

City of Arvada

City Council Agenda

SEPTEMBER 16, 2025

Councilmembers:

Lauren Simpson, Mayor
Randy Moorman, Mayor Pro-Tem
Shawna Ambrose, District 2
Sharon Davis, At large
Bob Fifer, District 4
John Marriott, District 3
Brad Rupert, At large

Staff Members Usually Present:

Don Wick, City Manager
Linda Haley, Deputy City Manager
Alli Scheck, Deputy City Manager
Rachel Morris, City Attorney
Jacqueline Rhoades, Director of Infrastructure
Jessica Garner, Director of Community & Econ. Dev.
Bryan Archer, Chief Financial Officer
Gabriella Bommer, Director of Human Resources
Ryan Stevenson, Director of Vibrant Community & Neighborhoods
Rachael Kuroiwa, Director of Communications & Engagement
Ed Brady, Chief of Police
Kristen Rush, City Clerk

Info: 720-898-7550

REGULAR MEETING CITY COUNCIL CHAMBERS 6:00 P.M.

1. Call to Order - 6:00 PM
2. Moment of Reflection and Pledge of Allegiance - Councilmember Ambrose
3. Roll Call of Councilmembers
4. Approval of Minutes
 - A. August 19, 2025 and September 2, 2025 City Council Meetings
5. Recognitions and Communications
 - A. Proclamation for Constitution Week - Presented by Councilmember Fifer
6. Presentations - None
7. Public Comment on Issues not Scheduled on Agenda - Three Minute Limit
8. New Business
 - A. Consent Agenda
 1. R25-078, A Resolution Authorizing Designated City Officials to Act for and on Behalf of the City of Arvada Relating to Financial Transactions and Further Authorizing the Use of Facsimile Signatures for Certain Financial Transactions
 2. R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00
 3. R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00

4. R25-081, A Resolution Authorizing An Agreement By and Between the City of Arvada and Mid City Corporation for the 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, in an Amount Not to Exceed \$1,677,411.56
5. R25-082, A Resolution Authorizing an Intergovernmental Agreement Between the City of Arvada and the Church Ditch Water Authority for a License Agreement in an Amount Not to Exceed \$14,000.00

B. Resolutions

1. R25-083, A Resolution Authorizing an Intergovernmental Agreement Concerning Regional Cold Weather Response for those Experiencing Homelessness (Presenter: Don Wick, City Manager)
2. R25-076, A Resolution Authorizing a Contract to Buy and Sell Real Estate by and between the City of Arvada and the Keller Family Limited Partnership, LLLP, for the Purchase of Real Property located at 6809 State Highway 93, Golden, CO 80403 (Presenter: Jacqueline Rhoades, Director of Infrastructure)
3. R25-077, A Resolution Authorizing an Employment Agreement Between the City of Arvada and Aly Harmon Appointing Her as a Municipal Court Relief Judge for 2025 (Presenter: Kathryn Kurtz, Presiding Judge)

A. Swearing-in of Aly Harmon

C. Ordinances (First Reading) -None

9. Other

10. Public Hearings - 6:15 PM - None

11. Public Comment - Five Minute Limit

12. Reports from City Council

A. Council Committee Reports

13. Reports from City Manager

A. Review of Future Workshops and Presentations

14. Reports from City Attorney

15. Adjournment



**SUMMARY OF MINUTES OF THE MEETING OF THE ARVADA CITY COUNCIL HELD
AUGUST 19, 2025**

1. Call to Order - 6:00 p.m.
2. Moment of Reflection and Pledge of Allegiance
3. Roll Call of Councilmembers

Those Present: Mayor Lauren Simpson, Mayor Pro Tem Randy Moorman, Councilmember Shawna Ambrose, Councilmember Sharon Davis, Councilmember Fifer, Councilmember John Marriott, Councilmember Brad Rupert

Councilmember Fifer moved to excuse Councilmember Ambrose from the meeting.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

Also Present: Don Wick, City Manager, Rachel Morris, City Attorney, Linda Haley, Deputy City Manager, Bryan Archer, Chief Financial Officer, Jacqueline Rhoades, Director of Infrastructure, Jessica Garner, Director of Community and Economic Development, Sean Star, Communications Manager, Department of Vibrant Community and Neighborhoods and Kristen Rush, City Clerk.

4. Approval of Minutes – July 15, 2025, July 22, 2025, and August 5, 2025, City Council Meetings

The minutes stand approved.

5. Recognition and Communication – None

6. Presentations –

A. 2025 Mid-Year Financial Report

Bryan Archer, Chief Finance Officer, presented the 2025 mid-year financial report. This included updates on specific performance measures, an overview of the major revenue categories in the General Fund, a high-level look at the other Major Funds including: Parks, Tax Increment, Water, Wastewater, Stormwater, Solid Waste and Golf, a review of the City's Investment portfolio and an overview of Grants.

7. Public Comment –

- A. Gina Hallisey, Arvada resident, addressed council regarding CWPP and park concerns
- B. Tyler Bryant introduced himself as the new Xcel Energy Area Manager
- C. Judy Douglas, Arvada resident, addressed council regarding housing in Arvada

8. New Business

A. Consent Agenda –

1. R25-064 A Resolution Authorizing the Donation of Impaired Driving Program Equipment from the Arvada Police Foundation to the Arvada Police Department
2. R25-065 A Resolution Approving the Fifth Amendment to an Employment Agreement between the City of Arvada and Rachel A. Morris as City Attorney
3. R25-066 A Resolution Approving the Fifth Amendment to an Employment Agreement between the City of Arvada and Kathryn C. Kurtz as Presiding Municipal Court Judge
4. R25-067 A Resolution Approving the City of Arvada Lease Agreement for the Use of The Parklets in Olde Town

Councilmember Davis moved to remove R25-067 from the consent agenda

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

Councilmember Davis moved that R25-064, A Resolution Authorizing the Donation of Impaired Driving Program Equipment from the Arvada Police Foundation to the Arvada Police Department; R25-065, A Resolution Approving the Fifth Amendment to an Employment Agreement between the City of Arvada and Rachel A. Morris as City Attorney; R25-066, A Resolution Approving the Fifth Amendment to an Employment Agreement between the City of Arvada and Kathryn C. Kurtz as Presiding Municipal Court Judge, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

Councilmember Davis moved that R25-067, A Resolution Approving the City of Arvada Lease Agreement for the Use of The Parklets in Olde Town, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Rupert

Those voting No: Marriott

Those Absent: Ambrose

The Motion was Approved

B. Resolutions –

1. R25-068 A Resolution Concurring with the Imposition by Mountain Shadows Metropolitan District of a Park and Recreation Fee

Megan McCall, Assistant City Attorney, reviewed this resolution with council.

Councilmember Fifer moved that R25-068, A Resolution Concurring with the Imposition by Mountain Shadows Metropolitan District of a Park and Recreation Fee, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

2. R25-069 A Resolution Authorizing Intergovernmental Agreements for Election Coordination with the Jefferson County Clerk and Recorder and the Adams County Clerk and Recorder

Don Wick, City Manager, City Manager, reviewed this resolution with council.

Mayor Pro Tem Moorman moved that R25-069, A Resolution Authorizing Intergovernmental Agreements for Election Coordination with the Jefferson County Clerk and Recorder and the Adams County Clerk and Recorder, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

3. R25-070 A Resolution Authorizing a First Amendment to the 2025-2026 Biennial Operating and Capital Budget to Advance Funds to the Arvada Center in the Amount of \$1,624,000.00

Mayor Pro Tem Moorman moved that R25-070, A Resolution Authorizing a First Amendment to the 2025-2026 Biennial Operating and Capital Budget to Advance Funds to the Arvada Center in the Amount of \$1,624,000.00, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

C. Ordinances (First Reading) –

1. CB25-020 An Ordinance Rezoning Certain Land within the City of Arvada, the former Allendale Elementary School from City of Arvada RN-7.5 (Residential Neighborhood) to City of Arvada R-6 (Residential, 6). and Amending the Official Zoning Maps of the City of Arvada, Colorado, 5900 Oak Street (Public Hearing to be set for October 7, 2025 at 6:15 p.m.)

Mayor Pro Tem Moorman moved that CB25-020, An Ordinance Rezoning Certain Land within the City of Arvada, the former Allendale Elementary School from City of Arvada RN-7.5 (Residential Neighborhood) to City of Arvada R-6 (Residential, 6). and Amending the Official Zoning Maps of the City of Arvada, Colorado, 5900 Oak Street, be approved on first reading, ordered published in full and a public hearing set for October 7, 2025, at 6:15 p.m.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

9. Other - None

A. Appointment to CML Policy Committee

Councilmember Davis moved to appoint Shawna Ambrose to the CML Policy Committee.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

B. Motion to Cancel the August 26, 2025 City Council Meeting

Councilmember Fifer moved to cancel the August 26, 2025 City Council Meeting.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

10. Public Hearings –

A. CB25-016 An Ordinance Submitting Proposed Amendments to Section 8.2 of the Charter for the City of Arvada to the Registered Electors at the November 4, 2025 Regular Municipal Election and Setting Ballot Titles (Ordinance No. 4902)

Mayor Simpson opened the public hearing on CB25-016

Vicki Wire, Deputy Court Administrator, reviewed this ordinance with council.

No one wishing to speak for or against, the public hearing was closed.

Councilmember Davis moved that CB25-016, An Ordinance Submitting Proposed Amendments to Section 8.2 of the Charter for the City of Arvada to the Registered Electors at the November 4, 2025 Regular Municipal Election and Setting Ballot Titles, be approved on final reading, numbered 4902 and ordered published by title only.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Rupert

Those voting No: Marriott

Those Absent: Ambrose

The Motion was Approved

- B. CB25-017 An Ordinance Authorizing a Fourth Amendment to the Development Agreement Pertaining to Vested Rights for Cimarron Park (Ordinance No. 4903)

Mayor Simpson opened the public hearing on CB25-017.

Rob Smetana, Manager of City Planning and Development, reviewed this ordinance with council.

No one wishing to speak for or against, the public hearing was closed.

Councilmember Fifer moved that CB25-017, An Ordinance Authorizing a Fourth Amendment to the Development Agreement Pertaining to Vested Rights for Cimarron Park, be approved on final reading, numbered 4903 and ordered published by title only.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

- C. CB25-018 An Ordinance Authorizing a Third Amendment to the Development Agreement Pertaining to Vested Rights for Vauxmont (Ordinance No. 4904)

Mayor Simpson opened the public hearing on CB25-018.

Rob Smetana, Manager of City Planning and Development, reviewed this ordinance with council.

No one wishing to speak for or against, the public hearing was closed.

Councilmember Fifer moved that CB25-018, An Ordinance Authorizing a Third Amendment to the Development Agreement Pertaining to Vested Rights for Vauxmont, be approved on final reading, numbered 4904 and ordered published by title only.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose

The Motion was Approved

- D. CB25-019 An Ordinance Amending Various Provisions of Arvada's Land Development Code, of the Arvada City Code (Ordinance No. 4905)

Mayor Simpson opened the public hearing on CB25-019.

Rozalynne Thompson, Principal Planner, reviewed this ordinance with council.

Nora Steenson, Deputy City Attorney, read the following statement into the record:

1. The first issue has to do with a clerical error in the 2022 LDC ordinance that we are correcting this evening.

New language: this section is an addition to the ordinance as it appears in the packet:
“Section 79.5. Subsection (1)(g) of the definition of “Heavy Industry” of Division 11-3-3 “Definitions” of Article 11-3 of Chapter 11, “Measurements, Rules of Construction, and Definitions” of the Arvada Land Development Code is hereby repealed and reenacted to read as follows:

“(1). . . .

(g) More than 60 heavy truck trips per day; or”

The remaining language in the definition of “Heavy Industry” will remain unchanged.”

2. The second issue is with the legislative language for Section 81 of the LDC ordinance:

New language: this section simply revises the existing language in Section 81 of the Ordinance as it appears in the packet: “Section 81. Both definitions of "Light Industry" set forth in Division 11-3-3 "Definitions" of Article 11-3, "Definitions" of Chapter 11, "Measurement, Rules of Construction, and Definitions are hereby repealed, and the definition of "Light Industry" is reenacted to read as follows:”

Note: All of the substantive language in this Section 81 remains the same as shown in the Ordinance.

Sworn Testimony: Gina Hallisey, Arvada resident, against the issue
Rich Bohling, Arvada resident, against the issue
Mike Rawluk, Golden resident, against the issue
Karen Gerbatsch, Arvada resident, against the issue
Patty Shannon, Arvada resident, against the issue
Tony Rawluk, Arvada resident, against the issue
Phil Lankford, Arvada resident, against the issue
Mike Schweitzer, Arvada resident, against the issue

Did not speak but wanted their name entered in the record:

Paul and Lynette Gottler, Arvada resident, against the issue
Tom Hallisey, Arvada resident, against the issue
Elizabeth Sanders, Arvada resident, against the issue

Mayor Simpson closed the public hearing.

Councilmember Fifer moved that CB25-019, An Ordinance Amending Various Provisions of Arvada's Land Development Code, of the Arvada City Code, be approved on final reading as amended, numbered 4905 and ordered published in full.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Fifer, Marriott, Rupert

Those Absent: Ambrose
The Motion was Approved

11. Public Comment - Five Minute Limit –
 - A. David Finch, Arvada resident, addressed council regarding ADA and Safety Concerns
 - B. Mike Rawluk, Golden resident, addressed council regarding Community and Economic Development Director approvals and the use of Call Ups.
12. City Council Reports –
 - A. Councilmember Davis said that she attended two ribbon cuttings, one for Olde Town Social and True You Collective.
 - B. Councilmember Davis said that Applewood Seed Company just celebrated 60 years in business.
 - C. Councilmember Davis said that she attended the Servicios de la Raza Gala.
 - D. Councilmember Davis said that she attended the Arvada Gardener's Open House.
 - E. Mayor Pro Tem Moorman said that he also attended the Applewood Seed Company 60th Anniversary celebration.
 - F. Mayor Pro Tem Moorman said that he attended the Servicios de la Raza Gala.
 - G. Mayor Pro Tem Moorman said that his next coffee chat will be on August 29 from 2-4 p.m., at Sweet Bloom at 77th and Wadsworth.
13. City Manager Reports – None
14. City Attorney Reports – None
15. Adjournment at 9:25 p.m.

Lauren Simpson, Mayor

SEAL:

Kristen R. Rush, City Clerk



SUMMARY OF MINUTES OF THE MEETING OF THE ARVADA CITY COUNCIL HELD SEPTEMBER 2, 2025

1. Executive Session – 5:00 p.m.
Legal Advice, Pursuant to CRS 24-6-402(4)(b) Relating to Development Application for 6800 Kilmer Street

Councilmember Davis moved to go into executive session for Legal Advice, Pursuant to CRS 24-6-402(4)(b) Relating to Development Application for 6800 Kilmer Street

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Marriott, Rupert

Those Absent: Ambrose, Fifer

The Motion was Approved

1. Call to Order - 6:00 p.m.
2. Moment of Reflection and Pledge of Allegiance
3. Roll Call of Councilmembers

Those Present: Mayor Lauren Simpson, Mayor Pro Tem Randy Moorman, Councilmember Sharon Davis, Councilmember John Marriott, Councilmember Brad Rupert

Councilmember Rupert moved to excuse Councilmember Ambrose and Councilmember Fifer from the meeting.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Marriott, Rupert

Those Absent: Ambrose, Fifer

The Motion was Approved

Also Present: Don Wick, City Manager, Rachel Morris, City Attorney, Linda Haley, Deputy City Manager, Bryan Archer, Chief Financial Officer, Jacqueline Rhoades, Director of Infrastructure, Jessica Garner, Director of Community and Economic Development, Sean Star, Communications Manager, Department of Vibrant Community and Neighborhoods and Kristen Rush, City Clerk.

4. Approval of Minutes – None
5. Recognition and Communication –
 - A. Recognition of 100th Anniversary of the Arvada Harvest Festival - Presented by Mayor Pro Tem Moorman

Mayor Pro Tem Moorman read the proclamation and said that this year, Arvada celebrates a remarkable milestone—100 years of the Arvada Harvest Festival, one of the longest-running community traditions in

Colorado. What began in 1925 is still a beloved annual event today, one that connects generations.

The very first harvest festival was held not just to celebrate its agricultural roots, but also to celebrate the paving of Grandview Avenue from the bypass to Lamar Street. The organizers of the event, the Arvada Chamber of Commerce, planned a day full of festivities: a football game, visits from the Governor of Colorado and the Mayor of Denver, and even an airplane flyover to drop coupons for free pumpkin pies. But Colorado weather had other plans. Residents woke up to two feet of snow. The football game and flyover were canceled, and the Governor couldn't make it—but the Mayor of Denver did, and the community pressed on. Neighbors grabbed shovels to clear the streets, and the pie coupons were tossed from the roof of the First National Bank building. Despite the challenges, the day was declared a “great success.” After that snowy start, organizers wisely moved the festival to September, and it quickly became Arvada's signature event of the year.

While the City of Arvada has supported the festival in various ways over the years, the event itself has always been a community-led effort—organized by the Arvada Chamber of Commerce until 1938, when they began partnering with the Junior Chamber (Jaycees). Since taking over coordination in 1989, the Jaycees have continued to lead the effort. The festival's success belongs to the people who have brought it to life year after year. From its humble beginnings marking a harvest and a highway, the Arvada Harvest Festival and Parade has long reflected the spirit and resilience of the Arvada community—celebrating tradition, connection and local pride.

For details regarding the 2025 Arvada Harvest Festival and Parade, please reach out to the Harvest Festival Committee at arvadaharvestfestival.com.

B. Proclamation for National Co-Responder Week - Presented by Councilmember Davis

Councilmember Davis read the proclamation and said that City Council designates September 14-20, 2025 as National Co-Responder Week.

Co-Responders Ashley Fraser and Jessica May, along with Case Manager Julie Duhegraham were present to accept the proclamation.

C. Proclamation for National Forensic Science Week - Presented by Councilmember Marriott

Councilmember Marriott read the proclamation and said that City Council proclaims the week of September 14-20, 2025 as National Forensic Science Week.

Chief Ed Brady was present to accept the proclamation.

6. Presentations - None

7. Public Comment –

- A. Carol Napier, Arvada resident, addressed council regarding the use of taxpayer dollars and investments.

8. New Business

A. Resolutions –

1. R25-071 A Resolution Declaring the Intent of the City of Arvada to Use Its Best Efforts to Issue Multifamily Housing Revenue Bonds to One or More

Pipeline Projects for the Benefit of Low- and Middle-Income Families
or Persons and Authorizing Carryforward Allocation

Carrie Espinosa, Housing Manager, reviewed this resolution with council.

Mayor Pro Tem Moorman moved that R25-071, A Resolution Declaring the Intent of the City of Arvada to Use Its Best Efforts to Issue Multifamily Housing Revenue Bonds to One or More Pipeline Projects for the Benefit of Low- and Middle-Income Families or Persons and Authorizing Carryforward Allocation, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Rupert

Those voting No: Marriott

Those Absent: Ambrose, Fifer

The Motion was Approved

2. R25-072 A Resolution Authorizing Participation in the Denver Regional
Council of Governments' Regional Housing Needs Assessment

Carrie Espinosa, Housing Manager, reviewed this resolution with council.

Mayor Pro Tem Moorman moved that R25-072, A Resolution Authorizing Participation in the Denver Regional Council of Governments' Regional Housing Needs Assessment, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Rupert

Those voting No: Marriott

Those Absent: Ambrose, Fifer

The Motion was Approved

3. R25-073 A Resolution Authorizing Change Order #2 to An Agreement By and
Between the City of Arvada and EZ Excavating, Inc. for the 2024
Water Main Replacement, Project No. 24-WA-01, in an Amount Not to
Exceed \$681,646.35 thereby Increasing the Total Contract Amount to
an Amount Not to Exceed \$5,511,655.35

Jacqueline Rhoades, Director of Infrastructure, reviewed this resolution with council.

Mayor Pro Tem Moorman moved that R25-073, A Resolution Authorizing Change Order #2 to An Agreement By and Between the City of Arvada and EZ Excavating, Inc. for the 2024 Water Main Replacement, Project No. 24-WA-01, in an Amount Not to Exceed \$681,646.35 thereby Increasing the Total Contract Amount to an Amount Not to Exceed \$5,511,655.35, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Marriott, Rupert

Those Absent: Ambrose, Fifer

The Motion was Approved

- 4 R25-074 A Resolution Authorizing an Employment Agreement Between the City of Arvada and Alexa Visscher Appointing Her as a Municipal Court Relief Judge for 2025

Padraic Emerine, Senior Assistant City Attorney, reviewed this resolution with council.

Councilmember Davis moved that R25-074, A Resolution Authorizing an Employment Agreement Between the City of Arvada and Alexa Visscher Appointing Her as a Municipal Court Relief Judge for 2025, be approved.

The following votes were cast on the Motion:

Those voting Yes: Simpson, Moorman, Davis, Marriott, Rupert

Those Absent: Ambrose, Fifer

The Motion was Approved

Kathryn Kurtz, Presiding Judge swore in of Alexa Visscher as a relief Municipal Court Relief Judge for 2025

B. Ordinances (First Reading) – None

9. A Motion to Waive the Minimum Interval Requirement and Accept an Application to Amend the Comprehensive Plan for the Property located at 6800 Kilmer Street

Public Comment: Karen Gerbasch, Arvada resident, against the motion

Councilmember Davis moved that pursuant to City Council Rule of Procedure 9(B), that the requirements for reconsideration under City Council Rule of Procedure 4(L) be set aside, that the Council rehear an application to amend the comprehensive plan for 6800 Kilmer Street, that the matter be set for a public hearing at a future date and time, and that the public hearing be noticed consistent with all applicable notice requirements for the initial Council public hearing on the matter

The following votes were cast on the Motion:

Those voting Yes: Simpson, Davis, Marriott, Rupert

Those voting No: Moorman

Those Absent: Ambrose, Fifer

The Motion was Approved

10. Other - None

11. Public Hearings –

- A. R25-075 A Resolution Approving the Proposed Service Plan for the Howard Ranch Metropolitan District

Megan McCall, Assistant City Attorney, reviewed this resolution with Council

Sworn Testimony: Matt Roulin, Representing Applicant
 Nathan Adams, Representing Applicant
 Ann Schwitzer, Arvada resident, against the issue
 Mike Schwitzer, Arvada resident, against the issue
 Mike Rawluk, Golden resident, against the issue

Councilmember Davis moved that R25-075, A Resolution Approving the Proposed Service Plan for the Howard Ranch Metropolitan District, be approved subject to the following recommended conditions of approval:

1. The district shall comply with subsection 91-21(i) of the City Code regarding transparency requirements.
2. The sign notifying prospective purchasers that the property is located within a metropolitan district described in Article XI of the service plan be a minimum of two feet by four feet in size and located at the northern intersection of Howell Street and W 61st Circle.

Councilmember Marriott offered a Friendly Amendment to add to the sign requirements to add “for a term of two years or until all the units are sold”.

Councilmember Davis accepted the Friendly Amendment.

The following votes were cast on the Motion:
Those voting Yes: Simpson, Moorman, Davis, Marriott, Rupert
Those Absent: Ambrose, Fifer
The Motion was Approved

12. Public Comment - Five Minute Limit –
 - A. Mike Rawluk, Golden Resident, addressed council regarding Psilocybin.
13. City Council Reports –
 - A. Mayor Pro Tem Moorman said he attended the memorial service for the former Mayor, Vesta Miller.
 - B. Councilmember Davis said that she attended Mayor Pro Tem Moorman’s Coffee Talk.
 - C. Mayor Simpson said that she also attended the memorial service for the former Mayor, Vesta Miller.
 - D. Mayor Simpson said that she attended the grand opening of Quantum Commons.
 - E. Mayor Simpson said that she attended the groundbreaking of Griffith Station.
 - F. Mayor Simpson said that Odyssey Beer Works officially kicked off Oktoberfest.
 - G. Mayor Simpson said she attended the 125th Anniversary Party of Arvada High School.

14. City Manager Reports –
A. Don Wick, City Manager, said that tomorrow will be the quarterly Faith Leaders Meeting at United Methodist Church and Thursday is the AEDA Business Appreciation breakfast.

Mr. Wick said that next Tuesday at 4 p.m. we will have a Study Session related to Accessory Dwelling Units and the Workshop will be a presentation from the Metro Water Recovery CEO.

15. City Attorney Reports – None
16. Adjournment at 7:40 p.m.

Lauren Simpson, Mayor

SEAL:

Kristen R. Rush, City Clerk



REPORT TO CITY COUNCIL

AGENDA ITEM
5.A.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: Proclamation for Constitution Week - Presented by Councilmember Fifer

Report in Brief

City Council will proclaim the week of September 17-23, 2025 as Constitution Week.

Kristin Husby, Chapter Regent of the Doctor Susan Anderson Chapter, National Society Daughters of the American Revolution, will be present to accept the proclamation.

Prepared by:
Chris Koch, CCO Admin

Reviewed by:
Toni Riebschlager, Law Office Administrator 08/25/2025
Megan McCall, Assistant City Attorney II 08/27/2025

Approved by:

Rachel Morris, City Attorney 08/27/2025
Linda Haley, Deputy City Manager 08/27/2025
Don Wick, City Manager 08/29/2025

Enclosure, exhibits & attachments required to support the report

WHEREAS, September 17, 2025, marks the two hundred and thirty-eighth anniversary of the drafting of the Constitution of the United States of America by the Constitutional Convention; and

WHEREAS, it is fitting and proper to accord official recognition to this magnificent document and its memorable anniversary; and to the patriotic celebrations which will commemorate the occasion; and

WHEREAS, Public Law 915 guarantees the issuing of a proclamation each year by the President of the United States of America designating September 17 through 23 as Constitution Week.

NOW, THEREFORE, BE IT PROCLAIMED that the Mayor and City Council of the City of Arvada, Colorado, hereby proclaim the week of September 17-23, 2025 as **CONSTITUTION WEEK** and ask our citizens to reaffirm the ideals the Framers of the Constitution had in 1787 by vigilantly protecting the freedoms guaranteed to us through this guardian of our liberties, remembering that lost rights may never be regained.

Dated this 16th day of September, 2025

Lauren Simpson, Mayor

Randy Moorman, Mayor Pro Tem

Shawna Ambrose, Councilmember

Sharon Davis, Councilmember

Bob Fifer, Councilmember

John Marriott, Councilmember

Brad Rupert, Councilmember



REPORT TO CITY COUNCIL

AGENDA ITEM
8.A.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: Consent Agenda

Report in Brief

1. R25-078, A Resolution Authorizing Designated City Officials to Act for and on Behalf of the City of Arvada Relating to Financial Transactions and Further Authorizing the Use of Facsimile Signatures for Certain Financial Transactions

2. R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00

3. R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00

4. R25-081, A Resolution Authorizing An Agreement By and Between the City of Arvada and Mid City Corporation for the 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, in an Amount Not to Exceed \$1,677,411.56

5. R25-082, A Resolution Authorizing an Intergovernmental Agreement Between the City of Arvada and the Church Ditch Water Authority for a License Agreement in an Amount Not to Exceed \$14,000.00

Suggested Motion: Moved by: _____ I move that the Consent Item(s),
Number(s) _____

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: September 16, 2025

SUBJECT: R25-078, A Resolution Authorizing Designated City Officials to Act for and on Behalf of the City of Arvada Relating to Financial Transactions and Further Authorizing the Use of Facsimile Signatures for Certain Financial Transactions

Report in Brief

The City of Arvada is required to designate certain City officials to act for the City of Arvada for financial transactions and to authorize certain financial transactions such as checks. This resolution is needed to add Allison Scheck to the list of designated officials.

This resolution authorizes the following officials to act on behalf of the City relating to financial transactions:

Don Wick, City Manager
Linda Haley, Deputy City Manager
Allison Scheck, Deputy City Manager
Bryan Archer, Chief Financial Officer
Debra L. Nielson, Deputy Director of Finance

The Arvada team recommends that the City Council approve R25-078, A Resolution Authorizing Designated City Officials to Act for and on Behalf of the City of Arvada Relating to Financial Transactions and Further Authorizing the Use of Facsimile Signatures for Certain Financial Transactions.

Financial Impact

No financial impact.

Background

When there is turnover of City team members, the City Council is required to update the approved list of employees that can approve financial transactions on behalf of the City. The proposed resolution provides the most up-to-date list of proposed authorized employees.

Discussion

Approval of the Resolution will add Deputy City Manager Allison Scheck to the list of designated officials. Ms. Scheck is being added based on her responsibilities, which include the approval of financial transactions and/or execution of financial decisions associated with City resources. As the Council is aware, Ms. Scheck has recently been hired into the position of Deputy City Manager.

Public Contact

Posting of the City Council agenda

Commission Recommendation

N/A

Strategic Alignment

The recommended action aligns with the following Principle within the Organizational and Service Effectiveness Priority Area of the City Council Strategic Plan:

Provides a sustainable government that operates effectively and efficiently while identifying revenue requirements to sustain current service levels and achieve future requested levels of service.

Alternative Courses of Action

N/A

Recommendation for Action

The Arvada team recommends that the City Council approve R25-078, A Resolution Authorizing Designated City Officials to Act for and on Behalf of the City of Arvada Relating to Financial Transactions and Further Authorizing the Use of Facsimile Signatures for Certain Financial Transactions.

Suggested Motion:

I move that R25-078, A Resolution Authorizing Designated City Officials to Act for and on Behalf of the City of Arvada Relating to Financial Transactions and Further Authorizing the Use of Facsimile Signatures for Certain Financial Transactions, be (approved) (rejected).

Prepared by:
Debra Nielson, Deputy Director of Finance

Reviewed by:

Approved by:

Jenna Belec, Executive Assistant	08/26/2025
Bryan Archer, Chief Financial Officer	08/27/2025
Gail Walker, Legal Specialist-Contracts	08/27/2025
Megan McCall, Assistant City Attorney II	08/28/2025
Rachel Morris, City Attorney	09/02/2025
Linda Haley, Deputy City Manager	09/02/2025
Don Wick, City Manager	09/05/2025

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R25-078

A RESOLUTION AUTHORIZING DESIGNATED CITY OFFICIALS TO ACT FOR AND ON BEHALF OF THE CITY OF ARVADA RELATING TO FINANCIAL TRANSACTIONS AND FURTHER AUTHORIZING THE USE OF FACSIMILE SIGNATURES FOR CERTAIN FINANCIAL TRANSACTIONS

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

Section 1. Any one of the designated officials of the City of Arvada (the “City”) set forth in Section 2 of this resolution is hereby authorized to approve electronic fund transfers involving the deposit or withdrawal of city funds. Furthermore, any two of the designated officials of the City set forth in Section 2 of this resolution are hereby authorized to perform any of the following acts on behalf of the City:

- A. Collect, cash, negotiate, endorse, and assign in the name of the City all checks, drafts, notes, and all other negotiable instruments or paper payable to the City, or in which the City has an interest, for deposit to the credit of the City in any bank or savings and loan association in which the City has an account;
- B. Issue and sign checks drawn against funds of the City on deposit in any bank or savings and loan association, including checks drawn to the individual order of any person(s) appearing thereon as signer(s); and
- C. Perform such other acts that may be incidental to the authority and powers granted above.

Section 2. The designated officials of the City authorized to perform the acts set forth in Section 1 of this resolution are: Don Wick, City Manager; Linda Haley, Deputy City Manager; Allison Scheck, Deputy City Manager; Bryan Archer, Chief Financial Officer; and Debra L. Nielson, Deputy Director of Finance.

Section 3. A facsimile signature shall be valid on City checks under the following conditions:

- A. City checks which are computer-printed shall be valid if two facsimile signatures are affixed;
- B. City checks which are hand-written shall be valid if one facsimile signature and one manual signature are affixed; and
- C. All City checks may be executed with two manual signatures and shall be valid if so executed.

Section 4. This resolution revokes and supersedes all prior signature authority as to: (1) all drafts, notes, and other negotiable instruments or paper payable to the City; and (2) checks drawn against funds of the City on deposit in any bank or savings and loan association. This resolution shall

remain irrevocable insofar as any bank is concerned until such bank is notified in writing of the revocation of such authority.

Section 5. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____



REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM
8.A.2.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00

Report in Brief

Amendment No. 1 to the existing design phase contract between the City of Arvada and CDM Smith Inc. (CDM) for the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St. project will increase the existing contract amount by \$416,020.00 to a new contract total of \$912,162.00.

The Arvada team recommends that the City Council approve R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00.

Financial Impact

CIP Project: 24-SR-04, NTL2&3 86th Pkwy, Beech to Moore Sewer Improvements

Financial Impact: \$416,020.00

This is a one-time request for project construction phase engineering costs.

Funding Source: UT Wastewater Bond Projects (42)

Workday Account: PRJ24098561

Background

In 2022, the City of Arvada completed a Sanitary Sewer Master Plan that provided the hydraulic modeling results of the existing sanitary sewer infrastructure servicing northern Arvada. This report highlighted several areas of capacity concerns under existing and build-out conditions. NTL2/3/Alkire FM was identified as one of the priority areas and one of the most time-sensitive portions.

The Arvada team contracted with CDM to provide engineering design phase services beginning in March 2024. The design is now complete, and the construction phase is anticipated to start in Q4 2025. As part of the construction phase services, CDM will provide part-time construction oversight, review contractor pay applications, review submittals, and provide materials testing services to ensure that the project is constructed according to signed drawings and specifications.

Discussion

With the subject Amendment No. 1, CDM will be contracted for construction phase engineering services for a total contract amount not to exceed \$912,162.00. This Amendment package includes part-time construction oversight, reviewing contractor

SUBJECT: R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00

PAGE: 2
ITEM: 8.A.2.

pay applications, submittal review, and providing materials testing services. This project will be entirely funded by the Wastewater Bond Funds.

The Arvada team recommends that the City Council approve R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A

Strategic Alignment

The recommended action aligns with the Infrastructure Work System Services within the City Council Strategic Plan. Specifically, the recommended action is consistent with the following work system service included in the Infrastructure Priority Area:

Provides the community with a safe, reliable high quality water supply, drainage system, and wastewater disposal services for full city build-out, as defined in the Comprehensive Plan. This includes maintaining utility rates at the lowest practical levels with accurate billing that supports replacement of aging infrastructure in order to maintain robust utility systems.

Alternative Courses of Action

N/A

Recommendation for Action

The Arvada team recommends that the City Council approve R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00.

Suggested Motion:

I move that R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00, be (approved) (rejected).

Prepared by:
Matthew Amidei, Civil Engineer III

Reviewed by:

SUBJECT: R25-079, A Resolution Authorizing a First Amendment to an Agreement Between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$416,020.00, Thereby Increasing the Total Contract Amount to an Amount not to Exceed \$912,162.00

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ITEM: 8.A.2.

Approved by:

Mary Stahl, Senior Civil Engineer	08/22/2025
Claudia Vaughan, City Engineer	08/26/2025
Jacqueline Rhoades, Director of Infrastructure	08/28/2025
Bryan Archer, Chief Financial Officer	08/28/2025
Tammy Hedlund, Legal Specialist	08/28/2025
Megan McCall, Assistant City Attorney II	08/28/2025
Don Wick, City Manager	08/29/2025
Rachel Morris, City Attorney	09/02/2025
Linda Haley, Deputy City Manager	09/02/2025
Don Wick, City Manager	09/05/2025

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R25-079

A RESOLUTION AUTHORIZING A FIRST AMENDMENT
TO AN AGREEMENT BETWEEN THE CITY OF ARVADA AND CDM SMITH INC. FOR
PROFESSIONAL DESIGN AND CONSTRUCTION PHASE SERVICES RELATING TO THE
NORTH TRUNK SEWER IMPROVEMENTS AT W. 86th PKWY., BEECH ST. TO MOORE ST.,
IN AN AMOUNT NOT TO EXCEED \$416,020.00, THEREBY INCREASING THE TOTAL
CONTRACT AMOUNT TO AN AMOUNT NOT TO EXCEED \$912,162.00

WHEREAS, the City of Arvada and CDM Smith Inc. previously entered into an Agreement for professional design and construction phase services related to the North Trunk Sewer Improvements at W. 86th Parkway, Beech Street to Moore Street in an amount not to exceed \$496,142.00 (the “Original Agreement”); and

WHEREAS, the City of Arvada and CDM Smith Inc. seek to amend the Original Agreement to set forth the construction phase services and increase the contract amount by \$416,020.00 for the construction phase services for a revised overall total contract amount not to exceed \$912,162.00.

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 form approved by the City Attorney, an Amendment to the Original Agreement that is in substantially the same form as that attached hereto.

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

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____

FIRST AMENDMENT
TO “AN AGREEMENT BETWEEN THE CITY OF ARVADA AND CDM SMITH INC.
FOR PROFESSIONAL DESIGN AND CONSTRUCTION PHASE SERVICES RELATING
TO THE NORTH TRUNK SEWER IMPROVEMENTS AT W. 86TH PKWY., BEECH ST.
TO MOORE ST., IN AN AMOUNT NOT TO EXCEED \$496,142.00” TO MODIFY THE
SCOPE OF WORK AND INCREASE THE CONTRACT AMOUNT BY \$416,020.00

THIS FIRST AMENDMENT to an “Agreement between the City of Arvada and CDM Smith Inc. for Professional Design and Construction Phase Services Relating to the North Trunk Sewer Improvements at W. 86th Pkwy., Beech St. to Moore St., in an Amount not to Exceed \$496,142.00” (“First Amendment”) is made by and between the City of Arvada, a home rule municipal corporation whose mailing address is 8101 Ralston Road, Arvada, CO 80002 (“Arvada” or the “City”), and CDM Smith Inc., a Massachusetts corporation whose Colorado office is located at 555 17th Street, #500, Denver, CO 80202 (“Consultant” or “Contractor”) (each individually a “Party” and collectively the “Parties”). The Parties agree to the following terms and conditions:

1. RECITALS AND PURPOSE.

- 1.1.** On or about February 27, 2024, Arvada and Consultant entered into an agreement whereby Consultant would provide professional design and construction phase services relating to the North Trunk Sewer Improvements at W. 86th Parkway, Beech Street to Moore Street (the “Original Agreement”).
- 1.2.** Pursuant to the Original Agreement and the Contract Documents, the Parties intended to negotiate construction services at a later date due to the unknown nature of construction services before design began.
- 1.3.** The Parties now desire to amend the Original Agreement to modify the scope of services to set forth the construction phase services that Contractor will provide to support Arvada during construction of the underlying project, as described in the Original Agreement, for engineering services during construction and project closeout.
- 1.4.** Pursuant to Section 6 of the Original Agreement, the Parties may agree in writing to change the scope of services and any other matters that the Parties deem necessary.
- 1.5.** The purpose of this First Amendment is to amend and modify the scope of services to set forth Contractor’s construction phase services and to increase the contract amount by \$416,020.00 for the construction phase services.
- 1.6.** The Original Agreement and other Contract Documents are incorporated herein; however, for the convenience of the Parties and to avoid unnecessary duplication of documents, they are not attached hereto but may be viewed at the City Clerk’s Office. Except as specifically modified pursuant to this First Amendment, all terms of the Original Agreement and other Contract Documents remain unchanged.

2. CONTRACT DOCUMENTS AND EXHIBITS. The Contract Documents shall consist of the Original Agreement, and all exhibits thereto, and this First Amendment, together with

the following:

Exhibit 1: Contractor's "NTL 2 and 3 – Construction Phase Services Amendment #1" dated April 2025

All exhibits referred to in this First Amendment are attached hereto and are by reference incorporated herein for all purposes. In the event any matter, term, provision, or condition that is the subject of this First Amendment requires clarification, is in dispute, or is the subject of a difference of opinion, the purpose and intent of this First Amendment shall be ascertained by reference to the Contract Documents in their entirety. In the event of any disputes or differences between the respective documents that constitute the Contract Documents, then Consultant shall secure the written instructions from Arvada before proceeding with the performance of the services affected by such conflicts, omissions, or discrepancies.

3. **SCOPE OF WORK.** The scope of work set forth in the Original Agreement is modified to reflect construction phase services as set forth in **Exhibit 1**.
4. **COMPENSATION FOR SERVICES UNDER THIS FIRST AMENDMENT.** The terms of the Original Agreement are amended to increase compensation by \$416,020.00. Therefore, Consultant agrees to perform the Work for an amount not to exceed **\$912,162.00**.
5. **DEFINED TERMS.** Terms defined in the Original Agreement are incorporated herein.
6. **FULL FORCE AND EFFECT.** All other terms and conditions shall be as set forth in the Original Agreement.
7. **SEVERABILITY.** If any other provision of this First Amendment is held invalid or unenforceable, no other provision shall be affected by such holding, and all of the remaining provisions of this First Amendment shall continue in full force and effect.
8. **BINDING AUTHORITY.** Consultant represents and affirms that the signature page hereof accurately states the full legal name of Consultant (whether as a corporation, partnership, limited liability company, sole proprietorship, or other), contains all requisite signature(s) on behalf of Consultant, in accordance with all applicable statutes, regulations, resolutions, rules, bylaws, agreements, or similar sources of authority or limitation. This First Amendment may be executed in counterpart(s), each of which shall be deemed to be an original, and all of which, taken together, shall constitute one instrument.

[Signature page follows.]

EFFECTIVE this _____ day of _____, 2025.

CITY OF ARVADA, a Colorado home rule
municipal corporation

Lauren Simpson, Mayor
8101 Ralston Road
Arvada, CO 80002

ATTEST:

City Clerk

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

CDM SMITH INC., a Massachusetts corporation

Alesandra Baker, Principal-in-Charge
555 17th Street, #500
Denver, Colorado 80202
ReedAF@cdmsmith.com

Exhibit 1

FIRST AMENDMENT

**TO “AN AGREEMENT BETWEEN THE CITY OF
ARVADA AND CDM SMITH INC. FOR PROFESSIONAL
DESIGN AND CONSTRUCTION PHASE SERVICES
RELATING TO THE NORTH TRUNK SEWER
IMPROVEMENTS AT W. 86TH PKWY., BEECH ST. TO
MOORE ST., IN AN AMOUNT NOT TO EXCEED
\$496,142.00” TO MODIFY THE SCOPE OF WORK AND
INCREASE THE CONTRACT AMOUNT BY \$416,020.00**

City of Arvada

NTL 2 and 3 – Construction Phase Services Amendment #1 April 2025

CDM Smith Inc. (ENGINEER) has been requested to expand the scope of services for the Arvada wastewater North Trunk Line (NTL) segments 2 and 3 project to include construction phase services to provide support to the City of Arvada (OWNER) during construction. The scope of work included in this amendment will be executed under the terms and conditions of the original agreement with the OWNER, authorized February 27, 2024.

To support the OWNER during construction, the ENGINEER will provide construction phase services support for the following key tasks:

- Engineering Services During Construction (ESDC): The ESDC task will consist of site visits, shop drawing submittal reviews, responses to RFIs, providing design representative services, evaluating and developing work change orders and/or field orders, and attending project meetings.
- Project Closeout: This task will include conducting a site walk following construction completion, issuing a punchlist memorandum, and preparation of record drawings.

The scope of services provided in the following section outlines the engineering services, construction administration, and observation of work related to the construction of the project that will be supported by the ENGINEER. We have assumed that the OWNER will self-perform primary oversight of construction (i.e. contract management, project representative, site inspector). The ENGINEER will assist the OWNER in administering the contract for construction, monitoring the performance of the CONTRACTOR, verifying that the CONTRACTOR's work is in substantial compliance with the contract documents, and assisting the OWNER in responding to events that occur during the construction.

