have also been identified for correction. The attached redlines indicate those assorted amendments.

Compliance with the Comprehensive Plan
The proposed amendments to the LDC will not conflict with the intent of the 2014 Comprehensive Plan.

Consistency with the Purpose of the Code
The proposed amendment is consistent with the Purposes of the Code set out in Section 1-1-1-2, Purpose and Intent, in that the amended regulations will promote the public health, safety, convenience, comfort, prosperity, and general welfare of the City.

LAND DEVELOPMENT CODE APPROVAL CRITERIA

The Planning Commission should make a recommendation to the City Council based on its findings regarding the approval criteria shown in the table(s) below and upon testimony heard during the public hearing as it applied to the criteria.

Staff performed an analysis of the proposal, based on the approval criteria listed in Division 8-3-2 of the Land Development Code, and presents the following findings:

Division 8-3-2 Approval Criteria (05-18-20)	Finding	Rationale
A. The proposed amendment is consistent with the Arvada Comprehensive Plan, or reflects conditions that have changed since the adoption of the Comprehensive Plan.	Complies	The proposed amendment is consistent with the Arvada Comprehensive Plan because the proposed amendments will ensure that community and developers can clearly understand and interpret the LDC.
B. The proposed amendment is consistent with the Purposes of the Code set out in Section 1-1-1-2, Purpose and Intent, of the LDC.	Complies	The proposed LDC amendments are consistent with the intent the purposes of the Code because the regulations will promote the public health, safety, convenience, comfort, prosperity,

		and general welfare of the City.

STAFF RECOMMENDATION

Based upon project analysis and review of the Land Development Code approval criteria, the City team recommends approval of these amendments.

CITY OF ARVADA

REPORT TO CITY COUNCIL WORKSHOP

AGENDA ITEM 11.A.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: State of Retail with Katy Press

Report in Brief

Katy Press, retail consultant for the City of Arvada, has 35 + years in the retail industry. Katy has in depth knowledge of the economic realities of retail development and why some projects get off the ground and some don't. In her State of Retail in Arvada, Katy will provide a summary of information including, and not limited to:

- trends within the retailing industry
- major shifts in consumer behaviors and how they impact spending and sales tax revenue for the City
- evolving shopping patterns which have impacted retail development
- a pandemic which has impacted bricks and mortar and the consumers' preference to switch to online retailing
- AEDA's strategic efforts as it applies to strategies in supporting the development community

Background

Katy has provided State of Retail updates to City Council in the past, covering subjects such as retailer and consumer trends, retail real estate development and retailer attraction strategies. She is instrumental in guiding/counseling the AEDA Board and City team about development projects, incentives, and education, which guide our decisions as it pertains to development projects.

Strategic Alignment

AEDA's support of commercial retail real estate development and attraction/retention of local retail and sales tax generators for the City of Arvada is aligned with the City Council Strategic Result for Community and Economic Development Priority Area:

By 12/25, fully align the City's economic development efforts with the community's vision expressed in the Community Survey and Business Survey.

Next Steps

Receive feedback from the City Council and, if desired by the Council, the AEDA team ask Katy Press to provide a follow-up State of Retail presentation to the City Council later in 2022, which will cover topics such as retail real estate development dynamics and challenges/opportunities for retail attraction and diversification.