Scope of Services

Task 7 Construction Phase Services

7.1 Construction Phase Support

ENGINEER will provide general engineering services during construction. For the basis of this proposal, construction is estimated to occur over a 16-month schedule or 73 working weeks. This support will cover the following tasks:

- **Pre-Construction Meeting:** The ENGINEER's project manager and field engineering lead ENGINEER will attend and participate in the pre-construction meeting.
- **Bi-Weekly Progress Meetings:** The ENGINEER's project manager and field engineering lead will attend and participate in thirty-six (36) bi-weekly virtual progress meetings throughout the course of the construction project.
- **Submittal Schedule:** ENGINEER will review the Contractor proposed shop drawing and submittal schedule, which shall identify shop drawings, samples, and submittals required by the contract for construction, along with the anticipated dates for submission.
- **Submittal Reviews:** Issued for Construction (IFC) project specifications detail the need for 95 submittals, 40 of which are for information only. For this task the Engineer has assumed review of:
 - **Primary submittals:** ENGINEER will conduct Fifty-Five (55) submittal reviews and up to ten (10) resubmittal reviews. Level of effort for these reviews are assumed to average four hours per submittal.
 - **Information Only Submittals:** ENGINEER will conduct up to 40 reviews of information only submittals. Level of effort for these reviews are assumed to be up to one hour per submittal.
- **Site Visits:** ENGINEER will visit the Project site periodically to observe the general progress of the work as related to their specific area of design responsibility. We have assumed the following support:
 - **General Site Visits:** Assumed up to thirty six (36) site visits by the field engineering lead to align with bi-weekly project meetings.
 - **Specialty Site Visits:** Assumed up to eight (8) site visits to align with key inspections associated with: diversion manhole, force main connection to Alkire Lift Station, trenchless crossings, Church Ditch crossings, and the Moore Street deep manhole. Specialty site visits will be conducted by the field engineering lead and a discipline lead associated with the specific inspection.
- **Review of Contractor's Work Change Directives/Request for Quotations:** ENGINEER will assist in preparing work change directives/requests for quotation for contract revisions suggested by the OWNER or the contractor during construction. ENGINEER will review the cost provided by the contractor for fairness and make recommendations to the OWNER project manager on potential revisions. Assumes up

to four (4) Contractor's Requested Changes for review. Level of effort for these reviews are assumed to average ten hours per work change directive.

- Request for Information (RFI) Reviews: The ENGINEER will review and respond to contractor RFI requests provided by the contractor. As the nature and number of RFI requests is unknown, the fee estimate estimates the review of up to twenty (20) RFI submissions. For any accepted RFI's, ENGINEER assumes an average of four hours per submittal to conduct the review and complete any associated redesign.
- 3rd Party Testing: Project specifications require 3rd party testing on fill compaction, concrete, and asphalt. Services will be procured for the OWNER under our contract but responsibility to schedule this testing will fall upon the contractor. Within the fee estimate, we have included a budget \$224,400 to cover this testing. The AGW Proposal for these services is provided as an attachment to this amendment.

7.2 Project Closeout

One representative from ENGINEER will accompany the OWNER to conduct a substantial completion walk-through and develop a draft construction punch list for outstanding items to be addressed by the Contractor.

Additionally, the ENGINEER will prepare record drawings based on the red-line data provided by the Contractor. Drawings will be stamped as "As-Constructed Record."

7.3 Project Management

ENGINEER will manage the completion of the Task 7 scope of service that will include up to sixteen (16) progress meetings with the OWNER, monthly reporting and invoicing, and oversight of the project team to meet the requirements noted in this scope of work.

Fee Summary

CDM Smith proposes to complete Task 7 on a time and materials basis for the estimated not to exceed budget of \$416,020. This budget has been developed based on proposed hours for each task as shown in the Fee Estimate provided in Table 1 to complete services within a 44-week construction schedule.

Table 1- Fee Estimate

Task	Labor Hours	Labor Bill Amount	OCD Billable	Sub Billable	Total
Task 7 Construction Phase Services					
7.1 Construction Phase Support	703	\$ 145,490.00	\$ 2,200.00	\$ 224,400.00	\$ 372,090.00
Preconstruction Meeting	8	\$ 2,040.00	\$ 200.00	\$ -	\$ 2,240.00
Progress meetings	72	\$ 18,360.00	\$ 500.00	\$ -	\$ 18,860.00
Submittal Schedule Review	8	\$ 1,420.00	\$ -	\$ -	\$ 1,420.00
Submittal Reviews	300	\$ 61,500.00	\$ -	\$ -	\$ 61,500.00
Site Visits	195	\$ 38,870.00	\$ 1,500.00	\$ -	\$ 40,370.00
WCD's	40	\$ 7,600.00	\$ -	\$ -	\$ 7,600.00
RFI's	80	\$ 15,700.00	\$ -	\$ -	\$ 15,700.00
3rd Party Testing	0	\$ -	\$ -	\$ 224,400.00	\$ 224,400.00
7.2 Project Closeout	100	\$ 15,900.00			\$ 15,900.00
7.3 Project Management	124	\$ 28,030.00			\$ 28,030.00
Total	927	\$ 189,420.00	\$ 2,200.00	\$ 224,400.00	\$ 416,020.00

Attachments

Attachment 1 –Billing Rate Table

Attachment 2 – AGW Proposal

Attachment 1 – Billing Rate Table

Role	Hourly Billing Rate
Principal Engineer	\$295
Technical Specialist	\$290
Senior Technician Specialist II	\$280
Senior Technician Specialist I	\$265
Senior Project Engineer/Scientist III	\$250
Senior Project Engineer/Scientist II	\$240
Senior Project Engineer/Scientist I	\$215
Project Engineer/Scientist III	\$200
Project Engineer/Scientist II	\$180
Project Engineer/Scientist I	\$165
Junior Engineer/Scientist III	\$150
Junior Engineer/Scientist II	\$135
Junior Engineer/Scientist I	\$120
CADD/BIM Manager	\$180
CADD/BIM Designer	\$160
CADD Technician III	\$140
CADD Technician II	\$125
CADD Technician I	\$110
Contract Administrator	\$135
Clerical/Administrative	\$115

1. Staff billing rates provided are applicable to services provided through January 1, 2027, and subject to annual adjustments thereafter, to be provided to the Owner for approval.
2. Subconsultants shall be billed at cost with a 10% mark-up.
3. Vehicle mileage shall be at current IRS audit rate at time-of-service performance.
4. Costs associated with telecommunications, communications, computer software or general office equipment charges are incorporated into the hourly rates and not billed separately.
5. Office-related consumable supplies, project-related printing and reproduction services, and travel-related items such as car rentals and hotels will be billed at cost.

Attachment 2 – AGW Proposal



January 2, 2025
Revised January 28, 2025
2nd Revision August 6, 2025

CDM Smith
555 17th Street, Suite 500
Denver, Colorado 80202

Attention: Mr. Derek Nelson

Subject: **Proposed Construction Testing and Observation Services**
North Trunk Sewer
Alkire Street and West 86th Parkway
Arvada, Colorado
Proposal Number 235083

As requested, AGW estimated our fees for providing the requested services. The time required to complete the requested scope of services will be dependent upon the portion of work being constructed and the rate of construction. We have based our fees partly on our experience with similar projects and partly on construction schedule and/or quantity information you provided. If our assumed scope differs from your anticipated schedule, we should be contacted to revise this estimate. AGW's services are provided on a unit-rate basis in accordance with our estimate outlined below.

Fill Compaction Testing

(Utility Backfill, Curb, Gutter, Sidewalk, and Pavement Subgrade)

Charges applicable to this project are inclusive and include the field technician's time at \$88.00 per hour. The hourly rate includes travel time to and from the project. There is no per test fee, vehicle charge for mileage to and from the project or related equipment charges. Project Manager or Engineer's time is necessary for review of field work. Typically, one hour of review time is charged for every eight hours of field time. In addition, Project Manager or Engineer's time for any meetings or required evaluations will be charged at their respective hourly rates.

Fees in addition to field technician's time and density tests will include laboratory Proctor tests and associated classification testing (sieve analyses and Atterberg limits) for each significant material type sampled. Fees for this laboratory testing will be at the specified unit rates. The total fee for fill compaction testing services is difficult to determine because of the variables involved.

Concrete Testing

Field and laboratory testing of fresh concrete is charged on an hourly basis for field services and a per test basis for laboratory services. The field testing service is based on a field technician billing rate of \$78.00 per hour. The hourly rate includes travel to and from the project. There are no additional charges for vehicle or equipment usage. A fee of \$18.00 is charged for each cylinder cast. Project Manager or Engineer's time is necessary for review of field work. Typically, one hour of review time is charged for every eight hours of field time. In addition, Project Manager or Engineer's time for any meetings or required evaluations will be charged at their respective hourly rates in accordance with our estimate outlined below.

Typically, each test includes round trip travel time; technician site time to perform slump, air content, unit weight, and temperature testing; recording of mix and batch data; casting of 4 x 8 inch concrete cylinders; transportation to our laboratory; and curing and compressive strength testing. The Contractor is responsible for providing the initial curing environment prior to transportation to our laboratory. AGW's field personnel must be informed of the storage accommodations prior to concrete placement. Upon completion of specified compressive strength testing, a report containing pertinent data will be issued. If requested, a self-heated/cooled curing box can be provided for an additional fee. This box will require an electrical connection (120 volt). Security of this equipment will be the responsibility of the Contractor. If the box is damaged or stolen, the replacement cost will be invoiced to our Client.

Asphalt Testing

Charges applicable to this project are inclusive and include the field technician's time at \$88.00 per hour. The hourly rate includes travel time to and from the project. There is no per test fee, vehicle charge for mileage to and from the project or related equipment charges. Project Manager or Engineer's time is necessary for review of field work. Typically, one hour of review time is charged for every eight hours of field time. In addition, Project Manager or Engineer's time for any meetings or required evaluations will be charged at their respective hourly rates in accordance with our estimate outlined below. Additional charges would include laboratory testing.

Fee Estimate

This estimate is based upon the scope-of-work requested, quantities provided to AGW, our assumption of the Contractor's anticipated rate of progress, and our experience with similar projects. Depending on the Contractor's rate of progress, conditions encountered, and the required/requested scope, the actual total fees may vary. The Client will be billed only the amount required to complete the project as requested. Our fee estimate has been summarized below.

<u>Service</u>	<u>Estimated Fee</u>
Fill Compaction Testing: <i>(Utility Backfill, Curb, Gutter, Sidewalk, and Pavement Subgrade)</i>	
Field Technician: 290 days, 5.5 hours per day, \$88.00/hour	\$ 140,360.00
Project Manager/Engineer (review): 200.0 hours, \$125.00/hour	25,000.00
Proctors and Associated Classification Testing: 6 at \$305.00/each	<u>1,830.00</u>
	\$ 167,190.00
Concrete Testing: (CLSM – 35 sets as a placeholder)	
Field Technician: 35 sets, 4.0 hours per set, \$78.00/hour	\$ 10,920.00
Cylinders: 175, \$18.00/each	3,150.00
Project Manager/Engineer (review): 18.0 hours, \$125.00/hour	<u>2,250.00</u>
	\$ 16,320.00
Asphalt Observation:	
Field Technician: 15 days, 4.0 hours per day, \$88.00/hour	\$ 5,280.00
Field Technician (Mill and Overlay): 5 days, 8.0 hours per day, \$88.00/hour	3,520.00
Project Manager/Engineer (review): 13.0 hours, \$125.00/hour	1,625.00
Extraction-Gradation Tests: 20 tests, \$210.00/test	4,200.00
SHRP Gyratory Tests: 20 tests, \$275.00/test	<u>5,500.00</u>
	\$ 20,125.00
Total Estimated Fee	\$ <u>203,635.00</u>

We caution the Owner that fee estimates for materials testing and construction observation services can vary from consultant to consultant, and are only preliminary estimates to assist in budget formulation. The accuracy is greatly affected by the information provided during proposal preparation (i.e., construction plans, material quantities, construction schedules, project specifications, and testing frequency required, etc.). AGW has no control over construction rates, quantity revisions, or changes in testing requirements. Our responsibility to the Owner is to provide services as requested. We will bill for the time required to complete each phase of the project as specified and/or requested, using the unit rates provided. These unit rates are subject to possible change on an annual basis. The Client understands that our testing/observation services in no way relieves the Contractor from properly constructing the work. The responsibility of performance is exclusively that of the Contractor.

AGW's services during construction shall be limited to observation and testing of the contracted phase of construction. AGW shall not be responsible for constant or exhaustive inspection of the work, the means and methods of construction or the safety procedures employed by the Client's Contractor. Performance of construction testing and observation services does not constitute a warranty or guarantee of any type, since even with diligent testing and observation, some construction defects, deficiencies or omissions in the Contractor's work may occur undetected. The Client shall hold its Contractor responsible for the quality and completion of the project, including construction in accordance with the construction documents. Any duty hereunder is for the sole benefit of the Client and not for any third party, including the contractor or any subcontractor. Upon completion, the Contractor and/or subcontractor should provide documentation that the fill was placed in accordance with project specifications and is suitable for intended support. It is the responsibility of the Client or Contractor to schedule the requested services.

If AGW is asked by the Client to subcontract inspection, geological, or laboratory testing services on behalf of the Client, AGW agrees to do so only as an accommodation to the Client and in reliance upon the Client's assurance that the Client will make no claim nor bring any action at law or in equity against AGW as a result of this subcontracted service. The Client understands that AGW is neither trained nor knowledgeable in the procedures or results of the subcontractor's services and the Client shall not rely upon AGW to check the quality or accuracy of their services. In addition, the Client agrees to the fullest extent permitted by law to indemnify and hold AGW harmless from any damage, liability, or cost (including reasonable Attorneys' fees and costs of defense) arising from the services performed by this subcontractor except only those damages, liabilities, or costs caused by the sole negligence or willful misconduct of AGW.

Scheduling

AGW has built its reputation on providing responsive and quality services. We are flexible when it comes to scheduling and report turn-around time. We request 24 hours notice before services are required in order to efficiently meet our Client's needs. We are confident we can meet any reasonable deadline. All we ask for is cooperation and proper communication to help us better serve you. We assume the Contractor and/or its subcontractors have the authority to schedule our services. If this assumption is incorrect, please notify AGW and supply the proper personnel information concerning who actually has authorization to schedule our services.

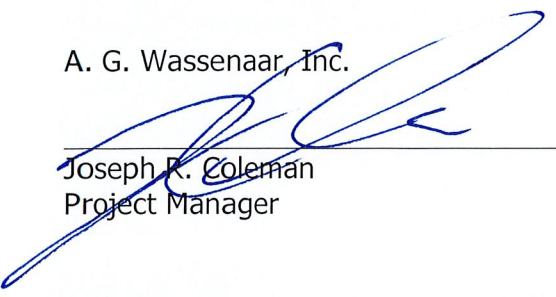
Billing

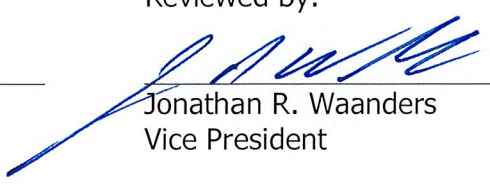
We will invoice for our services at the end of each month and anticipate payment within 30 days.

If this description of services, fees, and Professional Services Agreement meets with your approval, please sign this proposal and return it to AGW. By signing and returning this proposal, it is assumed that notice to proceed has been given. If provided verbal or written notice to proceed, we assume you have read and understand this agreement. If you have any further questions, please do not hesitate to contact our office.

A. G. Wassenaar, Inc.

Reviewed by:



Joseph R. Coleman
Project Manager

Jonathan R. Waanders
Vice President

JRC/JRW/ajj

Agreed to this _____ day of _____ 20 _____

By: _____

Printed Name: _____

Title: _____



PROFESSIONAL SERVICES AGREEMENT

1. Definitions

- a. "Client" shall mean the person, firm, or corporation identified in the A. G. Wassenaar, Inc. Proposal for whom Services are to be performed.
- b. "AGW" shall mean A. G. Wassenaar, Inc., a privately held company, and each of its officers, directors, owners, employees and subcontractors, acting within the scope of their employment for A. G. Wassenaar, Inc.
- c. "Client Order" shall mean the purchase order, request, authorization, or other notification, and addition or modification thereto whereby Client indicates its desire for AGW to furnish Services.
- d. "AGW Proposal" shall mean the letter, proposal, quotation, or other modification, including any response to the Client Order, wherein AGW offers to furnish Services.

2. Equipment and Access to Site

- a. The Client will provide AGW with permission to enter the site unless otherwise agreed upon. The Client will also provide AGW with the place and manner of entry to complete exploration. AGW will use diligence and take reasonable precautions to minimize damage from use of equipment. However, AGW has not included in its fee the restoration of property, land or landscape. The Client agrees to hold AGW harmless from any loss or claim suffered as a result of entry on land for the purpose of exploration.
- b. If utilities/structures exist, i.e., gas, electric, telephone, cable, sewer, storm, water, tanks, pipes, wires, sprinkler lines, etc., in the general area of exploration, the Client will provide AGW with a site plan showing utility/structure locations. AGW will use diligence and reasonable caution to avoid utilities/structures shown on the plan. The Client agrees to indemnify and hold AGW, its employees and subcontractors harmless for loss or claim resulting from inaccuracy of plans or lack of plans for utilities/structures.
- c. The Client agrees to release, indemnify and hold AGW harmless for any claims arising out of errors in the accuracy of utility locates provided by others. Disruption/damage to underground utilities/structures not provided, or inaccurately provided, to AGW will be the responsibility of the Client.

3. Responsibility For Services

- a. Standard of Care. AGW shall perform its services in a manner consistent with that degree of knowledge and skill ordinarily used by members of the same profession practicing at the same time under the same or similar circumstances. Client acknowledges that the Services provided for in the Agreement may require AGW to make decisions based on experience and engineering judgment, rather than on precise scientific or empirical criteria. AGW makes no other representations, either express or implied, as to the findings, recommendations, plans, specifications, professional advice, or other services provided under this Agreement.
- b. Limitation of Liability. Notwithstanding any other provision of this Agreement, the total liability of AGW and its employees to Client for any and all services provided to Client, under any legal theory, shall not in any event exceed the total compensation received by AGW or the sum of \$25,000, whichever is greater. The limitation in this paragraph shall apply to AGW, its officers, directors, shareholders, agents and employees in the aggregate.
- c. In the course of performance of its Services, AGW may rely upon the accuracy and completeness of the information supplied by Client, Client's contractors or consultants, or information available from generally accepted reputable sources, without independent verification.
- d. The Client agrees that AGW has been engaged to provide technical professional services only, and that AGW does not owe a fiduciary responsibility to the Client.
- e. If construction observations are included in the Services, AGW's services during construction shall be limited to observation and testing of the contracted phase of construction. AGW shall not be responsible for constant or exhaustive inspection of the work, the means and methods of construction or the safety procedures employed by Client's contractor. Performance of construction observation services does not constitute a warranty or guarantee of any type, since even with diligent observation, some construction defects, deficiencies or omissions in the Contractor's work may occur undetected. Client shall hold its contractor solely responsible for the quality and completion of the Project, including construction in accordance with the construction documents. Any duty hereunder is for the sole benefit of the Client and not for any third party, including the contractor or any subcontractor. Client, or its designees, shall notify AGW at least twenty-four (24) hours in advance of any field tests and observations required by the construction documents.
- f. It is understood by the parties that the existing or constructed building may, as a result of construction, use, maintenance, operation or occupation, contain or be caused to contain mold substances which can present health hazards and result in bodily injury, property damage and/or necessary remedial measures and costs. AGW shall not be responsible for the discovery or remediation of any mold on the Project. Client agrees to release, indemnify and hold AGW harmless from and against all claims, costs, liabilities and damages, including reasonable attorneys' fees and costs, arising in any way from the existence of mold as a result of the use, maintenance, operation, or occupation of the completed Project. Client further agrees to include in the contract for construction a provision whereby the contractor shall defend, indemnify and hold AGW harmless from any claims arising in any way from the existence of mold as a result of the contractor's workmanship or construction means, methods, techniques, sequencing or procedures including without limitation, the failure to protect materials from moisture during the construction process. In this regard, Client recognizes AGW is providing geotechnical engineering services and is providing no input into detection or prevention of mold growth.

3. Responsibility For Services (continued)

g. Hazardous Materials

1. In the event that samples collected by AGW or provided by Client or wastes generated as a result of Project site investigation activities contain or potentially contain substances or constituents which are or may be hazardous or detrimental to health, safety, or the environment as defined by federal, state, or local statutes, regulations, or ordinances, including but not limited to samples or wastes containing Hazardous Materials, said samples or wastes remain the property of the Client and the Client shall have responsibility for them as generator. If set forth in the Proposal, AGW will, after completion of testing and at Client's expense, either (1) return said samples and waste to Client or (2) using a manifest signed by Client as generator, have said samples and/or wastes transported to a location selected by Client for disposal.
 2. Client agrees to pay directly all costs associated with the storage, transport, and disposal of said samples and/or wastes. Unless otherwise agreed upon in the applicable Proposal, AGW shall not transport, handle, store or dispose of waste or samples or arrange or subcontract for waste or sample transport, handling, storage, or disposal.
 3. Client recognizes and agrees that AGW is working as a bailee and at no time assumes title to said waste or samples or any responsibility as generator of said waste or samples.
- h. Client recognizes that special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing program, implemented with appropriate equipment and experience by personnel under the direction of a trained professional functioning in accordance with the standard of care may fail to detect certain hidden conditions. For similar reasons, actual environmental, geological, and technical conditions that AGW properly inferred to exist between sampling points may differ significantly from those that actually exist. The passage of time also must be considered, and the Client recognizes that due to natural occurrences or direct or indirect human intervention at the Site or distance from it, actual conditions may quickly change. The Client realizes that nothing can be done to eliminate these risks altogether and that the Services included in this Agreement are those which the Client agreed to or selected in light of his/her own risk preferences and other considerations.

4. General Indemnity

Client agrees to indemnify and hold harmless AGW and its consultants, agents, directors, officers, and employees from and against all claims, damages, losses, and expenses, direct and indirect, and consequential damages, including but not limited to attorney fees and all costs of any kind associated with any claim, loss, litigation, mediation, or arbitration, arising out of or resulting from the performance or nonperformance of the work by AGW, or claims against AGW arising from the work of others, or related to or based upon, the actual, alleged, or threatened discharge, dispersal, release, or escape of hazardous chemicals and materials, or from any obligation to test for, study, monitor, report, clean up, remove, abate, contain, treat, detoxify, or neutralize such hazardous chemicals and materials. The term hazardous chemicals and materials shall include without limitation asbestos. This indemnification shall apply to the fullest extent permitted by law regardless of any action or omission (active, passive, or comparative negligence included) on the part of AGW. In the event of any applicable law limiting the enforceability of this provision, the provision shall be construed so as to provide the maximum protection permitted under the law.

5. Certificate of Review

Prior to asserting any claim against AGW, Client agrees to consult with a then currently practicing geotechnical engineer and to obtain a written, signed and stamped certificate from said engineer stating that he or she has reviewed all written materials produced by AGW to Client for the project at issue and has concluded that a claim that AGW fell beneath the standard of care for practicing geotechnical engineers in Colorado has merit. Client agrees to provide AGW a copy of said certificate prior to asserting any claim.

6. Corporate Protection

It is intended by the parties to this Agreement that AGW's services in connection with the Project shall not subject AGW's individual employees, officers or directors to any personal legal exposure for the risks associated with this Project. Therefore, and notwithstanding anything to the contrary contained herein, the Client agrees that as the Client's sole and exclusive remedy, any claim, demand or suit shall be directed and/or asserted only against the AGW, a Colorado corporation, and not against any of AGW's individual employees, owners, officers or directors.

7. Consequential Damages

AGW and Client shall in no event be liable, in contract, tort, or otherwise (including negligence, warranty, and strict liability), for any special, indirect, or consequential damages, including specifically but without limitation, loss of profits or revenue, loss of full or partial use of any equipment or facility, cost of capital, loss of goodwill, claims of customers, or similar damages.

8. Precedence and Divisibility

The provisions of the AGW Proposal and this Professional Services Agreement shall fully govern any Services furnished by AGW and shall prevail over and render void any inconsistent or conflicting provision of the Client Order. If any term, condition, or provision of this Contract is declared void or unenforceable, or limited in its application or effect, such event shall not affect any other provision hereof and all other provisions shall remain fully enforceable.

9. Entire Agreement

This Contract contains the entire agreement between the parties as to the Services rendered hereunder. All previous or contemporaneous agreements, representations, warranties, promises, and conditions relating to the subject matter of this Agreement are superseded by this Agreement.

10. Dispute Resolution

Prior to the initiation of any legal proceedings, the parties to this Agreement agree to submit all claims, disputes or controversies arising out of or in relation to the interpretation, application or enforcement of this Agreement to mediation. Such mediation shall be conducted under the auspices of the American Arbitration Association or such other mediation service or mediator upon which the parties agree. The Party seeking to initiate mediation shall do so by submitting a formal, written request to the other party to this Agreement. This section shall survive completion or termination of this Agreement, but under no circumstances shall either party call for mediation of any claim or dispute arising out of this Agreement after such period of time as would normally bar the initiation of legal proceedings to litigate such claim or dispute under the laws of the State. Client and AGW shall share the cost of the mediator equally.

11. Statute of Limitations and Repose

Causes of action between the parties to this Agreement shall be deemed to have accrued and the applicable statutes of limitations and repose shall commence to run not later than the date of the last services provided by AGW for the project at issue.

12. Force Majeure

AGW shall have no liability for any failure to perform or delay in performance of the Services caused by circumstances beyond its reasonable control, including, but not limited to, strikes, riots, wars, floods, fires, explosions, acts of nature, acts of government, labor disturbances, delays in transportation or inability to obtain material or equipment.

13. No Third Party Beneficiaries

This Agreement gives no rights or benefits to anyone other than the Client and AGW and this Agreement has no third-party beneficiaries.

14. Applicable Law

The law of the State of Colorado shall govern the validity of the Agreement, including these general terms and conditions and its interpretation and performance.

15. Work Product

Services provided under this Agreement, including all reports, information, recommendations, or opinions ("Reports") prepared or issued by AGW, are for the exclusive use and benefit of Client or its agents in connection with this Project, are not intended to inform, guide or otherwise influence any other entities or persons with respect to any particular business transactions, and should not be relied upon by any entities or persons other than Client or its agents for any purpose other than the construction of the Project. Client will not distribute or convey such Reports to any other persons or entities without written permission from AGW. Client shall indemnify AGW from any claims arising or related to unauthorized distribution. Any use of the Reports by a third party shall constitute the third party's acceptance of these terms and conditions. AGW's Reports, boring logs, maps, field data, drawings, test results and other work products are part of AGW's professional services, do not constitute goods or products and are copyrighted works of AGW. However, such copyright is not intended to limit the Client's use of its work product in connection with the construction of the Project. The Client agrees to waive any and all claims against AGW and to defend, indemnify and hold AGW harmless from and against any and all claims, losses, liabilities and damages arising out of or resulting from the unauthorized use, reuse or alteration of AGW's designs, drawings and specifications.

16. Certifications

AGW shall sign certifications only if (a) AGW approves the form of such certification prior to the commencement of Services, (b) the subject matter of such certification is included in AGW's Services, (c) the certification is limited to a statement of professional opinion and does not constitute a warranty or guarantee, express or implied. Any certification shall not relieve any entity of its obligations.

17. Electronic Files

The Client recognizes that data, plans, specifications, reports, documents or other information recorded on or transmitted as electronic media are subject to undetectable alteration, either intentional or unintentional due to, among other causes, transmission, conversion, media degradation, software error, or human alteration. Accordingly, the electronic documents provided to the Client are for informational purposes only and are not intended as an end-product. AGW makes no warranties, either expressed or implied, regarding the fitness or suitability of the electronic documents. Accordingly, the Client agrees to waive any and all claims against AGW and AGW's consultant's relating in any way to the unauthorized use, reuse or alteration of the electronic documents. In no event shall AGW be liable for any loss of profit or any damages associated with use of this information.

18. Payment

Client shall pay invoices upon receipt. Invoices not paid within thirty (30) days of the invoice date shall be subject to a late payment fee of 12% per month from the date of invoice. Additionally, AGW may upon five (5) days' notice to Client, suspend all Services until paid in full and may terminate the Agreement



REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM
8.A.3.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00

Report in Brief

The attached resolution authorizes an agreement with Miller Pipeline LLC for an amount not to exceed \$8,593,185.00. This project involves the open-cut installation of approximately 11,000 linear feet of new 24" and 30" sanitary gravity pipe and 3,000 linear feet of pressurized sanitary force main. This segment was identified in the Arvada Sanitary Sewer Master Plan as North Trunk segment 2, 3, and the Alkire Force Main (NTL2/3/Alkire FM) and as needing immediate attention to avoid sanitary sewer overflow.

The Arvada team recommends that the City Council approve R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00.

Financial Impact

CIP Project: 24-SR-04, North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM)

Financial Impact: \$8,593,185.00

This is a one-time request for Project Construction costs.

Funding Source: UT Wastewater Bond Projects (42)

Type: CIP

Workday Project: PRJ24098561

Background

The City of Arvada has completed a Sanitary Sewer Master Plan that has identified sections of the North Trunk Sewer that will need to be replaced and upsized to meet the City's Level of Service (LoS) standards. The Master Plan identified that the existing sewer main poses a risk of overflowing during heavy storm events. The sewer will be replaced within 86th Pkwy from Beech St. to Moore St. This new line will mitigate overflow risks and provide adequate capacity for build-out conditions.

Discussion

Bids for this project were opened at 2:00 p.m. on July 15, 2025, and a total of nine (9) bids were received. The bids are summarized here as follows:

	Contractor	Bid Amount	Confirmed to Meet Minimum Qualifications as stated in the RFB and Completed Reference Checks
1	American West	\$10,579,250.00	Not evaluated
2	Brannan Sand & Gravel	\$9,274,318.00	Not evaluated

SUBJECT: R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00

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3	BT Construction	\$13,275,774.00	Not evaluated
4	Garney Construction	\$15,378,110.00	Not evaluated
5	Iron Woman Construction	\$12,025,007.00	Not evaluated
6	Miller Pipeline	\$8,593,185.00	Yes
7	Native Son Construction	\$12,488,207.00	Not evaluated
8	Reynolds Construction	\$10,889,000.00	Not evaluated
9	TWX	\$11,393,628.00	Not evaluated

The lowest qualified bidder was Miller Pipeline LLC and they have successfully completed multiple large diameter sewer projects in the last 5 years in the Colorado front range area. This work is expected to begin with a notice to proceed after contract execution and take approximately 365 days to complete for an estimated construction completion timeframe of December 2026.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A

Strategic Alignment

The recommended action aligns with the Infrastructure Work System Services within the City Council Strategic Plan. Specifically, the recommended action is consistent with the following Principle included in the Infrastructure Priority Area:

Provides the community with a safe, reliable high quality water supply, drainage system, and wastewater disposal services for full city build-out, as defined in the Comprehensive Plan. This includes maintaining utility rates at the lowest practical levels with accurate billing that supports replacement of aging infrastructure in order to maintain robust utility systems.

Alternative Courses of Action

N/A

Recommendation for Action

The Arvada team recommends that the City Council Approve R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00.

Suggested Motion:

I move that R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00, be (approved) (rejected).

Prepared by:
Matthew Amidei, Civil Engineer III

Reviewed by:

SUBJECT: R25-080, A Resolution Authorizing an Agreement By and Between the City of Arvada and Miller Pipeline, LLC for the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM) Project, Project No. 24-SR-04, in an Amount Not to Exceed \$8,593,185.00

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Approved by:

Mary Stahl, Senior Civil Engineer	08/22/2025
Claudia Vaughan, City Engineer	08/26/2025
Jacqueline Rhoades, Director of Infrastructure	08/28/2025
Bryan Archer, Chief Financial Officer	08/28/2025
Tammy Hedlund, Legal Specialist	08/28/2025
Megan McCall, Assistant City Attorney II	08/28/2025
Rachel Morris, City Attorney	09/02/2025
Linda Haley, Deputy City Manager	09/02/2025
Don Wick, City Manager	09/05/2025

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R25-080

A RESOLUTION AUTHORIZING AN AGREEMENT BY AND BETWEEN THE CITY OF ARVADA AND MILLER PIPELINE, LLC FOR THE NORTH TRUNK SEWER, 86th PARKWAY, BEECH TO MOORE STREET (NTL 2/3/ALKIRE FM) PROJECT, PROJECT NO. 24-SR-04, IN AN AMOUNT NOT TO EXCEED \$8,593,185.00

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, an Agreement that is in substantially the same form as that attached hereto.

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

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____

**AN AGREEMENT BY AND BETWEEN THE CITY OF ARVADA AND
MILLER PIPELINE, LLC FOR THE NORTH TRUNK SEWER, 86TH
PARKWAY, BEECH TO MOORE STREET (NTL 2/3/ALKIRE FM) PROJECT,
PROJECT NO. 24-SR-04, IN AN AMOUNT NOT TO EXCEED \$8,593,185.00**

This Agreement is made this _____ day of _____, 2025, by and between the City of Arvada, a home rule municipal corporation (“Arvada” or “City”) and Miller Pipeline, LLC, an Indiana limited liability company (“Contractor”). The Parties may be individually referred to as the “Party” and jointly referred to as the “Parties”.

WITNESSETH: That for and in consideration of the covenants, promises, and payments hereinafter mentioned:

WITNESSETH:

WHEREAS, Arvada solicited proposals from interested construction professionals for the provision of construction services related to the North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL 2/3/Alkire FM) Project, Project No. 24-SR-04, for sanitary sewer line installation as described in the Contract Documents (the “Project” or the “Work”); and

WHEREAS, based on Contractor’s submissions, Arvada has selected Contractor for the Project; and

WHEREAS, Arvada and Contractor desire to enter into this Agreement regarding the construction of the Project.

NOW, THEREFORE, for and in consideration of the covenants, promises, and payments hereinafter mentioned, the Parties agree as follows:

ARTICLE 1. GENERAL DESCRIPTION OF SERVICES.

- 1.1. **The Services.** Contractor agrees to furnish or arrange for the construction services set forth in the Contract Documents and required for the completion of the Project within the timeframe provided in the Contract Documents. Contractor represents that it is thoroughly familiar with, and understands, the requirements of the Project’s scope and is experienced in the construction of projects of the type and scope contemplated by the Contract Documents. Contractor represents to Arvada that Contractor has all necessary education, skill, knowledge, expertise, and experience required for construction of the Project, and will maintain, at all times during the term of this Agreement, such personnel on its staff to provide the services contemplated hereby within the time periods required hereby. In addition, Contractor represents that it or Arvada-approved subcontractors or subconsultants performing services under this Agreement have all applicable licenses required by the State of Colorado to perform such services and all required insurance coverage as required by this Agreement and by law.
- 1.2. **Cooperation.** The Contractor shall endeavor to develop, implement, and maintain, a spirit of cooperation, collegiality, and open communication with Arvada, Arvada’s Consultants,

and Arvada's residents so that the goals and objectives of each are clearly understood, potential problems are resolved promptly, and upon completion, the Project is deemed a success by all interested parties.

- 1.3. **Preparation/Sufficiency of Site.** Before commencing the Project, the Contractor shall (i) visit and thoroughly inspect the Project site and any structure(s) or other man-made features to be modified and become familiar with local conditions under which the Project will be constructed and operated; (ii) familiarize itself with the survey, including the location of all existing buildings, utilities, conditions, streets, equipment, components, and other attributes having or likely to have an impact on the Project; (iii) familiarize itself with Arvada's engineering and design requirements, design objectives, and budget for the Project; (iv) familiarize itself with pertinent Project dates and programming needs, including the Project schedule; (v) review and analyze all Project geotechnical, environmental, and construction materials tests, investigations, and recommendations; (vi) review all specifications; and (vii) gather any other information necessary for a thorough understanding of the Project. Claims by Contractor resulting from Contractor's failure to familiarize itself with the Project site or pertinent documents shall be deemed waived.
- 1.4. **Contract Documents.** The Contract Documents shall consist of this Agreement, together with the following documents:
 - A. Arvada's solicitation entitled CSB 25-ENG-048, North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM), including the Advertisement for Bids, all terms and conditions, insurance requirements, special provisions, forms, exhibits, and addenda ("CSB 25-ENG-048"), attached hereto and incorporated herein as Exhibit A;
 - B. Contractor's Response to Arvada's solicitation 25-ENG-048, including bid proposal, bid schedule, and bid bond ("Contractor's Response"), attached hereto and incorporated herein as Exhibit B;
 - C. Notice of Award;
 - D. Performance and Payment Bond;
 - E. Notice(s) to Proceed;
 - F. Change Orders (if any);
 - G. City of Arvada Engineering Code of Standards and Specifications dated October 2, 2023;
 - H. Requests for Information and Responses (if any); and
 - I. All supplementary requirements regarding wage rates, E.E.O., affirmative action, and all other Federal, state, or local requirements as outlined in the specifications (if applicable).
- 1.5. **Interpretation of Contract Documents.** In the event of conflicts or discrepancies among the Contract Documents, the documents shall govern in the following order: (1) this Agreement; (2) Arvada's solicitation 25-ENG-048; (3) City of Arvada Engineering Code of Standards and Specifications dated October 2, 2025; (4) Contractor's Response; (5) Change Orders; (6) Requests for Information and Response. Except as set forth in this section 1.5., in the event of any dispute or differences between the respective documents

that constitute the Contract Documents, Contractor shall secure written instructions from Arvada before proceeding with the performance of services affected by such conflicts, omissions, or discrepancies.

ARTICLE 2. ARVADA’S DUTIES, OBLIGATIONS AND RESPONSIBILITIES.

- 2.1. **Project Information.** Contractor acknowledges that Arvada has provided Contractor with information regarding Arvada’s requirements for the Project as set forth in the Contract Documents, including Project Specifications.
- 2.2. **Arvada’s Budget.** Arvada has established, and will update, an overall budget for the Project, including amounts allocated for construction, Arvada’s other costs, and reasonable contingencies related to these costs as appropriate.
- 2.3. **Arvada’s Representative.** Arvada will designate a representative authorized to act on Arvada’s behalf with respect to the Project.
- 2.4. **Purpose of Arvada’s Review.** Arvada’s review, inspection, or approval of any work, testing documents, applications for payment, or other submittals shall be solely for the purpose of determining whether the same are generally consistent with Arvada’s standards, policies, and requirements. No review, inspection, or approval by Arvada of such work or documents shall relieve Contractor of its responsibility for the performance of its obligations under the Agreement or the accuracy, adequacy, fitness, suitability, or coordination of its construction services. Approval by any governmental or other regulatory agency or other governing body of any work, testing document, or the Contract Documents shall not relieve Contractor of responsibility for the performance of its obligations under this Agreement. Payment by Arvada pursuant to this Agreement shall not constitute waiver of any of Arvada’s rights under this Agreement or at law, and Contractor expressly accepts the risk that defects in its performance, if any, may not be discovered until after payment, including final payment, is made by Arvada. Notwithstanding the foregoing, reasonable notice shall be given by Arvada to the Contractor if Arvada becomes aware of any fault or defect in the Project or non-conformance with the Contract Documents.

ARTICLE 3. CONSTRUCTION SERVICES REQUIREMENTS AND STANDARDS.

- 3.1. **Quality of Construction Services.** Contractor shall be responsible for the quality, completeness, accuracy, and coordination of the Work. Contractor shall provide construction services that meet all industry standards, including all environmental and regulatory requirements. Arvada will provide and be responsible for all material testing and all other testing if needed.
- 3.2. **Arvada’s Right to Carry Out the Work.** If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-calendar day period after written notice from Arvada to commence and continue correction of such default or neglect with diligence and promptness, Arvada may after such seven-day period, without prejudice to other remedies Arvada may have, correct such deficiencies. In such

a case, an appropriate Change Order shall be issued deducting from payments then or thereafter due to the Contractor the cost of correcting such deficiencies, including compensation for any consultant's additional services and expenses made necessary by such default, neglect or failure. If payments then or thereafter due to the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to Arvada within ten days of receipt of an invoice for such amounts from Arvada.

- 3.3. **Legal Standard.** Contractor shall furnish construction services in accordance with industry standards currently practiced by construction professionals on projects similar in size, complexity, and cost to the Project.
- 3.4. **Construction Standards.** Contractor shall perform all services in accordance with requirements of governmental agencies having jurisdiction over the Project, City of Arvada Engineering Code of Standards and Specifications dated October 2, 2023, and the requirements set forth in the Contract Documents. In addition, the Contractor's work shall comply with all applicable building codes, accessibility laws and regulations, environmental regulations, and other applicable legal requirements in effect at the time of the Work. To the extent Arvada's standards exceed applicable legal requirements, Arvada's standards shall be met unless Contractor obtains a variance from Arvada in writing.
- 3.5. **Permits.** Contractor shall be responsible for obtaining all necessary permits and other governmental approvals necessary for the development of the Project and shall obtain the same at the times necessary to meet the Project schedule. Contractor's responsibility includes providing environmental services and permitting coordination as further described in the Contract Documents.
- 3.6. **Notice of Non-Compliance.** Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Arvada, and shall at once report to Arvada any errors, inconsistencies, or omissions discovered as well as any foreseeable constructability issues arising from the Project's specifications, site conditions, or both. If the Contractor performs any construction activity and knows or should have known it involves an error, inconsistency, omission, or constructability issue in the Contract Documents without such notice to Arvada, the Contractor shall assume full responsibility for such performance and shall bear the full costs for correction, including reimbursement for any delay caused to the Project.
- 3.7. **Pre-Construction Meetings.** Contractor agrees to assist in the preparation for and to participate in any pre-construction meetings with Arvada.

ARTICLE 4. CHANGES TO THE WORK.

- 4.1. **Minor Contract Revisions.** Miscellaneous modifications in the Work, ordered by Arvada in the form of a Field Order, will be considered a Minor Contract Revision. Payment for accepted work performed under this pay item "Minor Contract Revision" will be made in accordance with the Contract Documents.

- 4.2. **Field Orders.** An authorized representative of the Contractor shall acknowledge receipt of Field Orders by promptly signing all written field orders delivered to the job site. Verbal field orders given by Arvada will be recorded in writing in the municipal inspector's daily report that is to be signed by the Contractor's authorized representative.
- 4.3. **Field Engineered Changes.** Arvada may modify the construction plans including changing the slope and alignment of flow lines and appurtenances or modifying other improvements as necessary to accommodate construction around existing utilities or other field conditions. No additional compensation shall be made for minor costs and inconveniences incurred while performing field engineering changes as directed by Arvada or its consultant. No additional compensation shall be made for any down time encountered while Arvada determines what field engineered changes would be appropriate to accommodate construction around existing utilities or other field conditions. Reasonable time must be allowed for Arvada or its consultant to design field engineered changes. Any additional costs for performing field engineered construction changes to accommodate existing utilities or other field conditions and for also allowing Arvada reasonable time to design field engineered changes as necessary to complete the work shall be considered a subsidiary obligation of the contract.
- 4.4. **Arvada Change Orders.** Arvada may, by written order signed by Arvada, at any time, and without notice to any surety, and subject to all appropriate adjustments, make changes within the general scope of the Contract Documents in any one or more of the following: (a) changes in scope of services; (b) completion date; (c) contract amount; (d) any applicable material modifications; and (e) any other matters that the Parties deem necessary.
- 4.5. **Contractor Requested Change Orders.** The Contractor may request a change in the Work ("Requested Change Order"), including one or more of the following: (a) changes in scope of services; (b) completion date; (c) contract amount; (d) any applicable material modifications; and (e) any other matters that the Parties deem necessary.
- 4.6. **Change Order Contents.** Any Requested Change Order shall include (a) a detailed description of the requested change to the original contract; (b) itemized documentation of any subcontractor costs; (c) the total costs associated with the proposed change; (d) the impact on the Project completion date, if any, associated with the proposed change; and (e) a statement of the contractual basis for the requested change.
- 4.7. **Basis for Change Order Requests.** The following may be considered a valid basis for requesting a Change Order: (a) Contract Document error or omission; (b) Arvada induced enhancement; (c) unforeseeable constructability issue; and (d) unforeseeable geotechnical issue. The following will not be considered a valid basis for requesting a Change Order absent extraordinary circumstances: (a) utility relocation; (b) utility conflicts; (c) foreseeable geotechnical issue; (d) foreseeable constructability issue; and (e) defective construction.

- 4.8. **Written Authorization Required.** The Contractor shall not proceed with any change in the Work without the appropriate written authorization.

ARTICLE 5. SUPERVISION AND CONSTRUCTION PROCEDURES.

- 5.1. **Supervision.** The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under this Agreement, unless Contract Documents give other specific instructions concerning these matters.
- 5.2. **Acts and Omissions of Subcontractors and Agents.** The Contractor shall be responsible to Arvada for acts and omission of the Contractor's employees, subcontractors, and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.
- 5.3. **Inspection and Subsequent Work.** The Contractor shall be responsible for inspection of portions of Work already performed under this Agreement to determine that such portions are in proper condition to receive subsequent Work.

ARTICLE 6. COMPENSATION.

- 6.1. **Completion of Services and Compensation.** Contractor will furnish all material, supplies, tools, equipment, labor, and other services necessary for the completion of the Work within Arvada's timeframe and monetary limitations set forth below:
- 6.1.1. Contractor shall commence the Work required by the Contract Documents within seven calendar days after the date of the Notice to Proceed unless otherwise mutually agreed-upon by the Parties in writing;
- 6.1.2. Contractor shall complete the Work required by the Contract Documents within 365 calendar days after either the date that Contractor begins construction work at the Project site or December 1, 2025, whichever occurs sooner, unless the period for completion is extended otherwise by the Contract Documents or by mutual agreement by the Parties in writing; and
- 6.1.3. Contractor agrees to perform the Work for an amount not to exceed **\$8,593,185.00**.
- 6.2. **Term.** The term of the Agreement shall be from the date of Arvada's execution of the Agreement until either the Work is complete and Arvada has accepted it or December 31, 2026, whichever occurs sooner, unless otherwise agreed to in writing by the Parties, subject to availability of funds, or Arvada's termination for convenience under the Contract Documents. Any required warranty period which exceeds this term shall remain in full force for the duration of the warranty period.

- 6.3. **Additional Services.** While Arvada has listed its major requirements for its solicitation in the Contract Documents, Arvada may, during the term of this Agreement, wish to purchase other related services identified and offered by Contractor, based upon the bid schedule amounts contained in Contract Documents. Arvada reserves the right to award these ancillary items to Contractor. This option, if exercised, in no way obligates Arvada to pursue additional services with Contractor.
- 6.4. **Payment for Services.** At least twenty calendar days before the date established for each monthly progress payment, the Contractor shall submit to Arvada an itemized application for payment for construction completed in accordance with the bid schedule. Such application shall be supported by such data substantiating the Contractor's right to payment as Arvada may require, such as copies of invoices or requisitions from subcontractors and material suppliers and reflecting retainage. Arvada shall pay NET 30 days for services performed in accordance with the bid schedule and with this Agreement, but in no event shall the total Contract Amount exceed \$8,593,185.00 absent a properly executed change order. Measurement of the work performed and monthly payment shall be made in accordance with requirements of the measurement and payment section in the Contract Documents unless otherwise specifically provided herein.
- 6.5. **Non-Conforming Materials or Construction.** Where materials installed or the finished product fails to meet minimum requirements of the Contract Documents, the basis of determining final payment to the Contractor shall be determined in accordance with the current revised Section 105.03 of the Colorado Department of Transportation Standard Specifications.
- 6.6. **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 be paid NET 30 days. Invoices will accurately reflect actual work completed by Contractor and its subconsultants or subcontractors.

ARTICLE 7. MISCELLANEOUS.

- 7.1. **Waiver.** No provision of this Agreement may be waived except by written agreement of the Parties. A waiver of any provision on one occasion shall not be deemed a waiver of that provision on any subsequent occasion, unless specifically stated in writing. A waiver of any provision shall not affect or alter the remaining provisions of this Agreement.
- 7.2. **Strict Compliance.** No failure of Arvada to insist upon strict compliance by the Contractor with any provision of the Contract Documents shall operate to release, discharge, modify, change, or affect any of the Contractor's obligations.
- 7.3. **Successors and Assigns.** Arvada and Contractor, respectively, bind themselves, their partners, successors, assigns, and legal representatives to the other Party to this Agreement and to the partners, successors, and assigns of such other Party with respect to all covenants of this Agreement. Contractor shall not assign (whether partially or wholly) this Agreement, whether by operation of law or otherwise, without the written consent of

Arvada. If Contractor makes an assignment in accordance with this provision, Contractor shall nevertheless remain legally responsible for all obligations arising under this Agreement, unless otherwise agreed in writing by Arvada.

- 7.4. **Additional Documents.** The Parties agree to execute any additional documents and to take any additional action that is necessary to carry out this Agreement.
- 7.5. **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 paragraph shall be construed to permit the assignment of this Agreement except as otherwise expressly authorized herein. All provisions of this Agreement which contain continuing obligations shall survive its expiration or termination.
- 7.6. **Paragraph Captions.** The paragraph captions in this 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 this Agreement.
- 7.7. **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.
- 7.8. **Notices.** Any notice or notification required or permitted by this Agreement shall be in writing and shall be deemed to have been sufficiently given for all purposes if sent electronically, or by certified mail or registered mail, postage and fees prepaid, addressed to the Party to whom such notice is to be given at the address set forth on the signature page below, or at such other address as has been previously furnished in writing, to the other Party. Such notice or notification shall be deemed to have been given when electronically sent or when deposited in the United States mail.
- 7.9. **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, 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. This Agreement may be executed in counterpart(s), each of which shall be deemed to be an original, and all of which, taken together, shall constitute one instrument.
- 7.10. **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:

7.10.1. Colorado labor shall be employed to perform eighty percent (80%) of the work.

7.10.2. Any waiver of this requirement must comply with C.R.S. § 8-17-101 *et seq.*, as amended.

- 7.11. **No Third-Party Beneficiaries.** The Parties understand and agree that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to the Parties, and nothing contained in this Agreement shall give or allow any such claim or right of action to any other third party on this Agreement. It is the intention of the Parties that any person other than the Parties receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

IN WITNESS WHEREOF, the Parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement which shall be deemed an original on the date first above written.

[Signature page follows.]

DATED this _____ day of _____, 2025.

CITY OF ARVADA, a Colorado home
rule municipal corporation

Lauren Simpson, Mayor
8101 Ralston Road
Arvada, CO 80002

ATTEST:

City Clerk

APPROVED AS TO FORM:
Rachel A. Morris

By: _____

MILLER PIPELINE, LLC, an Indiana
limited liability company

Jimmy Stephens
Construction General Manager
421 E. Industrial Blvd.
Pueblo West, CO 81007
jimmy.stephens@millerpipeline.com

Exhibit A

AN AGREEMENT BY AND BETWEEN THE CITY OF
ARVADA AND
MILLER PIPELINE, LLC FOR THE NORTH TRUNK
SEWER, 86TH PARKWAY, BEECH TO MOORE STREET
(NTL 2/3/ALKIRE FM) PROJECT, PROJECT NO. 24-SR-04,
IN AN AMOUNT NOT TO EXCEED \$8,593,185.00

CITY OF ARVADA

COMPETITIVE SEALED BID

BID #: 25-ENG-048

Title: North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)

Issue Date: 06/03/2025

MANDATORY Pre-Bid Meeting 06/12/2025 – 10:00 AM MT
Virtual Only ZOOM LINK:
<https://arvadaco.gov.zoom.us/j/83132403482?pwd=LZ9aVoEFHRikB7ovp9Zkc6yJPeJxg4.1>

Questions Deadline: 06/18/2025 2:00 pm MT
 Questions must be submitted through BidnetDirect.com. Responses will be posted on Bidnet via addendum.

Bid Due Date: 07/01/2025 2:00 pm MT
Virtual Opening Information <https://arvadaco.gov.zoom.us/j/84830735021?pwd=TmOcxk714aCYVM5IX7Kg2pFiu96JqD.1>

Bid Delivery address: Electronic Submissions must be submitted online at BidNetDirect.com by the above date and time.
 Late responses will not be considered for award.

Project Delivery Date: 300 Days After NTP

For additional administrative information not related to the project, contact: Doreen Mazza, dmazza@arvada.org
 Contact with the requesting department may result in vendor disqualification.

Documents included in this Request:

Cover Page	page 1
Advertisement for Bidders	page 2
General Terms and Conditions	page 3
Special Terms and Conditions for Bidders	page 6
Insurance Requirements	page 7
Project Special Provisions	page 9
Submittal Forms to be completed and returned	
• Bid Bond	page 251
• Bid Proposal	page 252
• Sample Bid Schedule	page 253
• Required Contractor Submittal Form	page 254
• Sample of Documents if Awarded	page 258
Attachments:	
Appendix A Geotechnical Study North Trunk Line Sanitary Sewer	
Appendix B Specifications for placement of Fill	
NORTH TRUNK SEWER 86TH PKWY, BEECH TO MOORE ST (NTL 2/3/ALKIRE FM), CITY OF ARVADA PROJECT NO. 24-SR-04, MARCH 2025, IFB DRAWINGS. FINAL PLAN BID SET	
86TH PKWAY BIKE LANE IMPROVEMENT PLAN SET	

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 and take action to deliver quality results.



ADVERTISEMENT FOR BIDS

Submit bids electronically on Bidnetdirect.com for the construction of City of Arvada, Project No. 24-SR-04

Project Title: North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)

The BID DOCUMENTS, consisting of Advertisement for Bids, General Terms and Conditions, Special Terms and Conditions, Insurance Requirements, Project Special Provisions, Addendum when issued, Bid Bond, Bid Proposal, Bid Schedule, Performance and Payment Bond, Submittal Checklist and References, Sample documents, and the Project Drawings may be examined at the following location: www.bidnetdirect.com

No cost bid documents may be obtained at www.bidnetdirect.com on or after 6/03/25.

MAJOR ITEMS OF WORK ARE:

Sanitary Sewer Gravity Pipe, Complete in Place
Sanitary Sewer Force Main Pipe, Complete in Place
Bored Steel Casing
Open-Cut Steel Casing
Sanitary Sewer Diversion Vault
Air Valve Vault Assembly
Sanitary Sewer MH, Complete in Place
Church Ditch Crossings
Temporary Sanitary Sewer Bypass Pumping
Dewatering
Striping and Painting
Traffic Control, Erosion Control, Project Site Restoration

Miscellaneous items include citizen notification, traffic control, and other appurtenances. Please see the remaining documents for a complete list of work items and quantities.

Bidders, subcontractors and suppliers must be familiar with the current City of Arvada Engineering Code of Standards and Specifications, dated October 2, 2023, which will be combined with the Bid Documents to form the Contract Documents for the Project. A copy of the Standards may be obtained from the office of the City Engineer upon a non-refundable payment of \$50.00. Holders will be notified when supplemental revisions and additions are available as they are adopted. The Standards are also available at no cost on the City's web site at <https://www.arvadaco.gov/167/Engineering-Code>. Holders are responsible for keeping current their City of Arvada Engineering Code of Standards and Specifications.

Date: 5/29/25

CITY OF ARVADA



Claudia Vaughan
City Engineer
8101 Ralston Road
Arvada, Colorado 80002

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. 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.

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 award work to subcontractor(s) in excess of fifty percent of the total contract price without Arvada's prior written approval. 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. 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.*

13. 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.

14. 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.

15. 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.

16. 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.

17. FORCE MAJEURE. Any delays in or failure of performance by any party of 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.

18. 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.

19. 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.

20. 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.

21. 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.

22. 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.

23. ACCESSIBILITY COMPLIANCE.

- 23.1 Arvada is obligated to comply with the Colorado Anti-Discrimination Act (C.R.S. §§24-34-300 *et seq.*) ("CADA"), which requires all digital and online platform and content providers to comply with the minimum *Accessibility Standards for Individuals with a Disability*, adopted by the Colorado Office of Information Technology ("OIT") under C.R.S §24-85-103(2.5). Contractor has been advised to familiarize itself with CADA.
- 23.2 To the extent the Work or any of Contractor's services provided under the Agreement involves digital, technological components, including but not limited to software, websites, applications, digital documents (the "Material"), all Material shall comply with the OIT's currently adopted minimum *Accessibility Standards for Individuals with a Disability* at all times.
- 23.3 Contractor shall indemnify, save, and hold harmless Arvada, 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 relationship to Contractor's failure to comply with Section (23.2) above.
- 23.4 Upon Arvada's request, Contractor shall certify to Arvada that its service(s) and digital documents are compliant with Section (23.2) above. Arvada may require Contractor's compliance to the OIT's currently adopted minimum standards of accessibility to be determined by a third party selected by Arvada to attest to Contractor's compliance.

SPECIAL TERMS AND CONDITIONS FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS. Bids submitted electronically on the BidnetDirect.com website only become available to the City of Arvada after the bid closes. Bidder shall assume full responsibility for timely upload of bid to the BidnetDirect website. The City reserves the right, where its best interest will be served, to accept or reject any conditional or qualified bid.

2. QUANTITY AND NATURE OF THE WORK. Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the drawings and specifications including Addendum. After Bids have been submitted the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

3. CONTENTS OF BID. Contractors are required to submit Bids with the following conditions:

- 1) Contractors shall make all investigations necessary to inform themselves of the sites affected and the work 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 Bids. A copy of such addenda will be publicly posted with the original CSB 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.

4. BID SECURITY. Each Bid must be accompanied by a PHOTO of the Bid Bond, on the form attached to these contract documents, payable to the City for five (5) percent of the total amount of the Bid. As soon as the bid Prices have been compared, the City will issue intent to award on the Bidnetdirect.com web site. The vendor who is named as the intent to award Contractor must submit the physical Bid Bond within 10 days or the intent to award may be revoked. The Bid Bond of the successful Bidder will be retained until the Payment and Performance Bond has been executed and approved after which it will be returned. A certified check may be used in lieu of a Bid Bond.

5. POWER OF ATTORNEY. Attorneys-in-fact who sign Bid Bonds or Payment and Performance Bonds must file with each bond a certified and effective dated copy of their power of attorney.

6. QUALIFICATION OF BIDDER. The City may make such investigation as it deems necessary to determine the ability of the Bidder to perform the work. The City reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligation of the Contract Agreement and to complete the work contemplated therein. The City reserves the right, before awarding the contract, to require a Contractor to submit evidence of its qualifications including, but not limited to, financial, technical, and other qualifications, as well as past performance with the City, for consideration in making the award in the best interest of the City.

7. AWARD OF CONTRACT. A contract/s shall be awarded to the lowest-priced responsible and most responsive bidder/s whose bid meets the requirements and criteria set forth in the CSB within the limits of funds available and that best serves the City's interest. The City, within seven (7) calendar days of receipt of acceptable Contract Security and the Contract Agreement, signed by the Bidder to whom the Contract was awarded, shall sign the Contract Agreement and return to the Bidder an executed copy of the Contract Agreement. Should the City not execute the Contract Agreement within such period, the Bidder may, by written notice, withdraw their signed Contract Agreement. Such notice of withdrawal shall be effective upon receipt of the written notice by the City.

8. NOTICE OF AWARD AND FAILURE TO ENTER INTO CONTRACT. The party to whom the Contract is to be awarded will be required to execute the Contract Agreement, obtain Certificates of Insurance and a Performance and Payment Bond, as Contract security, within five (5) calendar days from the date the Notice of Award is delivered to the Bidder. The Notice of Award shall be accompanied by the Contract Agreement and the necessary Performance and Payment Bond forms. In case of failure of the bidder to execute the Contract Agreement and provide satisfactory Insurance and Contract Security, the City may at its option, consider the Bidder in default, in which case the Bid Bond accompanying the Proposal shall become the property of the City.

9. CONTRACT DOCUMENTS. The Contract Documents consisting of the Bid Documents, which include the Advertisement for Bids, Information for Bidders, General Terms and Conditions, Special Terms and Conditions, Insurance Requirements, Project Special Provisions, Addendum, Bid Bond, Bid Proposal, Bid Schedule, Vendor Submittal Form, Construction Drawings, Supplemental Specifications and the City of Arvada "Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements", dated October 2, 2023, which include the Measurement and Payment specifications, and the attached Notice of Award form, Contract Agreement form, Performance and Payment Bond form, Notice to Proceed form, and Change Order form, when combined, contain the provisions required for the construction of the Project. Information obtained from an agent or employee of the City or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the contract.

10. TERM OF CONTRACT. This contract shall commence on the date of the purchase order or contract execution and shall remain in effect until such time as the commodities, equipment and/or services acquired in conjunction with this Bid have been accepted by the City's authorized representative. Any required warranty period which exceeds this term shall remain in full force for the duration of the warranty period.

11. PRICING SHALL BE FIXED AND FIRM. The prices offered by the Contractor shall remain fixed and firm for at least 90 ninety days. No changes in the Bid shall be allowed after the date and time of the Bid deadline due to error by the Contractor.

12. CONTRACT SECURITY. A Performance and Payment Bond, on the form attached to these contract documents, in the amount of 100% of the Contract price, with a corporate surety approved by the City, will be required for the faithful performance of the Contract.

13. NOTICE TO PROCEED. The Notice to Proceed shall be issued within seven (7) calendar days of the execution of the Contract Agreement by the City. Should there be reason why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the City and the Contractor. In the event the Notice to Proceed has not been issued within the seven day period or within the period mutually agreed upon the Contractor may terminate the Contract Agreement without further liability on the part of either party.

14. MODIFICATION OR WITHDRAWAL OF BIDS BY CONTRACTOR.

Modifications to Bids- Changes to the Bid after the submission deadline shall be allowed only when the Contractor can show convincing evidence that an unintentional factual mistake was made. Modification requests must be made in writing. Any modification submitted to the City must have the Contractor's name, address, Solicitation Number and title included.

Withdrawal of Bids- If a Bid is withdrawn by Contractor after the Bid Opening, the City may, at its option, suspend the Contractor for a six (6) month period following the withdrawal. Withdrawal of the Bid after the Bid Opening will result in the Contractor forfeiting the provided Bid Bond.

15. REJECTION OF OFFERS BY CITY.

- A. The City may reject a Bid, in whole or in part, for reasons including, but not be limited to:
 - 1) The Contractor misstates or conceals any material fact in its Bid;
 - 2) The Contractor's Bid does not strictly conform to the law or requirements of the Solicitation;
 - 3) The Bid expressly requires or implies a conditional award that conflicts with the method of award stipulated in the Special Conditions;
 - 4) The Bid does not include documents which are required for submission with the Bid; or
 - 5) The Bid 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 Bids submitted by prospective Contractors;
 - 2) Re-advertise this Solicitation;
 - 3) Postpone or cancel the Solicitation;
 - 4) A Bid 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 government 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.

16. 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 Bid, it shall be agreed that the Contractor's Bid fully complies with all conditions identified in this Solicitation.

17. ELECTRONIC PAYMENT METHODS - CITY OF ARVADA SINGLE USE ACCOUNT.

Contractors are encouraged to consider the following method of payment.

Single Use Account: The City incorporates the use of Single User Accounts as an option to seamlessly process payment of larger dollar purchase orders and contracts to vendors/contractors/providers. A secure, one-time payment transaction account processes to pay invoices via the Contractor's merchant bank. Invoice payments have an enhanced speed-of-pay cycle that can significantly benefit cash flow.

18. CONDITIONS OF WORK AND OBLIGATION OF BIDDER. Each Bidder is responsible for independently inspecting the site and for reading and being thoroughly familiar with the Contract Documents and for providing the names of major suppliers and sub-contractors in the space provided on the Bid Proposal form. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve the Bidder from any obligation in respect to their Bid Proposal.

19. CONTRACTOR LICENSE. The Contractor to whom the contract is awarded and any subcontractors employed by the Contractor must have or acquire the appropriate Contractor's license issued by the City of Arvada Engineering Division, including submittal of license bond, necessary insurance certificate, and license fee before initiating any work. The Contractor and any subcontractors will also be required to obtain a no charge Public Improvements Permit from the City of Arvada Engineering Division prior to initiating any and all work on this project.

20. PERFORMANCE MEASUREMENTS FOR SERVICES MORE THAN \$15,000.

The City has incorporated Performance Management into its organizational culture. The City will monitor and report on the following performance measures. These measures will determine, in part, renewals and eligibility for future awards. Measures include: (a) safety as defined by observation and OSHA reportable injuries, (b) quality of contracted work, (c) work completed within required schedule, (d) administration and coordination of estimates, RFIs, ASIs, change orders, pay requests and close out documents, (e) fair and justifiable change orders, (f) responsiveness and follow through on requests.

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.

21. PREPARATION AND SUBMISSION.

Bids will be prepared as follow:

- 1) A blank shall be construed as "No Bid/not offered". Where there is a discrepancy between the unit price and the extension of prices, the unit price shall prevail.
- 2) 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.
- 3) The only authorized version of this Bid is posted on WWW.BIDNETDIRECT.COM. Registration is available to receive email notification of new solicitations, addenda, and communications.

INSURANCE REQUIREMENTS

The following listed insurance requirements shall be carried by the selected Contractor for the entirety 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 \$1,000,000 each accident/disease and \$2,000,000 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 \$10,000,000., 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 \$1,000,000 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** for 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.
- 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.
- 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 15 calendar days after notice to submit such policies is given to the Contractor by a City representative, the Contractor may be in default of the Award.
- 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.
- The City, through its Risk Manager, reserves the right to require additional insurance coverage and other requirements.

SPECIAL PROVISIONS

City of Arvada Project No. 24-SR-04, Project Title: North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)

Conditions peculiar, but essential, to the successful performance and acceptance of the work on this project are itemized below. As such, they shall take precedence over the City of Arvada Engineering Code of Standards and Specifications (latest edition).

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. City of Arvada (COA) Engineering Code of Standards and Specifications 2023 Edition, or latest Edition. When there is a conflict between the Specification Manual and Arvada Standards and Specifications Contractor shall notify the Owner or Engineer for clarification with the more stringent of any standards taking precedence.

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Work performed by Owner.
 - 4. Contractor's use of site and premises.
 - 5. Coordination with occupants.
 - 6. Work restrictions.
 - 7. Specification and Drawing conventions.
 - 8. Miscellaneous provisions.
- B. Related Requirements:
 - 1. In accordance with COA Engineering Specifications. Contractor is responsible for referring to COA Specifications whether specific sections are referenced throughout these specifications or not.

1.3 PROJECT INFORMATION

- A. Project Identification: North Trunk Sewer, 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM) City of Arvada Project No. 24-SR-04 ("NTL 2&3").
 - 1. Project Location: Within City of Arvada right-of-way, Arvada Alkire Lift Station property, and within Jefferson County right-of-way.
- B. Owner: City of Arvada, 8101 Ralston Road, Arvada, CO 80002.
- C. Engineer: CDM Smith, 555 17th Street, Suite 500, Denver, CO 80202.

- D. CDM Smith has been engaged to serve as an advisor to Owner and to provide assistance in administering the Contract(s) between Owner and Contractor, according to a separate agreement between Owner and Construction Manager.
- E. Web-Based Project Software: Procore software will be used for purposes of managing communication and documents during the construction stage.
 - 1. See Section 013100 "Project Management and Coordination." for requirements for using web-based Project software.
- F. Schedule Events: Schedule the Work to conform to the following events and dates.
 - 1. Work shall be substantially complete on or before **300 Days from Notice to Proceed.**

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:
 - 1. Work for the North Trunk Line (NTL) 2&3 sewer trunkline replacement project generally consists of furnishing, delivering, constructing, installing, connecting, and testing approximately 11,000 linear feet (LF) of 24-inch and 30-inch gravity sanitary sewer line, and approximately 3,000 LF of 12-inch sanitary sewer force main. The gravity sewer line will be competitively bid as PVC and Fiberglass Reinforced Pipe (FRP). Force main piping shall be AWWA C900. Other Work includes:
 - a. Installation of new sewer main and force main.
 - b. Includes import of select common fill for backfill within streets.
 - c. Installation of new maintenance holes and a diversion structure.
 - d. Tie-ins between new sewer pipeline and the existing sanitary sewer system.
 - e. Tie-ins at the Alkire Lift Station (LS).
 - f. Connections of sewer services.
 - g. Abandonment of replaced sections of sewer line and maintenance holes.
 - h. One open-cut crossing of Church Ditch Water Authority (CDWA).
 - i. One trenchless crossing of Church Ditch Water Authority (CDWA).
 - j. One trenchless crossing of existing culvert.
 - k. Cathodic protection of steel casing.
 - l. Removal and replacement of asphalt pavement and pavement markings.
 - m. Removal and replacement of curb and gutter.
 - n. Sodding, landscape, and fence restoration.
 - o. Coordination with property owners, the public, and residents.
 - p. Coordination with utility owners, utility protection, and minor utility adjustment as required for completion of the work.
 - q. Maintenance of traffic.
 - r. Erosion and sediment control.
 - s. Preparation of As-builts.
 - t. Use of an arborist for tree protection.
 - u. All permitting, potholing, excavating, trench shoring, dewatering, surface restoration, testing, and bypass pumping.
 - v. and other Work indicated in the Contract Documents.

1.5 WORK PERFORMED BY OWNER

- A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.6 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
 - 1. Driveways, Walkways and Entrances: Keep driveways, walkways, and entrances serving premises clear and available to Owner, Owner's employees, homeowners, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - c. Contractor shall coordinate construction with landowners and businesses and adhere to the provisions described below:
 - 1) Contractor should access and construct only within right-of-way or within the Arvada Lift Station property (Plat-Rec No. 2018038765) boundaries as shown on the construction drawings. Contractor must receive approval from Owner prior to construction for use of site for staging and laydown.
 - 2) Contractor shall provide written notification to Owner a minimum four weeks in advance of tie-in work at the Arvada Alkire Lift Station. A bypass plan must be submitted and approved prior to construction. A pre-construction meeting shall be held 72 hours in advance of tie in.
 - 3) Landowners, businesses, and HOAs, shall be provided written notification a minimum of one week before mobilization, land disturbance, or construction is to take place near the property. This notification shall include but not be limited to the following:
 - a) Schedule of work.
 - b) Diagram of what properties will be impacted.
 - c) Sequence of work.
 - d) Detours and alternate routes.
- B. Condition of Existing Building: Maintain portions of the Alkire LS affected by construction operations throughout the construction period. Repair damage caused by construction operations.
- C. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy Project site and existing Alkire Lift Station building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
 - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Refer to Arvada Standard Specification Section 129.01.
 - 1. Hours for Utility Shutdowns: Shall be coordinated with the Utility Owner. Sewer service shall be maintained throughout construction.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than three days in advance of proposed utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Owner not less than three days in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.

1.9 PERMIT AND LICENSES:

- A. The Contractor shall obtain all City, State, and County permits and licenses necessary for construction of the work in accordance with the general conditions.
- B. Acquire permits in accordance with COA Specification 180.
- C. The permits shall include, but not be limited to the following:
 - 1. City of Arvada Right-of-Way and CIP Permit – Obtained by Contractor.

2. City of Arvada Site Disturbance Permit – Obtained by Contractor.
 - a. See City of Arvada Specification 353.00 for additional detail.
 - b. Engineer has developed a draft SWMP that Contractor has the option to submit and implement for permit.
 3. Colorado Department of Public Health and Environment (CDPHE), Water Quality Control Division (WQCD).
 - a. Construction Dewatering Permit – Obtained by Contractor.
 - b. Construction Stormwater Construction Permit – Obtained by Contractor.
 4. Jefferson County Erosion and Stormwater Permit – Obtained by Contractor.
 5. Jefferson County Minor Floodplain Permit for South Upper Big Dry Creek (Appendix B) – Obtained by Owner.
 - a. Expires August 12th, 2026.
 6. Any other permit not listed above required to complete the project.
- D. All costs associated with obtaining permits shall be considered a subsidiary obligation of the Contractor and all costs in conjunction therewith shall be included in the prices bid for various items of work.

1.10 CONSTRUCTION SURVEYING

- A. Contractor shall furnish a set of construction stakes establishing all lines, grades, and measurement necessary for the completion of the Work contracted under these Specifications. Construction stakes shall also clearly define limits of construction and site access as defined on the Drawings and shall be considered incidental to the construction or installation of sewerlines. Additional surveying required for construction of the Project shall also be provided by the Contractor. As such, no additional compensation will be allowed for surveying. The surveyor shall be registered in the State of Colorado.
- B. Staking and grade control shall be performed in accordance with the City of Arvada Specifications Section 342.00. Accurate record keeping shall be performed by a professional surveyor registered in the State of Colorado. Record Drawings shall be submitted per requirements of the City of Arvada Specification Section 222.00 and 017839 Project Record Documents. Contractor shall obtain surveyed coordinate locations of all fittings, appurtenances, and changes in direction of pipeline. Locations of the existing 8-inch and 10-inch force mains on sheets C-13 to C-15 shall also be surveyed when exposed to confirm location of it and included with record drawings.

1.11 SOILS INFORMATION

- A. Soils/geotechnical borings, investigations, and reports have been developed for this project by A.G. Wassenaar, Inc. (AGW). A copy of this information has been provided as Appendix A, for additional reference but is not to be considered par of the Contract Documents. This is for informational purposes only.

1. Two monitoring wells were installed that Contractor can use at their discretion. Monitoring wells shall be abandoned, and the surface restored upon completion.

1.12 ENCOUNTERING EXISTING SERVICE LINES:

- A. All existing water services or sanitary sewer service lines in the way of installation or damaged by construction shall be repaired or relocated at the expense of the Contractor at no additional cost to the Owner.
- B. The Contractor shall be prepared to encounter existing services, whether indicated on the drawings or otherwise. The nature of the work involves the potential to encounter (and possibly damage or sever) existing live lines. The Contractor shall supply and have on hand at all times replacement pipe, fittings, couplings, and all other necessary tools to repair existing service lines in the case lines are damaged.

1.13 CONCRETE REMOVAL AND REPLACEMENT:

- A. Concrete flatwork removal and replacement is required whenever concrete must be removed, cut, or is damaged by constructive efforts. The impacts and limits of such removal and replacement will be based upon the means and methods of Contractor. This includes for curb and gutter, sidewalks, concrete pans, etc.

1.14 ASPHALT REMOVAL AND REPLACEMENT:

- A. Asphalt removal and replacement shall be performed in accordance with the Drawings, Specifications, and City of Arvada Standards and Specifications (most recent edition).
- B. All seams where asphalt removal and replacement abut existing asphalt shall be crack sealed prior to the expiration of one year after installation. Contractor shall crack seal the edge of all asphalt patches prior to the expiration of one year as well.

1.15 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
 3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.

4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011000

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SECTION 012200 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. The Contract Price shall cover all Work required by Contract Documents. All costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction plant, equipment, and tools; and performing all necessary labor and supervision to fully complete the work, shall be included in the unit and lump sum prices. All work not specifically set forth as a pay item in the Bid Schedule shall be considered a subsidiary obligation of the Contractor, and all costs in connection therewith shall be included in the schedule prices.
- C. Compliance with all permits related to the Project is considered incidental to the work and no additional payment will be made to Contractor. This includes any fees associated with obtaining permits.
- D. All estimated quantities stipulated in the Contract Documents for this portion of Work are approximate and are to be used as a basis for estimating the probable cost of the Work and for the purpose of comparing bids submitted for the Work. The actual amounts of Work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished.
- E. The use of allowances shall be authorized by written order. Executed authorization of allowances must be agreed to by the Owner and Contractor in order to empower use of allowance bid items.

1.3 DEFINITIONS

- A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.
- B. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. See Attachment A.

Item No.	Item	Description	Measurement and Payment												
General Bid Items															
Gravity Interceptor, 86th Parkway Alignment (Sheets C-1 through C-12)															
1.01	Mobilization/ Demobilization/ Bonds/Schedule/Permits (LS)	This item includes obtaining of all permits and conformance to all permit requirements, bonds, insurance, public and media relations, administrative items, moving onto the site, abandon monitoring wells, furnishing and erecting temporary construction facilities, project signs, and all other work and operations that must be performed or costs incurred before beginning Work on the project Site, including an arborist, as well as demobilization and project closeout, all as required for the complete and proper performance and completion of the Work.	Per City of Arvada Item 1124.00. Partial payments, subject to contract retainage, for mobilization will be made each month as the work progress as follows: <table><tr><th>Original Contract Amount*</th><th>Mobilization Contract Amount Bid</th></tr><tr><th>Earned**</th><th>Payable</th></tr><tr><td>5%</td><td>25%</td></tr><tr><td>10%</td><td>50% (less prev. payment)</td></tr><tr><td>25%</td><td>60% (less prev. payment)</td></tr><tr><td>75%</td><td>100% (less prev. payment)</td></tr></table> *Original contract amount less contract amount bid for mobilization **Payment for materials on hand will not be included as a percent of original contract earned until said materials on hand have been incorporated into the work and accepted for item payment.	Original Contract Amount*	Mobilization Contract Amount Bid	Earned**	Payable	5%	25%	10%	50% (less prev. payment)	25%	60% (less prev. payment)	75%	100% (less prev. payment)
Original Contract Amount*	Mobilization Contract Amount Bid														
Earned**	Payable														
5%	25%														
10%	50% (less prev. payment)														
25%	60% (less prev. payment)														
75%	100% (less prev. payment)														
1.02	Traffic Control (LS)	The unit price bid shall include, but not be limited to: furnishing, installing, moving, maintaining and removing all temporary traffic signs, barricades, traffic management, warning lights, flaggers, delineators, pilot car operations and any other equipment or personnel as required by the latest revision of the “Manual of Uniform Traffic Control Devices for Streets and Highways” and requirements of CDOT.	Traffic control will be based on the completion of the work. No quantity measurement will be made of any of the work and materials required to complete this item of the construction project. Payment will be based on a percentage equal to the percentage of the original contract price earned excluding the amount paid for Materials Stored on Site. See City of Arvada Item 1181.00.												

Item No.	Item	Description	Measurement and Payment
1.03 1.04 1.05	Install 21" Sanitary Sewer (LF) Install 24" Sanitary Sewer (LF) Install 30" Sanitary Sewer (LF)	Install sanitary sewer of the type and diameter indicated via open cut. Includes all labor, material, tools, equipment, and incidentals required for furnishing, handling, and installation of new sanitary sewer. Includes survey and staking for pipe installation, and shall include but is not limited to all excavation, rock removal disposal of excess excavated material and backfill, asphalt removal, temporary asphalt, sheeting, shoring, bracing, and protection of existing utilities, furnishing placing and compacting backfill, utility locates, fittings, and temporary utility crossing supports, removal and replacement of curb and gutter, driveways, sidewalks, fencing, typical hauling and disposal, pipe zone material, pipe and pipe laying, warning tape, disposal of material, backfilling and compaction, includes pipeline testing.	Measurement and payment for this item will be made by length in linear feet along the pipe centerline, between connection to the existing sewer or sewer maintenance hole as specified on the plans.
1.06	Remove 8" Sanitary Sewer and Install 24" Sanitary Sewer (LF)	Includes all costs associated with bid items 1.03 through 1.05, in addition to removal of existing sanitary sewer pipe. Includes removal of existing MH 5811. Includes the Contractor's costs of whatsoever nature including saw cutting, identifying existing utility to be removed, disposal of materials.	Measurement and payment for this item will be the actual number of linear feet of sewer piping removed and replaced as required per the Drawings and Specifications.
1.07	36" Bored Steel Casing Pipe (LF)	Includes but not limited to, excavation for entry and receiving pits, dewatering, boring, backfilling, potholing, furnishing, and installing pipe casing, installing the sanitary sewer pipe in steel casing, all skids, insulators, jointing material, jacking pipe, jacking pits, end closures, restoration, clean-up, and all other related and necessary materials, work, and equipment required to complete this item in accordance with the Drawings and Specifications. Excludes the cost for the cathodic protection.	Measurement and payment for this item will be the actual number of linear feet of bored steel casing pipe installed, measured along the centerline of the pipe for each size casing.

Item No.	Item	Description	Measurement and Payment
1.08	36" Open-Cut Steel Casing Pipe (LF)	Includes but not limited to potholing and locating the ditch, support of existing utilities, saw cutting, asphalt removal, temporary asphalt, warning tape, bedding material, installing the sanitary sewer pipe in steel casing, insulators, jointing material, end closures, restoration, clean-up, and all other related and necessary materials, work, and equipment required to complete this item in accordance with the Drawings and Specifications. Excludes the cost for the cathodic protection.	Measurement and payment for this item will be the actual number of linear feet of open-cut steel casing pipe installed, measured along the centerline of the pipe.
1.09	Cathodic Protection System (LS)	Includes but not limited to: furnishing and installing cathodic protection at steel casings including anodes, anode wiring, welded wire connections, test stations, routing test stations outside of roadway including bedding, asphalt removal and replacement, curb and gutter, sod, sidewalk, wire connection protection, test station boxes, terminal boards, shunts, wire labels, testing, record keeping, and all other necessary material, work, and equipment required to complete this item in accordance with the Drawings and Specifications.	Measurement and payment for this item will be on a lump sum basis.
1.10	Backfill with CLSM (CY)	Includes delivering, furnishing, and installing CLSM, formwork, and all other necessary material, work, and equipment required to complete this item in accordance with the Drawings and Specifications. This item shall cover the installation of CLSM as a compacted backfill substitute at locations specified or required by Owner. Excludes CLSM for pipeline abandonment.	Measurement and payment for this item will be the actual number of cubic yards of controlled low strength material (CLSM) installed. Delivery tickets shall be submitted to confirm the amount installed.
1.11	New Diversion Structure (EA)	This item includes removing and disposing of existing maintenance hole. Furnishing all materials, equipment, labor, foundation, reinforcing steel, pre-cast concrete vault, excavation, asphalt removal, invert and bench construction, walls, top sections, dampproofing, frame and cover, maintenance hole steps, water stops, orifice plates and bolts, gaskets, compaction, subgrade preparation, connection to the existing system, structural backfill, clean-up, incidentals, and all other necessary material, work, and equipment required to complete this item in accordance with the Plans and Specifications.	Measurement and Payment for this item will be the actual number of approved diversion structure vaults installed.

Item No.	Item	Description	Measurement and Payment
1.12	Install 96" Sanitary Sewer Maintenance Hole (EA)	Includes furnishing all labor, materials, equipment, coordination with existing utilities including service connections as necessary for the complete installation of a sanitary maintenance hole including sheeting and shoring, excavation, compacted crushed rock foundation, steps, connection of sanitary pipes to maintenance holes, corrosion lining, exterior surface coatings, benching, exterior joint sealing, maintenance hole frames and covers, exterior drop pipe and fittings where applicable, backfill and compaction, final grading, adjustment of the maintenance hole rim.	Measurement and payment for this item will be the actual number of new maintenance holes installed for each size.
1.13	Install 60" Sanitary Sewer Maintenance Hole (EA)	Includes furnishing all labor, materials, equipment, coordination with existing utilities including service connections as necessary for the complete installation of a sanitary maintenance holes including sheeting and shoring, excavation, compacted crushed rock foundation, connection of sanitary pipes to maintenance holes, steps, exterior surface coatings where applicable, benching, exterior joint sealing, corrosion lining of maintenance holes where applicable, maintenance hole frames and covers, exterior drop piping and fittings where applicable, backfill and compaction, final grading, adjustment of the maintenance hole rim, and all other necessary material, work, and equipment required to complete this item in accordance with the Plans and Specifications.	Measurement and payment for this item will be the actual number of new maintenance holes installed for each size.
1.14	Remove and Replace 60" Sanitary Sewer Maintenance Hole (EA)	Includes everything as part of Item 1.13 in addition to removing and disposing of the existing concrete maintenance holes. Includes costs of drop structure piping and fittings and appurtenances, replacement of existing sanitary sewer at tie-ins to existing system, and all other necessary material, work, and equipment required to complete this item in accordance with the Plans and Specifications.	Measurement and payment for this item will be the actual number of maintenance holes removed and replaced.
1.15	Pipe abandonment and plug connections (LS)	Includes but not limited to: restrained end caps or plugs, isolation, draining the existing line, completely fill the entire pipeline with CLSM, abandon existing gravity connection at maintenance hole connections with permanent plug, and all other necessary material, work, and equipment required to	Measurement and payment will be made at the contract lump sum, which shall include all labor, materials, and equipment to plug the existing sanitary sewer as indicated on the Drawings.

Item No.	Item	Description	Measurement and Payment
		complete this item in accordance with the Plans and Specifications.	
1.16	Trench Stabilization Material (TON)	Includes furnishing and installation of trench stabilization material in the bottom of an unstable excavation or trench upon direction of the Owner and all other necessary material, work, and equipment required to complete this item in accordance with the Drawings and Specifications. The use and payment of this item shall be only where required and as approved by the Owner.	Measurement and payment for this item will be the actual tonnage of trench stabilization material installed. Delivery tickets shall confirm the amount of material provided.
1.17	Sanitary Sewer Service Lines - Reconnect Laterals (EA)	Includes furnishing all labor, materials, and equipment necessary to reinstall the sanitary sewer lateral including excavation, sheeting, shoring, bracing, dewatering, backfill, compaction, and grading, all pipe, wyes, bends, sleeves, and plugs sanitary sewer flow control (if required), maintaining service to homeowners, and includes restoration and clean-up. This item includes removal and replacement of fences, gates, mailboxes, trees, shrubs, irrigation sprinklers, asphalt, curb and gutter, sidewalk, and any other obstruction encountered during reinstallation.	Measurement includes the actual number of connections made between new installation and an existing facility regardless of depth.
1.18	Bypass Pumping (LS)	Includes all labor, material, tools, equipment and incidentals required for installation and removal of bypass for existing sanitary sewer flow and shall include but is not limited to temporary sanitary bypassing and pumping, protection of existing utilities, furnishing, operating, and maintaining equipment, and all other items necessary to complete the job, whether specifically mentioned or implied on the plans or in the specifications.	Measurement and payment for Sanitary Sewer Bypass shall be lump sum.
1.19	Asphalt Surface Restoration (SY)	Includes saw-cutting, asphalt grinding, pavement removal, removal of excess soil materials, all extra compaction for backfill beneath surfacing, base course, hauling and delivery of asphalt, asphaltic road materials, asphalt placement, compaction, disposal of excess materials, cleaning, tack coat, and all other items necessary to complete the job, whether specifically mentioned or implied on the plans or in the specifications.	Measurement and payment for this item will be based on the actual number of square yards removed and replaced within the trench limits, as indicated on Drawings, and in accordance with Specifications.

Item No.	Item	Description	Measurement and Payment
1.20	Milling and Overlay (SY)	Payment will be made at the contract unit price bid per square feet as stated in the proposal for Milling and Resurfacing/Overlay and shall include all labor, materials, and equipment to mill surface; dispose of milled materials; and apply asphalt surface overlay in accordance with City requirements and specifications. The unit price bid shall also include traffic signalization repair, and permanent striping and markings. Pavement markings and striping not covered in Item 1.20 shall be measured and paid under Item 1.21.	Measurement and payment for this item shall be measured in actual square yard over which the milling and subsequent resurfacing/overlay is completed and accepted at the thickness as indicated in the Drawings.
1.21	Pavement Markings (LS)	Includes but not limited to: furnishing and installing pavement markings, cleaning, surface preparation, primers, glass beads, traffic control, barriers and controls for protection of the work, and all other necessary material, work, and equipment required to complete this item in accordance with plans and specifications.	Measurement and payment for this item will be lump sum.
1.22	Erosion Control (LS)	This item includes furnishing all materials, equipment, labor, and incidentals required to provide erosion control features and facilities as required by the plans and agencies having jurisdiction in the Contract Documents, and SWMP plans and erosion control sheets.	Measurement and payment for conformance with erosion control shall be lump sum.
1.23	Dewatering (LS)	Includes all costs for furnishing and handling all required labor, equipment, and materials for control of and removal and disposal of groundwater in accordance with permit requirements and as specified; includes installing, operating, maintaining, and removing well points, pumps, piping, and equipment as necessary. Includes preparation of an approved dewatering plan, to be approved by CDPHE and City of Arvada and any water quality samples that may be required for permitting.	Measurement and payment for this item shall be lump sum completed as a percentage of work performed.
1.24	Concrete Cut-off Wall (EA)	Installation of cut-off walls per CDWA standards and details.	Measurement for this item shall be made per actual number of cut-off walls satisfactorily furnished and installed to provide a complete and functional unit.