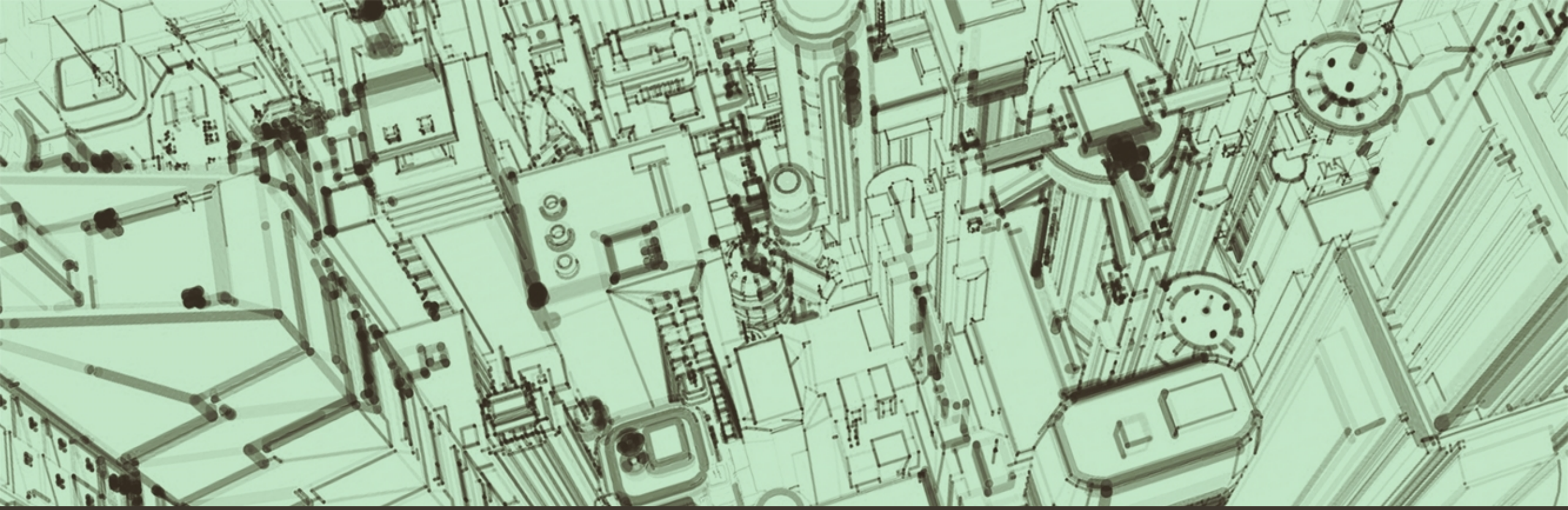
Prepared by:
Daniel Ryley, Director of Economic Development

Reviewed by:

Approved by:

Daniel Ryley, Director of Economic Development	2/14/2022
Ryan Stachelski, Director of Community and Economic Development	2/15/2022
Gail Walker, Legal Specialist-Contracts	2/15/2022
Rachel Morris, City Attorney	2/23/2022
Lorie Gillis, Deputy City Manager	2/23/2022
Mark Deven, City Manager	2/23/2022

Enclosure, exhibits & attachments required to support the report



Arvada City Council Presentation

March 2022

Retail…is there anything new?

- Sounding like a broken record.
- We continue to endure the impacts to retail from the pandemic.
- Enduring being the key word…
- Erratic consumer behavior continues to stymy certain parts of retailing.
- Likely to stay that way until the pandemic is out of the rearview mirror.
- With some sense of freedom returning and more non-essential stores now operating normally, many consumers have gone on a shopping binge.
- They are spending money they would typically spend on travel on other things, like home improvement and consumer goods.

Online Shopping…

- The shift towards online shopping is definitely increasing.
- Arvada has seen a benefit from this trend – our online sales in 2021 were $240,000,000.
- According to a Look Forward study reported by Retail Customer Experience, 60% of adults stated that they shopped mainly in person pre-pandemic.
- That figure has fallen to 37% now.
- In addition, 42% of the survey participants anticipate that they will be shopping in person and online equally in a year's time.

Pre vs Post Pandemic Shopping Trends

60%

VS

37%

60% of Adults Shopped in Person Pre-Pandemic

37% of Adults Shopped in Person Post-Pandemic

Statistics Sourced : Verizon Look Forward study reported by Retail Customer Experience

Influencer MarketingHub

What about grocery?

Source - Edited from “Research and Markets” February 2022

- Grocery retailing continues its shift towards same-day delivery services.
- 3rd party providers such as Instacart are helping grocery retailers build their e-commerce value offerings.
- In addition, food delivery platforms such as Uber Eats and DoorDash are entering the fray to also provide grocery delivery.
- Amazon continues to propel forward with online order/delivery of groceries.
- Online grocery is not only here but going to expand.

Amazon Fresh (Online)

- Amazon is looming in the online grocery market in the United States by offering Amazon Fresh home delivery service.
- Amazon's disruptive approach to grocery includes a collect and click offering where shoppers can choose online grocery orders within a 15 minute to 2 hour delivery window.
- Full roll out has not been implemented yet.

National vs Independent Retailers

- There is a distinction between national and independent retailers.
- The trends and data being shared are based on national retailer movements.
- Independent retailing can be less “regimented” and more responsive to local trends.
- Independent retailers are mostly found in personal services and the restaurant industry.