Item No.	Item	Description	Measurement and Payment												
Alkire St Force Main (Sheet C-13 through C-15)															
2.01	Mobilization/ Demobilization/ Bonds/Schedule/Permits (LS)	This item includes obtaining of all permits and conformance to all permit requirements, bonds, insurance, public and media relations, administrative items, moving onto the site, furnishing and erecting temporary construction facilities, project signs, abandon monitoring wells, and all other work and operations that must be performed or costs incurred before beginning Work on the project Site, as well as demobilization and project closeout, all as required for the complete and proper performance and completion of the Work.	Per City of Arvada Item 1124.00. Partial payments, subject to contract retainage, for mobilization will be made each month as the work progress as follows: <table><tr><th>Original Contract Amount*</th><th>Mobilization Contract Amount Bid</th></tr><tr><th>Earned**</th><th>Payable</th></tr><tr><td>5%</td><td>25%</td></tr><tr><td>10%</td><td>50% (less prev. payment)</td></tr><tr><td>25%</td><td>60% (less prev. payment)</td></tr><tr><td>75%</td><td>100% (less prev. payment)</td></tr></table> *Original contract amount less contract amount bid for mobilization **Payment for materials on hand will not be included as a percent of original contract earned until said materials on hand have been incorporated into the work and accepted for item payment.	Original Contract Amount*	Mobilization Contract Amount Bid	Earned**	Payable	5%	25%	10%	50% (less prev. payment)	25%	60% (less prev. payment)	75%	100% (less prev. payment)
Original Contract Amount*	Mobilization Contract Amount Bid														
Earned**	Payable														
5%	25%														
10%	50% (less prev. payment)														
25%	60% (less prev. payment)														
75%	100% (less prev. payment)														
2.02	Traffic Control (LS)	The unit price bid shall include, but not be limited to: furnishing, installing, moving, maintaining and removing all temporary traffic signs, barricades, traffic management, warning lights, flaggers, delineators, pilot car operations and any other equipment or personnel as required by the latest revision of the “Manual of Uniform Traffic Control Devices for Streets and Highways” and requirements of CDOT.	Traffic control will be based on the completion of the work. No quantity measurement will be made of any of the work and materials required to complete this item of the construction project. Payment will be based on a percentage equal to the percentage of the original contract price earned excluding the amount paid for Materials Stored on Site. See City of Arvada Item 1181.00.												

Item No.	Item	Description	Measurement and Payment
2.03	Bypassing and Connection to Existing Alkire LS (LS)	Includes excavation, dewatering, removal of existing piping, conformance with permitting, removal of existing material, cutting and draining the existing force mains, any associated site civil work, includes all labor, material, tools, equipment and incidentals required for installation and removal of bypass for existing sanitary sewer flow, and shall include but is not limited to temporary sanitary bypassing and pumping, protection of existing utilities, furnishing, operating, and maintaining equipment, and all other items necessary to complete the job, and all other necessary material, work, and equipment required to complete this item in accordance with the Plans and Specifications.	Measurement and payment for this item will be lump sum.
2.04	Install Force Main Clean-out Maintenance Hole (EA)	This item includes furnishing all materials, equipment, labor, foundation, reinforcing steel, pre-cast concrete vault, excavation, surface demolition and removal, frame, cover, gaskets, compaction, subgrade preparation, clean-up, and incidentals, and all other necessary material, work, and equipment required to complete this item in accordance with the Plans and Specifications.	Measurement and Payment for this item will be the actual number of approved diversion structure vaults installed.
2.05 2.06	Install 12" Force Main with Fittings (LF)	Includes locating existing utilities, potholing of existing utilities, excavation, dewatering, protection and support of existing utilities, surveying, saw-cutting, asphalt grinding, pavement removal and replacement, temporary pavement, furnishing and installation of the pipe, fittings and appurtenances, pipe restraint, polyethylene wrap, tracer wire, routing of tracer wire and test stations, warning tape, removal and replacement of backfill material, bedding material, compacted backfill, removal of excess soil materials, testing, flushing, and removal and replacement of culverts and/or other conflicts if needed for construction. Excludes lengths for installation in casing pipe and piping for ARVs.	Measurement and payment for this item will be made by the actual number of linear feet of force main piping installed for each size pipe, with restraint and without restraint, including all fittings.
2.07	DIP Yard Piping and Fittings (LF)	Includes everything from Sta:1+00 to 1+34 and associated pipe replacement on existing 8-inch force main, and includes locating existing utilities, potholing of existing utilities, excavation, dewatering, protection and support of existing	Measurement and payment for this item will be made by the actual number of linear feet of force main yard piping installed with restraint.

Item No.	Item	Description	Measurement and Payment
		utilities, surveying, cutting and draining, surface removal, temporary surfacing, fence removal, curb and gutter, driveway replacement, all demolition required to complete work, furnishing and installation of the pipe with linings and coatings, piping up to surface for cleanout maintenance hole, fittings and appurtenances, pipe restraint, polyethylene wrap, tracer wire, warning tape, removal and replacement of unsuitable backfill material, bedding material, temporary plugs, compacted backfill, removal of excess soil materials, testing, flushing. Includes all site restoration required to restore the site to preexisting conditions.	
2.08	Plug Valve and Valve Box (EA)	Includes excavation, furnishing and installing of plug valves, operator, extensions, polyethylene wrap, valve boxes, all assemblies, coatings and linings, and all other items called for in the details and specifications, backfill around the valve structure, and all other necessary material, work, and equipment required to complete this item in accordance with the Plans and Specifications.	Measurement and payment for this item will be the actual number of gate valves and valves boxes installed.
2.09	24" Bored Steel Casing (LF)	Includes but not limited to: excavation for entry and receiving pits, dewatering, boring, backfilling, furnishing and installing pipe casing, installing the sanitary sewer pipe in steel casing, all skids, insulators, grouting, pipe restraint, jointing material, jacking pipe, jacking pits, end closures, restoration, clean-up, and all other related and necessary materials, work, and equipment required to complete this item in accordance with the Drawings and Specifications. Excludes the cost for the cathodic protection.	Measurement and payment for this item will be the actual number of linear feet of bored steel casing pipe installed, measured along the centerline of the pipe for each size casing.
2.10	Connection to Gravity Main w/ 14" Piping (LS)	Includes furnishing and installing all piping, couplings, restraints, plugs, handling, flow bypass, bypass pumping and piping, disposal, connection to the new maintenance hole, backfill, dewatering, temporary plugs, saw-cutting, asphalt removal, temporary asphalt, and all other necessary material, work, and equipment required to complete this item in accordance with the Plans and Specifications.	Measurement and payment will be lump sum for connecting to the gravity main system.
2.11	Cathodic Protection System (LS)	Includes but not limited to: furnishing and installing cathodic protection at steel casings including anodes, anode wiring,	Measurement and payment for this item will be on a lump sum basis.

Item No.	Item	Description	Measurement and Payment
		welded wire connections, test stations, routing test stations outside of roadway including bedding, asphalt removal and replacement, curb and gutter, sod, sidewalk, wire connection protection, test station boxes, terminal boards, shunts, wire labels, testing, record keeping, and all other necessary material, work, and equipment required to complete this item in accordance with the Drawings and Specifications.	
2.12	Trench Stabilization Material (TON)	Includes furnishing and installation of trench stabilization material in the bottom of an unstable excavation or trench upon direction of the Owner and all other necessary material, work, and equipment required to complete this item in accordance with the Drawings and Specifications. The use and payment of this item shall be only where required and as approved by the Owner.	Measurement and payment for this item will be the actual tonnage of trench stabilization material installed. Delivery tickets shall confirm the amount of material provided.
2.13	Concrete Cut-off Wall (EA)	Installation of cut-off walls per CDWA standards and details.	Measurement for this item shall be made per actual number of cut-off walls satisfactorily furnished and installed to provide a complete and functional unit.
2.14	Asphalt Surface Restoration (SY)	Includes saw-cutting, asphalt grinding, pavement removal, removal of excess soil materials, all extra compaction for backfill beneath surfacing, base course, hauling and delivery of asphalt, asphaltic road materials, asphalt placement, compaction, disposal of excess materials, cleaning, tack coat, and all other items necessary to complete the job, whether specifically mentioned or implied on the plans or in the specifications.	Measurement and payment for this item will be based on the actual number of square yards removed and replaced within the trench limits, as indicated on Drawings, and in accordance with Specifications.
2.15	Milling and Overlay (SY)	Payment will be made at the contract unit price bid per square feet as stated in the proposal for Milling and Resurfacing/Overlay and shall include all labor, materials, and equipment to mill surface; dispose of milled materials; and apply asphalt surface overlay in accordance with City requirements and specifications. The unit price bid shall also include traffic signalization repair, and permanent striping and markings.	Measurement and payment for this item shall be measured in actual square yard over which the milling and subsequent resurfacing/overlay is completed and accepted at the thickness as indicated in the Drawings.
2.16	Erosion Control (LS)	This item includes furnishing all materials, equipment, labor, and incidentals required to provide erosion control features	Measurement and payment for conformance with erosion control shall be lump sum.

Item No.	Item	Description	Measurement and Payment
		and facilities as required by the plans and agencies having jurisdiction in the Contract Documents, and SWMP plans and erosion control sheets.	
2.17	Dewatering (LS)	Includes all costs for furnishing and handling all required labor, equipment, and materials for control of and removal and disposal of groundwater in accordance with permit requirements and as specified; includes installing, operating, maintaining, and removing well points, pumps, piping, and equipment as necessary. Includes preparation of an approved dewatering plan, to be approved by CDPHE and City of Arvada and any water quality samples that may be required for permitting.	Measurement and payment for this item shall be lump sum completed as a percentage of work performed.
2.18	Air Valve Vault Assembly (EA)	Includes furnishing and installing, excavation, dewatering, concrete, reinforcing steel, pre-cast concrete vault, maintenance hole frame and cover, steps, vent piping, routing of vent piping, concrete pad, transition to ductile iron piping, combination air release/vacuum valves, shutoff valves, saddles, discharge piping, corrosion lining of vault walls, grouting, field painting, backfill around the vault structure, compaction, asphalt removal and replacement, concrete removal and replacement, and all other necessary material, work, and equipment required to complete this item in accordance with the Drawings and Specifications.	Measurement and payment for this item shall be the actual number of combination air release/vacuum valves and vaults installed.

Item No.	Item	Description	Measurement and Payment
Allowances (Owner Controlled)			
A-1	Grouting Allowance (CY)	This bid item contains allowance items to facilitate payment for the grouting to cut off groundwater inflows during the shaft construction and the auger boring crossing. The unit price for grouting will constitute full compensation for all delays, labor, equipment, materials, and incidentals necessary for drilling, grouting and standby time for curing of the grout, and all other work required to complete the grouting for groundwater cutoff. The grouting allowance will only be used once it has been determined by the engineer that a properly design dewatering system is unable to prevent groundwater inflows. This pay item is separate from the required grouting included as part of pay item 2.09 "24" Bored Steel Casing Pipe."	Grouting will be paid based on the cubic yards of grout placed measured for payment, as determined by Owner or Engineer.
A-2	Minor Contract Revisions (LS)	This item includes furnishing all materials, equipment, labor, and all other incidental work necessary to provide work as authorized by the City of Arvada Project Manager.	Payment will be based on units completed and accepted (LS). The Owner and the City of Arvada Project Manager shall have sole discretion regarding assignment of work under this bid item. When requested by the City of Arvada, the Contractor shall prepare a cost proposal for work performed under this bid item including cost of materials, labor and subcontractors. Profit and any other administrative costs shall be assigned and allocated in accordance with the General Conditions. The Owner and City of Arvada Project Manager will review the proposal and either provide notice to proceed or obtain another entity to perform the work.

END OF SECTION 012200

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Submit requests in the form and according to procedures required for Change Order proposals.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product, fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.

- c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of Engineers and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- 3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within **two** weeks of receipt of request, or one week of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance: Change Order.
 - b. Use product specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Engineer will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Engineer.
1. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.

- j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
 - 2. Section 013100 "Project Management and Coordination" for requirements for forms for contract modifications provided as part of web-based Project management software.

1.3 MINOR CHANGES IN THE WORK

- A. Engineer will issue Orders authorizing minor changes in the Work, not involving adjustment to the Contract Price or the Contract Time, on form included in Project Manual.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Price or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Requests For Proposal (RFP) issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of RFP, submit a quotation estimating adjustments to the Contract Price and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.

- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms provided by Owner. Sample copies are included in Project Manual.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Engineer.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Price and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Section 012500 "Substitution Procedures" paragraph 7.05 of the General Conditions if the proposed change requires substitution of one product or system for product or system specified.
 - 7. Proposal Request Form: Use form provided by Owner.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Price to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Change Order Request, Engineer will issue a Change Order for signatures of Owner and Contractor on form provided as part of web-based Project management software.

1.7 WORK CHANGE DIRECTIVE

- A. Work Change Directive: Engineer may issue a Work Change Directive on form provided as part of web-based Project management software. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Price or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012600

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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Web-based Project management software package.
 - 6. Project meetings.
- B. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Engineer, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

- B. Key Personnel Names: Within 15 days of starting Notice to Proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, in web-based Project software directory, and in prominent locations. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors and direction of Project coordinator to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.

1.6 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Engineer will return without response those RFIs submitted to Engineer by other entities controlled by Contractor.
 - 2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.

- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Owner name.
 3. Owner's Project number.
 4. Name of Engineer and Construction Manager.
 5. Engineer's Project number.
 6. Date.
 7. Name of Contractor.
 8. RFI number, numbered sequentially.
 9. RFI subject.
 10. Specification Section number and title and related paragraphs, as appropriate.
 11. Drawing number and detail references, as appropriate.
 12. Field dimensions and conditions, as appropriate.
 13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 14. Contractor's signature.
 15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Software-generated form on PROCORE.
- D. Engineer's Action: Engineer will review each RFI, determine action required, and respond. Allow seven days for Engineer's response for each RFI. RFIs received by Engineer after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Engineer's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Engineer's action may include a request for additional information, in which case Engineer's time for response will date from time of receipt by Engineer of additional information.
 3. Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

- a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer in writing within five days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
 1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Engineer.
 4. RFI number, including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Engineer's response was received.
 8. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
- F. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within seven days if Contractor disagrees with response.

1.7 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Use of Engineer's Digital Data Files: Digital data files of Engineer's CAD drawings will be provided by Engineer for Contractor's use during construction.
 1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project Record Drawings.
 2. Engineer makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
 3. Digital Drawing Software Program: Contract Drawings are available in AutoCAD.
 4. Contractor shall execute a data licensing agreement in the form of AIA Document C106 Digital Data Licensing Agreement.
 - a. Subcontractors and other parties granted access by Contractor to Engineer's digital data files shall execute a data licensing agreement in the form of AIA Document C106.
- B. Web-Based Project Management Software Package: Use Owner's web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.
 1. Web-based Project management software includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Engineer, Engineer's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.

- c. Document workflow planning, allowing customization of workflow between project entities.
 - d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.
 - m. Procore construction software.
 - 2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Engineer. Provide data in locked format to prevent further changes.
 - 3. Provide the following web-based Project software packages under their current published licensing agreements:
 - a. Procore Technologies, Inc.
- C. PDF Document Preparation: Where PDFs are required to be submitted to Engineer, prepare as follows:
- 1. Assemble complete submittal package into a single indexed file, incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
- 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
 - 2. Agenda: Engineer or Owner will prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Engineer or Owner responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within three days of the meeting.

- B. Preconstruction Conference: Per City of Arvada Standards 1121.03 a preconstruction conference before starting construction, at a time convenient to Owner and Engineer, but no later than 25 days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Sustainable design requirements.
 - o. Preparation of Record Documents.
 - p. Use of the premises and existing building.
 - q. Work restrictions.
 - r. Working hours.
 - s. Owner's occupancy requirements.
 - t. Responsibility for temporary facilities and controls.
 - u. Procedures for moisture and mold control.
 - v. Procedures for disruptions and shutdowns.
 - w. Construction waste management and recycling.
 - x. Parking availability.
 - y. Office, work, and storage areas.
 - z. Equipment deliveries and priorities.
 - aa. First aid.
 - bb. Security.
 - cc. Progress cleaning.
 - dd. List of major subcontractors and suppliers.
 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and

- installations that have preceded or will follow, shall attend the meeting. Advise Engineer of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility requirements.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Engineer, but no later than 90 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner, Construction Manager, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

- a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for completing sustainable design documentation.
 - f. Requirements for preparing operations and maintenance data.
 - g. Requirements for delivery of material samples, attic stock, and spare parts.
 - h. Requirements for demonstration and training.
 - i. Preparation of Contractor's punch list.
 - j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - k. Submittal procedures.
 - l. Coordination of separate contracts.
 - m. Owner's partial occupancy requirements.
 - n. Installation of Owner's furniture, fixtures, and equipment.
 - o. Responsibility for removing temporary facilities and controls.
 - p. Final cleaning.
4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at weekly intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner and Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Status of sustainable design documentation.
 - 6) Deliveries.

- 7) Off-site fabrication.
 - 8) Access.
 - 9) Site use.
 - 10) Temporary facilities and controls.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) Status of RFIs.
 - 16) Status of Proposal Requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

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SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Unusual event reports.
- B. Related Requirements:
 - 1. Section 012200 "Measurement and Payment."

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file.
 - 2. PDF file.
 - 3. Working electronic copy of schedule file.
- B. Startup construction schedule.
 - 1. Submittal of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, latest allowable start date, latest allowable finish date, status (where critical) and total float and free float in calendar days.
 - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
 - 3. Total Float Report: List of activities sorted in ascending order of total float.

- 4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit at weekly intervals.
- H. Material Location Reports: Submit at weekly intervals.
- I. Site Condition Reports: Submit at time of discovery of differing conditions.
- J. Unusual Event Reports: Submit at time of unusual event.
- K. Qualification Data: For scheduling consultant.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Engineer's request.
- B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:
 - 1. Review software limitations and content and format for reports.
 - 2. Verify availability of qualified personnel needed to develop and update schedule.
 - 3. Discuss constraints, including phasing work, stages, area separations, interim milestones and partial Owner occupancy.
 - 4. Review delivery dates for Owner-furnished products.
 - 5. Review schedule for work of Owner's separate contracts.
 - 6. Review submittal requirements and procedures.
 - 7. Review time required for review of submittals and resubmittals.
 - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
 - 10. Review and finalize list of construction activities to be included in schedule.
 - 11. Review procedures for updating schedule.
 - 12. Submit at this conference a preliminary network defining the planned operation during the first 60 calendar days after the Notice to Proceed.

1.6 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Program Description

1. A Critical Path Method (CPM) construction schedule shall be used to control the Work and to provide a basis for determining job progress. The construction schedule shall be prepared and maintained by the Contractor. All work shall be done in accordance with the established CPM schedule. The Contractor and all subcontractors shall cooperate fully in developing the construction schedule and in executing the work in accordance with the CPM schedule.
2. The construction schedule shall consist of a computerized CPM network (diagram of activities) presented in a time-scaled graphic (print-out) with reports, as specified herein.

B. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

1. Use Microsoft Project for current Windows operating system.

C. Qualifications:

1. The Contractor shall have the capability of preparing and utilizing the specified CPM schedule or engage the services of a specialized scheduling professional to do so. Within seven days of the award of contract, provide a résumé or qualifications statement for the individual within the Contractor's organization, or the outside consultant, who is being proposed as the responsible party for development and maintenance of the CPM schedule. The résumé or qualifications statement shall demonstrate that the proposed responsible party has successfully developed and maintained CPM schedules for at least three construction projects of the same size or greater than this project. The proposed responsible party for the CPM schedule is subject to approval by the Engineer and Owner. If the proposed responsible party for the CPM schedule is not approved by the Engineer and/or Owner, Contractor shall resubmit a more-appropriate candidate for approval.

D. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

E. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Engineer.

2. Activities to facilitate the Work: Indicate start and completion dates for the following as applicable:
 - a. Securing of approvals and permits required for performance of the Work.
 - b. Temporary facilities.
 - c. Construction of mock-ups, prototypes and samples.
 - d. Owner interfaces and furnishing of items.
 - e. Interfaces with Separate Contracts.
 - f. Regulatory agency approvals.
 - g. Punch list.
 3. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 4. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 5. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 6. Commissioning Time: Include no fewer than 15 days for commissioning.
 7. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Engineer's administrative procedures necessary for certification of Substantial Completion.
 8. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.
- F. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use-of-premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
 - n. Commissioning.
8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Temporary enclosure and space conditioning.
 - c. Permanent space enclosure.
 - d. Completion of mechanical installation.
 - e. Completion of electrical installation.
 - f. Substantial Completion.
- G. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- H. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
 1. See Section 012200 "Measurement and Payment."
- I. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
 1. Unresolved issues.
 2. Unanswered Requests for Information.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and the Contract Time.
- J. Acceptability
 1. Submit the CPM schedule submittals, as specified, and resubmit as needed, until they are in compliance with Contract requirements.

2. The Engineer's review of the Contractor's construction schedule submittals will only be for conformance with the Contract requirements – including but not limited to contract time and work sequences specified in the contract documents. The Engineer's review of the schedule shall not include the Contractor's means and methods of construction or safety. The Engineer's concurrence, acceptance, or approval of the Contractor's schedule submittals will not relieve the Contractor from responsibility for complying with the Contract Scope, Contract Time or any other contract requirement. Any indication of concurrence, acceptance, or approval of the Contractor's schedule will only indicate a general conformance with the Contract Requirements.
 3. Engineer's review of the Contractor's construction schedule submittals shall not relieve the Contractor from responsibility for any deviations from the Contract Documents unless the Contractor has in writing called Engineer's attention to such deviations at the time of submission and Engineer has given written concurrence to the specific deviations, nor shall any concurrence by the Engineer relieve Contractor from responsibility for errors and omissions in the submittals. Concurrence of the CPM Activity Network by the Engineer is advisory only and shall not relieve the Contractor of responsibility for accomplishing the Work within the Contract completion date(s).
 4. Concurrence, acceptance, or approval of the Contractor's CPM schedule by the Engineer in no way makes the Engineer an insurer of the CPM schedule's success, nor liable for time or cost overruns resulting therefrom.
 5. Failure to include any element of work required for the performance of this Contract will not excuse the Contractor from completing all Work required within the Contract completion date(s), notwithstanding the review of the network by the Engineer.
 6. CPM schedules that contain activities with negative float, or which extend beyond the contract completion date, will not be acceptable.
 7. Except where earlier completions are specified, CPM schedules which show completion of all work prior to the contract completion date may be indicated; however, in no event shall they constitute a basis for claim for delay by the Contractor.
- K. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Final Completion percentage for each activity. Activities shall not be considered to be complete until they are in fact 100 percent complete.
 4. Submit a narrative report based on the CPM schedule evaluation, in a format agreed upon by the Contractor and the Engineer. The report shall include a description of the progress during the previous period in terms of completed activities, an explanation of each activity which is showing a delay, a description of problem areas, current and anticipated delaying factors and their estimated impact on performance of other activities and completion dates and an explanation of corrective action taken or proposed.
- L. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working

hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

- M. The contract completion time will be adjusted only for causes specified in this Contract. In the event the Contractor requests an extension of any contract completion date, the Contractor shall furnish such justification and supporting evidence as the Engineer may deem necessary to determine whether the Contractor is entitled to an extension of time under the provisions of this Contract. The Engineer will, after receipt of such justification and supporting evidence, make findings of fact and will advise the Contractor in writing thereof. If the Engineer finds that the Contractor is entitled to any extension of any contract completion date, the Engineer's determination as to the total number of days extension shall be based upon the currently approved CPM schedule and on all data relevant to the extension. Such data shall be included in the next updating of the schedule. Actual delays in activities which, according to the CPM schedule, do not affect any contract completion date shown by the critical path in the network will not be the basis for a change therein.
- N. Distribution: Distribute copies of approved schedule to Engineer Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.8 STARTUP CONSTRUCTION SCHEDULE

- A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.9 GANTT-CHART SCHEDULE REQUIREMENTS

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.
 - 1. Base schedule on the startup construction schedule and additional information received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.10 CPM SCHEDULE REQUIREMENTS

- A. Prepare network diagrams using AON (activity-on-node) format.
- B. Startup Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's Construction Schedule using a cost- and resource-loaded, time-scaled CPM network analysis diagram for the Work.
 - 1. Develop network diagram in sufficient time to submit CPM schedule, so it can be accepted for use no later than 60 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates.
 - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
 - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing and inspection.
 - j. Commissioning.
 - k. Punch list and Final Completion.
 - l. Activities occurring following Final Completion.
 - m. Maintenance of existing facilities.
 - n. Contract milestones.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Engineer's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
 - a. Each activity cost shall reflect an appropriate value subject to approval by Engineer.
 - b. Total cost assigned to activities shall equal the total Contract Sum.
- E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall Project schedule.
- F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
 1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Main events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the schedule of values).
- G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.

7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

1.11 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Work Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. Substantial Completions authorized.

B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
 2. Material stored prior to previous report and since removed from storage and installed.
 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.
1. Submit unusual event reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Concealed Work photographs.
 - 3. Periodic construction photographs.
 - 4. Final Completion construction photographs.
 - 5. Preconstruction video recordings.
 - 6. Periodic construction video recordings.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within three days of taking photographs.
 - 1. Submit photos on thumb-drive by uploading to web-based Project management software site. Include copy of key plan indicating each photograph's location and direction.
 - 2. Identification: Provide the following information with each image description in web-based Project management software site:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of location, vantage point, and direction.
 - g. Unique sequential identifier keyed to accompanying key plan.

3. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy duty, three-ring vinyl covered binders. Provide label on front and spine. Include a cover sheet with label information. Include name of Project and date of video recording on each page.

1.4 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high-definition mode. Provide supplemental lighting in low light levels or backlit conditions.
- C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- D. Metadata: Record accurate date and time and GPS location data from camera.
- E. File Names: Name media files with date, Project area and sequential numbering suffix.
- F. Usage Rights
 1. Obtain and transfer copyright usage rights from photographer and videographer to Owner for unlimited reproduction of photographic and videographic documentation.

1.5 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs with maximum depth of field and in focus.
 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Preconstruction Photographs: Before commencement of the Work take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Engineer.
 1. Flag construction limits before taking construction photographs.
 2. Take 80 photographs to show existing conditions in right-of-way and adjacent to property before starting the Work.
 3. Take 80 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

- C. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:
 - 1. Underground utilities.
 - 2. Underslab services.
 - 3. Piping.
 - 4. Electrical conduit.
 - 5. Waterproofing and weather-resistant barriers.
- D. Periodic Construction Photographs: Take 20 photographs weekly coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take 80 photographs after date of Substantial Completion for submission as Project Record Documents. Engineer will inform photographer of desired vantage points.
- F. Additional Photographs: Engineer or Construction Manager may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum or in the allowance for construction photographs.
 - 1. Three days' notice will be given, where feasible.
 - 2. In emergency situations, take additional photographs within 24 hours of request.
 - 3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Special events planned at Project site.
 - b. Immediate follow-up when on-site events result in construction damage or losses.
 - c. Photographs shall be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
 - d. Substantial Completion of a major phase or component of the Work.
 - e. Extra record photographs at time of final acceptance.
 - f. Owner's request for special publicity photographs.

1.6 CONSTRUCTION VIDEO RECORDINGS

- A. Narration: Describe scenes on video recording by audio narration by microphone while or dubbing audio narration off-site after video recording is recorded. Include description of items being viewed, recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.
 - 1. Confirm date and time at beginning and end of recording.
 - 2. Begin each video recording with name of Project, Contractor's name, videographer's name, and Project location.
- B. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from video recording opposite the corresponding narration segment.

- C. Preconstruction Video Recording: Before starting construction, record video recording of Project site and surrounding properties from different vantage points, as directed by Engineer.
 - 1. Flag excavation areas and construction limits before recording construction video recordings.
 - 2. Show existing conditions adjacent to Project site before starting the Work.
 - 3. Show existing buildings, right-of-way, and adjoining Project site to accurately record physical conditions at the start of construction.
 - 4. Show protection efforts by Contractor.
- D. Periodic Construction Video Recordings: Record video recording monthly coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last video recordings were recorded. Minimum recording time shall be 15 minutes.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 013233

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Submittal schedule requirements.
 - 2. Administrative and procedural requirements for submittals.
 - 3. Anticipated submittal log. This submittal list is meant to assist contractor what is expected but may not be all encompassing.

- B. Related Requirements:

- 1. Section 012200 "Measurement and Payment."
 - 2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
 - 3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 4. Section 013233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.
 - 5. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
 - 6. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. Mass Submittals: Six or more submittals or items in one day or 15 or more submittals or items in one week.

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Engineer's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL FORMATS

- A. Numbering System: Utilize the following example submittal identification numbering system to identify submittals and as file names for PDF submissions:
1. First Identifier - Alphabet Character: D, S, M or I which represents Shop Drawing (including working drawings and product data), Sample, Manual (Operating & Maintenance) or Informational, respectively.
 2. Second Identifier - Next 6 or 8 Digits: Applicable Specification Section Number. Do not mix submittals from different specification sections into a single submittal.
 3. Third Identifier - Next Three Digits: Sequential number of each separate item or drawing submitted under each Specification Section, in chronological order submitted, starting at 001.
 4. Fourth Identifier - Last Alphabet Character: A to Z, indicating the submission (or resubmission) of the same submittal, i.e., "A" = 1st submission, "B" = 2nd submission, "C" = 3rd submission, etc.

5. EXAMPLE: D-033000.13-008-B.

- a. D = Shop Drawing.
- b. 03 30 00.13 = Section; use only 6 digits for sections that do not include 8 digits.
- c. 008 = the eighth different submittal under this Section.
- d. B = the second submission (first resubmission) of that particular shop drawing.

B. Submittal Information: Include the following information in each submittal:

- 1. Project name.
- 2. Date.
- 3. Name of Engineer.
- 4. Name of Construction Manager.
- 5. Name of Contractor.
- 6. Name of firm or entity that prepared submittal.
- 7. Names of subcontractor, manufacturer, and supplier.
- 8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
- 9. Category and type of submittal.
- 10. Submittal purpose and description.
- 11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
- 12. Drawing number and detail references, as appropriate.
- 13. Indication of full or partial submittal.
- 14. Location(s) where product is to be installed, as appropriate.
- 15. Other necessary identification.
- 16. Remarks.
- 17. Signature of transmitter.

C. Options: Identify options requiring selection by Engineer.

D. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Engineer on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

E. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

F. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package and transmit to Engineer by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Engineer.
 - a. Engineer will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
 2. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
 3. Paper: Prepare submittals in paper form and deliver to Engineer.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal (and 45 days for multi-discipline reviews). Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 10 days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Engineer's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Engineer and to Engineer's consultants, allow 25 days for review of each submittal. Submittal will be returned to Engineer before being returned to Contractor.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.

- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Engineer's action stamp.
 - 4. Repetitive Reviews: Shop drawings, O&M manuals, and other submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be performed at the Contractor's expense. Reimburse the Owner for all costs invoiced by Engineer for the third and subsequent reviews.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Engineer's action stamp.

1.7 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Engineer's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
- C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
 4. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.

- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
 - 1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 - 2. Contractor's Certification: Each shop drawing, working drawing, product data, and sample shall have affixed to it the following Certification Statement:
 - a. "Certification Statement: by this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements."
 - 3. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 - 4. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 - 5. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
 - 6. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
 - 7. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.
- H. Test and Research Reports:
 - 1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
 - 2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 - 3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.8 PROPOSED PRODUCT LIST

- A. Within 15 days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.9 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Contractor Responsible for:
 1. Determination and verification of materials including manufacturer's catalog numbers.
 2. Determination and verification of field measurements and field construction criteria.
 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 4. Determination of accuracy and completeness of dimensions and quantities.
 5. Confirmation and coordination of dimensions and field conditions at Site.
 6. Construction means, techniques, sequences, and procedures.
 7. Safety precautions.
 8. Coordination and performance of Work of all trades.
 9. Other requirements enumerated in Contract Documents.

- C. Contractor's Approval: Indicate Contractor's approval for each submittal with indication in web-based Project management software. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 - 1. Engineer will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ENGINEER'S REVIEW

- A. Do not make mass submittals to Engineer. If mass submittals are received, Engineer's review time stated above will be extended as necessary to perform proper review. Engineer will review mass submittals based on priority determined by Engineer after consultation with Owner and Contractor.
- B. Action Submittals: Engineer will review each submittal, indicate corrections or revisions required.
 - 1. PDF Submittals: Engineer will indicate, via markup on each submittal, the appropriate action.
 - 2. Submittals by Web-Based Project Management Software: Engineer will indicate, on Project management software website, the appropriate action.
- C. Informational Submittals: Engineer will review each submittal and will not return it or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Engineer.
- E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- F. Engineer will return without review submittals received from sources other than Contractor.
- G. Submittals not required by the Contract Documents will be returned by Engineer without action.
- H. Shop drawings will be returned to the Contractor with one of the following codes.
 - 1. "APPROVED" - This code is assigned when there are no notations or comments on the submittal. When returned under this code the Contractor may release the equipment and/or material for manufacture.
 - 2. "APPROVED AS NOTED" - This code is assigned when a confirmation of the notations and comments IS NOT required by the Contractor. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.
 - 3. "APPROVED AS NOTED/RESUBMIT" - This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package. The Contractor may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product. The resubmittal is to

address all comments, omissions and non-conforming items that were noted. An additional box is checked to indicate whether the resubmission is for the complete package, or for parts of the package. If no box is checked, a complete resubmittal shall be provided. Review code may designate if a partial or full submittal is required. If full submittal is required, a complete resubmittal package addressing all comments shall be provided. If a partial submittal is designated, resubmittal shall only include information pertaining to those items noted in review comments requiring clarification and any portions of submittal impacted as a result of the response. Resubmittal is to be received by the Engineer within 30 calendar days of the date of the Engineer's transmittal requiring the resubmittal.

4. "REJECTED" - This code is assigned when the submittal does not meet the intent of the Contract Documents. The Contractor must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the requirements of the Contract Documents.
5. "RECEIPT ACKNOWLEDGED (Not subject to Engineer's Approval)" - This code is assigned to acknowledge receipt of a submittal that is not subject to the Engineer's approval. This code is generally used with submittals involving the Contractor's means and methods of construction work plans, and health and safety plans.

1.11 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

- A. Electronic CAD Files of Project Drawings: May only be used to expedite production of Shop Drawings for the Project. Use for other Projects or purposes is not allowed.
- B. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
 1. Use of files is solely at receiver's risk. Engineer does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Engineer of discrepancy and use information in hard-copy Drawings and Specifications.
 2. CAD files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
 3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.
 4. Receiver shall not hold Engineer responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.
 5. Receiver shall understand that even though Engineer has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
 6. Receiver shall not hold Engineer responsible for such viruses or their consequences, and shall hold Engineer harmless against costs, losses, or damage caused by presence of computer virus in files or media.

1.12 SUBMITTAL SCHEDULE

- A. See attached table.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

Spec Number	Spec Reference	Spec Title	Submittal Title	Notes	When
011000	-	Summary	Required Equipment List and Materials Checklist		Prior to Construction
013100	1.4A	Project Management and Coordination	Subcontract List		Prior to Construction
013100	1.4B	Project Management and Coordination	Key Personnel Names		Prior to Start of Work
013200	1.4B	Construction Progress Documentation	Startup Construction Schedule		Prior to construction
013200	1.4D	Construction Progress Documentation	Contractor's Construction Schedule		Consistently Updated
013233	-	Photographic Documentation	Pre-construction photos and videos		Prior to Construction
013233	-	Photographic Documentation	Post-construction photos and videos		After Construction
013300	-	Submittal Procedures			
015000	3.5 E	Temporary Facilities and Controls	Project Sign		Prior to Construction
015000	1.4A	Temporary Facilities and Controls	Site Utilization Plan		Prior to Construction
015000	1.4B	Temporary Facilities and Controls	Implementation and Termination Schedule		Prior to Construction
015000	1.4C	Temporary Facilities and Controls	Project Identification and Temporary Signs		Prior to Construction
015000	1.4D	Temporary Facilities and Controls	Fire-Safety Program		Prior to Construction
015000	1.4G	Temporary Facilities and Controls	Noise and Vibration Control Plan		Prior to Construction
015526	1.3A	Traffic Control	Traffic Control Plan		Prior to Construction
015526	-	Traffic Control	Traffic supervisor qualifications		Prior to Construction
015639	-	Temporary Tree and Plant Protection	Tree and plant protection plan		Prior to Construction

Spec Number	Spec Reference	Spec Title	Submittal Title	Notes	When
015639	-	Temporary Tree and Plant Protection	Product data for each control product		Prior to Construction
015728	1.3A	Temporary Bypass Pumping System	Drawings and calculations		Prior to Installation
015728	1.3B	Temporary Bypass Pumping System	Bypass pumping plan		Prior to Installation
015728	1.3C	Temporary Bypass Pumping System	Vendor information		Prior to Installation
015728	1.3D	Temporary Bypass Pumping System	O&M means and methods		Prior to Installation
016000	-	Product Requirements			
017300	1.6A	Execution	Final Property Survey for Record		Prior to Final Completion
017700	1.4B	Closeout Procedures	Contractor's List of Incomplete Items		After Construction
017700	1.4C	Closeout Procedures	Certified List of Incomplete Items		After Construction
017700	1.5A	Closeout Procedures	Certificates of Release		After Construction
017700	1.5B	Closeout Procedures	Certificate of Insurance		After Construction
017839	1.3A	Project Record Documents	Record Drawings		Prior to Final Completion
017839	1.3B	Project Record Documents	Record Specifications		Prior to Final Completion
017839	1.3C	Project Record Documents	Record Product Data		Prior to Final Completion
017839	1.3D	Project Record Documents	Miscellaneous Record Submittals		Prior to Final Completion
017839	1.3E	Project Record Documents	Weekly Record Reports		Prior to Final Completion
134713	1.6 A	Cathodic Protection	Qualifications		Prior to Construction
134713	1.5 A	Cathodic Protection	As-built Drawings		After Construction
134713	2.2 A	Cathodic Protection	Magnesium Anodes		Prior to Construction
134713	2.3 A	Cathodic Protection	Copper/sulfate Reference Electrodes		Prior to Construction
134713	2.4 A	Cathodic Protection	Test Station Wire Conductors		Prior to Construction
134713	2.5 A	Cathodic Protection	Cathodic Test Stations		Prior to Construction

Spec Number	Spec Reference	Spec Title	Submittal Title	Notes	When
134713	2.7 A	Cathodic Protection	Exothermic Welding Materials		Prior to Construction
134713	3.5 A	Cathodic Protection	PVC, Bedding, and materials for routing test station		Prior to Construction
134713	3.7 A	Cathodic Protection	Results of tests and inspections and O&M		After Construction
310515	1.3C	Soils and Aggregates for Earthwork	Aggregate samples for each type of aggregate fill		Prior to Construction
310515	1.3D	Soils and Aggregates for Earthwork	QC Testing		Prior to Construction
310515	1.4A	Soils and Aggregates for Earthwork	Materials Source		Prior to Construction
310515	1.4B	Soils and Aggregates for Earthwork	Source's Certificate		Prior to Construction
310515	1.4C	Soils and Aggregates for Earthwork	Material Test Reports		Prior to Construction
312316	1.5A	Rock Removal	Means and Methods Description		Prior to Construction
312319	1.7A	Dewatering	Dewatering System Design Plan		Prior to Construction
312333	1.5A	Trenching and Backfilling	Delegated design calcs		
312333	1.5A	Trenching and Backfilling	Method of Backfilling and Compaction		Prior to Start of Work
312333	1.7A	Trenching and Backfilling	Material Test Reports		After Construction
312333	1.7A	Trenching and Backfilling	Engineer Qualifications		
315000	1.4A	Excavation Support and Protection	Shop Drawings		Prior to Construction
315000	1.5A	Excavation Support and Protection	Design Calcs		Prior to Construction
315000	1.5B	Excavation Support and Protection	Deformation Plan		Prior to Construction

Spec Number	Spec Reference	Spec Title	Submittal Title	Notes	When
315000	1.6A	Excavation Support and Protection	QC Measures		Prior to Construction
315000	1.6B	Excavation Support and Protection	Welder Qualifications		Prior to Construction
315000	1.6F	Excavation Support and Protection	Inspection Documentation		Prior to Construction
321123	1.4A	Aggregate Base Courses	Product data		Prior to Construction
321123	1.4B	Aggregate Base Courses	Samples		Prior to Construction
321123	1.4C	Aggregate Base Courses	Materials Source		Prior to Construction
321123	1.5A	Aggregate Base Courses	Manufacturer's Certificate		Prior to Construction
321216	1.3B	Asphalt Paving	Product information for aggregate materials, mix design, and coats		Prior to Construction
321216	1.3C	Asphalt Paving	Manufacturer's Certificate		Prior to Construction
330507.21	1.5A	Auger Boring	Product data for each type of product and description of installation equipment		Prior to Construction
330507.21	1.5B	Auger Boring	Shop drawings		Prior to Construction
330507.21	1.6A	Auger Boring	Delegated design calcs		Prior to Construction
330507.21	1.7A	Auger Boring	Qualification Data		Prior to Construction
330507.21	1.7B	Auger Boring	QC Plan		Prior to Construction
330507.21	1.7C	Auger Boring	Daily Surveyor Reports		Prior to Construction
330513	1.3B	Maintenance Holes and Structures	Product data - Frame, Cover, Structure, for each pre-cast structure		Prior to Construction
330513	1.3C	Maintenance Holes and Structures	Shop drawings		Prior to Construction
330513	1.4A	Maintenance Holes and Structures	Manufacturer certificates		Prior to Construction
330513	1.4B	Maintenance Holes and Structures	Manufacturer instructions		Prior to Construction

Spec Number	Spec Reference	Spec Title	Submittal Title	Notes	When
330513	1.4C	Maintenance Holes and Structures	Field QC (testing and inspection reports)		After Installation
330513	1.4D	Maintenance Holes and Structures	Manufacturer qualifications		Prior to Construction
330526	1.3A	Utility Identification	Catalog and requirement satisfaction for each system/product		Prior to Construction
330526	1.3B	Utility Identification	Identification register		Prior to Construction
330526	1.4A	Utility Identification	Manufacturer's certificate		Prior to Construction
330526	1.4B	Utility Identification	Qualifications statement		Prior to Construction
330531.16	1.5A	Pressure Pipe	Product Data - Pipe, Fittings, Joints, Restraints, Valves, Appurtenances		Prior to Construction
330531.16	1.5B	Pressure Pipe	Shop drawings		Prior to Construction
330531.16	1.6A	Pressure Pipe	Manufacturers certificate		Prior to Construction
330531.16	1.7A	Pressure Pipe	Actual locations of installed pipe		After Installation
333113	1.5A	Public Sanitary Utility Sewerage Piping	Pipe product data		Prior to Construction
333113	1.5B	Public Sanitary Utility Sewerage Piping	Shop drawings		Prior to Construction
333113	1.6A	Public Sanitary Utility Sewerage Piping	Manufacturers certificate		Prior to Construction
333113	1.6B	Public Sanitary Utility Sewerage Piping	Test and evaluation reports		After Installation
333113	1.6C	Public Sanitary Utility Sewerage Piping	Manufacturer's instructions		Prior to Construction
333113	1.6D	Public Sanitary Utility Sewerage Piping	Field QC submittals		After Installation

Spec Number	Spec Reference	Spec Title	Submittal Title	Notes	When
333113	1.6E	Public Sanitary Utility Sewerage Piping	Qualifications statements		Prior to Construction
333113	1.8A	Public Sanitary Utility Sewerage Piping	Actual locations of installed pipe		After Installation
333113	1.8B	Public Sanitary Utility Sewerage Piping	Unexpected variances in subsoil		After Installation
400562	1.3A	Plug Valves	Product data		Prior to Construction
400562	1.3C	Plug Valves	Test and compliance certification		Prior to Construction
400578.29	1.4 and 1.5	Combination Air Valves for Wastewater Service	Combination Air Valves		Prior to Construction

END OF SECTION 013300

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SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. City of Arvada Standards and Specification 100 (most recent edition).

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.
 - 2. Section 015728 "Temporary Bypass Pumping System" for sewer bypass.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.
- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- E. Noise and Vibration Control Plan: Identify construction activities that may impact the occupancy and use of existing spaces within the building or adjacent existing buildings, whether occupied by others, or occupied by the Owner. Include the following:
 - 1. Methods used to meet the goals and requirements of the Owner.
 - 2. Concrete cutting method(s) to be used.
 - 3. Location of construction devices on the site.
 - 4. Show compliance with the use and maintenance of quieted construction devices for the duration of the Project.

5. Indicate activities that may disturb building occupants and that are planned to be performed during non-standard working hours as coordinated with the Owner.

1.4 QUALITY ASSURANCE

- A. Temporary facilities shall comply with all applicable state and local ordinances, codes and regulations.
- B. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- C. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. Water: Provide potable water approved by local health authorities.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

- A. Provide each facility ready for use within 30 days of the Notice to Proceed and prior to Commencement of Work at the site. Do not remove until approved by Engineer or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service, if approved by Owner.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: If approved, connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Final Completion, restore these facilities to condition existing before initial use.
 - 1. Refer to City of Arvada Standards and Specifications 142.00.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- F. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Temporary Light and Power: Provide by Contractor, including 220 Volt service for meeting the project needs. all work needed to complete the project.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
- I. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Arrange with local cellular/mobile telephone service company and provide mobile telephone service for use by Contractor and so Contractor can be reached at construction site during normal working hours.

3.4 TEMPORARY SAFETY AND HEALTH

- A. Provide construction aids and equipment required by personnel and to facilitate the execution of Work; staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment.
 - 1. Materials must be suitable for the intended purpose and meet the requirements of applicable codes, regulations, and standards.
- B. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety and health precautions and programs in connection with Work. Contractor shall take all necessary

precautions for the safety of and shall provide necessary protections to prevent injury or loss to, all employees on the Work and other persons and organizations who may be affected thereby.

3.5 SUPPORT FACILITIES INSTALLATION

- A. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- B. Parking: Provide temporary offsite or Use designated areas of Owner's existing parking areas for construction personnel.
- C. Storage and Staging: Provide temporary offsite area for storage and staging needs.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings. Signs shall be constructed of A-A Ext – APA grade plywood, 1-in thick. Posts and braces shall be of pressure treated lumber.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

3.6 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
 - 1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings

requirements of EPA Construction General Permit or City of Arvada Specifications Section 350.00, whichever is more stringent.

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Comply with requirements specified in Section 015639 "Temporary Tree and Plant Protection."
- F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- G. Contractor shall hire an arborist to identify levels of tree pruning allowed without causing permanent damage to the trees along 86th Pkwy. Work shall be coordinated with Owner.
- H. Security Enclosure and Lockup: Install temporary enclosure around any off-site locations arranged by Contractor for staging. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.7 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 - 2. Clear snow and ice from all drives, walks and stairs to maintain safe vehicle and pedestrian access to the site and facilities as directed by the Engineer.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Final Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Final Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. Just prior to Final Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 015526 - TRAFFIC CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating traffic operations on Project including, but not limited to, the following:
 - 1. Traffic control and protective devices, as required to expedite vehicular traffic flow during construction.
 - 2. Providing access to all buildings including business and parking areas at all times.
 - 3. Maintaining a minimum of one 11-foot lane of traffic, in one direction, at all times.
 - 4. Providing police details at certain times in order to maintain safe traffic control within the project area.
 - 5. Traffic control plans shall be submitted to the City of Arvada and/or Jefferson County for review and approval prior to start of any construction. Contractor shall obtain and pay for all necessary traffic control permits required.
- B. Related Requirements:
 - 1. Section 015000 "Temporary Facilities and Controls" for staging areas and parking.
- C. Contractor shall perform traffic in accordance with City of Arvada Specifications 149.00 "Traffic Control, Barricades and Warning Signs."
- D. All traffic control shall be in accordance with the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD), the Contract Drawings and these specifications. Where reference is made to the MUTCD, the revision in effect at the time of bid opening shall apply.

1.3 ACTION SUBMITTALS

- A. Traffic Control Plan:
 - 1. Plan shall be prepared by a Traffic Engineer licensed in State of Colorado. Detail all temporary changes in traffic control equipment, street or road closures, detours, etc.
 - 2. The Owner reserves the right to request modifications of the plan throughout the course of the Contract. When necessary, update the plan and forward changes to the Owner, Engineer, and local governing agency for approval.
 - 3. Submit a Traffic Control Plan in accordance with Arvada Specification 146.00 and 149.00.

4. At least 15 days prior to mobilization at the site or any work commencing within the right of way, submit a detailed traffic management plan to the Owner and Engineer for review, outlining plans for traffic controls during construction. Include:
 - a. Locations and estimated duration of detours and traffic controls and signage to be employed.
 - b. Design and material of signs.
 - c. Consideration of appropriate traffic interruptions during rush hour time periods on affected roads.
 - d. Assume all work will be performed during normal working hours unless prior notice is received from the Owner and Engineer.
 - e. Phased plans showing the setup, number and width of open lanes, and schedule.
5. No work shall commence without prior approval of the Traffic Control Plan by the local governing agency.

1.4 HAUL ROUTES

- A. Consult with the Owner to establish public thoroughfares that will be used as haul routes and site access.

PART 2 - PRODUCTS

2.1 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under the Contractor's control or affected by the Contractor's operations.
- B. Material, reflectivity and dimensions of signage shall meet MUTCD or local governing requirements.
- C. Provide traffic control and directional signs, mounted on barricades or standard posts at the following locations, as directed by the Traffic Control Plan:
 1. Each change of direction of a roadway and each crossroads.
 2. Detours.
 3. Parking areas.
 4. For businesses within detour routes.
 5. As specified on the Drawings.
- D. Existing permanent traffic control signing and devices, including guardrails, shall not be removed unless called for on the Drawings or without the prior consent of the Owner and the Engineer.

- E. Detours around construction will be subject to the approval of the Owner and the Engineer. Where detours are permitted, provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured, expedite construction operations and periods when traffic is being detoured will be strictly controlled by the Owner.
- F. Provide signs promoting access to impacted businesses during construction.

PART 3 - EXECUTION

3.1 REQUIREMENTS

- A. Notify all property owners at least 48 hours in advance of any work that will interfere with access to their residence or place of business.
- B. No detour will be allowed without prior approval of the Engineer and Owner. Where detours are permitted, provide all necessary barricades and signs as required to divert the flow of traffic. Expedite construction operations while traffic is detoured. Periods when traffic is being detoured will be strictly controlled by the Owner.
- C. Coordinate with the local governing agency to maintain access at all times at each site for emergency vehicles.
- D. No road shall be closed to traffic without the prior consent of local governing agency, the Engineer, and the Owner.
- E. Traffic control, including but not restricted to signing and devices, shall be provided for all work in the right of way by the Contractor in accordance with State standards.
- F. Maintain a minimum of one 11-foot lane of traffic, in one direction, at all times.
- G. Normal working hours are defined as Arvada Specifications 127.00. Work on Saturdays may be allowed if deemed necessary with prior approval of the Owner and Engineer.
- H. Take precautions to prevent injury to the public due to open trenches. Night watchmen may be required where special hazards exist, or police protection provided for traffic while work is in progress. Be fully responsible for damage or injuries whether or not Police protection has been provided.
- I. After completion of the project, remove all traffic control devices, signage and support systems and patch the disturbed area to match existing as closely as possible and to the satisfaction of the Engineer.

3.2 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Department of Public Works operations, or construction operations.

- B. Monitor parking of construction personnel's private vehicles, maintain free vehicular access to and through parking areas and prohibit parking on or adjacent to access roads or in non-designated areas.

END OF SECTION 015526

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
- B. Contractor to use these specifications in conjunction with directions of a hired arborist with the minimum qualifications listed herein.
- C. Related Requirements:
 - 1. Section 015000 "Temporary Facilities and Controls" for temporary site fencing.
 - 2. City of Arvada Specification 148.05.

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape or the average of the smallest and largest diameters at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.
- B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
 - a. Tree-service firm's personnel, and equipment needed to make progress and avoid delays.
 - b. Arborist's responsibilities.

- c. Quality-control program.
- d. Coordination of Work and equipment movement with the locations of protection zones.
- e. Trenching by hand or with air spade within protection zones.
- f. Field quality control.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and locations of protection-zone fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
 - 2. Detail fabrication and assembly of protection-zone fencing and signage.
 - 3. Indicate extent of trenching by hand or with air spade within protection zones.
- C. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
 - 1. Species and size of tree.
 - 2. Location on site plan. Include unique identifier for each.
 - 3. Reason for pruning.
 - 4. Description of pruning to be performed.
 - 5. Description of maintenance following pruning.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For arborist and tree service firm.
- B. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- C. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- D. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 - 1. Use sufficiently detailed photographs or video recordings.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
- E. Quality-control program.

1.7 QUALITY ASSURANCE

- A. Arborist Qualifications: Certified Arborist as certified by ISA.
- B. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
- C. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and signage, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

1.8 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Moving or parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Tie a one-inch blue vinyl tape around each tree trunk at 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas indicated. Do not exceed indicated thickness of mulch.

3.3 EXCAVATION

- A. General: Excavate at edge of protection zones and for trenches indicated within protection zones unless otherwise indicated.
- B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.4 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 3. Cover exposed roots with burlap and water regularly.
 - 4. Backfill as soon as possible.
- B. Root Pruning at Edge of Protection Zone: Prune tree roots 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.

- C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.5 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by arborist.
 - 1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
 - 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 - 3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
 - a. Type of Pruning: Cleaning, raising, reducing, and thinning where indicated.
- B. Unless otherwise directed by arborist and acceptable to Engineer, do not cut tree leaders.
- C. Cut branches with sharp pruning instruments; do not break or chop.
- D. Do not paint or apply sealants to wounds.
- E. Provide subsequent maintenance pruning during Contract period as recommended by arborist.
- F. Chip removed branches and spread over areas identified by Engineer.

3.6 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

3.7 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.8 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Engineer.
 - 1. Submit details of proposed pruning and repairs.

2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Engineer.
- B. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Engineer determines are incapable of restoring to normal growth pattern.
1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 6 inches or smaller in caliper size.
 2. Large Trees: Provide one new tree of 6-inch caliper size for each tree being replaced that measure more than 6 inches in caliper size.
 - a. Species: As selected by Engineer.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 015639

SECTION 015728 - TEMPORARY BYPASS PUMPING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnishing materials, equipment, and labor required to bypass pump and/or divert wastewater flows from sewers selected for tie-ins, abandonment, connections to the Alkire Lift Station and as specified.
- B. The design, installation and operation of temporary bypass pumping systems shall be the Contractor's responsibility. Provide the services of a professional bypass company who can demonstrate to the Owner and Engineer that the company specializes in the design and operation of temporary bypass pumping systems. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- C. Maintain temporary bypass pumping systems so that they are completely functional throughout the required period of service.
- D. Following the required period of service, remove temporary bypass pumping systems from site.
- E. Provide all maintenance including manufacturer recommended preventive maintenance and on-call repair services. Provide repair services and/or replacement equipment 24 hours per day, seven days per week within four hours of being called.
- F. Coordinate work with all local governing jurisdictions including City of Arvada and Jefferson County.
- G. Refer to drawings for bypass volumes.

1.2 ACTION SUBMITTALS

- A. Submit, in accordance with Section 013300 "Submittal Procedures." Include the following:
 - 1. Evidence of the qualifications of the entity performing bypass operations specified in this Section.
 - 2. BYPASS PUMPING PLAN: Prior to starting any construction on site, submit detailed plans and descriptions outlining all provisions and precautions regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, capacities of equipment, materials and all other incidental items necessary and/or required to protect the facilities, including protection of the maintenance holes from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these Contract Documents.
 - 3. Detailed plans and sections showing the proposed pumping system layout including dimensions and elevations. Plan shall include but not be limited to the following:
 - a. Staging area and access requirements for all pumps.
 - b. Number, size, material, location and method of installation of suction piping.

- c. Number, size, material, location and method of installation of discharge piping.
 - d. Sewer plugging method and types of plugs.
 - e. Safety enclosures/fencing for pumping equipment and piping, suction maintenance holes and discharge maintenance holes.
 - f. Standby power generator size, location (if required).
 - g. Method of protecting discharge maintenance holes or existing structures from erosion, damage and overflow. Method for bulkheading downstream sewers to prevent flow from backing up into the work area.
 - h. Emergency response plan for cleaning up leakage from bypass piping or spills from pumping equipment including fuel, hydraulic oil or lubricants.
 - i. Details of driveway and street crossings, and if Contractor will temporarily bury piping or use Engineer approved road ramps.
 - j. Certification from a Professional Engineer that the pumping system has been designed to meet specification requirements and will perform as intended.
 - k. Safety measures regarding fueling of equipment shall be implemented during life of the project.
 - l. Method and procedures for removing bypass and restoring the area.
 - m. Pump size, capacity, number of units, diesel engine specifications, fuel tank capacity, fuel consumption requirements, and method of refueling.
 - n. Calculations of static lift, pipe size selection, friction losses, flow velocity and pump selection.
 - o. Pump curves showing pump operating range.
 - p. Proposed method of freeze protection.
 - q. Proposed method of noise control for each pump.
 - r. Temporary pipe supports, anchorage, cover material and other accessories as required to stabilize the piping system.
 - s. Installation schedule and maintenance schedule.
 - t. Vendor phone number and pager number for 24-hour service.
 - u. A minimum of five reference installations of projects with similar size in wastewater pumping applications. Include contact names and phone numbers.
 - v. List of recommended spare parts to be stored on-site for emergency maintenance.
- 4. Provide information on the vendor's service staff capabilities and replacement parts inventory to show that the vendor has sufficient resources to provide emergency service and replacement equipment and/or parts to the site within 4 hours of a service call.
 - 5. A description of system operation and controls. Include a list of all alarm conditions and procedures for correcting problems including equipment replacement.
 - 6. A plan of operations for inclement weather including snowstorms. The plan shall demonstrate the ability to maintain pumping system operations throughout inclement weather events.
 - 7. Public Notifications: Provide 48-hour notice prior to the assessment of any pipe segment, distribute door-to-door a door hanger, approved by the Owner and Engineer, describing the work to be performed to notify the owner of every property, including residences and businesses, which may be affected. Include necessary information on bypass pumping such as how long residents may be unable to utilize the sewer. Door hangers shall be double-sided with the notification information in the English language on one side and in the Spanish language on the reverse side. Affected properties shall include, but not be limited to, properties on which:
 - a. A sewer to be accessed is located.
 - b. A maintenance hole for accessing a sewer to be assessed is located.

- c. An existing sewer easement that could be used to access the sewer is located.
- d. A temporary right-of-entry agreement with the property owner and the contractor for accessing a sewer or maintenance hole on the property.
- e. An existing sewer lateral serving the property directly connects to a sewer to be assessed or maintenance hole to be accessed for the sewer assessment.

1.3 QUALITY ASSURANCE

- A. Employ the services of a vendor who can demonstrate five years of recent and continuous specialization in the design, installation, operation and removal of temporary bypass pumping systems in wastewater applications. The complete system shall be furnished from a single vendor who shall be capable of providing service staff, repair parts and replacement of any deficient system component within four hours of a service call, 24-hours per day, seven days per week.
- B. Provide the services of the manufacturer's representative for physical checkout field testing and operation and maintenance instruction for a minimum of one person day per pumping system. See requirements in Part 3.
- C. Provide the services of the manufacturer's representative or designated alternative, who shall be contactable 24 hours per day via telephone or pager and shall be available to be on site within four hours of being contacted at no additional cost to the Owner.
- D. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- E. The bypass system including all pumps, pipe, hose, valves and fittings shall be provided by one bypass entity.
- F. All hydraulic calculations and drawings required by the submittals shall be provided by the bypass entity and stamped by a Professional Engineer registered in the State of Colorado.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Furnish pumping units and all accessories from a single vendor. Each temporary bypass pumping system shall be complete including pumps, drives, piping, piping headers, valves, flow meter, controls and appurtenances as required for a complete system.
- B. The pumps, drives and controls shall be designed and built for 24-hour continuous service at any and all points within the required range of operation, without overheating, without cavitation, and without excessive vibration or strain. All parts shall be so designed and proportioned as to have the strength, stability and stiffness and be constructed to meet the specified requirements. Methods shall be provided for inspection, repairs, and adjustment.
- C. All necessary foundation bolts, nuts, and washers shall be furnished.

- D. Each piece of equipment shall be furnished with a nameplate (with embossed data) securely mounted to the body of the equipment. As a minimum, the nameplate for the pumps shall include the manufacturer's name and model number, serial number, rated flow capacity, head, speed and all other pertinent data. As a minimum, nameplates for drives shall include the manufacturer's name and model number, serial number, horsepower, speed, input voltage, amps, number of cycles and power and service factors.
- E. Bypass pumping system pumps/generators shall be housed in sound attenuated enclosures with critically silenced mufflers. Limit noise to 69 dBA or lower at 30 feet.
- F. All equipment shall be suitable for outdoor operation under adverse weather conditions. Provide protection from freezing as required to maintain system operation.
- G. Pumping system control panels shall be NEMA 4 and include flow indication, a flow totalizer, indicator lamps showing which pumps are operating, selector switch for auto or manual start and stop for each pump and visual and audible alarms for indication of operation failure and alarm conditions.

2.2 PERFORMANCE REQUIREMENTS

A. Capacities and Characteristics:

- 1. Pumps shall be identical in every respect with all parts interchangeable.
- 2. Each pump shall be designed for the conditions of service. All pumps shall have a rising head capacity curve for stable pump operation from the minimum head operating point to the shut-off head.
 - a. Service: Temporary Bypass Pumping.
 - b. Number of pumps: As required by the Application.
 - c. Liquid: Raw Wastewater.
 - d. Design capacity total peak (gpm): As required by the Application.
 - e. Type of drive: Diesel engine or Electric.
- 3. The by-pass system shall be of sufficient capacity to handle existing flows plus additional flows that may occur during a rain event. As a minimum, the bypass system shall have a capacity equivalent to the flowing-full capacity of the largest sewer to be rehabilitated as part of this project. The bypass system shall be of sufficient capacity to handle these flows, or the Contractor must stop work immediately during a rain event. The Contractor should make every effort to schedule work during dry weather conditions to avoid the need to bypass wet weather flows. If the sewer is part of the combined system, the line shall not be removed from service if rain is forecasted.
- 4. See Drawings for anticipated flow ranges to be used for bidding purposes.
- 5. Pumping System Components:
 - a. All pumps shall be centrifugal, end suction, fully automatic self-priming units that do not require the use of foot-valves, vacuum pumps, diaphragm pumps, or isolation valves or float apparatus in the priming system.
 - b. Pump seals shall be high pressure, mechanical self-adjusting type with solid carbide faces capable of withstanding suction pressures to 100 psi without the pump running. The mechanical seal shall be cooled and lubricated in an oil bath

reservoir, requiring no maintenance or adjustment. The oil bath reservoir shall not come in contact with or leak into the pumped water. Each pump shall be capable of running dry, with no damage for extended periods of time. All pump seal metal parts shall be stainless steel. All elastomers shall be Viton.

- c. Each pump shall be driven by a diesel engine or electric motor. Diesel engine shall be water cooled. If the Contractor uses electric motor driven pumps, power costs are the responsibility of the Contractor.
- d. If using diesel driven pumps, each pump and diesel engine shall be skid mounted with integral fuel tank and skid lifting bracket.
- e. Provide automatic start/stop controls for the pumping system to automatically maintain system flow. Controls shall be contained in a local control panel with provision to manually operate each pump, provide indication of pump operation, and indicate the total flow being pumped.
- f. Provide all required suction and discharge pipe and fittings, discharge manifold pipe and fittings, shutoff valves, check valves, flow meter, pressure regulating valves, insulation, freeze protection, and all required accessories. All pipe and fittings shall be high density polyethylene pipe with fused joints. All joints must be 100 percent restrained. Suction piping shall be rated for 25-in Hg vacuum. Discharge piping, fittings, connections, valves, and other discharge piping accessories shall be rated for a minimum working pressure of 150 psi.
- g. Pumps shall not be connected by a common suction manifold. The use of PVC or steel pipe with couplings will not be accepted. All pipe or hose will be rated for 25-inch Hg vacuum.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Wet Weather Preparedness/Emergency Plan: Develop plan prior to initiating bypass flow operations. Plan to include but not limited to:
 - 1. Communications plan identifying key Contractor and Owner personnel to be contacted in case of emergency.
 - 2. Tracking of weather forecasts to identify potential rain events that could substantially increase flows. Contractor shall not setup bypass plugs and pumps if substantial rain events are anticipated for the duration of the bypass system being active.
 - 3. Observations/reporting of sewer flow elevations.
 - 4. Ongoing plan identifying actions to be taken if the bypass system must be taken offline.
 - 5. Additional spare parts for pumps and backup equipment not on site available on short notice.
 - 6. Identification of sewer lines that are receive sewage flow and stormwater flow in order to avoid lining combined pipes during upcoming rain events.

3.2 INSTALLATION

- A. Installation shall be in accordance with the system supplier's recommendations and approved shop drawing submittals.

- B. Install pumping units on a firm level surface.
- C. Furnish the services of the pump system supplier's representative for a minimum of one day per temporary bypass system to assist equipment installation and physical checkout.
- D. Plugging or blocking of sewer flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed, it is to be removed in a manner that permits sewer flow to slowly return to normal without surge, to prevent surcharging downstream. Plugging or bulkheading downstream sewers shall also be performed where necessary to prevent sewage flow from backing up into the work area.
- E. Air vents / air release valves on the bypass piping shall be configured to prevent any wastewater discharge.
- F. When working inside maintenance holes or sewer lines, the Contractor shall comply with OSHA requirements, with the exception that a depth of 4 feet defines a confined space, in lieu of 5 feet, when working in the presence of sewer gases, combustible or oxygen-deficient atmosphere, and confined spaces.
- G. Absorbent mats and booms shall be installed around the flow bypass pump locations.
- H. Odor control mitigation measures shall be taken to prevent release of odors from the suction and discharge maintenance hole and temporary flow diversion system. A minimum 2-inch thick plywood collar with foam rubber seal shall be placed around the suction hose(s) and discharge pipe(s) to prevent odors from escaping from the maintenance holes.
- I. Safety enclosures/fencing or barriers shall be provided at pumping equipment, suction and discharge maintenance holes.
- J. Bypass pumping piping shall be located off streets and sidewalks in gutters, at the back edges of sidewalks or on shoulders of the roads. When the bypass piping crosses streets and driveways, the pipe provided must have adequate strength to withstand traffic loading. Lay bypass piping in a shallow trench in roadway easements covered with temporary surfacing or place the bypass pipelines in bump ramps approved by the Engineer. Contractor shall ensure that the transition for bump ramps do not cause any damage to passing vehicles.
- K. Provide lighting and barriers for pedestrian and vehicular safety.

3.3 FIELD QUALITY CONTROL

- A. Provide field in accordance with the approved shop drawing submittal. Field tests shall demonstrate conformance with system requirements.
- B. Test.
 - 1. Perform leakage and pressure testing of the bypass pumping discharge piping before it is used for bypass sewerage pumping.

a. Pressure Test:

- 1) Perform successful hydrostatic testing of temporary bypass piping system using clean water at a pressure equal to 1.2 times the highest expected system operating pressure for a minimum of 15 minutes while maintaining test pressure within 3.0 psi of required test pressure.
- 2) Engineer will witness hydrostatic tests.
- 3) Hydrostatic test criteria for acceptance: No leakage.

b. Leakage Test:

- 1) The leakage test shall be conducted concurrently with the pressure test.
- 2) All exposed piping shall be examined during the test. If any leaks, defective material or joints are detected, they shall be repaired or replaced, and the test shall be repeated at no additional cost to the Owner prior to renewing use for bypass sewerage pumping.
- 3) No leakage of any kind will be permitted.
- 4) At the completion of the test, the pressure shall be released at the furthestmost point from the point of application.

2. The Contractor shall require that field testing be conducted by the pump system supplier's representative in the presence of the Engineer. Furnish the services of the pump system supplier's representative for a minimum of one day per temporary bypass system to conduct required testing.

- C. Remove and replace any system component that fails to perform in accordance with specified requirements.
- D. Physically inspect bypass pumping systems on at least an hourly basis during operation to determine that the systems are working correctly.
- E. All leakage from flow bypass piping shall be immediately reported to the onsite inspector and the City of Arvada. Spills shall be eliminated and cleaned up at no additional cost to the Owner.

3.4 SYSTEM OPERATION

- A. Perform all required maintenance on the equipment to maintain the system integrity and capacity as specified.
- B. Provide clean-up and disposal of contaminated material and reporting for all product spills.
- C. Maintain flow around the work area to prevent surcharging of and damage to pipes, protect public and private property from damage and flooding, wetlands and other natural resources.
- D. Coordinate location of bypass piping with Owner, Engineer, City of Arvada property owners and Jefferson County and others, as required and in compliance with all permits and established agreements.

3.5 EQUIPMENT REMOVAL

- A. At the completion of the period of service, disconnect all temporary piping and remove all system components from the site. Restore the work site to its original condition.
- B. Flush out pump and all piping with potable water prior to disassembling system. Sewage and related debris shall not be released onto surface features.
- C. Contractor shall get potable water from hydrant using a backflow preventer with meter.

END OF SECTION 015728

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. City of Arvada Specification Section 134.00.
- C. City of Arvada Approved Products List (APL).

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for Contractor requirements related to Owner-furnished products.
 - 2. Section 012500 "Substitution Procedures" for requests for substitutions.
 - 3. Section 017700 "Closeout Procedures" for submitting warranties.
 - 4. Section 134.00 "Quality Assurance and Quality Control" of 2023 COA Standards and Specifications.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycle contract materials are considered new products, unless indicated otherwise.
 - 3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in PART 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.
 - 1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification. Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.
- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.
- D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:
 - 1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
 - 2. Data indicating compliance with the requirements specified in PART 2 "Comparable Products" Article.
- E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."
- F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Resolution of Compatibility Disputes between Multiple Contractors:
 - a. Contractors are responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - b. If a dispute arises between the multiple contractors over concurrently selectable but incompatible products, Engineer will determine which products shall be used.

- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.5 COORDINATION

- A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.
- C. Storage:
 - 1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
 - 2. Store products to allow for inspection and measurement of quantity or counting of units.
 - 3. Store materials in a manner that will not endanger Project structure.

4. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection for wind.
5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Engineer will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Submit additional documentation required by Engineer in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by the Engineer, whose determination is final.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Engineer may return requests without action, except to record noncompliance the following requirements:
 1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects, with project names and addresses and names and addresses of Engineers and owners, if requested.
 5. Samples, if requested.
- B. Engineer's Action on Comparable Products Submittal: If necessary, Engineer will request additional information or documentation for evaluation, as specified in Section 013300 "Submittal Procedures."
 1. Form of Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 2. Use product specified if Engineer does not issue a decision on use of a comparable product request within time allocated.
- C. Submittal Requirements, Single-Step Process: When acceptable to Engineer, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by the Engineer of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for coordination and limits on use of Project site.
 - 2. Section 013300 "Submittal Procedures" for submitting surveys.
 - 3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 PREINSTALLATION MEETINGS

- A. Cutting and Patching Conference: Conduct conference at Project site.
 - 1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Inform Engineer of scheduled meeting. Require representatives of

each entity directly concerned with cutting and patching to attend, including the following:

- a. Contractor's superintendent.
 - b. Trade supervisor responsible for cutting operations.
 - c. Trade supervisor(s) responsible for patching of each type of substrate.
 - d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.
2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certified Surveys: Submit two copies signed by land surveyor.
- C. Certificates: Submit certificate signed by professional engineer, certifying that location and elevation of improvements comply with requirements.
- D. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- E. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.6 CLOSEOUT SUBMITTALS

- A. Final Property Survey: Submit 5 copies showing the Work performed and record survey data.

1.7 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements, whose structural function is not known, notify Engineer of locations and details of cutting and await directions from Engineer before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Plumbing piping systems.
 - f. Mechanical systems piping and ducts.
 - g. Control systems.
 - h. Communication systems.
 - i. Fire-detection and -alarm systems.
 - j. Conveying systems.
 - k. Electrical wiring systems.
 - l. Operating systems of special construction.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
 - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Engineer's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Engineer for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.
- B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work, including Specification Section number and paragraphs, and Drawing sheet number and detail, where applicable.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer in accordance to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Engineer promptly.
- B. Engage a City of Arvada land surveyor experienced in laying out the Work, using the following accepted surveying practices.
 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 2. Establish limits on use of Project site.
 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 4. Inform installers of lines and levels to which they must comply.

5. Check the location, level and plumb, of every major element as the Work progresses.
 6. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, coordinate with City of Arvada to prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

- E. Final Property Survey: Engage a City of Arvada land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 - 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure satisfactory results as judged by Engineer. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items onsite and placement in permanent locations.
- F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Engineer.

2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Engineer. Fit exposed connections together to form hairline joints.
- J. Repair or remove and replace damaged, defective, or nonconforming Work.

3.6 CUTTING AND PATCHING

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of Work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Engineer. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in other Sections and City of Arvada Standards.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.
- 3.8 STARTING AND ADJUSTING
- A. Coordinate startup and adjusting of equipment and operating components with requirements in City of Arvada Standards and Specifications.

- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.9 PROTECTION AND REPAIR OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- D. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Requirements:
 - 1. Section 012200 "Measurement and Payment" for requirements for Applications for Payment for Substantial Completion and Final Completion.
 - 2. Section 013233 "Photographic Documentation" for submitting Final Completion construction photographic documentation.
 - 3. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 4. As set forth in Section 200 of City of Arvada Standards and Specifications.

1.3 DEFINITIONS

- A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Engineer's use prior to Engineer's inspection, to determine if the Work is substantially complete.
- B. Substantial Completion – That date, as determined by the City Engineer, when the construction project or a specified part thereof is sufficiently completed, in accordance with these Standards and Specifications, so that the Project or a specified part can be utilized for purposes for which it is intended. All designated or required governmental inspections and certifications have been made and approved. Only remaining work shall be minor in nature so that the Owner can occupy the building or utilize the improvements on that date.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.

- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.5 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest-control inspection.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.7 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Engineer. Label with manufacturer's name and model number.
 - 5. Submit testing, adjusting, and balancing records.
 - 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.

2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 6. Advise Owner of changeover in utility services.
 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.8 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 012200 "Measurement and Payment."
 2. Certified List of Incomplete Items: Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report.
 5. Submit Final Completion photographic documentation.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.9 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Page number.
 2. Submit list of incomplete items in the following format:
 - a. MS Excel Electronic File. Engineer will return annotated file.
 - b. PDF Electronic File. Engineer will return annotated file.
 - c. Web-Based Project Management Software Upload: Utilize software feature for creating and updating list of incomplete items (punch list).

1.10 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
 1. Submit on digital media acceptable to Engineer by uploading to web-based project software site.
- D. Warranties in Paper Form.
- E. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, maintenance holes, attics, and similar spaces.
 - g. Clean flooring, removing debris, dirt, and staining: clean according to manufacturer's recommendations.
 - h. Vacuum and mop concrete.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - j. Remove labels that are not permanent.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - m. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in other Sections and City of Arvada Standards.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations required by Section 017300 “Execution” before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to City of Arvada Standards and Specifications Section 222.00 for complete Project Record Documents requirements.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 012200 "Measurement and Payment" for maintaining and exhibiting project record documents as a prerequisite for progress payments.
 - 2. Section 017300 "Execution" for final property survey.
 - 3. Section 017700 "Closeout Procedures" for general closeout procedures.
 - 4. As set forth in Section 222.00 of City of Arvada Standards and Specifications.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
 - 3) Submit Record Digital Data Files and one set(s) of plots.
 - 4) Engineer will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

- 1) Submit three paper-copy set(s) of marked-up record prints.
- 2) Submit PDF electronic files of scanned Record Prints and three set(s) of file prints.
- 3) Print each drawing, whether or not changes and additional information were recorded.

c. Final Submittal:

- 1) Submit one paper-copy set(s) of marked-up record prints.
- 2) Submit Record Digital Data Files and three set(s) of Record Digital Data File plots.
- 3) Plot each drawing file, whether or not changes and additional information were recorded.

- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.
- E. Reports: Submit written report weekly indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.
- F. Provide an unlocked AutoCAD digital copy of the updated As-Built construction plans provided in Project Control, with referenced points matching exactly with the approved Record Drawings, which is required for Initial Warranty Acceptance (Per COA Section 222.00). Said project control shall be tied to the Colorado State Plan coordinate system, the vertical control, state combined scaled factors. See COA Section 223.00 for additional information regarding the Initial Warranty Acceptance.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: See COA Section 222.00 for Sanitary and Sewer to see information to be included with Record Drawings. Record Drawings shall be a complete set of plans including all originally approved Construction Plan Sheets. Every Sheet of the Record Drawings shall be attested to and sealed by either a Colorado Registered Professional Engineering, Colorado Registered Landscape Architect (for landscaping drawings only),

and/or Registered Professional Land Surveyor, and every sheet to be stamped "Record Drawing."

2. Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
3. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Work Change Directive.
 - k. Changes made following Engineer's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 - o. Any changes from the approved plans in materials or pipe sizes.
 - p. Elevation of all in and out inverts at maintenance holes, inlets, and outlets.
Distance between maintenance holes, and between maintenance holes and inlets and outlets.
 - q. Location of all sanitary sewer service connections.
 - r. Rim elevations on all maintenance holes and drainage inlet structures, and number of rings added during paving operations.
 - s. Elevation checks every one hundred (100) feet in the flow line of all drainage channels.
 - t. For the force main the following additional items shall be included (as outlined in Section 222.00 of COA Specifications:
 - 1) Any changes from the approved plans in materials or pipe sizes.
 - 2) Horizontal verification of valves, tees, crosses, and appurtenances if changed from the approved plans.
 - 3) Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 4) Horizontal and vertical alignment shall be surveyed and shown at least every 500 feet and at any change (horizontal or vertical) in pipe direction.
 - 5) Location of all service connections crossed.

- 6) Location of existing 8-inch and 10-inch force mains that parallel the proposed alignment in Alkire Street.
 - 7) Locations of bends, fittings, appurtenances located by surveyor.
 4. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 5. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 6. Mark important additional information that was either shown schematically or omitted from original Drawings.
 7. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Engineer. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
 1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
 2. Format: DWG, Version, Microsoft Windows operating system.
 3. Format: Annotated PDF electronic file with comment function enabled.
 4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 5. Refer instances of uncertainty to Engineer for resolution.
 6. Engineer will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 013100 "Project Management and Coordination" for requirements related to use of Engineer's digital data files.
 - b. Engineer will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWING."
 - d. Name of Engineer.
 - e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Format: Submit Record Specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.
- B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
- C. Format: Submit Record Product Data as annotated PDF electronic file.
 - 1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours. As a prerequisite for monthly progress payments, exhibit the updated record documents for review by Owner and Engineer for accuracy and completeness.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 017839

SECTION 134713 - CATHODIC PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. City of Arvada Specification 420.19 Corrosion Protection System (2023 edition).

1.2 SUMMARY

- A. Section includes passive cathodic protection systems that use magnesium anodes to protect steel casings.
- B. The corrosion control shall include the furnishing and installation of all wiring, testing stations, fittings, anodes, exothermic welding and all other work and items required for a complete and functioning system for the specified buried pipeline.
- C. Provide materials and perform installation in accordance with these Specifications and COA Specification 420.19.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For cathodic protection. Include plans, evaluations, sections, details, and attachments to other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified professional engineer. Submit evidence of current license, corporate authorization (if applicable) of the engineering business, and NACE certifications.
- B. Field quality-control reports.
- C. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. As-Built drawings.

B. Operation and Maintenance Data

1. Basic system operation, outlining the step-by-step procedures required for system startup, operation, adjustment of current flow, and shutdown.
2. Instructions for pipe-to-reference cell potential measurements and frequency of monitoring.
3. Recommendations for maintenance testing, including instructions for pipe-to-reference cell potential measurements and frequency of testing.
4. Tests of cathodic protection anode current and pipe to soil potentials at the location of work.

1.6 QUALITY ASSURANCE

- A. Corrosion Engineer Qualifications: A qualified professional engineer who has education and experience in cathodic protection of buried and submerged metal structures and has NACE accreditation or certification as a Corrosion Specialist or Cathodic Protection Specialist.
- B. The cathodic protection systems shall be tested by a NACE international certified Corrosion Specialist or Cathodic Protection Specialist.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect anodes from exposure to rain and direct sunlight.
- B. Ship anodes in waterproof bags or wrapping and shall remain dry until installation.

PART 2 - PRODUCTS

2.1 CATHODIC PROTECTION REQUIREMENTS

- A. Verify cathodic design calculations, supervise, test, and inspect the installation of cathodic protection systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Select anodes and accessories relevant to level of protection. Design anodes for an estimated life of 50 years before replacement.
- C. Cathodic protection systems shall provide protective potential that complies with referenced NACE standards. Insulators are required if needed to insulate protected metals from other structures.

2.2 MAGNESIUM ANODES

- A. Comply with ASTM B843.

B. Chemical composition as percent of weight shall be as follows:

1. Aluminum: 0.010 maximum.
2. Manganese: 0.50 to 1.3.
3. Zinc: 0.05 maximum.
4. Silicon: 0.50 maximum.
5. Copper: 0.02 maximum.
6. Nickel: 0.001 maximum.
7. Iron: 0.03 maximum.
8. Other Impurities: 0.05 each; 0.3 maximum total.
9. Magnesium: Remainder.

C. Bare Anode Weight: 48 lbs.

D. Anode Core: Galvanized steel with anode wire silver-soldered to the core. Connection shall be recessed and epoxy insulated for 600-V rating. Connection shall be covered with heat-shrinkable tubing, and insulation shall be extended over connection.

E. Anode lead wires shall be No.12 AWG stranded copper conductors with Type RHW/RHH/USE black insulation. Lead wires shall be a minimum 25 feet in length. Lead wires shall be connected to the galvanized steel core of the anode by silver soldering and sealed with waterproof epoxy or electrical potting compound.

F. Anode Backfill: Backfill materials packaged in water-permeable fabric sack or cardboard container. Anodes shall be factory installed in packaged backfill using methods that result in dense packing of fill with factory-installed anode spacers to ensure centering of anode in packaged anode backfill. Backfill material shall have the following chemical composition by weight:

1. Hydrated Gypsum: 75 percent.
2. Bentonite Clay: 20 percent.
3. Anhydrous Sodium Sulfate: 5 percent.

G. Acceptable Manufacturers:

1. Farwest Corrosion Control, Ultramag High Potential.
2. Mesa, High Potential.
3. Galvotec, High Potential.

2.3 PERMANENT REFERENCE ELECTRODES

A. Copper/copper sulfate (Cu/CuSO₄), suitable for direct burial. Electrode shall be guaranteed by supplier for 50 years' service in the installed environment.

2.4 TEST STATION WIRE

A. Test Station Wire Conductors shall be single conductor, stranded copper.

1. No. 6 AWG through No. 12 AWG wire shall have Type RHW/RHH/USE insulation unless otherwise specified or shown on Drawings. Color coding as specified of as shown on Drawings.

B. Wire Insulation Colors:

1. Blue = Project pipe.
2. White = Existing or Foreign pipe.
3. Orange = Casing pipe.
4. Black = Structure/negative cables, anode leads, joint/continuity bonds.
5. Green = Metallic coupon.
6. Yellow = Reference electrode.

2.5 TEST STATIONS

- A. Plastic Test Stations: Post mount test station of high-impact-resistant PVC or polycarbonate with watertight conduit connections and cover and removable terminal board having at least five terminals. In accordance with Drawings.
 1. Tinker and Razor T-3 Test Station.
 2. Install with concrete footing 1.5 feet deep and anchor pipe.

2.6 SEALING, POTTING, AND DIELECTRIC COMPOUNDS

- A. Sealing and Dielectric Insulating Compound: Comply with NACE RP0188. Black, rubber based, soft, permanently pliable, tacky, moldable, and unbacked; 0.125 inch thick.
- B. Potting Compound: Comply with NACE RP0188. Cast-epoxy, two-package type; fabricated for this purpose and covered with heat-shrinkable tape.
- C. Pressure-Sensitive, Vinyl-Plastic Electrical Tape: Comply with UL 510.

2.7 EXOTHERMIC WELDING MATERIALS

- A. Exothermic Weld Kits: Specifically designed by manufacturer for welding materials and shapes required.
- B. Exothermic Weld Caps: Dome of high-density polyethylene, 10-mil minimum thickness, filled with mastic and containing a tunnel portion to separate lead wire from exothermic weld.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS, GENERAL

- A. Comply with ANSI/IEEE C2 and NFPA 70.
- B. Make connections to ferrous pipe using exothermic welding.

- C. Coat welds with the coating repair material and apply an exothermic weld cap.

3.2 INSTALLATION OF MAGNESIUM ANODES

- A. Install magnesium anodes at locations that clear obstructions. Install at least 36 inches and no more than 10 feet from pipe to be protected. Install in augered holes with top of anode 24 inches below pipe invert elevation. In soils that will collapse into augered holes, use casing of galvanized sheet steel.
- B. Install anodes in a dry condition after plastic or waterproof protective covering has been completely removed from water-permeable permanent container that houses anode metal. Do not use anode-connecting wire for lowering anode into hole. Backfill annular space around anode with fine earth in six-inch layers; compact each layer using hand tools. Do not strike anode or connecting wire during backfilling and compacting. After backfilling and compacting to within six inches of finished grade, pour approximately five gallons of water into each filled hole. After water has been absorbed by earth, complete backfilling to finished level.
- C. Install anodes spaced as indicated, connected through a test station to the pipeline, allowing slack in connecting wire to compensate for movement during backfill operation.

3.3 INSTALLATION OF REFERENCE ELECTRODES

- A. Install per Details and COA Specification 420.19.

3.4 INSTALLATION OF WIRE AND CABLE

- A. Install conductors, except anode wires, in PVC conduit with waterproof PVC junction boxes.
- B. Anode Wire Installation: Cover trench bottom for the anode wire with three-inch layer of sand or stone-free earth. Center wire on backfill layer and do not stretch or kink the conductor. Place backfill over wire in layers not exceeding six inches deep, and compact each layer. Use clean fill, free from roots, vegetable matter, and refuse. Place cable underground-line warning tape within 18 inches of finished grade, above cable and conduit.
- C. For wire splicing, use compression connectors or exothermic welds.

3.5 INSTALLATION OF TEST STATIONS

- A. Install test stations at steel casing:
 - 1. Install per Detail F/CD-1.

2. Anode Schedule:

TEST STATION ID	ALIGNMENT DRAWING	CASING DIAMETER	NOTES
1	C-1	36" Steel	Anode and Reference Electrode
2	C-7	36" Steel	Anode and Reference Electrode
3	C-14	24" Steel	Anode and Reference Electrode

- B. Install test stations on backfill complying with requirements for trench bottom fill for anode wires unless otherwise indicated.
- C. Test station locations shall be installed outside of the City or County roadways and away from traffic.
 - 1. Locations will typically be in landscaped area behind the edge of road, shoulder, or median or at the direction of Engineer or Arvada Inspectors.
 - 2. When routing test stations away from protected pipe all test station and anode wires shall be installed in a minimum 1-inch diameter PVC conduit routed from the edge of pipe trench to the test station box location.
- D. Terminate test conductors on terminal boards and install a spare set of test leads at each testing location.

3.6 IDENTIFICATION

- A. Identify anode wires and anode header cables with marker tape.
- B. Identify underground wires and cables with underground-line warning tape.
- C. Identify text boxes with engraved, laminated acrylic or melamine label, permanently attached to text box.

3.7 FIELD QUALITY CONTROL

- A. Comply with NACE RP0169 and NACE RP0285.
- B. Testing Agency: Contractor shall engage with a qualified testing agency to perform tests and inspections. Perform testing in presence of Engineer or Arvada Inspector.
- C. Perform the following tests and inspections.
 - 1. Static Pull Test: Choose, at random, one completed anode of each type for this destructive test. Demonstrate that anode wire connections have enough strength to

- withstand a minimum tensile load of 300 lb. If test fails, replace all anodes and repeat test at another randomly selected anode.
2. Baseline Potentials: After backfilling of pipe and anodes is completed, but before anodes are connected to pipe, measure the static potential of pipe to soil. Record initial measurements.
 3. Current output of sacrificial anodes shall be obtained after connecting the anode wire in the test station boxes and utilizing the shunt provided in each test station.
 4. Anode Output: Measure electrical current as anodes or groups of anodes are connected to pipe. Use a low-resistance ammeter. Record current, date, time, and location of each measurement.
 5. Pipe-to-Reference Electrode Potential Measurements: On completion of installation of entire cathodic protection system, make electrode potential measurements according to NACE RP0169, using a copper/copper-sulfate reference electrode and a potentiometer-voltmeter, or a dc voltmeter with an internal resistance (sensitivity) of not less than 100,000 ohms per volt and a full scale of 1 or 2 V. Make measurements at same locations as those used for baseline potentials. Record voltage, date, time, and location of each measurement, using one of the following two methods:
 - a. 0.85 V Negative Voltage: With cathodic system in operation, measure a negative voltage of at least minus 0.85 V between pipe and a saturated copper/copper-sulfate reference electrode contacting the earth directly over pipe.
- D. Location of Measurements for Piping: For coated piping or conduit, measure from reference electrode in contact with the earth directly over pipe.

3.8 ADJUSTING

- A. During the first year after Substantial Completion, test, inspect, and adjust cathodic protection system every three months to ensure its continued compliance with specified requirements.