Retail is still standing at the crossroads…

- Retailing wants to move forward yet it remains at the crossroad.
- Consumer activity will need to stabilize post-pandemic for retailing to fully pick a direction.
- The influence of online shopping will drive the need to “reinvent” bricks and mortar retailing.
- Expect the road to lead to a retail environment that embodies creative, exciting, unique and sustainable retailing centers.

Planning ahead…

- As the retailers themselves contemplate and implement changes within their operations, municipalities have an opportunity to lead the discussion in transforming outdated retail shopping center formats.
- If we are to grow a healthy and sustainable brick and mortar retailing environment - newer formatted retail development patterns must be evaluated and encouraged.
- Working with retail development opportunities within the City to visualize transformation of outdated retail development models must be encouraged and supported to do so with useful tools.
- To be effective in the conversation, the City must be prepared and knowledgeable to not only participate but lead the discussion of “what’s next” for retail within the City.

Creating focus…

- Initiating and encouraging creative and unique retail environments within the community by providing the vision for those changes.
- By creating experiences that consumers want to be a part of (utilizing planning, creative land use and partnerships with the private sector).
- Evaluate regulations, development standards and processes to support a change in focus for retail.

What can we influence…

- Aspects of the built environment including lighting, façade, architectural aspects, building materials, etc.
- The public realm including vehicular access, sidewalk and trail connections.
- Uses for a site through the underlying zoning that every property has.

What we hope to achieve…

- Energized developments that the neighborhoods engage with.
- Evolving centers with a mix of tenants and land uses that create vibrant spaces where people want to linger.
- Successful businesses, valuable commercial real estate, and a sustainable source of revenue to provide Arvada services.
- We want to drive by our centers and see activity, see people laughing and enjoying the spaces while spending their dollars at our creative mix of uses in Arvada.

CITY OF ARVADA

REPORT FROM CITY COUNCIL

AGENDA ITEM 13.A.

DATE: March 7, 2022

SUBJECT: Council Committee Reports

Report in Brief

City Council members are appointed to various committees and boards as set out on the attached listing. As meetings are held, individual council members will report back to the full City Council any relevant discussions and issues that occurred.

Prepared by:
Chris Koch, CCO Admin

Reviewed by:

Approved by:

Enclosure, exhibits & attachments required to support the report

Council Member	Committee
Marc Williams	Arvada Municipal Court/Judicial Committee Arvada City Attorney Committee Arvada Urban Renewal Authority E-470 Authority (alternate) Jefferson Parkway Public Highway Authority Northwest Parkway Authority (Associate Member) (alternate) Urban Drainage and Flood Control District West Connect Coalition *Metro Mayors Caucus
Bob Fifer	Adams County Regional Economic Partnership (ACREP) Apex Coordinating Committee Arvada City Attorney Committee Arvada Transportation Committee Denver Regional Council of Governments (Alternate) Jefferson County R-1 Schools Coordinating Committee Jeffco Transportation Action & Advisory Group (JEFFTAAG) Smart City Advisory Committee
David Jones	E-470 Authority (alternate) Jefferson County Community Corrections Board Jefferson County R-1 Schools Coordinating Committee Jefferson Economic Development Council (JEDC) Jefferson Parkway Public Highway Authority Northwest Parkway Authority (Associate Member) (alternate) West Connect Coalition (alternate)
John Marriott	Adams County Regional Economic Partnership (ACREP) (alternate) Apex Coordinating Committee Arvada Economic Development Association Board Arvada Municipal Court/Judicial Committee Arvada Visitors Center Committee (alternate) CML Policy Committee Olde Town Business Improvement (BID) District Rocky Mountain Metropolitan Airport Community Noise Roundtable
Randy Moorman	Arvada Audit Committee Arvada Sustainability Advisory Committee CML Policy Committee Rocky Flats Stewardship Council
Lauren Simpson	Arvada Audit Committee Arvada Center for the Arts and Humanities Arvada Fire Protection District Coordinating Committee Arvada Visitors Center Committee Olde Town Business Improvement (BID) District (alternate)
Lisa Smith	Arvada Chamber of Commerce Government Affairs Committee Arvada Fire Protection District Coordinating Committee Denver Regional Council of Governments Jefferson County Community Corrections Board (alternate) Jeffco Transportation Action & Advisory Group (JEFFTAAG) (alternate) Smart City Advisory Committee

*Asterisked committees are not appointed by Council

City Clerk Team Drive: Council appointed committees

CITY OF ARVADA

REPORT TO CITY COUNCIL

AGENDA ITEM 14.A.