3.9 OPERATION AND MAINTENANCE MANUAL

- A. The Contractor's Corrosion Specialist shall prepare and furnish a written O&M manual upon completion of the cathodic protection system testing. It shall include a physical description of the material being protected, cathodic protection system description, locations of test stations, and final cathodic test data.

END OF SECTION 134713

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SECTION 310515 - SOILS AND AGGREGATES FOR EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The 2023 (or most recent edition) City of Arvada Engineering Code of Standards and Specifications, Section 300 Soils and Earthwork.
- C. Appendix A – Geotechnical Study North Trunk Line Sanitary Sewer (to be used for informational purposes only).

1.2 SUMMARY

- A. This section specifies required earthwork for construction including, but not limited to, the following:
 - 1. Soil materials.
 - 2. Coarse aggregate materials and fine aggregate materials.
 - 3. Trench zone materials.
 - 4. Structural fill.
 - 5. Controlled Low Strength Material (CLSM).
 - 6. Handling, placing, removing, compacting, and stockpiling of earthwork materials.
- B. Related Sections:
 - 1. Section 312333 “Trenching and Backfilling.”
 - 2. Section 321123 “Aggregate Base Courses.”
 - 3. Section 321216 “Asphalt Paving.”
 - 4. Section 330513 “Maintenance Holes and Structures.”

1.3 DEFINITIONS:

- A. Bedding: Fill placed under, beside, and directly over pipe, prior to subsequent backfill operations.

1.4 ACTION SUBMITTALS

- A. Samples - Soils: Submit in five-gallon air-tight containers, 50 lbs. sample of each type of subsoil fill to testing laboratory.
- B. Samples - Aggregates: Submit, in five-gallon air-tight containers, 50 lbs. representative sample of each type of aggregate fill to Engineer at least 15 days prior to placement of backfill or fill.

- C. Controlled Low Strength Material (CLSM): Submit certified mix design and strength test results.
- D. Quality Control Testing: Submit conformance testing performed by a certified independent laboratory engaged by Contractor for all fill materials. Testing results for maximum density, gradation, Atterberg limits, sand equivalent, and other applicable criteria shall be submitted and approved by Engineer prior to importing or placing any fill.

1.5 INFORMATIONAL SUBMITTALS

- A. Materials Source: Submit name and location of imported materials suppliers.
- B. Source's Certificate: Certify materials meet or exceed specified requirements.
- C. Material Test Reports: For each on-site and borrow soil and aggregate material proposed for fill and backfill as follows:
 - 1. Classification according to ASTM D2487.
 - 2. Laboratory compaction curve according to ASTM D698.
 - 3. Test Reports: Submit any test reports required by this Section to the Engineer.

1.6 QUALITY ASSURANCE

- A. Furnish each subsoil and topsoil material from single source throughout the Work, unless an alternate source is approved by the Engineer.
- B. Furnish each coarse and fine aggregate material from single source throughout the Work, unless an alternate source is approved by the Engineer.
- C. Perform Work according to State of Colorado DOT standards.
- D. Quality Control and Quality Assurance consists of laboratory conformance testing of samples supplied from each coarse and fine aggregate source and quality control during installation.
 - 1. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E329 and ASTM D3740 for testing indicated.
 - a. Tests to determine conformance with all requirements of this Specification for quality and properties of all Contractor secured materials, including borrow materials (both on or off Site) proposed for use, shall be performed by an independent, commercial laboratory retained and compensated by Contractor, and approved by Engineer.
 - b. When incorporating materials into the Project, quality control testing will be performed during construction by a testing laboratory retained and compensated by Owner.
 - 2. For cohesive soils determine the maximum density at optimum moisture content in accordance with ASTM D698.
 - 3. For cohesionless soils, determine relative density in accordance with ASTM D4253 and D4254. Perform field density in place tests in accordance with ASTM D1556 and D2922.

4. Determine particle size analysis of soils and aggregates in accordance with ASTM D422.
- E. Maintain one copy of each standard affecting Work of this Section on Site.

1.7 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Tree and Plant Protection Zones: Comply with requirements and measures specified in Section 015639 "Temporary Tree and Plant Protection."

PART 2 - PRODUCTS

2.1 SUITABLE FILL AND BACKFILL MATERIALS

- A. Materials suitable for use in embankment and fill include material free of debris, roots, organic matter, and frozen matter; and free of stones having any dimension greater than two inches in areas requiring a high degree of compaction or four inches in other embankment and fill areas.
 1. Cohesionless materials include gravels, gravel-sand mixtures, sands, and gravelly sands exclusive of clayey material:
 - a. Free-draining.
 - b. Materials for which impact compaction will not produce a well- defined, moisture-density relationship curve.
 - c. Maximum density by impact methods will generally be less than by vibratory methods.
 - d. For which generally less than 15 percent by dry weight, of soil particles pass the No. 200 sieve.
 2. Cohesive materials include silts and clays generally exclusive of sands and gravel.
 - a. Materials for which impact compaction will produce a well-defined, moisture density curve.
- B. Suitable materials may be obtained from on-site excavations, may be processed on-site materials, or may be imported.
 1. Contractor shall haul and dispose of unsuitable material offsite at no additional cost to Owner.

C. Common Fill:

1. Approved on site excavated material or imported fill material that is composed of durable soil free of debris, organic matter, or other deleterious materials.
2. Does not contain stones larger than 6 inches in largest diameter.
3. Between 35 percent and 75 percent passing a No. 200 sieve.
4. Plasticity Index of at least 11.
5. Maximum dry density of at least 90 pounds per cubic foot (pcf) as determined by ASTM D698.
6. Does not contain granite blocks, broken concrete, masonry rubble, or other similar materials and with physical properties such that it can be readily spread and compacted during filling.

D. Select Common Fill:

1. As specified above for common fill, except contains no stones larger than 2 inches in largest diameter.
2. Maximum Plasticity Index of 30.

E. Structural Fill:

1. Consist of mineral soil free of organic material, loam, debris, frozen soil or other deleterious material which may be compressible, or which cannot be properly compacted,
2. Liquid Limit: 40 percent maximum.
3. Plasticity Index: 10 percent maximum.
4. Dry Density: 95 pcf maximum, as determined by ASTM D698.
5. Meets the following gradation for Sieve Size and Percent Fines by Weight:
 - a. 3-inch: 100.
 - b. No. 4: 20 to 70.
 - c. No. 40: 5 to 35.
 - d. No. 200: 0 to 10.

F. Pipe Bedding and Pipe Zone Material:

1. For pipe 12" and smaller, use Fine Aggregate – Squeegee Sand. Material shall be graded according to City of Arvada Standards Section 367.00; within the following limits:
 - a. 3/8-inch: 100 percent.
 - b. No. 200: 0 to 5 percent.
2. For pipe larger than 12", size range of the aggregate shall conform to ASTM C33, gradation No. 67 as follows:
 - a. 1-inch: 100 percent.
 - b. 3/4-inch: 90 to 100 percent.
 - c. 3/8-inch: 20 to 55 percent.
 - d. No. 4: 0 to 10 percent.
 - e. No. 8: 0 to 5 percent.

- G. Trench Stabilization Material: Coarse Aggregate - Crushed Stone: Natural stone; free of clay, shale, organic matter; conforming to State of Colorado DOT standard.
 - 1. Coarse Aggregate Designation: No. 57.
- H. Maintenance Hole Bedding:
 - 1. State of Colorado DOT Standard No. 4 Bedding Material.
- I. Controlled Low Strength Material (CLSM):
 - 1. CLSM shall be used in accordance with Arvada Standards, as indicated in Section 312333 "Trenching and Backfilling," and Drawings.
 - 2. Contractor shall submit a mix design for approval prior to placement in accordance with Volume I, Item 19 of the Municipal Government Pavement Engineers Council (MGPEC) specifications.
 - 3. CLSM placed in pipe zone or in areas that may require future excavation shall have a Removability Modulus (RM) less than 1.5, as calculated by:

$$RM = (W^{1.5} \times 104 \times C^{0.5}) / 10^6$$

W = unit weight of cured (dry) sample (pcf).
C = 28-day compressive strength (psi).

2.2 UNSUITABLE MATERIAL

- A. Unsuitable material for fill, backfill and embankment materials includes all material that contains debris, roots, organic matter, frozen matter, gravel, stone, or shale particles that cannot be compacted sufficiently to achieve the percentage of maximum density specified for the intended use.
- B. Wet, soft, or frozen materials.
- C. Materials containing asphalt, concrete chunks, organic material, boulders or rocks.
- D. Topsoil.

2.3 SOURCE QUALITY CONTROL

- A. Subsoil Material - Testing and Analysis: Perform in accordance with ASTM D698.
- B. Coarse Aggregate Material - Testing and Analysis: Perform according to ASTM D698.
- C. Fine Aggregate Material - Testing and Analysis: Perform according to ASTM D698.
- D. When tests indicate materials do not meet specified requirements, change material and retest.
- E. Furnish materials of each type from same source throughout the Work.

PART 3 - EXECUTION

3.1 EXCAVATION - SOILS

- A. Excavate topsoil from areas designated. Strip topsoil to full depth of topsoil in designated areas.
- B. Stockpile excavated material meeting requirements for subsoil materials and topsoil materials.
- C. Remove excess excavated materials subsoil and topsoil not intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for subsoil materials and topsoil materials from site.
- E. All materials encountered, regardless of type, character, composition, and condition, thereof, shall be unclassified. Rock encountered shall be handled at no additional cost to Owner.

3.2 EXCAVATION - AGGREGATES

- A. Stockpile excavated material meeting requirements for coarse aggregate materials and fine aggregate materials.
- B. Remove excess excavated materials not intended for reuse, from site.
- C. Remove excavated materials not meeting requirements for coarse aggregate materials and fine aggregate materials from site.

END OF SECTION 310515

SECTION 312316 - ROCK REMOVAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Excavating, removing, and disposing of identified and discovered rock and boulders during excavation.
 - 2. Tools to assist rock removal.
 - 3. Backfill in place of the excavated rock.
- B. Related Requirements:
 - 1. Section 310515 "Soils and Aggregates for Earthwork" for backfilling material.
 - 2. Section 312333 "Trenching and Backfilling" for trenching and backfilling for utilities.
 - 3. Section 315000 "Excavation Support and Protection."

1.3 DEFINITIONS

- A. Rock: Intact mass of stone, bedrock, or ledgerock.
- B. Boulder: Rock fragments exceeding one cubic yard in volume.
- C. Rock Excavation: Removal of intact rock, which in The Engineer's opinion cannot be removed by conventional mechanical excavation equipment and requires continuous, systematic drilling, blasting, wedging, sledging, cutting, barring, jack hammering, hoe ramming or expansive chemical splitting.
- D. Boulder Excavation: Removal of non-intact boulders that can be removed by conventional mechanical excavation equipment.
- E. Conventional Mechanical Excavation Equipment: Bulldozer or tractor, drawing a single tooth hydraulic ripper with a minimum drawbar pull of 56,000 pounds.
- F. Soil Excavation:
 - 1. Rock fragments less than 1 cubic yard in volume that can be removed by conventional mechanical excavation.
 - 2. Removal of earth weathered rock, and rock fragment that can be removed by conventional mechanical excavation.

- 3. Soil excavation includes excavation of earth materials that are not considered as rock excavation or boulder excavation.
- G. Loose or disintegrated rock, rotted shale, nested stones, hardpan, and like materials are not considered as rock or boulder.
- H. Abutter: Owner of an adjoining property.
- I. The Engineer: Engineer hired by Owner.

1.4 ACTION SUBMITTALS

- A. Submit means and methods description at least two weeks prior to commencing rock and boulder excavation.
 - 1. Identify techniques including size and energy of impact equipment and chemical properties of agents to be used for chemical splitting.
 - 2. Name and qualifications of persons responsible for monitoring and reporting rock excavation vibrations.
- B. Review by The Engineer of Contractor's submittals does not relieve Contractor of responsibility for accuracy, adequacy, and safety of rock and boulder excavation, exercising proper supervision and field judgment, and producing results specified in this Section.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Uncover rock when encountered, but do not excavate until measurements are made by The Engineer.

3.2 ROCK REMOVAL

- A. Perform rock excavation by drilling, wedging, sledging, cutting, barring, jack hammering, hoe ramming, expansive chemical splitting, or other similar process in a manner, which does not cause damage to existing structures, new construction, or affecting Owner operations.
- B. Blasting is not allowed.
- C. Perform rock excavation operations to comply with project, state, and local noise and dust regulations.

- D. When below grade excavation methods shatter rock and is unfit for subgrade, as determined by The Engineer, remove rock and refill excavation with thoroughly compacted screened gravel, structural fill, or lean concrete without additional compensation.
- E. When directed by The Engineer during the work, remove dirt and loose rock from designated areas and thoroughly clean rock surface; use steam to melt snow and ice, if necessary. Remove water in depressions so the whole surface of designated area can be inspected to determine whether seams or other defects exist.
- F. Leave surfaces of rock foundations sufficiently rough to bond well with concrete. When required, cut rock to rough benches or steps.
- G. Before installing masonry or embankment on or against rock, free rock surfaces from vegetation, dirt, sand, clay, boulders, scale, excessively cracked rock, loose fragments, ice, snow, and other objectionable substances. Use picking, barring, wedging, streams of water under sufficient pressure, stiff brushes, hammers, steam jets, and other effective means to accomplish this cleaning. Remove free water left on rock surface.

3.3 BOULDER EXCAVATION

- A. Boulder and rock fragments up to one cubic yard in volume may be reduced in size by rock excavation methods to simplify its removal.

3.4 DISPOSAL OF ROCK AND BOULDERS

- A. Fragmented rock with dimensions not exceeding six inches in any direction may be mixed with common fill and used as common fill in accordance with Section 310515 "Soils and Aggregates for Earthwork."
- B. Crushed and screened rock and boulders may be for reused in the work, provided resultant materials meet requirements for gravel, crushed stone, or structural fill as specified in Section 310515 "Soils and Aggregates for Earthwork."
- C. Stockpile excavated material without excessive surcharge on excavation or obstructing free access to hydrants and gate valves. Avoid inconvenience to traffic and abutters as much as possible.
- D. Should conditions make it impracticable or unsafe to stack material adjacent to excavations, haul and store material at provided location. When required, re-handle and use it for trench backfilling without additional compensation.
- E. Replace rock and boulder material disposed of by wasting using available surplus suitable soils. Where there is a deficiency of surplus backfill material, provide common fill without additional compensation.
- F. Remove and dispose off-site unused rock and boulders.

END OF SECTION 312316

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SECTION 312319 - DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Appendix A – Geotechnical Report (for informational purposes only).

1.2 SUMMARY

- A. Section includes delegated design of temporary construction dewatering and surface water control and incorporates the design, equipment, materials, installation, operation, protection, monitoring and removal of dewatering and drainage system. Provide dewatering system sufficient to lower groundwater and collect surface water, regardless of groundwater level or rainfall at any time during the work.
- B. Obtain and pay for permits required for dewatering and drainage systems. Implement measurements to comply with dewatering and discharge permits requirements.
- C. Related Requirements:
 - 1. Section 310515 “Soils and Aggregates for Earthwork” for filter sand.
 - 2. Section 312333 “Trenching and Backfilling” for trenching, backfilling, and compaction.
 - 3. Section 315000 “Excavation Support and Protection” for support of excavations.
 - 4. Most recent edition of City of Arvada Specifications 360, 362, and 364.

1.3 DEFINITIONS

- A. In-the-Dry: An excavation subgrade where all of the following are met:
 - 1. Groundwater level has been lowered to at least two feet below lowest excavation level.
 - 2. Subgrade is stable with no ponded water, mud, or muck.
 - 3. Subgrade is able to support construction equipment without rutting or disturbance.
 - 4. Subgrade is suitable for placement and compaction of fill material, pipe, or concrete foundations.
- B. Contractor’s Engineered Design: Design prepared on behalf of Contractor by a registered Professional Engineer.
- C. Professional Engineer: Registered Professional Engineer meeting project qualifications and who is hired by Contractor.
- D. The Engineer: Engineer hired by Owner.

1. Approvals given by The Engineer shall not relieve Contractor of its responsibilities for performing the work in accordance with Contract Document requirements.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Verify availability of Installer's personnel, equipment, and facilities needed to perform the work, make progress and avoid delays.
2. Review condition of site to be dewatered including coordination with temporary erosion-control measures, excavation support systems, and temporary controls and protections.
3. Review geotechnical report.
4. Review proposed site clearing and excavations.
5. Review existing utilities and subsurface conditions.
6. Review observation and monitoring of dewatering system.
7. Review sampling and testing requirements for discharge.
8. Review pretreatment requirements prior to discharge, discharge location(s), and flow rate requirements.

1.5 DELEGATED DESIGN SUBMITTALS

A. Design Plan: Submit written dewatering and drainage system design plan, prepared by a qualified Professional Engineer, that includes:

1. Description of proposed dewatering system and installation methods to be used for system elements and observation wells.
2. Description of equipment, drilling methods, holes sizes, filter sand placement techniques, sealing materials, development techniques, number and location of dewatering points and observations wells.
3. Dewatering system design calculations demonstrating that the proposed system meets all requirements herein and elsewhere.
4. Sequence of well and well-point placement coordinated with support of excavation system installation and control procedures to be adopted, if dewatering problems arise.
5. Identification of anticipated area influenced by dewatering system and address impacts to adjacent existing and proposed structures.
 - a. Include detailed plans for pre-construction surveys of existing structures in vicinity of dewatering system, settlement monitoring of existing structures during construction, and provisions to address settlement of existing structures resulting from dewatering activities.
6. Coordinate dewatering and drainage submittals with excavation and support of excavation submittals.

B. Shop Drawings: For dewatering system, prepared by a qualified Professional Engineer.

1. Include plans, elevations, sections, and details.

2. Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water.
3. Include pump capacity and anticipated discharge rate.
4. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system.
5. Show areas and depths of excavation to be dewatered and adjacent structures or facilities within the anticipated area influence.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, land surveyor, and Professional Engineer.
- B. Field quality-control reports.
- C. Existing Conditions: Using photographs or video recordings, show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by dewatering operations. Submit before Work begins.
- D. Record Drawings: Identify locations and depths of capped wells and well points and other abandoned-in-place dewatering equipment.
- E. Discharge sampling log, testing results of effluent samples and flow rate record.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer that has specialized in installation of dewatering systems and dewatering work and having a minimum of five years' experience.
- B. Professional Engineer Qualifications: Licensed Professional Engineer registered in the State where project is located; having a minimum of five years' experience in design and construction of dewatering and drainage systems; and having completed not less than five successful dewatering and drainage projects of equal type, size, and complexity to that required for the work.
- C. Land Surveyor Qualifications: Land Surveyor licensed in State of Project.
- D. Comply with authorities having jurisdiction for the following:
 1. Drilling and abandoning of wells used for dewatering systems.
 2. Water discharge and disposal from dewatering operations.
- E. Obtain CDPHE permits for Dewatering and Stormwater Discharge and other applicable permits required under local jurisdiction.

1.8 FIELD CONDITIONS

- A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. Owner is not responsible for interpretations or conclusions drawn from this report.
 - 1. Make additional test borings and conduct other exploratory operations necessary for dewatering according to the performance requirements.
 - 2. Groundwater levels may vary during the work and should not be assumed to be accurately represented by groundwater level readings reported in the geotechnical report.
 - 3. The geotechnical report is referenced elsewhere in Project Manual.
- B. Survey Work: Engage a qualified land surveyor or Professional Engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 DESIGN REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of surface and ground water and permit excavation and construction to proceed in-the-dry in accordance with the requirements herein and elsewhere.
 - 1. Design dewatering system, including comprehensive engineering analysis by the Contractor's Design Engineer.
 - 2. Continuously monitor and maintain dewatering operations to ensure required groundwater lowering, erosion control, stability of excavations, excavation support, and constructed slopes, prevention of flooding in excavation, and prevention of damage to subgrades and permanent structures.
 - 3. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - 5. Remove dewatering system when no longer required for construction.
- B. Primary Purpose of Work: Preserve natural undisturbed condition of subgrade soils in areas of proposed excavations.
 - 1. Prior to excavation, lower groundwater to at least two feet below lowest excavation subgrade elevation.
 - 2. Additional groundwater lowering may be necessary beyond two feet requirement, depending on construction methods, equipment used, and prevailing groundwater and soil conditions. Lower groundwater as necessary to complete construction in accordance with Contract Documents without additional compensation
- C. Design deep wells, well points and sumps, and other groundwater control system components to prevent loss of fines from surrounding soils. Use sand filters with dewatering installations,

unless screens are properly sized by Contractor's design engineer to prevent passage of fines from surrounding soils.

- D. Maintain standby pumping systems and sources of standby power at various sites.
- E. Design dewatering system to prevent damage to adjacent properties, buildings, structures, utilities, and facilities from dewatering operations. Be responsible for damage to properties, buildings or structures, sewers and other utility installations, pavements, and work that may result from dewatering or surface water control operations.
- F. Regulatory Requirements:
 - 1. Comply with governing EPA notification regulations before beginning dewatering. Comply with water- and debris-disposal regulations of authorities having jurisdiction.
 - 2. Comply with CDPHE Construction Dewatering permit.

2.2 MATERIALS

- A. Pipe for Observation Wells: ASTM D1785, PVC Schedule 40 in minimum interior diameter of 2 inches and machine slotted having a maximum slot size of 0.020 inch. Equipment: Piping, pumping, and other equipment and materials to provide control of surface water and groundwater in excavations.
- B. Grout: Mixture of portland cement and bentonite clay or sand suitable for sealing abandoned wells and piping.

PART 3 - EXECUTION

3.1 GENERAL

- A. Control surface water and groundwater such that:
 - 1. Excavation to final grade is made in-the-dry.
 - 2. Natural undisturbed conditions of subgrade soils are maintained.
 - 3. Softening, instability, or disturbance due to presence or seepage of water does not occur.
 - 4. Construction and backfilling proceeds in-the-dry.
 - 5. Floatation of completed portions of work shall be prohibited.
- B. Methods of groundwater control may include but are not limited to perimeter trenches and sump pumping, perimeter groundwater cutoff, well points, ejectors, deep wells, or any combination.
- C. Where groundwater levels are above proposed bottom of excavation level, provide a pumped dewatering system for pre-drainage of soils prior to excavation and for maintaining lowered groundwater level until construction has been completed such that structure, pipeline, or fill will not be floated or otherwise damaged.
- D. Vary type of system, spacing of dewatering units, and other details of the work depending on soil and water conditions at each location.

- E. Do work in a manner to protect adjacent structures and utilities without causing loss of ground or disturbance to pipe bearing soils or soils supporting overlying or adjacent structures.
- F. Install, monitor, and report data from observation wells. Evaluate collected data relative to groundwater control system performance and modify systems necessary to dewater site.
- G. Locate groundwater control system components where they will not interfere with construction activities adjacent to the work area or interfere with installation and monitoring of geotechnical instrumentation including observation wells. Do not make excavations for sumps or drainage ditches within or below 1H:1V slopes extending downward and out from edges of existing or proposed foundation elements or from downward vertical footprint of pipe without approval by the Engineer.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
 - 1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site or surrounding area.
 - 2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways, if required by authorities having jurisdiction.
- C. Provide temporary grading to facilitate dewatering and control of surface water.
- D. Protect and maintain temporary erosion and sedimentation controls, which are specified in Section 015000 "Temporary Facilities and Controls," during dewatering operations.

3.3 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
 - 1. Space well points or wells at intervals required to provide sufficient dewatering.
 - 2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.
- B. Place dewatering system into operation to lower water to specified levels before excavating below ground-water level.

- C. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.
- D. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails.

3.4 SURFACE WATER CONTROL

- A. Construct surface water control measures, including dikes, ditches, sumps and other methods to prevent flow of surface water into excavations and to allow construction to proceed without delay.
- B. Grade excavation to divert surface water and seepage water within excavation areas into sumps and dewatering wells.

3.5 EXCAVATION DEWATERING

- A. Provide and maintain equipment and facilities to promptly remove and properly dispose of water entering excavations. Maintain excavations in-the-dry.
- B. Excavation dewatering shall maintain the subgrade in a natural undisturbed condition and be in operation until the fill, structure or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to natural elevations.
- C. Do not place pipe, masonry, and concrete in water or submerge within 24 hours after being installed. Prevent water from flow over new masonry or concrete within four days after placement.
- D. Prevent water from rising to cause unbalanced pressure on structures until concrete or mortar has set at least 24 hours. Prevent pipe flotation by promptly placing backfill.
- E. Conduct dewatering to preserve natural undisturbed condition of subgrade soils at bottom of excavation.
- F. If trench subgrade or excavation bottom becomes disturbed due to inadequate dewatering or drainage, excavate below normal grade as directed by the Engineer and refill with structural fill, screened gravel, or other material as approved by the Engineer without additional compensation.
- G. It is expected that initial dewatering plan may be modified to suit variable soil and water conditions encountered. Dewater and excavate in a manner without causing loss of ground or disturbance to pipe bearing soil or soil that supports overlying or adjacent structures or instability of excavation or tunnel face conditions.
- H. If methods do not properly dewater excavation, install additional groundwater observation wells as directed by the Engineer. Do not place pipe or structure until readings obtained from observation wells indicate that groundwater has been lowered to specified minimum of below bottom of final excavation.

- I. Surround dewatering units with suitable filter sand with no fines being removed by pumping. Pump continuously from dewatering system until pipe or structure is adequately backfilled. Provide stand-by pumps.
- J. Collect water entering excavations from precipitation or surface runoff in shallow ditches around excavation perimeter, drained to a sump, and pump from excavation to maintain a bottom free from standing water.
- K. Dispose of drainage to an approved area. Do not use existing or new sanitary sewers to dispose of drainage.

3.6 WELL-POINT SYSTEMS

- A. Where necessary, install a vacuum well-point system around excavation for dewatering purposes. Surround each well-point and riser pipe by a sand or gravel filter. Use sand of gradation that after initial development of well-points, quantity and size of soil particles discharged shall be negligible. Provide well-point systems capable of operating continuously under highest possible vacuum. Include sufficient valves and gauges to accurately monitor and control the system. Develop and redevelop well-points to provide reliable performance throughout the duration of the work.
- B. Install well point systems in the Engineer's presence according with approved submittal.

3.7 DEEP WELLS

- A. Where necessary, install a deep well system around an excavation to dewater or depressurize it. Surround each well with a sand or gravel filter having adequate gradation so quantity and size of soil particles discharged are negligible. Install sufficient number of wells to lower or depressurize groundwater level allowing excavation to proceed in-the-dry. Develop and redevelop wells as necessary to provide reliable performance throughout the duration of the work.
- B. Install deep wells in the Engineer's presence according with approved submittal.

3.8 OBSERVATION WELLS

- A. Install observation wells as required under this Section and in accordance with the approved submittal to monitor groundwater levels beneath and around excavated areas until adjacent structures and pipelines are completed and backfilled.
- B. Observation Well Locations and Depths:
 - 1. Locate in critical areas with respect to groundwater control to monitor performance of dewatering systems as determined by Delegated Design.
 - 2. Install observation wells to:
 - a. Minimum depth of ten feet below deepest level of excavation, unless otherwise approved by the Engineer.

- b. Depth necessary to indicate that groundwater control system designed under Delegated Design is performing as intended.
- 3. Provide additional observation wells required by the Engineer if deemed necessary to monitor performance of groundwater control system without additional compensation.
- 4. Locations and depths are subject to approval by the Engineer.
- C. Protect observation wells at ground surface by providing a lockable box or outer protective casing with lockable top and padlock. Design surface protection to prevent damage by vandalism, construction operations, and surface water infiltration.
 - 1. Provide two copies of padlock keys at each well for the Engineer's access.
 - 2. Develop observation wells to provide a reliable indication of groundwater levels. Re-developed wells: if well clogging is observed; in event of apparent erroneous readings; or as directed by the Engineer.
 - 3. Submittal observation well installation logs, top of casing elevation, and well locations to the Engineer within 24 hours of completing well installation.
- D. Observation Well Maintenance:
 - 1. Maintain each observation well until adjacent structures and pipelines are completed and backfilled. Clean out or replace any observation well which ceases to be operable before adjacent work is completed.
 - 2. Repair or replace wells without additional compensation, whether damage is caused by Contractor's operations or third parties.
- E. Monitoring and Reporting of Observation Well Data:
 - 1. Begin daily monitoring of groundwater levels in work areas prior to initial operation of drainage and dewatering system. Continue daily monitoring in areas where groundwater control is in operation until time that adjacent structures and pipelines are completed and backfilled or until time that groundwater control systems are turned off.
 - 2. Be responsible for processing and reporting observation well data to the Engineer on a daily basis. Provide data to the Engineer on a form that includes following information: observation well number, depth to groundwater, total depth of well, top of casing elevation, groundwater level elevation, and date and time of reading.
- F. Keep groundwater level at a minimum of two feet below lowest subgrade level for a given excavation.

3.9 REMOVAL OF SYSTEMS

- A. At completion of excavation and backfilling work and when approved by the Engineer, remove from site various pipe, deep wells, well-points, pumps, generators, observation wells, other equipment, and accessories used for groundwater and surface water control systems.
 - 1. Removed materials and equipment become property of Contractor.
- B. Restore areas disturbed by installation and removal of groundwater control systems and observation wells to their original condition.

- C. Leave in place deep wells casings, well-points, and observation wells located:
 - 1. Within plan limits of structures or pipelines.
 - 2. Within zone below 1H:1V planes extending downward and out from edges of foundation elements or from downward vertical footprint of pipe.
 - 3. Where removal would result in ground movements causing adverse settlement to adjacent ground surface, utilities, or existing structures.
- D. Fill pulled casings holes with sand. Where left in place, fill casings with cement grout and cut off a minimum of three feet below finished ground level or one foot below foundation level to prevent interference with finished structures or pipelines.
- E. When directed by the Engineer, leave observation wells in place for continued monitoring. Cut casings flush with final ground level when directed and provide protective lockable boxes with locking devices. Provide protective boxes suitable for traffic and other conditions to which observation wells will be exposed.

END OF SECTION 312319

SECTION 312333 - TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Appendix A – Geotechnical Study North Trunk Line Sanitary Sewer (to be used for informational purposes only).

1.2 SUMMARY

- A. Section includes delegated design of trench excavation and support, backfilling, and compaction.
- B. Related Requirements:
 - 1. Section 310515 “Soils and Aggregates for Earthwork” for materials used as bedding and backfill and for sheeting and bracing.
 - 2. Section 312316 “Rock Removal” for rock and boulder excavation.
 - 3. Section 312319 "Dewatering" for dewatering and drainage.
 - 4. As set forth in Section 300.00 of City of Arvada Standards and Specifications.

1.3 DEFINITIONS

- A. Percent Compaction: Means at least the stated percentage of maximum density as determined by ASTM D698.
- B. Bedding: Fill placed under, beside, and directly over pipe, prior to subsequent backfill operations.

1.4 ACTION SUBMITTALS

- A. Submit proposed method of backfilling and compaction prior to start of Work.

1.5 DELEGATED DESIGN SUBMITTALS

- A. Submit method of trench excavation and support, where necessary, including design of sheeting and bracing with calculations signed and sealed by qualified professional engineer in the state of Colorado responsible for their preparation in accordance with the most recent OSHA and other governing rules and regulations. Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property. Submit

structural calculations stamped and signed by an Engineer registered in Colorado, for support systems with cuts over 20 feet.

- B. Qualifications Statement: Submit qualifications for licensed professional.

1.6 INFORMATIONAL SUBMITTALS

- A. Material Test Reports: For material excavated from trench for re-use as backfill, by a qualified testing agency.

1.7 QUALITY ASSURANCE

- A. Comply with following regulations:
 - 1. Occupational Safety and Health Administration (OSHA): 29 CFR Part 1926 Subpart P.
 - 2. Tests to determine conformance with all requirements of this specification for quality and properties of all Contractor secured materials, including borrow materials proposed for use, shall be performed by an independent, commercial laboratory retained and compensated by Contractor, and approved by Engineer or Owner.
 - 3. When incorporating materials into the Project, quality control testing will be performed during construction by a testing laboratory retained and compensated by Owner.
- B. Professional Engineer Qualifications: Licensed Professional Engineer in the state of Colorado experienced in design of specified Work and licensed in the jurisdiction of Project location; having a minimum of five years' experience in design and construction of trench excavation and support.
- C. Where conflict exists between OSHA and State regulations, more stringent requirements apply.

1.8 FIELD CONDITIONS

- A. Temporary Erosion and Sediment Controls: Furnish, install, construct, and maintain temporary measures to control erosion and minimize the siltation of intermittent streams and the pollution of private properties. Temporary erosion and sediment control measures shall be constructed in substantial compliance with local, state, federal, and jurisdictional agency's regulations and Contract Drawings (if applicable). Temporary erosion and sediment control measures shall be maintained until completion of the Work.
- B. Existing Utilities:
 - 1. Existing underground utilities are shown on Contract Drawings using the best information available at the time of Drawing preparation. Contractor shall identify, locate and protect all underground utilities which may be affected by construction under this Contract before starting excavation or other Site construction activities which could damage existing utilities.
 - 2. Remove or relocate only as indicated, specified, or directed. Provide a minimum 48-hours' notice to Engineer and receive written notice to proceed before interrupting any utility service.

3. Adequately protect from damage all active utilities and remove or relocate only as indicated or approved.
 4. Report active, inactive, and abandoned utilities encountered in excavating and grading operations that are not indicated on Contract Drawings. Remove, plug, or cap as directed by Engineer.
- C. Survey work, to accurately determine locations, elevations, and quantities of Contract pay items, shall be performed during construction by Professional Surveyor registered in the state of Colorado. Surveyor shall be retained and compensated by Contractor. Contractor shall notify Engineer prior to commencing survey work.

PART 2 - PRODUCTS

2.1 BACKFILL MATERIALS:

1. Submit per Section 310515 "Soils and Aggregates for Earthwork" and Section 321123 "Aggregate Base Courses."

PART 3 - EXECUTION

- 3.1 Execute work in accordance with City of Arvada Standards Section 361.

3.2 EXAMINATION

- A. Examine that erosion and sedimentation controls are in place and comply with project requirements and authorities having jurisdiction.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Where excavation activities occur across active vehicular or pedestrian circulation paths, use temporary controls specified in Division 01 to maintain circulation during operations required by this Section. Maintain temporary controls for each day circulation paths are restricted.
- B. Coordinate work of this Section with materials specified in other Sections of Division 31.
- C. Identify required lines, levels, contours, and datum locations.
- D. Protect features to remain-in-place including benchmarks, existing structures, fences, sidewalks, paving, curbs, etc. from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.

3.4 TRENCH EXCAVATION

- A. Trench excavation includes material of every description and substance encountered, except rock and boulders. Refer to Section 312316 "Rock Removal" for excavation of those materials.
- B. Cut rigid and flexible pavement with a saw, wheel, or pneumatic chisel along straight lines before excavating.
- C. Strip and stockpile topsoil from grassed areas crossed by trenches.
 - 1. At Contractor's option when required, topsoil may be disposed of and replaced with approved topsoil of equal quality.
- D. While excavating and backfilling is in progress, maintain traffic and protect utilities and other property.
- E. Excavate trenches to indicated depths and in widths sufficient and of practical minimum for pipe laying, bracing, and pumping and drainage facilities.
- F. Accomplish excavation and dewatering by methods preserving undisturbed state of subgrade soils. Excavate trench by machinery to or just below designated subgrade, if material remaining in trench bottom is no more than slightly disturbed.
 - 1. Remove subgrade soils that become soft, loose, quick, or otherwise unsatisfactory due to inadequate excavation, dewatering, or other construction methods and replace with screened gravel fill acceptable to the Engineer at Contractor's expense.
- G. Use care when working in clay and organic silt soils, which are particularly susceptible to disturbance due to construction operations. When excavation is to end in such soils, use a smooth-edge bucket to excavate the last 12 inches of depth.
- H. Where pipe is to be laid in screened gravel bedding, excavate trench by machinery to normal depth of pipe, provided material remaining in trench bottom is no more than slightly disturbed.
- I. Where pipe is to be laid directly on trench bottom, manually perform final excavation, providing a flat-bottom, true to grade upon undisturbed material. Make bell holes required by project conditions.
- J. Open Trenches:
 - 1. The maximum amount permitted in any one location shall be 100 feet, or that allowed by the governing jurisdiction, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is smaller.
 - 2. Open trenches will not be allowed after work hours without prior approval of the Project Engineer or City Inspector. Whenever necessary, trenches and excavations shall be bridged to permit an unobstructed flow of traffic in accordance with City of Arvada Standards Section 149.00.

3.5 DISPOSAL OF MATERIALS

- A. Stack excavated material without excessive surcharge on trench bank or obstructing free access to hydrants and gate valves. Avoid inconvenience to traffic and abutters. Segregated excavated material for use in backfilling as specified below.
- B. Do not remove excavated material from work site, except as directed by the Engineer. When removal of surplus materials is approved by the Engineer, dispose of such surplus material in approved designated areas.
- C. Should conditions make it impracticable or unsafe to stack material adjacent to trench, haul and store material at a location provided. When required, re-handled and use it in backfilling trench.

3.6 SHEETING AND BRACING

- A. Provide and maintain sheeting and bracing required by Federal, State, or local safety requirements to support sides of excavation and prevent loss of ground which could endanger personnel, damage, adjacent structures, or delay the work.
 - 1. Engineer may order additional supports placed at Contractor's expense if it is determined that at any point sufficient or proper supports have not been provided. Compliance with such order shall not relieve Contractor from their responsibility for sufficiency of such supports. Take care to prevent voids outside of sheeting; if voids are formed, immediately fill and ram them.
- B. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support trench sides, take care in placing and moving the boxes or supporting bracing to prevent pipe movement, disturbance of pipe bedding, or screened gravel backfill.
 - 1. Rigid Pipe Installation (such as R.C., V.C., A.C.): Raise that portion of box extending below mid-diameter above this point prior to moving box ahead to install next pipe. Perform to prevent separation of installed pipe joints due to box movement.
 - 2. Flexible Pipe Installation (such as PVC): Do not allow trench boxes, moveable sheeting, shoring, or plates to extend below mid-diameter of pipe. As trench boxes, moveable sheeting, shoring, or plates are moved, place screened gravel to fill voids created. Re-compact screened gravel and backfill to provide uniform side support for pipe.
- C. Engineer may give permission to use steel sheeting in lieu of wood sheeting for entire job wherever sheeting use is necessary. Include cost for use of sheeting in bid items for pipe, including full compensation for driving, bracing, and later removal of sheeting.
- D. Carefully remove sheeting and bracing in manner to not endanger construction of other structures, utilities, or property, whether public or private. Immediately refill voids left after withdrawal of sheeting using sand by ramming with tools especially adapted to that purpose and watering or otherwise directed by the Engineer.
- E. No payment will be given for sheeting, bracing, or other support during progress of the work. No payment will be given for sheeting left in trench for Contractor's convenience.

- F. Leave sheeting driven below mid-diameter of pipe in place from driven elevation to at least 12 inches above top of pipe.

3.7 TEST PITS

- A. Excavation of test pits may be required for purpose of locating underground utilities or structures as an aid in establishing the precise location of new work.
- B. Backfill test pits as soon as desired information has been obtained. Maintain backfilled surface appropriate for travel until resurfaced.

3.8 EXCAVATION BELOW GRADE AND REFILL

- A. Drain trench completely and effectively be in-the-dry, whatever the nature of unstable material encountered or groundwater conditions.
- B. If Contractor excavates below grade through error or for their own convenience, through failure to properly dewater the trench, or disturbs subgrade before dewatering is sufficiently complete, the Engineer may direct Contractor to excavate below grade as set forth in following Paragraph, where work shall be performed at its own expense.
- C. If material at trench bottom consists of fine sand, sand and silt or soft earth which may work into the screened gravel, even with effective drainage, remove subgrade material to extent directed. Refill excavation with a six-inch layer of coarse sand or a mixture graded from coarse sand to fine pea stone to form a filter layer preserving voids in pipe gravel bed. Composition and gradation of gravel shall be approved by the Engineer prior to placement. Place screened gravel in six-inch layers thoroughly compacted up to normal grade of pipe. If directed by the Engineer, use bank-run gravel for refill of excavation below grade.
- D. Subsurface Drainage Geotextile: Non-woven filter fabric may be substituted for filter layer, if approved by the Engineer.

3.9 BACKFILLING

- A. Begin backfilling as soon as practicable after laying and jointing pipe and continue expeditiously. Place bedding gravel of specified type for pipe installed to the minimum bedding material depths shown in contract Drawings.
- B. Construct an impervious dam or bulkhead cutoff of clay or other impervious material in the trench, as directed by the Engineer, to interrupt unnatural flow of groundwater after construction is completed. Key dam into trench bottom and sidewalls. Provide at least one clay or other impervious material dam in pipe bedding between each maintenance hole where directed or every 300 feet, whichever is less.
- C. Where pipes are laid cross-country, fill remainder of trench with common fill material in layers not to exceed 12 inches and mounded 6 inches above existing grade or as directed by the Engineer. Where a loam or gravel surface exists prior to cross-country excavations, remove, conserve and replace it to full original depth as part of the work under pipe items. Where

necessary, remove excess material during clean-up process, so that ground may be restored to its original level and condition.

- D. Where pipes are laid in streets, backfill remainder of trench up to a depth of 12 inches below bottom of specified permanent paving with select common fill material in layers not to exceed 8 inches and thoroughly compacted. Refer to Section 321123 “Aggregate Base Courses” for subbase layer specifications.
- E. To prevent longitudinal pipe movement, do not dump backfill material into trench and then spread, until selected material or screened gravel has been placed and compacted to a level at least 12 inches over the pipe.
- F. Bring backfill up evenly on all sides. Thoroughly compact each layer of backfill material by rolling, tamping, or vibrating with mechanical compacting equipment or hand tamping to 95 percent compaction according to ASTM D1557 or 95 percent according to ASTM D698. If rolling, use a suitable roller or tractor being careful to compact fill throughout full width of trench.
- G. Do not compact by puddling or water jetting.
- H. Use hand or pneumatic ramming with tools weighing at least 20 pounds for compacting in confined areas. Spread and compact material in layers not exceeding six inches thick, an uncompacted loose measurement.
- I. Use granular fill material as backfill around structures. Spread and compact specified backfill under and over pipes connected to structures.
- J. Do not place bituminous paving in backfill. Do not use frozen material under any circumstances.
- K. Broom and hose-clean road surfaces immediately after backfilling. Employ dust control measures throughout construction period.

3.10 RESTORING TRENCH SURFACE

- A. Where trench occurs adjacent to paved streets, in shoulders, sidewalks, or in cross-country areas, thoroughly consolidate backfill and maintain surface as the work progresses. If settlement takes place, immediately deposit additional fill to restore ground level.
- B. Restore surface of driveways or other areas which are disturbed by trench excavation to a condition at least equal to that existing before work began.
- C. In areas where pipeline passes through grassed areas, remove and replace sod or loam and seed surface at Contractor's own expense.

3.11 COMPACTION TESTING REQUIREMENTS

- A. OWNER will pay and/or perform the compaction testing at the frequency and locations listed in the table below and in accordance with the City of Arvada Standards Section 322.00 unless

otherwise noted. Where a discrepancy or where agency and/or utility company requirements govern, the more stringent standards shall apply.

1. The use of Owner's testing agency services does not relieve the Contractor of the responsibility to furnish the required materials and to perform the required construction in full compliance with the Specifications. The Contractor is solely responsible for quality control of the work.

Compaction Test Location	Test Requirements	Minimum Test Frequency	Test Locations
Pipe Zone Backfill	AASHTO T238 & T239	Two tests every 200 lineal feet of trench	At lifts ranging from pipe springline to 1-foot above pipe crown.
Trench Zone Backfill	In place density nuclear - AASHTO T238/T239	One test every 250 lineal feet of trench per 6" vertical lift.	At lifts ranging from 1-foot below final grade to 2-feet above pipe crown. Test points staggered so as not to align on top of the test below. Minimum of 3 tests per day.
Structural Backfill		Two tests at each locations installed.	Vary test depths
Vertical Structures and Appurtenances	In place density nuclear - AASHTO T238/T239	One test per 6" vertical lift.	Test points staggered so as not to align on top of the test below. Test taken 1' from structure.
Embankment (Non-Roadway)	In place density nuclear - AASHTO T238/T239	One test per every 200 Cubic Yards.	Minimum of one test per lift and three tests per day.
Aggregate Base Course Subgrade	AASHTO T238 & T239	One test per 200 Lane Feet per 6" vertical lift.	Test points staggered so as not to align on top of the test below.