TO: THE HONORABLE CITY COUNCIL DATE: March 7, 2022

SUBJECT: Review of Future Workshops and Presentations

Report in Brief

The City Manager's Office maintains a list of upcoming workshops and presentations to be scheduled for City Council meetings. During City Manager Reports, at the end of City Council business meetings, City Manager, Mark Deven, will review with City Council the tentative schedule and make any adjustments necessary.

Prepared by:
Chris Koch, CCO Admin

Reviewed by:

Approved by:

Rachel Morris, City Attorney	2/23/2022
Lorie Gillis, Deputy City Manager	2/23/2022
Mark Deven, City Manager	2/23/2022

Enclosure, exhibits & attachments required to support the report

2022 CITY COUNCIL WORKSHOPS, PRESENTATIONS AND RETREATS (TENTATIVE)

WORKSHOPS	Date	Lead
No Workshop – Board and Commission Interviews	Feb 28	
State of Retail @ Business Meeting (Tentative)	March 7	CED
Water Demand Study based on Planned Growth	March 14	Utilities/CED
Water and Sewer Project Roadmap and Gross Res Update (20 minutes)	March 28	Utilities
Olde Town Update (20 minutes)	March 28	CED
Body Worn Cameras (30 minutes)	March 28	PD
Square Lake Sub Area Plan	April 11	CED
LDC	April 11	CED
Quarterly Bond Project	April 25	PW
Utilities Level of Service and Financial Strategies	April 25	Utilities/Fin
Review of the 2022-2023 Draft City Council Strategic Plan @Business Mtg	May 2	CMO
Code Enforcement	May 9	PD
Regional Homelessness	May 9	
Sub Area Plans	June 13	CED
	June 27	
No Meeting – Appointee Evaluations	July 11	
2023 Water, Sewer, Strom Rates and Fees	July 25	Utilities
Smart Meters	July 25	
Quarterly Bond Project Update	August 8	PW
10-year model	August 8	
Total Rewards Philosophy and Strategy Update	August 22	
Family Medical Leave Insurance	August 22	
Collective Bargaining	August 22	
Budget Presentation	Sept 26	
Utilities Rates and Fees 2023	Sept 26	
CIP Update	Oct 10	
Neighborhood Engagement and Marketing Updates	Oct 24	
	Nov 14	
	Nov 28	
Infrastructure Master Plan Strategic Result Update	Dec 12	PW/Utilities
TBD's		
Council Retreat Update	TBD	CMO
Pre-Sentencing/One Small Step	TBD	Courts
Pocket Neighborhoods	TBD	
Meyers Pool	TBD	CMO
City Marketing Plan	TBD	CMO
Traffic Violation Fee	TBD	PW
Financial Scenarios for Street Maintenance Deficit/Options for Increasing Maintenance Funds Engage City Council in a discussion around the current street maintenance needs and how the City might fund them. This will include revenue enhancements, future allocations and expenditure realignments.	TBD	PW/Fin/ CMO
Fiber Master Plan The Fiber Master Plan which is also called Arvada Fiber Optic Network (AFON), was first	TBD	PW

presented to City Council 4/10/2017. City Councils had set a strategic goal to build a fiber network to enable high speed/real-time connectivity to city facilities and assets in order to enhance city operations. This workshop is intended to brief City Council as to the progress of the AFON build out. Updates are intended to cover conduit installation progress, fiber installation progress, current collocate opportunities, IGA member updates, and connections to current assets (city buildings, traffic, signals, utilities, radio, etc.).		
Community Survey Update The purpose of this item is to continue a discussion with Council about the Community Survey results and what the City team is doing to apply what is learned. Discussion will include an update on action plans targeting key drivers of the City's 5-star rating as well as how Worksystems are targeting specific measures.	TBD	CMO
Problem Properties	TBD	P.D.
Water Storage – Plan B (include with master plan presentation)	TBD	Utilities
Activation of Historical Assets	TBD	VCN
Customer Service Philosophy	TBD	CMO
Ask Arvada Update	TBD	CMO
COUNCIL JOINT MEETINGS/DINNERS:		
Denver Water Board Apex Board AURA Board Arvada Center Board–Per Coop Agreement - Annually after October 1 of each year Jefferson Parkway Meeting with Jeffco and Broomfield Council Annual Retreat		