B. Minimum Compaction Requirements:

1. Where agency or utility company requirements govern, the highest compaction standards shall apply:

Location of Use of Fill	Percentage of Relative Compaction (ASTM D698)	Percentage of Relative Density (ASTM D4253 and D4254)	Moisture Content Range (ASTM D698 and AASHTO T180)
Pipe zone bedding and over excavated areas	95	70	
Trench zone backfill equal to 20 feet or less, unless otherwise indicated:			
A-1 through A-5	95	70	-2% to +2%
A-6 through A-7	95	70	0% to +2%
Trench zone backfill greater than 20 feet deep	100	85	-2% to +2%
Structural fill	95	70	
Aggregate Base Course Subgrade	95	70	-1% to +1%

Notes:

1. Cohesive soils: Having an AASHTO soil classification of A-6 or A-7.
2. Cohesionless soils: Having an AASHTO soil classification of A-1 to A-5.

3.12 CONTROLLED LOW STRENGTH MATERIAL (CLSM):

A. CLSM required as backfill locations:

1. CLSM trench backfill is required at all transverse street installations. Provide full depth fill from top of bedding zone to top of finished surface.
2. CLSM trench backfill is required four feet horizontally from all structures.
3. CLSM trench backfill is required at all locations where required trench densities are difficult to achieve due to existing utilities or installations disturbing comp active efforts.
4. In constrained areas where proper compaction of backfill cannot be achieved around structures, CLSM “flowable fill” shall be used as defined in Section 360.01 in the Arvada Manual of Standards and Specifications and Section 310515 “Soils and Aggregates for Earthwork.”
5. Contractor shall use CLSM at isolated street cuts and constrained areas shall be backfilled with CLSM per City of Arvada Standards Section 368.00.

B. Where CLSM trench backfill is required, the full depth of trench shall be backfilled with CLSM. Backfill from the top of the bedding zone to the top of finished grade unless indicated otherwise.

1. CLSM installed at finished grade shall provide a suitable temporary drive surface.

- a. Remove CLSM fill as required at time of paving to meeting minimum asphalt replacement thickness, as specified.
- b. Refer to Section 310515 “Soils and Aggregates for Earthwork” for material specifications of CLSM.

C. At a minimum, CLSM as backfill at the following locations:

Location	Description
STA: 1+00 to 1+60	Parallel pipe sections shall be embedded with CLSM where compaction is difficult to achieve.
MH-2	Backfill receiving pit and transverse street cuts made for tie-in connection.
MH-5	Backfill 5 feet horizontally from MH structure.
MH-8	At transverse street cut for tie-in connection and abandonment section.
MH-37	At transverse street cut for tie-in connections.
MH-38	At transverse street cut for tie-in connections.
MH-39	At transverse street cut for tie-in connections.
MH-41	At transverse street cut for tie-in connections.
MH-42	5 feet horizontally from MH structure and for transverse street cuts for tie-in connections.

- D. Engineer will, through services of an independent laboratory test concrete and CLSM to determine conformance with Specifications. Testing requirements shall include:
1. Test unconfined compressive strength using cylinders of CLSM sampled, handled, cured, and tested in accordance with ASTM D4832. Perform a minimum of one set of four cylinders for every 50 cubic yards of CLSM placed, but not less than one set for each day’s placement, unless otherwise directed by Engineer.
 2. Other testing requirements in accordance with ASTM C403 and ASTM C939.

END OF SECTION 312333

SECTION 315000 - EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Temporary excavation and trench support and protection systems.
2. Delegated design.

- B. Related Requirements:

1. Section 013233 "Photographic Documentation" for recording preexisting conditions and excavation support and protection system progress.
2. Section 312316 "Rock Removal" for excavation of rock and boulders.
3. Section 312319 "Dewatering" for lowering and disposing of ground water during construction and dewatering excavations.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1. Review geotechnical report.
2. Review existing utilities and subsurface conditions.
3. Review coordination for interruption, shutoff, capping, and continuation of utility services.
4. Review proposed excavations.
5. Review proposed equipment.
6. Review monitoring of excavation support and protection system.
7. Review coordination with waterproofing.
8. Review abandonment or removal of excavation support and protection system.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: For excavation support and protection system, prepared by or under the supervision of a qualified professional engineer, meeting the minimum performance requirements in Part 2 of this Section.

1. Include overall system plan, indicating clearances, dimensions, material properties, member sizes, locations, spacing and member penetrations depths, and locations of various types of lateral supports.
2. Show details, layout, arrangement, equipment requirements, and method of construction of proposed excavation support system.
3. Indicate existing and proposed utilities, structures or other obstructions.
4. Show wall elevations and locations of bracing.
5. Show overall installation sequence and removal of bracing. Indicate work levels to be performed before bracing is installed or removed.
6. Method of preloading bracing, if required, including preload for each member, and method of locking-off the preload. Submit detailed drawings of connections, jacking supports, and method of shimming.
Include procedures for resolving difficulties arising from misalignment of members exposed during excavation and criteria for implementing those procedures.

1.5 DELEGATED DESIGN SUBMITTALS

- A. Design Calculations: For excavation support and protection system. Include analysis data prepared, signed, and sealed by a professional engineer, registered in the state of Colorado, responsible for their preparation.
 1. Include loads on excavation support system for all stages of excavation, bracing removal, and concrete placement, including material and equipment loads on adjacent ground during construction.
 2. Include design of wall and bracing members including details for all construction stages.
 3. Include theoretical deflections of excavation support system and deformation of structures, pipelines, and other improvements located within areas influencing excavations.
- B. Submit to the Engineer for review and acceptance, a plan of action to be implemented in the event any deformation threshold value is reached. Identify positive measures in action plan to further limit wall movement, including but not limited to trenching for struts and wales, placement of granular earth berms against the wall, installation of additional struts, or combinations thereof.
 1. Include description and details of mitigating measures, work schedule, location and availability of materials, and structural details for connections to wall and support elements.
 2. Be prepared to work 24 hours per day to implement such measures.
 3. Perform remedial work and mitigating measures at no additional cost to Owner.
- C. Qualifications Statement: Submit qualifications for licensed professional.

1.6 INFORMATIONAL SUBMITTALS

- A. Submit quality control measures to ensure that performance of excavation support system complies with project requirements.
- B. Submit welder qualifications and weld procedures in accordance with AWS D1.1.

- C. Qualification Data: For land surveyor.
- D. Maintain at least one copy of design at job site during excavation that includes a plan indicating sizes, types, and configurations of the materials to be used in protective system. Identity registered Contractor's design engineer who stamped the design.
- E. Do not proceed with excavation support or protection activities until submittals have been reviewed by the Engineer.
- F. Submit inspection documentation:
 - 1. On-site inspections of excavation support system as the systems are constructed.
 - 2. Review of quality control measures and performance data.
 - 3. Certification that excavation support system is constructed per applicable design following completion of each support system and following Contractor modifications during construction.

1.7 QUALITY ASSURANCE

- A. Contractor Qualifications: Minimum five years' experience compatible to indicated Work, and who employs labor and supervisory personnel similarly experienced in Work of this Section.
- B. Contractor's Design Engineer: Registered Professional Engineer in the State of Colorado with at least five years' professional experience in design and construction of support of excavation systems and having completed a minimum of five successful excavation support projects of equal type, size, and complexity to specified work.
- C. Existing Conditions: Using photographs or video recordings, show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by inadequate performance of excavation support and protection systems. Submit before Work begins.
- D. Regulatory Requirements: Comply with authorities having jurisdiction, including OSHA requirements.
- E. Record Drawings: Identify locations and depths of capped utilities, abandoned-in-place support and protection systems, and other subsurface structural, electrical, or mechanical conditions.

1.8 FIELD CONDITIONS

- A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:
 - 1. Contact utility companies and other responsible authorities to locate and mark underground utilities.
 - 2. Notify the Engineer no fewer than two days in advance of proposed interruption of utility.
 - 3. Do not proceed with interruption of utility without the Engineer's written permission.

- B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent soil borings and tests, conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.
 - 1. Make additional test borings and conduct other exploratory operations necessary for excavation support and protection according to the performance requirements.
 - 2. The geotechnical report is referenced elsewhere in Project Manual.
- C. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Provide delegated design, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting earth and hydrostatic pressures and superimposed and construction loads within specified movement criteria.
 - 1. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 2. Install excavation support and protection systems to minimize horizontal and vertical movements without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - 3. Continuously monitor vibrations, settlements, and movements to ensure stability of excavations and constructed slopes and to ensure that damage to permanent structures is prevented.
- B. Do not permit excavations below the level of the base of adjacent existing foundations or retaining walls, unless excavation design and bracing includes an analysis of stability of structure supported by foundation and if necessary, incorporates required bracing or underpinning of foundation.
- C. For support systems in which bracing is installed between opposite sides of the excavation, design excavation support of both sides to be nearly the same as feasible.
- D. Where necessary to resist point loads, fill pipe piles used as soldier piles with concrete. Do not consider concrete strength in design of pipe pile for bending stress.
- E. Design, install, operate, and maintain ground water control system to control ground water inflows, prevent piping or loss of ground, and maintain stability of the excavation. Refer to the requirements of Section 312319 "Dewatering."
- F. Design review and field monitoring activities by Owner or the Engineer does not relieve Contractor of its work responsibilities.

2.2 MATERIALS

- A. General: Provide materials that are either new or in serviceable condition.
- B. Structural Steel: ASTM A36/A36M, ASTM A690/A690M, or ASTM A992/A992M.
- C. Steel Pipe Used as Soldier Piling: ASTM A252, Grade 35 or better.
- D. Steel Sheet Piling: ASTM A328/A328M, ASTM A572/A572M, or ASTM A690/A690M; with continuous interlocks.
 - 1. Steel sheet piling conforming to ASTM A572, Grade 35 or better.
 - 2. Corners: Roll-formed corner shape with continuous interlock.
- E. Steel Liner Plates: ASTM A1101, structural quality hot-rolled carbon steel sheets or plates of either the two- or four-flange type, punched for bolting on all sides. Space bolts according to manufacturer's standards and be multiples of plate length, so members having same curvature are interchangeable with bolt numbers and patterns determined by liner supplier.
 - 1. Tensile Strength: 42,000 psi.
 - 2. Yield strength: 28,000 psi.
- F. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of three inches with minimum allowable flexural strength of 1,100 psi.
- G. Cast-in-Place Concrete: ACI 301, with minimum compressive strength of 3,000 psi, unless a higher strength is required for application.
- H. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Obtain permits from local authority having jurisdiction prior to initiating excavation work.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.
 - 1. Shore, support, and protect utilities encountered.
- C. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
 2. Install fencing, gates, lights, and signs around excavations and staging areas to provide for public safety.
- D. Locate excavation support and protection systems clear of permanent construction so that construction and finishing of other work is not impeded.

3.3 GENERAL

- A. Install excavation support systems in accordance with the shop drawings and applicable permits.
- B. Fill voids between excavation support system and earth with materials acceptable to the Engineer.
- C. If unstable material is encountered during excavation, take immediately measures to contain it in place and prevent ground displacement.
- D. If settlement or deflections of supports indicate that support system requires modification to prevent excessive movements, redesign and resubmit revised shop drawings and calculations to the Engineer without additional compensation.
- E. Maintain sufficient quantity of material on site for protection of work and for use in case of accident or emergency.

3.4 PORTABLE TRENCH BOXES

- A. Use portable trench boxes or sliding trench shields only for worker protection.
- B. Additional excavation, backfilling, and surface restoration required as result of trench box use shall be provided without additional compensation.
- C. Design, construct, and maintain trench boxes or shields to meet acceptable engineering and industry standards.
- D. Install shields in a manner to restrict lateral or other hazardous movement of the shield in the event of sudden lateral loads.
- E. Maintain a written copy of trench box manufacturer's specifications, recommendations, and limitations at job site during excavation work.

3.5 SOLDIER PILES AND LAGGING

- A. Install steel soldier piles before starting excavation.
 1. Install using impact hammer or vibratory hammer in predrilled holes.

2. Soldier Piles in Predrilled Holes:
 - a. Provide casing or other methods of support to prevent caving of holes and loss of ground.
 - b. Backfill with concrete from elevation of bottom excavation to pile tip elevation. Backfill remainder of predrilled hole with lean concrete or sand.
 - c. Predrilled hole of sufficient diameter allowing for proper alignment and concrete backfilling of pile.
 3. Install driven piles with driving shoes where hard driving is anticipated.
 4. Advance driven soldier piles without aid of a water jet.
- B. Extend soldier piles below excavation grade level to depths shown on reviewed Shop Drawings. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.
- C. Install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging.
1. Install lagging so ground loss does not occur between adjacent or below lowest board. As excavation proceeds, do not maximum height of four feet for unlagged face of excavation.
 2. Do not exceed unlagged face of two feet, if water seeps or flows from excavation face or excavation face becomes unstable.
- D. Fill voids behind lagging with soil, and compact.
- E. Install wales at locations indicated on Drawings and secure to soldier piles.

3.6 STEEL SHEET PILING

- A. Thoroughly cleaned and inspect sheet piles for defects and proper interlock dimensions prior to installation. Provide a tool for checking interlock dimensions.
- B. Before starting excavation, drive one-piece sheet piling lengths in plumb position and tightly interlock vertical edges for its entire length to form a continuous barrier. Form a continuous diaphragm throughout length of each run of wall, bearing tightly against original ground.
1. Exercise care in driving so interlocking members can be extracted without damaging adjacent structures or utilities.
 2. Use driving, cutting, and splicing methods conforming to approved Shop Drawings.
 3. Use templates or other temporary alignment facilities to maintain piling line.
- C. Accurately place piling, using templates and guide frames unless otherwise recommended in writing by sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to five feet. Accurately align exposed faces of sheet piling to vary not more than two inches from a horizontal line and not more than 1:120 out of vertical alignment.

- D. Install each sheet pile having sufficient clearance in interlocks to slide under its own weight into interlock of previously placed sheet pile.
- E. Do not excavate in advance of steel sheet piling installation.
- F. Where obstructions are anticipated, pre-excavate or pre-drill along sheet pile wall alignment without additional compensation. Do not extend pre-excavation and pre-drilling below lowest excavation level or into bearing soils for existing or future structures.
- G. Remove obstructions encountered before the specified embedment for piles. Where obstructions cannot be removed, re-evaluate sheet pile system by Contractor's design Engineer show reduced embedment and additional toe stability measures to be implemented for sheet pile wall realignment. Submittal proposed design measures to the Engineer for review.
- H. Withdraw damaged or faulty aligned pilings with provide new piling, driven properly in its place without additional compensation.
- I. Cut tops of sheet piling to uniform elevation at top of excavation.

3.7 LINER PANELS

- A. Install liner plates as soon as excavation has progressed sufficiently to install next complete circumferential ring of liner plates. Complete ring of liner plates prior to continuing excavation.
 - 1. Do not install more than one ring of liner plates at any time.
- B. Stagger plates in vertical direction to facilitate shaft strength and leakage resistance.
- C. Grout liner plates in accordance with approved Shop Drawings.

3.8 INTERNAL BRACING

- A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.
 - 1. Do not place bracing where it will be cast into or included in permanent concrete work, unless otherwise approved by the Engineer.
 - 2. Install internal bracing if required to prevent spreading or distortion of braced frames.
 - 3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.
- B. Provide internal bracing to carry maximum design load without distortion or buckling.
- C. Include web stiffeners, plates, or angles required to prevent rotation, crippling, or buckling of connections and points of bearing between structural steel members. Allow for eccentricities caused by field fabrication and assembly.
- D. Install and maintain bracing support members in tight contact with each other and with the surface being supported.

- E. Coordinate excavation work with installation of bracing. Extend excavation no more than two feet below any brace level prior to installation of the bracing.
- F. Use procedures that produce uniform loading of bracing member without eccentricities, overstressing, or distortion of system members.

3.9 FIELD QUALITY CONTROL

- A. Survey-Work Benchmarks: Resurvey benchmarks weekly during installation of excavation support and protection systems, excavation progress, and for as long as excavation remains open. Maintain an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Architect if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.
- B. Promptly correct detected bulges, breakage, or other evidence of movement to ensure that excavation support and protection system remains stable.
- C. Promptly repair damages to adjacent facilities caused by installation or faulty performance of excavation support and protection systems.

3.10 REMOVAL

- A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and earth and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils and rock or damaging structures, pavements, facilities, and utilities.
 - 1. Remove excavation support and protection systems to a minimum depth of 48 inches below overlying construction and abandon remainder.
 - 2. Repair or replace, as approved by Architect, adjacent work damaged or displaced by removing excavation support and protection systems.
- B. Do not remove vertical support members that were installed within zone of influence of new or existing structures. Cut off support members installed within this zone at 5 feet below finished grade and abandon in place.
- C. Do not remove internal bracing or transfer loads to permanent structure without prior acceptance of the Engineer.
- D. Begin removal at excavation bottom and progress upward. Slowly release members noting indication of possible failure of remaining members or possible cave-in of excavation sides.
- E. Progress backfilling together with removal of support systems from excavations.
- F. Remove all portions of excavation support, unless otherwise indicated by approved Shop Drawings.
 - 1. Zone of Influence Definition: Zone extending down and away from outer edge of the structure at one horizontal to one vertical.

- G. Do not leave wood as part of abandoned portion of the work.
- H. When removing excavation support system, do not disturb or damage adjacent buildings, structures, waterproofing material, or utilities. Fill voids immediately with lean concrete or well-graded cohesionless sand or as directed by the Engineer.
- I. Immediately remove excavation support system material from site.

END OF SECTION 315000

SECTION 321123 - AGGREGATE BASE COURSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. City of Arvada Standards Section 300.

1.2 SUMMARY

- A. Section Includes:
 - 1. Aggregate subbase.
 - 2. Aggregate base course.
- B. Related Sections:
 - 1. Section 312333 "Trenching and Backfilling" for preparation of site for base course and testing requirements.
 - 2. Section 321216 "Asphalt Paving" for finish asphalt courses.
 - 3. Section 330513 "Maintenance Holes and Structures" for maintenance holes and structures, including frames.

1.3 ACTION SUBMITTALS

- A. Product Data:
 - 1. Initial aggregate test reports.
- B. Samples: Submit, in air-tight containers, 10 lb. sample of each type of aggregate fill to testing laboratory.
- C. Materials Source: Name of aggregate materials suppliers.

1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Perform Work according to project's Authorities Having Jurisdiction (AHJ) standards.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Base course aggregate: In accordance with City of Arvada Standards and Specifications – Section 370.01 and table 703.03 of CDOT Standard and Specifications for Road and Bridge Construction.
 - 1. CDOT Class 5 (1-1/2 inch maximum).
 - 2. CDOT Class 6 (1 inch maximum).

2.2 INITIAL TESTS

- A. Perform all of the following tests on the proposed material to demonstrate that it meets all specified requirements when furnished. Submit the initial test results to the Engineer for approval prior to commencement of construction.
 - 1. Sieve Analysis.
 - 2. Liquid limit and plasticity index.
 - 3. Moisture-density relationship.
 - 4. Wear Resistance to Degradation (ASTM C131/C131M).

2.3 EQUIPMENT

- 1. Use equipment in accordance with CDOT Standards and Specifications for Road and Bridge Construction.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Clean the underlying course or subgrade of all foreign substances prior to constructing the subbase base course(s).
- B. Do not construct base/subbase course(s) on underlying course or subgrade that is frozen.
- C. Prepare the surface of the underlying course or subgrade to meet specified compaction and surface tolerances.
- D. Correct ruts or soft yielding spots in the underlying courses.
- E. Correct areas having inadequate compaction, and deviations of the surface from the specified requirements:
 - 1. Loosen and remove soft or unsatisfactory material and add approved material.
 - 2. Reshape to line and grade.
 - 3. Recompress to specified density requirements.

- F. For cohesion-less underlying courses or subgrades containing sands or gravels:
 - 1. Stabilize the surface prior to placement of the base course(s):
 - a. Mix aggregate into the underlying course.
 - b. Compact by approved methods.
 - c. Do not allow traffic or other operations to disturb the finished underlying course.
 - d. Maintain underlying course until the base course is placed.
- G. Verify that the underlying surface has been inspected, gradients and elevations are correct.

3.2 AGGREGATE PLACEMENT

- A. In accordance with City of Arvada Standards Section 370.01.02.
- B. Place aggregate equal thickness layers to total compacted thickness within 1/2 inch of the thickness indicated on the drawings.
 - 1. Maximum lift Compacted Thickness: 6 inches.
 - 2. Minimum lift Compacted Thickness: 4 inches.
- C. Level and compact the base course to within 1/2 inch of the thickness indicated.
- D. Degree of Compaction:
 - 1. See Section 312333 "Trenching and Backfilling," Part 3, for minimum compaction and moisture requirements.

3.3 ERECTION TOLERANCES

- A. Maximum Variation from Flat Surface: 1/4 inch measured with 10-foot straight edge.
- B. Maximum Variation from Thickness: 1/4 inch.
- C. Maximum Variation from Elevation: 1/2 inch.

3.4 FIELD QUALITY CONTROL

- A. In accordance with City of Arvada Standards Section 370.03 and Section 312333 "Trenching and Backfilling."
 - 1. Field Density Measurements: Measure field density in accordance with ASTM D1556/D1556M, ASTM D2167 or ASTM D6938.
- B. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

- C. Frequency of Tests: Refer to Section 312333 “Trenching and Backfilling.”

END OF SECTION 321123

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. City of Arvada Standards Section 900.
- C. Municipal Government Pavement Engineers Council (MPGEC), Items 20 (Asphalt Pavement Materials) and 21 (Asphalt Milling).

1.2 SUMMARY

- A. Section Includes:
 - 1. Asphalt materials.
 - 2. Aggregate materials.
 - 3. Aggregate subbase.
 - 4. Asphalt paving base course, binder course, and wearing course.
 - 5. Asphalt paving overlay for existing paving.
- B. Related Requirement:
 - 1. Section 321123 "Aggregate Base Courses" for compacted sub-base for paving.

1.3 ACTION SUBMITTALS

- A. Product Data:
 - 1. Submit product information for asphalt and aggregate materials.
 - 2. Submit mix design with laboratory test results supporting design.
 - 3. Mixture design shall be performed in a materials laboratory under the direct supervision of an shall be stamped and signed by a Professional Engineer licensed in the State of Colorado and practicing in this field.
- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Mixing Plant: Certified by City of Arvada.
- B. Obtain materials from same source throughout.

- C. Perform Work in accordance with City of Arvada Standards Section 922.
- D. Completed pavement will be tested to determine density, gradation, and asphalt content (by extraction) without charge to Contractor.
 - 1. At Owner's option, density may be tested by the following methods:
 - a. AASHTO T230.
 - b. ASTM D2950.
- E. Contractor shall perform other tests as Contractor deems necessary to assure production of hot mix asphalt conforming to the specified quality in accordance with the most recent edition of the City of Arvada Standards and Specifications.
- F. Contractor shall test surface smoothness by applying a 10-foot straightedge both parallel and at right angles to the centerline of the paved areas. Test at 50-foot maximum intervals. Engineer or City of Arvada inspectors shall observe straightedge testing.
- G. Any materials furnished or work performed by the Contractor that fails to fulfill the specification requirements, such deficiencies shall be reported the Project Manager and the Owner immediately. The Contractor is responsible for correcting the issue at the Contractor's expense.
- H. Maintain one copy of each document on site.

1.5 QUALIFICATIONS

- A. Installer: Company specializing in performing work of this section with minimum five years' experience.

1.6 AMBIENT CONDITIONS

- A. Refer to City of Arvada Standards Section 933.00 for asphalt placement weather limitations.

PART 2 - PRODUCTS

2.1 ASPHALT PAVING

- A. Performance / Design Criteria:
 - 1. Paving: Design accordingly based on City of Arvada roadway classifications.
- B. Asphalt Materials:
 - 1. Asphalt materials in accordance with City of Arvada Standards Section 900.
- C. Aggregate Subbase: Specified in Section 321123 "Aggregate Base Courses."

D. Minimum Pavement Sections

1. Where open cutting of roadway is required asphalt replacement shall be consistent with the City's or authority's requirements based upon Street Type. Refer to City of Arvada Standards Section 728.04.05 for minimum pavement sections.

2.2 MIXES

- A. Use dry material to avoid foaming. Mix uniformly.
- B. Asphalt mixes shall be from the City and County of Denver Approved Hot Mix Asphalt Designs List per City of Arvada Standards Section 921.00.

2.3 SOURCE QUALITY CONTROL

- A. Submit proposed mix design of each class of mix for review prior to beginning of Work.
- B. Test samples in accordance with City of Arvada Standards Section 922.

2.4 ASPHALT MILLING:

- A. Perform in accordance with Drawings, City of Arvada Standards Section 937.00 and MGPEC Item 21 for Asphalt Milling.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify utilities indicated under paving are installed with excavations and trenches backfilled and compacted.
- B. Verify compacted subgrade subbase is dry and ready to support paving and imposed loads.
 1. Proof roll subbase in accordance with City of Arvada Standards Section 934.01.
 2. Remove soft subbase and replace with compacted fill as specified in Section 312333 "Trenching and Backfilling."
- C. Verify gradients and elevations of base are correct.
- D. Verify gutter drainage grilles and frames and maintenance hole frames are installed in correct position and elevation.

3.2 PREPARATION

- A. Prepare subbase in accordance with City of Arvada Standards Section 934.00 and Section 321123 "Aggregate Base Courses."

3.3 DEMOLITION

- A. Saw cut and notch existing paving as indicted on Drawings.
- B. Clean existing paving to remove foreign material, excess joint sealant and crack filler from paving surface.
- C. Repair surface defects in existing paving to provide uniform surface to receive new paving.
- D. The Contractor shall place a temporary, cold mix, asphalt patch in all street cuts immediately after completion backfill and compaction if a permanent hot mix asphalt patch cannot be installed. Portions shall not be left on any trench at the end of the working day if the depth of the patch is lower than the existing street surface.
- E. Work shall be performed in accordance with City of Arvada Standards Section 935.01 related to Traffic Control Plans (TCP) and work hours.

3.4 INSTALLATION

- A. Install asphalt pavement per City of Arvada Standards Section 900, corresponding Standard Details, and Drawings.

3.5 TOLERANCES

- A. All hot mix asphalt and stone mix asphalt shall be in accordance to MGPEC – Items 20 and 21 and City of Arvada Standards Section 900.

3.6 FIELD QUALITY CONTROL

- A. Take samples and perform tests including mat density tests in accordance with City of Arvada Standards Section 922.00 and 936.00.

END OF SECTION 321216

SECTION 330507.21 – AUGER BORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Appendix A – Geotechnical Report (for informational purposes).

1.2 SUMMARY

- A. Section Includes casing pipe and accessories installed by Auger boring.
- B. Related Requirements:
 - 1. Section 312316 “Rock Removal” for removal of existing rock via non-explosive methods.
 - 2. Section 312319 "Dewatering" for lowering and disposing of groundwater during construction.
 - 3. Section 315000 "Excavation Support and Protection" for temporary support of excavations.
 - 4. City of Arvada Specifications 420 and 523 (most recent edition).
 - 5. Contractor shall work in accordance with Church Ditch Water Authority (CDWA) standards and specifications where applicable as indicated on Drawings.

1.3 PRE-INSTALLATION MEETINGS

- A. Pre-Installation Meeting: Conduct conference at Project site.
 - 1. Review geotechnical data.
 - 2. Review existing utilities and subsurface conditions.
 - 3. Review coordination for interruption, shutoff, capping, and continuation of utility services.
 - 4. Review proposed excavation support and protection system.
 - 5. Review proposed dewatering plan.
 - 6. Review proposed equipment.
 - 7. Review monitoring of auger boring activities.
 - 8. Review removal of auger boring equipment and excavation support and protection system.

1.4 DEFINITIONS

- A. Admixtures: Materials other than water, aggregate, or cement added to grout mix to modify mix properties.

- B. Annular Grouting: Injection of cement grout into annulus between jacked pipe and soil weathered rock and rock.
- C. Auger Boring: A trenchless application in which a casing pipe is jacked into the earth's surface from the launching shaft, while simultaneously rotating helical augers remove the excavated spoil.
- D. Casing Pipe: The outer sleeve that is installed by jacking method.
- E. Carrier Pipe: The pipe inserted within the casing pipe, and which acts as the conveyor for wastewater.
- F. Launch Shaft: The pit in which the auger boring equipment is installed and from which both the casing pipe and carrier pipe are launched.
- G. In rare cases, the carrier pipe may be direct jacked in place behind the casing pipe, and the casing pipe removed at the receiving shaft. This specification does not address this scenario, and the Geotechnical Division should be consulted to modify the specification accordingly.
- H. Receiving Shaft: The pit at the point where the carrier pipe exits the casing pipe.
- I. Tunnel: An underground opening supported using the casing pipe.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product and description of installation equipment.
- B. Shop Drawings: Submit shop drawings, method statements, equipment, and product data for materials to be used for auger boring operations, carrier pipe installation, and backfilling. submittal shall specifically include the following and shall be signed and sealed by Contractor's Design Engineer licensed in Authority Having Jurisdiction:
 - 1. Locations, dimensions, elevations and details of jacking and receiving pits and casing pipe.
 - 2. Equipment and procedures of pipe jacking operations.
 - 3. Control of groundwater and surface drainage.
 - 4. Method of soil stabilization and/or groundwater control at face.
 - 5. Method of face excavation.
 - 6. Method of shaft support.
 - 7. Maintenance of alignment and grade.
 - 8. Grouting outside of casing pipe, including methods of grouting, grout mix design, grout mixing and batching, maximum grout pressure, and maximum grout volume.
 - 9. Materials and installation of casing and carrier pipes.
 - 10. Annular grouting between casing and carrier pipes.
 - 11. Bulkhead design and temporary support of carrier pipe inside casing.
 - 12. Schedule.
 - 13. Lubricant for decreased jacking friction and pumping system.
- C. Submit a shaft installation plan to the Engineer for approval 15 days prior to excavation activities. Include:

1. Layout of launch and receiving shafts.
2. Distances to existing structures.
3. Spoil management plan.
4. Information on pre-welded sections such as length of pipe and size of machine.
5. Utility conflicts and plan for coordination with utility owners.
6. Traffic plans.

1.6 DELEGATED-DESIGN SUBMITTALS

- A. Design Calculations: Submit design calculations detailing equipment and construction methods to be used for auger boring operations as specified herein and as shown on Drawings. Design calculation shall include, but not limited to, anticipated jacking load, casing pipe deformation, and calculations for preventing floatation and deformation of carrier pipe during backfill grouting to fill annular space between carrier pipe and casing pipe.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Contractor and Contractor's Design Engineer.
- B. Quality Control Plan: Include procedures for producing, sampling and testing of grout, methods for controlling critical mix parameters and injection pressures, qualification of sampling and testing personnel, calibration certificates for gauges, scales, meters, and jacks.
- C. Daily Surveyor Reports: Include casing pipe position and control point monitoring conducted by Contractor's surveyor.

1.8 QUALITY ASSURANCE

- A. Contractor Qualifications: Experienced in auger boring installation with at least five years of successful auger boring installations, employing labor and supervisory personnel who are similarly experienced in this type of work. Include auger boring installation of minimum 36-inch-diameter casing pipe at least 300-foot-long below roadways or utilities.
- B. Contractor's Design Engineer: Professional Engineer licensed in Authority having jurisdiction with at least 5 years of professional experience in design of pipe jacking, excavation support, dewatering, grouting, and soil stabilization.
- C. Superintendent: Minimum five years of experience in pipe jacking construction methods.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Store excavated materials to prevent erosion of soil type materials and contamination of adjacent water sources:
 1. According to manufacturer instructions.

2. Stack piping lengths no more than three layers high.
 3. Store field joint materials in original shipping containers in dry area indoors.
- C. Handling: Support pipes with nylon slings during handling.
- D. Protection:
1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 2. Protect pipe from entry of foreign materials and water by installing end caps and closures, completing sections of Work, and isolating parts of completed system.
 3. Provide additional protection according to manufacturer instructions.

1.10 FIELD CONDITIONS

- A. Project-Site Information: Geotechnical data has been prepared for this Project and is available for information only; owner is not responsible for interpretations or conclusions drawn.
1. Make additional test borings and conduct other exploratory operations necessary for auger bore installation according to performance requirements.
 2. Groundwater levels may vary during work and should not be assumed to be accurately represented by groundwater level readings reported in geotechnical data.
 3. Geotechnical data is referenced elsewhere in Project Manual.
- B. For bidding purposes and basis of evaluation of changed conditions the Contractor shall be prepared to tunnel auger boring in the following conditions.
1. Dense gravely sands and weathered to moderately hard mudstone.
 2. The tunneling behavior of the soil above groundwater will be slow to fast raveling when unsupported at the face and flowing below the water table when not dewatered.
 3. Groundwater level will be encountered at a depth above the bore elevation.
 4. Contractor can assume that a dewatering system will be required prior to excavation of the shaft and commencement of the auger boring.
 5. Contractor can assume no obstructions will be encountered between the jacking and receiving pits.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Casing Pipe:
1. Steel: ASTM A53 or A139.
 2. Shall conform to AWWA C200.
 3. Minimum Diameter: As indicated on Drawings.
 4. Minimum Thickness: As indicated on Drawings.
 5. Minimum Yield Strength: 35,000 psi.
 6. Designed to withstand HS-20 loading under roadways.

7. Furnished in lengths of Contractor's choice.
8. Have beveled ends with a single v-groove and field joined by full-penetration butt welding all around prior to jacking. Casing shall be installed with cathodic protection.

B. Casing Spacers:

1. Spacer Band Material: Type 304 stainless steel.
2. Spacer Liner Material: PVC or neoprene.
3. Spacer Width: Minimum of 2-inches wide.
4. Place casing spacers as recommended by manufacturer.
5. Manufacturer's:
 - a. Advanced Products and Systems, Inc: Model SS8 and SS12.
 - b. Cascade Waterworks Mfg. Model CCS-12.
 - c. Power Seal Pipeline Products, Inc. Model 4810.
 - d. Or equal.

C. Casing End Seals.

1. Approved Manufacturers:
 - a. Advance Products & Systems, Model AC or AM.
 - b. Pipeline Seal & Insulator, Inc., Model S or C.
 - c. Maloney Technical Products, MULTIFLEX End Seal.
 - d. Or equal.
2. Shall include Type 304 stainless steel bands.

D. Grout Outside of Casing Pipe:

1. Pressure grout between casing pipe and undisturbed earth with a uniform mixture of cement and sand or similar commercial product that hardens to a minimum compressive strength of 500 psi. Batch a readily pumpable grout.

E. Accessories:

1. Refer to related sections for tracer wire, cathodic protection, restrained joints, and all other accessories for installation complete per COA standards and details.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Call Colorado 811 not less than three working days before performing Work.
- B. Request underground utilities to be located and marked within and surrounding construction areas.

- C. Provide barricades, fencing, or other safety measures to prevent public access into Work and staging areas.
- D. Obtain permits from local authority having jurisdiction prior to initiating jacking work.
- E. Control groundwater at all times. If groundwater is expected to be above or within casing level, install a groundwater control system consisting of vertical or horizontal wells or well points and operate such that groundwater level is lowered to at least casing invert level at face. Design and operate dewatering in accordance with Section 312319 “Dewatering.”
- F. Install, initialize, and prepare to record readings from all geotechnical instrumentation as required.

3.2 LAUNCH AND RECEIVING SHAFTS

- A. Refer to Section 315000 “Excavation Support and Protection” for temporary excavation support requirements and Drawings.
- B. Include design and details of thrust block, base support and tunnel opening in excavation support submittals.
- C. Furnish, install and remove, to extent required, thrust blocks or such other provisions as may be required in driving casing pipe forward.
- D. Keep subgrades continuously free from groundwater and surface waters during auger boring operations.

3.3 AUGER BORING OPERATIONS

- A. General:
 - 1. Install casing pipes under roads rails and utilities to limits shown in accordance with approved encroachment agreement or permit.
 - 2. Do not allow construction to interfere with normal and safe operation of roadway rail or utilities.
 - 3. Provide material, equipment, and facilities required for installing, positioning, and jacking casing pipe.
- B. Tolerances:
 - 1. Proper Alignment and Elevation of Casing: Consistently maintain throughout jacking operation. Tolerances for installation of casing pipes:
 - a. Vertical: Plus or minus 0.50 feet per 100 feet of casing length.
 - b. Horizontal: Plus or minus 0.50 feet per 100 feet of casing length.
- C. Auger Boring Set-Up:
 - 1. Establish survey station marks over entire length of jacked casing pipe during auger boring operations at intervals of not more than 10 feet and to an accuracy of 0.01 feet.

2. Use a jacking ring consisting of either steel or concrete construction. Allow jacking ring to distribute jacking pressure evenly around wall of casing pipe.
3. Uniformly distribute pipe jacking pressures through jacking frame and parallel to axis of pipe. Take extreme care to avoid crushing or other damage to joints of casing pipe.
4. Use a jacking frame fabricated from structural steel members. Design jacking frame to distribute stresses from jacks evenly to jacking ring.
5. Use thrust blocks adequately designed to carry thrust of jacks to soil without excessive soil deflection and to avoid disturbance of adjacent structures or utilities and to jack casing reliably in correct alignment. Refer to Section 315000 "Excavation Support and Protection" for thrust block design requirements.

D. Auger Boring Operation:

1. Do not jack directly against carrier pipe.
2. Commence jacking only after Contractor's surveyor has verified in writing to Engineer that first pipe casing segment is at correct location and elevation and is oriented at correct horizontal and vertical direction. After first segment has been jacked forward, Contractor's surveyor shall again verify in writing to Engineer that alignment is correct. Should alignment not be correct at this or any point, stop jacking operation and do not resume until Contractor has modified jacking operation as required to maintain proper alignment.
3. Jack casing pipe at each location shown on Drawings in one continuous 24-hour-per-day operation. Do not allow jacked casing pipe to "freeze" in place.
4. Remove material from casing face by augering. Do not extend auger and cutting head assembly past leading edge of casing and arrange to provide reasonable obstruction to free flow of soft or poor subsurface materials. Provide an auger and cutting head assembly that is removable from casing pipe in the event an obstruction is encountered.
5. Minimize occurrence of voids outside casing pipe. Fill all voids with cement grout.
6. Take approved remedial measures if voids develop or if bored hole diameter is greater than outside diameter of casing (including coating) by more than approximately 1 inch.
7. If an obstruction is encountered during pipe jacking operation with an auger and cutting head, remove auger and cutting head and continue tunneling with hand mining methods to remove obstruction and continue tunneling operations.
8. Protect exposed face of excavation if work is stopped for any reason. Fully protect exposed face of excavation with a bulkhead or soil plug satisfactory to Engineer. Secure tunnel face if pipe jacking operation ceases longer than twenty-four hours.
9. Have Contractor's surveyor check alignment of casing pipe daily as casing progresses and provide daily written reports to Engineer. Make immediate adjustments if any misalignment occurs.
10. After removal of all dewatering systems, do not install carrier pipe until groundwater seepage into casing pipe does not exceed 20 gallons per hour/100 linear feet of finished casing pipe.
11. Maximum Allowable Deflection: Three percent of inside casing diameter in any direction from a true circle. Measure deflection at not more than 50-foot-intervals.
12. Repair damage resulting from subsidence, collapsed casings, or ground losses into jacked pipe casing and refill any voids with cement grout. Where such ground losses are so severe that they result in damage to underground or surface pavement, existing utilities or structures, remedy such damage. Where filling of voids cannot be effectively carried out from below, excavate openings from surface for purpose of backfilling voids, if directed by Engineer. If in judgment of Engineer, a portion of casing or pipe requires reinforcing because of such collapse, furnish and place such reinforcement, if directed by Engineer.

Install reinforcement when stability of soil adjacent to casing or casing pipe has been affected by loss of ground, if directed by Engineer.

13. Effects on road traffic resulting from such ground loss, including all costs and all coordination with and meeting traffic control requirements of Authority Having Jurisdiction traffic control, permit acquisition, fees, fines, etc. are Contractor's responsibility.

3.4 GROUTING OUTSIDE OF CASING PIPE

- A. Immediately following casing installation operation, pressure grout casing section to fill all voids outside of casing pipe..
- B. Start grouting in pipe invert and proceed until grout begins to flow from above pipe crown. Completely fill all voids.
- C. Grout Pressure: Do not allow to exceed one-half of existing overburden pressure.
- D. Apparatus for Mixing and Placing Grout: Capable of mixing effectively and stirring grout and then forcing it into grout connections in a continuous uninterrupted flow.
- E. After grouting is complete, maintain pressure by means of stopcocks, bulkheads or other suitable devices until grout has set sufficiently in judgment of Engineer, or for a minimum of 24 hours, whichever is longer. After grout is set, completely fill any grout holes with concrete and finished neatly without evidence of voids or projections.

3.5 RESTORATION

- A. Restore areas disturbed by construction to existing or better condition and maintained until accepted by Engineer, and Owner.
- B. Abandon all monitoring wells indicated on the Drawings and restore surface per specifications.

END OF SECTION 330507.21

SECTION 330513 – MAINTENANCE HOLES AND STRUCTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. City of Arvada Standards Section 500.

1.2 SUMMARY

- A. Section Includes:
 - 1. Modular precast concrete maintenance hole and structures with tongue-and-groove joints covers, anchorage, and accessories.
- B. Related Requirements:
 - 1. Section 310515 “Soils and Aggregates for Earthwork” for soil and aggregates for backfill in trenches.
 - 2. Section 312333 “Trenching and Backfilling.”
 - 3. City of Arvada Specification Sections 500 and 800.

1.3 ACTION SUBMITTALS

- A. Product Data: Submit cover and frame construction, features, concrete mix design, grade rings, riser sections, configuration and dimensions.
- B. Corrosion protection lining product data.
- C. Shop Drawings: Indicate maintenance hole and structure locations, elevations, piping, and sizes and elevations of penetrations.
- D. Structural design calculations and drawings prepared and stamped by a Professional Engineer registered in the State of Colorado.
 - 1. The Owner reserves the right to review, upon request, calculations specifically for this project for compliance with the requirements of these specifications. This review in no way relieves the Contractor or his engineer of complete responsibility for the design of the precast concrete as referred to on the drawings and these specifications.
- E. Submit information for reinforcing, joints, connection to structures, maintenance hole rungs (steps), maintenance hole frames, and covers.
- F. Method of repair for minor damages to precast concrete sections.

1.4 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Certificate: Products meet or exceed specified requirements.
- B. Manufacturer Instructions: Detailed instructions on installation requirements, including storage and handling procedures.
- C. Field Quality-Control Submittals: Results of Contractor-furnished tests and inspections.
- D. Qualifications Statements: Qualifications for manufacturer.

1.5 QUALITY ASSURANCE

- A. Perform Work according to City of Arvada standards.
- B. Materials' quality, manufacturing process, and finished sections are subject to inspection and approval by Owner and Engineer. Inspections may be made at place of manufacture or at work site following delivery.
- C. Materials will be examined for compliance with ASTM specifications, these Specifications, and approved manufacturer's drawings. Additional inspection criteria may include the appearance, dimension(s), blisters, cracks and soundness.
- D. Owner or Engineer will reject materials for failure to meet any Specification requirement. Rejection may occur at place of manufacture, at work site, or following installation. Mark and identify rejected materials and remove from work site immediately and replace rejected materials at no additional cost to Owner.
- E. Repair minor damage to precast concrete sections by manufacturer-approved method, if repair is approved by Owner or Engineer. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at 7 days and 5,000 psi at 28 days, when tested in 3-inch by 6-inch cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Owner.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Unload, store, and handle precast maintenance holes and structures according to manufacturer instructions.
- B. Storage: Store precast concrete maintenance holes and structures as to prevent damage to Owner's property or other public or private property.
 - 1. Repair property damaged from materials storage.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

- A. In accordance with City of Arvada standards Sections 522.04, 522.05, 522.06.
- B. Equivalent strength: Based on structural design of reinforced concrete as outlined in ACI 318.
- C. Design of Lifting Devices for Precast Components: According to ASTM C913.
- D. Design of Joints for Precast Components:
 - 1. According to ASTM C913.
 - 2. Maximum Leakage: 0.025 gal. per hour per foot of joint at 3 feet of head.
- E. Clear Inside Dimensions: As indicated on Drawings.
- F. Design Depth: As indicated on Drawings.
- G. Clear Cover Opening: As indicated on Drawings.
- H. Pipe Entry: Furnish openings as indicated on Drawings.

2.2 MAINTENANCE HOLES AND STRUCTURES

- A. Maintenance Hole and Structure Sections: Shall be precast. Reinforced precast concrete according to ASTM C478 and City of Arvada Specification 522.04. Refer to Arvada Specification 820 for concrete mix design for additional submittal requirements.
 - 1. Concrete: Reinforced, 4,500 psi.
 - 2. Mortar:
 - a. Conform to ASTM C270 Type M.
 - b. Type I/II Portland cement.
 - c. In accordance with Arvada Specification 522.06.
- B. Precast concrete barrel sections
 - 1. Precast concrete barrel sections and transition top sections shall conform to Specifications for Precast Reinforced Concrete Maintenance Hole Sections, ASTM C478.
 - 2. Wall thickness, top section. Barrel sections, joints, and all other materials and dimensions shall conform to Drawings and Arvada Standard Specifications and Details.
 - 3. Precast concrete barrel sections with precast top slabs and precast concrete transition sections shall be designed for a minimum of AASHTO H-20 loading plus the weight of the soil above at 130 pcf and assume groundwater level at surface.
 - a. Prevent flotation with groundwater level at finished ground surface by dead weight of structure and soil above structure.

4. Cast base slab and wall together to form monolithic base section.
 5. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on the inside of each precast section.
 6. All sections shall be cured by an approved method and shall not be shipped nor subjected to loading until the concrete compressive strength has attained 3,000 psi and not before five days after fabrication and/or repair, whichever is longer.
- C. Concrete bases shall be constructed and installed as shown on the Drawings. The thickness of the bottom slab of the precast bases shall not be less than the maintenance hole barrel sections or that called for specifically on Drawings.
1. See project detail sheets and City of Arvada Section 522.05 for design requirements including reinforcement requirements for each structure to be installed under this project.
- D. Maintenance Hole and Structure Steps: In accordance with City of Arvada Specification 514.02 and Standard Details.
1. Acceptable Manufacturer:
 - a. M.A. Industries.
 2. Design:
 - a. In accordance with Arvada Specification Section 522.04 and Drawings.
- E. Jointing Precast Maintenance Hole Sections
1. All precast joints shall be tongue and groove and shall be sealed with an external joint seam wrap.
 2. Tongue and groove joint sealing:
 - a. Shall be in accordance with City of Arvada Standards Section 522.08.
 - b. Preformed flexible SS-S-210A.
 - 1) Acceptable manufacturers:
 - a) Rubber-Nek by the Henry Company.
 - b) Or equal, on approval of the Owner or Engineer.
 3. External joint seam wrap:
 - a. Minimum 6-inch width.
 - b. Conform to ASTM C-877.
- F. Pipe Connection to Maintenance Holes:
1. In accordance with Drawings and Arvada Specification 522.08.
 2. Gaskets shall be cast in the precast maintenance hole base. The rubber gasket shall be cast into a formed opening in the maintenance hole.
 3. Maintenance hole pipe connections may be accomplished in the following ways:

- a. The “Lock Joint Flexible Maintenance Hole Sleeve” shall be cast in the precast maintenance hole base. The stainless steel strap shall be protected from corrosion with a bituminous coat.
- b. “A-Lok” shall be a rubber-like gasket cast in the precast maintenance hole base. The rubber gasket shall be cast into a formed opening in the maintenance hole.
- c. “KOR-N-SEAL” joint shall be installed as recommended by the manufacturer. The stainless steel clamp shall be protected from corrosion with a bituminous coat.
- d. Or Engineer approved equal.

G. Frames and Covers:

1. Acceptable manufacturers:

a. 24-inch size:

- 1) Neenah R-1706.
- 2) Deeter 1258.
- 3) Engineer Approved Equal.

b. 30-inch size:

- 1) Deeter 1197.
- 2) Neenah R-1798.
- 3) Engineer Approved Equal.

2. Refer to Drawings for maintenance hole 24-inch and 30-inch locations.
3. Refer to Drawings for frame and ring dimensions.
4. Cast iron shall conform to AASHTO M105/ASTM A48, Class 35B.
5. Covers and frame seats shall be machined to a true surface to provide even seating.
6. Conform to Drawings in all essentials of design including lettering, picks lot type and locations, and all other maintenance hole information.
7. Furnish maintenance hole and structure frames and covers in accordance with City of Arvada Standards Section 500 and Standard Details.

H. Corrosion Protection:

1. Line the maintenance holes indicated on Drawings for corrosion protection.
2. Line as specified in in Arvada Section 550.01.
3. Approved Manufacturers.
4. Spectrashield by CCI Spectrum, Inc.

I. Waterproofing

1. Paint maintenance holes and structure with two coats of bituminous damp proofing agent. Hydrocide 648 or approved equal.
2. Waterproofing shall be installed on all exterior concrete structure walls where groundwater exists:
 - a. Exterior structure wall waterproofing shall be:
 - 1) Carboline – Bitumastic 300M.

- 2) Tnemec – HB Tnemecol 45-464.
- 3) Or Engineer approved equal.

b. Apply two coatings to a minimum 12-mil dry film thickness per coat.

J. Bedding and Cover:

1. 1-1/2-inch Bedding: Fine Aggregate as specified in Section 310515 “Soils and Aggregates for Earthwork” and City of Arvada Standards.
2. Soil Backfill from above pipe to finish grade unless otherwise indicated in Section 312333 “Trenching and Backfilling.”

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that items provided by other Sections of Work are properly sized and located.
- B. Verify that built-in items are in proper location and ready for roughing into Work.
- C. Verify correct size of maintenance hole and structure excavation.

3.2 PREPARATION

- A. Contractor must, in writing, advise affected users a minimum of 48 hours prior to performing work on a service or collector line which will interrupt a customer’s wastewater line. Contractor must also notify Arvada’s Wastewater Division of the schedule and bypassing maintenance holes necessary to isolate the line on which work will be performed.
 1. Provide all labor, materials, and equipment to properly handle and divert all sewage flow when required for construction.
 2. If sewage backup occurs and enters a private property during Contractor’s bypassing operations, the Contractor shall be responsible for clean-up, repair, property damage and all other costs caused by the backup.
 3. Refer to Arvada Specification 523.01.01 “Interruption of Sanitary Service” for additional requirements.
- B. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers as indicated on Drawings to indicate its intended use.
- C. Coordinate placement of inlet and outlet pipe required by other Sections.
- D. Do not install structures where Site conditions induce loads exceeding structural capacity of structures.
- E. Inspect precast concrete structures immediately prior to placement in excavation to verify structures are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

A. Excavation and Backfill:

1. In accordance with Sections 310515 “Soils and Aggregates for Earthwork” and 312333 “Trenching and Backfilling.”
2. When groundwater is encountered, prevent accumulation of water in excavations; place maintenance holes and structures in dry trench.
3. Where possibility exists of watertight structure becoming buoyant in flooded excavation, anchor structure to avoid flotation as approved by Engineer.

B. Place maintenance hole and structure sections plumb and level, trim to correct elevations, and anchor to base pad.

C. Form and place maintenance hole and structures cylinder plumb and level and to correct dimensions and elevations.

D. Utilize precast concrete grade rings to assure frame and cover are set to the finished grade.

E. Set cover frames and covers level without tipping and to correct elevations.

F. Coordinate with other Sections of Work to provide correct size, shape, and location.

G. Precast Concrete Maintenance Holes and Structures:

1. Lift precast components at lifting points designated by manufacturer.
2. When lowering maintenance holes and structures into excavations and joining pipe to units, take precautions to ensure that interior of pipeline and structure remains clean.
3. Set precast structures bearing firmly and fully on crushed stone bedding, compacted as specified in Section 312333 “Trenching and Backfilling” or on other support system as indicated on Drawings.
4. Assemble multi-section structures by lowering each section into excavation; set level and firmly position base section before placing additional sections.
 - a. Install precast sections to produce watertight joints.
5. Hole in the concrete barrel sections required for handling or other purposes shall be plugged with non-shrinking grout and finished flush on the inside.
6. Remove foreign materials from joint surfaces and verify sealing materials are placed properly.
7. Backfilling shall be done in a careful manner bringing the fill up evenly on all sides. If any leaks appear in the maintenance holes, the inside joint shall be sealed to the satisfaction of the Engineer or Arvada inspector.
 - a. See Section 312333 “Trenching and Backfilling” for locations with CLSM backfill.
8. Maintain alignment between sections by using guide devices affixed to lower section.
9. Joint sealing materials may be installed on Site or at manufacturer’s plant.
10. Verify that installed maintenance holes and structures meet required alignment and grade.

11. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe; fill annular spaces with mortar.
12. Cut pipe flush with interior of structure.

H. Connections:

1. Install all piping using a flexible rubber, entrance hole gasket joint of pattern approved by Engineer.
2. Grout around pipes with nonmetallic nonshrink grout.

I. Invert Channels:

1. Shape inverts through maintenance hole and structures as indicated on Drawings.
2. Make changes in direction of flow with smooth curves of as large a radius as size of maintenance hole permits.
3. Make changes in size and grade smoothly and uniformly.
4. Slope floor of maintenance adjacent to channels as indicated.
5. Finish channel bottom smoothly without roughness, irregularity, or pockets.

J. Exterior Waterproofing:

1. Apply exterior collar joint to each maintenance section joint.
 - a. Exterior Joint Wrap: six-inch wide band.
2. Apply exterior coating on all maintenance holes from base to finished grade.
 - a. Paint maintenance hole and structures out surfaces with two coats of bituminous damp proofing in accordance with manufacturers' instructions.
 - b. Where groundwater conditions exist, coat the exterior structures with a waterproof bituminous membrane.

K. Structure Steps:

1. Steps shall be driven into tapered holes in the precast riser and cone sections during manufacturing of the sections.
2. Holes for steps shall be performed during the casting of the sections and shall not be drilled after casting.
3. The preformed holes shall be installed per requirements and direction of manufacturer.

L. Maintenance Hole Lining:

1. Contractor shall follow manufacturer requirements for application and testing of corrosion protection liner including:
2. Surface preparation, coating application, inspection and testing, approved equipment, and all other requirements of manufacturer's warranty.

3.4 FIELD QUALITY CONTROL

- A. Test concrete maintenance hole and structures sections according to ASTM C497.

B. Vertical Adjustment of Existing Maintenance Holes and Structures:

1. If required, adjust top elevation of existing maintenance holes and structures to finished grades as indicated on Drawings.
2. Reset existing frames, grates, and covers that were carefully removed and cleaned of mortar fragments to required elevation according to requirements specified for installation of castings.

3.5 ABANDONMENT OF EXISTING MH STRUCTURES

- A. Perform in accordance with Arvada Specification 332.00.
- B. Where existing sewer line and structures are to be removed and replaced Contractor shall dispose of existing materials at no additional cost to Owner.
- C. At areas not designated for removal the Contractor shall remove a minimum five feet of the maintenance hole below finished grade and be filled with controlled low strength material (CLSM).
 1. Remove and dispose of concrete collar (as required) and other materials at no additional cost to Owner.
- D. Provide asphalt patches at all removed maintenance holes in the road.
 1. Provide in accordance with Section 321216 "Asphalt Paving."

3.6 CLEANING

- A. Clean all new maintenance holes to be free of silt, debris and foreign matter of any kind, prior to Substantial Completion.

END OF SECTION 330513

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SECTION 330526 - UTILITY IDENTIFICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Trace wire for placement above direct-buried utility.
2. Tracer wire access boxes.
3. Underground warning tape.
4. Electronic utility marker balls for placement above direct buried utility.

- B. Related Requirements:

1. Section 312333 "Trenching and Backfilling."
2. Section 333113 "Public Sanitary Utility Sewerage Piping" for piping, valves, and appurtenances requiring identification marking.
3. City of Arvada Engineering Code of Standards and Specifications Section 420.20.

1.3 ACTION SUBMITTALS

- A. Include, but not limited to, the following:

1. Catalog information for all identification systems.
2. Acknowledgment that products submitted meet requirements of the standards referenced.

- B. Identification register, listing all items in Part 3 to be identified, type of identification system to be used, lettering, location and color.

1.4 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- B. Qualifications Statement:

1. Submit qualifications for manufacturer.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Extra Stock Materials: Provide spare parts to the City.

1.6 QUALITY ASSURANCE

- A. Conform to APWA Uniform Color Code, ANSI Z535.1, and ASME A13.1 for color scheme for identification of piping systems and accessories.
- B. Perform Work according to City of Arvada standards.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

PART 2 - PRODUCTS

2.1 UTILITY MARKERS

A. TRACER WIRE

- 1. Tracer Wire:
 - a. In accordance with City of Arvada standards 420.20.
 - b. 12-gauge high molecular weight HDPE, insulated high strength solid copper clad steel conductor suitable for direct bury.
 - 1) Wire insulation: Blue.
 - 2) Insulation: Minimum 30 mil.
- 2. Tracer Pipe Tape:
 - a. In accordance with City of Arvada Standards 420.20.
 - b. 2-inch-wide vinyl plastic electrical tape.
 - c. 7 mil thickness.
- 3. Provide for force main.

2.2 TRACER WIRE ACCESS BOXES (TRACER WIRE TEST STATION)

- A. Flush-to-ground test stations shall consist of test station enclosure, cast iron lid, and termination block.
- B. Manufacturers:

1. CP Test Services, Glenn Series Glenn-4 with locking lid, 2-7/8 inches by 4-1/2 inches.
2. Engineer approved equal.

2.3 UNDERGROUND WARNING TAPE:

A. Design:

1. Size:
 - a. Minimum 2 inches in width for pipe equal to or less than 24-inches in diameter.
 - b. Minimum 6 inches in width for pipe greater than 24-inches in diameter.
 - c. Minimum overall thickness of 5 mils.
2. Fabrication:
 - a. Detectable Marking Tape: Install with nonmetallic piping and waterlines.
 - b. Non-detectable Marking Tape: Install with metallic piping.
 - c. Preprinted and permanently embedded.
 - d. Message continuous printed.
 - e. Tensile strength: 3500 psi.
 - f. Color/Legend:
 - 1) Sanitary sewer mains:
 - a) Color: Green with black letters.
 - b) Legend: "CAUTION BURIED SEWER LINE BELOW."
3. Impervious to all known alkalis, chemical reagents, and solvents found in soil.
4. Maximum imprint length of 36 inches.
5. Provide for all waterlines and sewer lines.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install identification devices at specified locations.
- B. All identification devices to be printed by mechanical process, hand printing is not acceptable.

3.2 TRACER WIRE:

- A. All force main installations shall include the installation of a single tracing wire taped to the top of the pipe.

1. Tracer wire shall be secured to top of pipe every three to four feet and at every fitting or change in direction.
- B. The tracing wire shall be installed in a continuous run and the ends of the tracer wire shall be brought to the surface in test stations located outside of the roadway per COA Standards and Specifications in dedicated tracer wire boxes.
 1. Do not bring tracer wire up through valve boxes.
 2. The maximum distance between test stations or tracer wire boxes shall be 1000 feet.
- C. Wire splices shall be accomplished using a mechanical connector and sealed with an epoxy type material.
- D. Testing:
 1. Per COA Specification 420.20, the City will verify continuity of all new and existing wire that is located within the project site. Uninterrupted continuity is required for construction acceptance. Contractor shall replace or repair tracer wire until construction acceptance is achieved.

3.3 WARNING TAPE:

- A. During the backfilling operation, continuously place pipe locating tape along centerline of buried pipe placed 24 inches above top of pipe with the printed side up for visual identification.
 1. Detectable Marking Tape: Install with nonmetallic piping and waterlines.
 2. Non-detectable Marking Tape: Install with metallic piping.

END OF SECTION 330526

SECTION 330531.16 – PRESSURE PIPE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.2.
- B. City of Arvada Standards Sections 400 and 500.

1.2 SUMMARY

- A. Pressure piping for force main.
- B. This Section includes all pressure pipe, fittings, specials, and appurtenances for Polyvinyl chloride (PVC) and Ductile Iron Pipe (DIP) for sewer force main, complete as shown on Drawings and as specified.
 - 1. Pipe or Piping: Refers to all pipe, fittings, material, and appurtenances required to construct the force main including yard piping at Alkire Lift Station (Alkire LS) complete, in place.
 - 2. Equipment and materials specified are intended to be standard types used in transporting sewage.
- C. Related Requirements:
 - 1. Section 310516 “Aggregates for Earthwork” for granular fill.
 - 2. Section 312333 “Trenching and Backfilling.”
 - 3. Section 321216 “Asphalt Paving.”
 - 4. Section 330513 “Maintenance Holes and Structures.”
 - 5. Section 330526 “Utility Identification.”
- D. Coordinate Work of this Section with City of Arvada Standards.

1.3 PREINSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing Work of this Section.

1.4 ACTION SUBMITTALS

- A. Product Data: Name of pipe and fitting manufacturers, materials list furnished by each manufacturer and catalog information for each product.

B. Shop Drawings:

1. Piping layouts and schedules including dimensioning, fittings, types and locations of valves and appurtenances, and joint details if required by Owner.
2. Methods and location of supports, anchorage, gasket material, grade of material and all other pertinent technical information.
3. Pipe and joint details including size, dimensions, pressure class, color, manufacturer's calculations and recommendations for minimum bend radius and safe pull force.
4. Manufacturer's design calculations including but not limited to wall thickness and deflection.
5. Specifications, data sheets, and affidavits of compliance for protective shop coatings and linings.
6. Special, fitting, and coupling details.
7. Restrained joint items.

1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Certificate: Submit certificates of compliance that products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Document actual locations of installed pipe, valves, and appurtenances in accordance with City of Arvada Specification 421.02 and 017839 "Project Record Documents."

1.7 QUALITY ASSURANCE

- A. PVC sewer pipe shall be from a single manufacturer.
- B. DIP shall be from a single manufacturer.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years' experience of the specific material and size.
- B. Installer: Company specializing in performing Work of this Section with minimum five years' experience.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Add storage time note if covered storage is impractical. Time of exposure should be minimized, although manufacturers claim two years is acceptable.

- B. Pipe should be loaded, off-loaded, and handled in accordance with AWWA M23 for PVC and AWWA C600 for DIP.
- C. Delivery:
 - 1. Bundled or package items to provide adequate protection of ends during transportation to site. Pipe damaged in shipment will be replaced as directed by Engineer.
 - 2. Where applicable, deliver materials in manufacturer's packaging including application instructions.
- D. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
 - 1. Any gouges or scratches that extend 10 percent or more into pipe wall shall be cause for rejection of that pipe.
 - 2. Undamaged portion may be cut off and used.
 - 3. Clearly mark rejected materials as rejected. Segregate and remove from site.

1.10 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field locations and sizes of connections to existing piping and equipment prior to submitting pipe lay drawings.
 - 2. Document field measurements on Shop Drawings.
 - 3. Contractor is responsible for ensuring compatibility between pipe materials, fittings, and appurtenances.

1.11 WARRANTY

- A. Furnish two-year manufacturer's warranty for PVC and DI pipe and fittings.

PART 2 - PRODUCTS

2.1 PIPE REQUIREMENTS:

- A. Furnish pipe of materials, joint types, and sizes as indicated or specified. Pipe shall be designed to withstand all stresses resulting from external loads and internal pressures.
- B. The pipeline manufacturer shall verify and attest to the fact that their pipe is good at all depths scheduled for installation.
 - 1. Shop drawings and pipe wall thickness calculations certifying the pipe is good at all depths scheduled for installation shall be submitted to the Engineer for review prior to pipe installation.

2. Pipe shall be designed to withstand all stresses resulting from external loads at depths shown on the construction plans and H-20 live loadings.

2.2 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS FOR FORCE MAIN

- A. In accordance with City of Arvada Standards Section 420.03.
- B. PVC Pressure Pipe: 4 through 60 inches per AWWA C900 requirements.
- C. Piping 14 inch and Less: Class 200 with a Dimension Ratio of 21.
- D. Piping Materials: PVC compounds Class 12454 as defined in ASTM D1784.
 1. Mark pipe lengths with manufacturer's name or trademark, size, material code, pressure class, AWWA designation number and seal of test agency that verified pipe material. Identification markings on pipe shall conform to AWWA C900.
 2. Bell and Spigot Push-on Joints.
 - a. Bell: Consists of integral wall section with solid cross-section elastomeric gasket securely locked in place to prevent displacement during assembly.
 - b. Gaskets shall conform to ASTM F477 and be synthetic rubber.
 - c. Installation of elastomeric gasketed joints and joint performance: Per ASTM F477, ASTM D3139. Joint lubricants as recommended by manufacturer.
- E. Restraint:
 1. Where restrained joints are shown on Drawings install with the following approved types:
 - a. Restrained push-on joint.
 - b. External joint harnesses.
 - c. Restrained mechanical joint.
- F. Fittings:
 1. Fittings for force main shall be Ductile Iron per AWWA C110 or C153 for mechanical joints. Furnish adaptors, fittings and transition gaskets necessary to connect cast or ductile iron fittings to PVC.
 2. Fittings shall be in accordance with City of Arvada Standards Section 420.06.
 3. Fittings shall have a 250 psi pressure rating.
- G. Force Mains: Green.
- H. Diameters: PVC pressure pipe shall have Ductile-Iron-Pipe-Size (DIPS) outside diameters.

2.3 DUCTILE IRON PIPE (DIP) AND FITTINGS FOR FORCE MAIN

A. Design and Manufacture of Pipe:

1. Ductile iron pipe shall conform to AWWA C115, C150, and C151 except as otherwise specified.
2. Minimum thickness for ductile-iron pipe threaded for screw-on flanges shall be in accordance with AWWA C115.
3. Pipe with grooved barrel for any type of restrained joint shall have wall thickness increased to provide a minimum wall thickness conforming to AWWA C606.
4. Pipe wall thickness per AWWA C150.
5. Dimensions:
 - a. Nominal Pipe Size: 8-inch, 10-inch, and 12-inch.
 - b. Minimum pressure class: 350.

B. Joints:

1. Mechanical and Push-On Type:
 - a. Joints shall conform to AWWA C111.
 - b. Provide mechanical or push-on type joints for all buried applications unless otherwise specified or indicated.
2. Flanged:
 - a. Provide flanged joint where indicated on Drawings.
 - b. Flanges shall be ductile iron and conform to provisions of AWWA C110 and C115. And shall be rated for a minimum of 250 lbs. pattern.
 - c. Rated for same pressure as adjacent pipe in all cases.
 - d. Blind flanges shall mate with regular flanges.
 - e. Contractor is responsible for matching all flange drilling patterns.
3. Sleeved or Couplings:
 - a. Provide where indicated. Furnish pipe ends suitable for receiving style of sleeve or coupling indicated or specified.

C. Restraint:

1. Furnish for all fittings and where joint restraint is required to offset internal pipeline forced as indicated on drawings.
2. Provide restrained joints of following approved types:
 - a. Restrained mechanical joint.
 - b. Restrained push-on joint.
 - c. Anchored couplings.

D. Fittings:

1. Fittings shall conform to AWWA C110 or C153 and shall have a pressure rating of not less than that specified for pipe.
2. Fittings shall be ductile iron.
3. Fittings for pipe with mechanical joint shall have mechanical joints.
4. Fittings for pipe with push-on joints shall be mechanical joint or push-on-type joint.
5. Include all specials, flanges and fittings as required.

E. Linings:

1. DI Pipe and DI pipe for vault installations: shall be fusion bonded epoxy lined per AWWA C116.
2. DI Fittings: shall be fusion bonded epoxy lined per AWWA C116.
3. Lining thickness: 40 mils minimum.
4. Acceptable Manufacturers:
 - a. U.S. Pipe's Protector 401.
 - b. Engineer Approved Equal.

F. Coatings:

1. All pipe and fittings for exposed interior (vault installations) and/or submerged installation shall be fusion bonded epoxy.
2. Buried ductile iron pipe can be coated with manufacturer's standard bituminous paint coating per AWWA C151 and C110.
3. Flange faces shall be coated in accordance with AWWA C115.

2.4 RESTRAINING SYSTEMS:

A. Harness Rods:

1. Harness rods and nuts shall be stainless steel.
 - a. Rods and nuts shall be polyethylene wrapped.

B. Joint Restraint Devices:

1. Shall be manufactured of ductile iron conforming to ASTM A 536.
2. Shall have twist-off nuts.

C. Push on joint bell restraint harnesses for DIP and PVC.

1. Minimum working pressure of 200 psi for PVC and 350 psi for DIP.
2. Acceptable Manufacturers:
 - a. Per COA Approved Product List (most recent edition).

D. Proprietary Manufacturer Systems:

1. All proprietary manufacturer system for restrain joint pipe shall meet the manufacturer's installation, testing, QA/QC requirements.
2. The following systems are acceptable:
 - a. Fusible PVC.
 - b. Integral Joint Restraints:
 - 1) Eagle Loc 900.
 - 2) Diamond Lok-21.
 - 3) Or Engineer approved equal.
 - c. Certal-Lok.

E. Mechanical Joint Restraining Devices for DIP and PVC:

1. Acceptable Manufacturers:
 - a. Per City of Arvada Approved Product List (most recent edition).
2. Coating:
 - a. Retainer glands shall have a premium epoxy coating per AWWA C213.
3. Bolting Material:
 - a. Type 304 stainless steel nuts and bolts.

F. Concrete Thrust Blocks:

1. In accordance with Arvada Specification Section 400 and Drawings.

2.5 GASKETS AND BOLTING MATERIALS:

- A. Provide all gaskets, bolts, lubricant, and other accessories required to install pipe, fittings, and specials complete and ready for service.
- B. Gaskets for flanged joints shall conform to ANSI B16.21, American Cast Iron Pipe Company Torseal 1/8-inch-thick full-face gasket.
- C. Gaskets for ductile iron flanged pipe and fittings 12-inch and smaller shall have "nominal" inside diameters, not the larger inside diameters per ANSI B16.21.
- D. Bolts for flanged joints shall conform to ASTM A193, Grade B7. Nut and bolt heads shall be hexagonal.

- E. Gaskets and bolts for other than flanged joints shall be as otherwise specified for pipe and pipe joints.

2.6 POLYETHYLENE ENCASEMENT:

- A. Encase pipe, fittings, valves, restraining harnesses, and other metallic appurtenances with V-Bio Enhanced Polyethylene Encasement by American Ductile Iron Pipe.
 - 1. Provide 8-mil film, consisting of a three-layer co-extruded LLDPE material.
 - 2. Polyethylene shall be clear in color.
 - 3. Conform to AWWA C105.
- B. Adhesive Tape: 2 inches wide and plastic backed, capable of bonding securely to metal surfaces and/or polyethylene material.
 - 1. Scotchrap No. 50 (polyvinyl) or Engineer approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that excavation base is ready to receive Work.
- B. Verify that excavations, dimensions, and elevations are as indicated on Drawings.
- C. Do not deviate centerline of pipe from a straight line drawn between centers of openings at ends of pipe by more than 1/6 inch per foot of length.

3.2 PREPARATION

- A. Pipe and Fittings: Thoroughly cleaned before installation and kept clean until they are used in Work.
 - 1. When laid, must conform to lines and grades required.

3.3 INSTALLATION

- A. Coordinate with the Drawings and Earthwork sections for bedding requirements.
- B. As soon as excavation is complete to normal grade of bottom of trench:
 - 1. Place bedding, compact and grade to provide firm, uniform and continuous support for pipe.
 - 2. Excavate bell holes so only barrel of pipe bears upon bedding.
 - 3. Lay pipe accurately to lines and grades indicated on Drawings.
 - 4. Blocking under pipe is not permitted.

C. Bedding Placement:

1. Place Bedding evenly on each side of pipe to mid-diameter.
 - a. Use hand tools to force bedding under haunches of pipe and into bell holes to give firm continuous support for pipe.
2. Place bedding to 12 inches above top of pipe.
3. Place initial 36 inch of backfill above bedding in 12-inch layers and carefully compacted.
4. Compaction: Generally done evenly on each side of pipe.
 - a. Compaction Equipment: Do not operate directly over pipe until sufficient backfill has been placed ensuring such compaction equipment will not damage pipe.
 - b. Obtain pipe manufacturer's approval of equipment used in compacting initial 36 inches of backfill prior to use.

D. Piping:

1. Install PVC pipe and fittings per requirements of manufacturer, ASTM D2321 or as otherwise specified.
2. When installation is not in progress, including lunchtime, open ends of pipe must be closed by watertight plug or other approved means.
3. Joint Deflection: Not to exceed manufacturer recommendations.
4. Fittings: Provide in addition to those shown on Drawings, if required, in crossing utilities that may be encountered upon opening trench.

E. Defective Pipe Discovered After Installation: Remove and replace with sound pipe in a satisfactory manner.

F. When Cutting Pipe: By machine, leaving a smooth cut at right angles to pipe axis.

1. Cut Ends of Pipe Used with Bell: Bevel to conform to manufactured spigot end and a reference mark made at same distance from pipe end as measured from a factory marked end from same manufacturer.
2. Engineer may examine each bell and spigot end to determine whether any preformed joint has been damaged prior to installation.
 - a. Reject pipe having defective joint surfaces. Marked as defective and immediately remove from job site.

G. Pipe lengths must have assembly mark aligned with pipe previously laid and held securely until enough backfill has been placed to hold pipe in place. Joints must not be subjected to any applied longitudinal or lateral stresses other than bedding compaction as specified.

H. Before Joint are Made: Inspect pipe to assure a close joint with next adjoining pipe has been maintained and that inverts are matched and conform to required grade. Do not drive pipe down to grade by striking it.

I. Take precautions to prevent flotation of pipe in trench.

- J. Moveable Trench Bracing: Trench boxes, moveable sheeting, shoring or plates to support sides of trench.
 - 1. Prevent movement of pipe, and disturbance of pipe bedding and backfill, when placing and moving boxes or supporting bracing.
 - 2. Do not allow Trench boxes, moveable sheeting, shoring or plates to extend below top of pipe. If trench boxes, moveable sheeting, shoring or plates are installed below top of pipe, they must be moved slowly taking care not to disturb pipe, bedding or backfill. As trench boxes, moveable sheeting, shoring or plates are moved, Place pipe bedding filling voids created and then recompact backfill to provide uniform side support for pipe.
- K. Concrete Thrust Blocks: Installed at fittings and locations as directed by Engineer or indicated on Drawings.
 - 1. Minimum bearing area shall be in accordance with City of Arvada Standards Section 421.06.
 - 2. Place blocks against undisturbed material and must not cover joints, bolts or nuts, or interfere with removal of any joint.
 - 3. Wooden side forms may be provided for thrust blocks.
- L. Jointing:
 - 1. Installation General:
 - a. Limit PVC Joint Deflection to:
 - 1) Three percent with mechanical joints, or 75 percent of manufacturer's allowable, whichever is more stringent.
 - 2) One percent with bell and spigot rubber gasket joint or 75 percent of manufacturer's allowable, whichever is more stringent.
 - b. Limit DIP Joint Deflection to:
 - 1) Five percent with mechanical joints, or 75 percent of manufacturer's allowable, whichever is more stringent.
 - 2) Three percent with bell and spigot rubber gasket joint or 75 percent of manufacturer's allowable, whichever is more stringent.
 - c. Fused Pipe per manufacturer's allowable bend radius.
 - 2. Restrained Joints: Install where shown on Drawings.
 - 3. Conform to AWWA C605 and AWWA M23.
 - 4. Jointing PVC Pipe (Push-on type):
 - a. Installed in strict accordance with manufacturer's instructions.
 - b. Lay pipe with bell ends looking ahead.
 - c. Be sure joint surfaces clean.
 - d. Insert a rubber gasket in groove of bell end of pipe.
 - e. Lubricate with approved lubricant per manufacturer's recommendations.

- f. Insert plain end of pipe to be installed into bell of pipe to which it is to be joined, and when in alignment pushed home with a come-along or by other means.
 - g. Check that reference mark on spigot end is flush with end of bell.
- 5. Jointing Mechanical Joint Fittings:
 - a. PVC Sewer Pipe and Fittings: Jointed per recommendations of latest ASTM standards and manufacturer detailed instructions.
 - b. Install Suitable PVC to cast iron adaptors prior to installing fittings.
 - c. Cut PVC beveled spigot flush prior to insertion in mechanical joint pipe.
 - d. Field Assembled Joints: Thoroughly clean joint surfaces and rubber gaskets with soapy water before tightening bolts to specified torques.
 - 1) Under no circumstances are extension wrenches or pipe over handle of ordinary ratchet wrench to be used to secure greater leverage.
- 6. Jointing for DIP:
 - a. Conform to AWWA C600 and Appendix B of AWWA C111.
 - b. Visually examine while suspended and before lowering into trench.
 - 1) Paint bell, spigot, or other suspected portions with turpentine and dust with cement to check for cracks invisible to the eye. Remove turpentine and cement by washing when test is satisfactorily complete.
- 7. Flanged Joints: Assembled per manufacturer's instructions and Appendix C of AWWA C111. If there is conflict, manufacturer's instructions take precedence.
 - a. Ensure there is no restraint on opposite ends of pipe or fitting, which would prevent uniform gasket compression, cause unnecessary stress, bending or torsional strains, or distortion of flanges or flanged fittings.
 - b. Adjoining push-on joints are not to be assembled until flanged joints have been tightened.
 - c. Tighten flange bolts for uniform gasket compression and sealing.
- 8. Fused Joints:
 - a. Fused PVC pipe will be fused by a qualified fusion technician, as documented by pipe supplier.
 - b. Only appropriately sized and outfitted fusion machines approved by the supplier shall be used for the fusion process.
 - 1) Heat plate, carriage, other parts of the equipment shall be shown to be approved by the supplier.

3.4 FIELD QUALITY CONTROL

- A. AWWA C605 requires a minimum test pressure of 1.25 times the maximum anticipated sustained working pressure. Verify that the specified test pressure does not exceed the pressure rating of the pipe, valves, fittings and thrust restraints. If so, reduce test pressure accordingly. In special circumstances, a higher test pressure (such as 150 percent of operating pressure), or a lower pressure (such as typical line pressure available at time of testing) may be specified.
- B. After Installation: Test pipe for compliance as specified below. Furnish necessary equipment and labor for hydrostatic pressure test on pipelines.
- C. Pressure testing line shall be performed in accordance with City of Arvada Standards Section 421.13.
 - 1. Submit detailed test procedures and method for Engineer's review. In general, conduct testing per AWWA C605.
 - a. Hydrostatic pressure test methods and procedures must be approved by Engineer.
 - b. Submit testing plan to Engineer 10 days before testing.
- D. Subject pressure pipelines to a hydrostatic pressure of 150 psig or 1.5 times working pressure at lowest point along test segment.
 - 1. Maintain test pressure a minimum of two hours.
 - 2. Hydrostatic testing allowances must not exceed those indicated in AWWA C605.
 - 3. Provide suitable restrained bulkheads as required to complete hydrostatic testing specified.
 - 4. Leakage test shall be conducted concurrently with the pressure test. Acceptable when leakage does not exceed that determined by the following formula:
$$L = \frac{S \cdot D \cdot \sqrt{P}}{148,000}$$

L=Allowable Leakage in gallons per hour
S=Length of pipe tested, in feet
D=Nominal diameter of pipe, in inches
P=The average test pressure during the hydrostatic test, in PSI
 - 5. Test shall be performed in presence of Engineer or Arvada inspector.
 - 6. Repeat test as necessary after location and repair of defective joints, fittings, or other sources or leaks.
 - 7. Owner will provide a source of supply from existing treated water distribution system for Contractor's use in filling lines. Maintain an air gap at all times between Owner's distribution system and Contractor's equipment to prevent cross-connection. Owner will supply a maximum quantity of water equal to 110 percent of volume of pipelines for testing. Additional water required by Contractor will be provided at standard billing rates for volume required.
 - a. Slowly fill lines with water and maintain specified test pressure in pipe for entire test period by means of a pump furnished by Contractor.

- b. Provide accurate means for measuring makeup water volume required to maintain pressure.
 - c. Pressure Test Duration: Not less than two hours.
- E. Make taps and furnish necessary caps, plugs, and other appurtenances as required in conjunction with performing testing.
- F. Valves and Valve Boxes: Properly located and installed and operable prior to testing.
 - 1. Provide bulkheads with sufficient number of outlets for filling and draining line and for venting air.

3.5 POLYTHYLENE ENCASEMENT:

- A. Installation:
 - 1. Perform to conform to AWWA C105.
 - 2. Use adhesive tape to fasten polyethylene film in place.
 - 3. Minimize exposure of polyethylene film to sunlight.
 - 4. Wrap metallic pipe, valves, fittings, couplings per AWWA C105 installation standards.

3.6 CONNECTION TO EXISTING SYSTEM:

- A. At locations where force main connections are to be installed to the existing system Contractor shall locate the existing lines both vertically and horizontally and verify their exact size and material in advance of the work to be performed. Contractor shall verify flange patterns of existing flange connections.
- B. Contractor shall prepare a bypass plan to be submitted for review. Contractor shall keep the shutoff time of the lift station to a minimum.
 - 1. Notify a City of Arvada inspector or Engineer a minimum 72 hours in advance and be present at all times during the Construction of the connection.
 - 2. The force main shall be hydrostatic tested and approved by the City of Arvada prior to making connections to the existing system.

END OF SECTION 330531.16

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SECTION 333113 - PUBLIC SANITARY UTILITY SEWERAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. City of Arvada Standards Section 500.

1.2 SUMMARY

- A. Section Includes:
 - 1. Sanitary sewerage gravity pipe and fittings.
 - 2. Connection to maintenance holes.
 - 3. Wye branches and tees.
 - 4. Sanitary laterals.
 - 5. Bedding and cover materials.
 - 6. Abandonment of existing pipelines.
- B. Related Requirements:
 - 1. Section 310515 "Soils and Aggregates for Earthwork" for soils and aggregate for backfill in trenches.
 - 2. Section 330513.00 "Maintenance Holes and Structures."
 - 3. Section 312333 "Trenching and Backfilling."
 - 4. Section 330531.16 "Pressure Pipe."

1.3 COORDINATION

- A. Coordinate Work of this Section with the most recent edition of the City of Arvada standards and specifications.
- B. Perform work in accordance with 017839 "Project Record Documents" and City of Arvada Specification 222.00 "Record Drawings" and Specification 342.00 "Staking and Grade Control."
- C. Notify affected utility companies at least 72 hours prior to construction.

1.4 DEFINITIONS:

- A. RTRF: Reinforced, Thermosetting Resin Fitting: Fittings fabricated of composite materials, largely consisting of a reinforcement material embedded in, or surrounded by, cured thermosetting resin. Most common form of reinforced thermosetting resin pipe is one in which fiberglass strands form reinforcement.

- B. RTRP: Reinforced, Thermosetting Resin Piping.

1.5 PREINSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing Work of this Section. At the pre-installation meeting, discuss at a minimum, construction schedule, coordination with others, known deviations from the specifications, communication protocols and quality control / testing procedures and system start-up procedures.
- B. Attendance Roster: Include affected utility companies and appropriate local officials.

1.6 ACTION SUBMITTALS

- A. Product Data: Submit manufacturer catalog cuts and other information indicating proposed materials to be used, accessories, details, and construction information.
- B. Shop Drawings:
 - 1. Drawings showing layout and details of pipe, reinforcement, joints, gaskets, special fittings and the name of the pipe manufacturer. A schedule of pipe lengths (including the length of individual pipes by diameter) for the entire job.
 - 2. Design calculations design calculations including, but not limited to, wall thickness and deflection under specified live and dead loads.

1.7 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Certificate: Products meet or exceed specified requirements.
- B. Include separate Paragraphs for additional certifications.
- C. Test and Evaluation Reports: Documenting field tests made, and results obtained.
- D. Manufacturer Instructions: Procedures required to install specified products.
- E. Testing plan and equipment.
- F. Field Quality-Control Submittals: Results of Contractor-furnished tests and inspections.
- G. Qualifications Statements:
 - 1. Qualifications for manufacturer and installer.
 - 2. Manufacturer's approval of installer.

1.8 CLOSEOUT SUBMITTALS

- A. Perform in accordance with City of Arvada Specifications 222.00 "Record Drawings" and 523.02 "Alignment and Grade."
- B. Project Record Documents: Record invert elevations and actual locations of pipe runs, connections, maintenance holes, cleanouts, and appurtenances.

- C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- D. Pipe testing results.

1.9 QUALITY ASSURANCE

- A. Perform Work according to City of Arvada Standards most recent edition.
- B. Maintain a copy of each standard affecting Work of this Section on Site.

1.10 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years' experience.
- B. Installer: Company specializing in performing Work of this Section with minimum five years' experience.
- C. Fiberglass Pipe and Fitting Installers: Provide RTRF and RTRP pipe installation by technicians certified by manufacturer of pipes and fittings as having been trained and qualified to join fiberglass piping with manufacturer-recommended adhesive.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Storage: Store materials according to manufacturer instructions.
- C. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Block individual and stockpiled pipe lengths to prevent moving.
 - 3. Provide additional protection according to manufacturer instructions.
 - 4. Protect materials from weather and UV exposure.
 - 5. Maintain storage temperature per manufacturer's recommendations.
 - 6. Provide temporary end caps and closures on piping and fittings and maintain in place until installation.

1.12 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Field verify fit-up to existing infrastructure prior to fabrication.
 - 3. Indicate field measurements on Shop Drawings.

1.13 WARRANTY

- A. Special Warranty: Furnish two-year manufacturer's warranty for piping systems.

PART 2 - PRODUCTS

2.1 SANITARY SEWERAGE PIPE AND FITTINGS

- A. Materials shall be submitted in accordance with these specifications and City of Arvada Standards Section 522.00.
- B. Pipe Requirements:
1. Furnish pipe of materials, joint types, and strength classes indicated or specified. Higher strengths may be furnished at Contractor's option. Furnish maximum pipe lengths produced by the manufacturer.
 2. The pipeline manufacturer shall verify and attest to the fact that their pipe is good at all depths scheduled for installation.
 3. Pipe shall be designed to withstand all stresses resulting from external loads at depths shown on the construction plans and H-20 live loadings in roadways.
 4. Each pipe or fitting shall have plainly and permanently marked on the pipe wall the pipe class and size, date of manufacture, manufacture's name or trademark, and deflection angle for bends.
- C. Plastic Pipe: Polyvinyl Chloride (PVC).
1. Furnish in accordance with ASTM D3034 and ASTM F679.
 2. Pipe shall be designed in accordance with AWWA M23.
 3. Inside Nominal Diameter: 21 to 30 inches.
 4. End Connections: Bell and spigot style, with rubber-ring-sealed gasket joint.
 5. Fittings: PVC with minimum wall thickness of main sewer line.
 6. Joints: Compression type with elastomeric ring gasket in annular space between bell end or socket and spigot end of pipe. Elastomeric gaskets per ASTM F477. Must be watertight.
 7. Connections: furnish any special flexible couplings requires for maintenance hole tie-ins or connections to other rigid structures per the most recent set of City of Arvada standards and specifications.
 8. Service line connection shall be bell end with elastomeric ring gasket and a minimum wall thickness of SDR 35. Refer to Arvada Specification 514.03.
 9. All pipe supplied for the installation of sewer main line shall conform to the following materials:

Locations	Pipe Material	Design Cover Depth	Minimum Pipe Class
Gravity Sewer Trunk Line	PVC	6.0' min. 20.0' max.	SDR-35
Gravity Sewer Trunk Line	PVC	20.0' min. 30.0' max.	SDR-26

D. Plastic Pipe: Fiber glass reinforced plastic (FRP).

1. Furnish in accordance with ASTM D3262.
2. Pipe shall be designed in accordance with AWWA M45.
3. Inside Nominal Diameter: 21 to 30 inches.
4. Material: Glass fiber reinforced thermosetting resin pipe or glass-fiber-reinforced polymer mortar pipe in conformance to AWWA C950.
5. Type 1, Liner 2, Grade 3, Stiffness D.
 - a. The pipe stiffness is to be measured in accordance with ASTM D2412.
6. Joints and Fittings: As supplied by the pipe manufacturer, molded of same material, pressure class, and joining method as pipe.
 - a. Fiberglass sleeve couplings that utilize elastomeric sealing gaskets for water tightness. Joints must meet the performance requirements of ASTM D4161.
7. Connections: furnish any special flexible couplings requires for maintenance hole tie-ins or connections to other rigid structures per the most recent set of City of Arvada standards and specifications.

Locations	Pipe Material	Design Cover Depth	Minimum Pipe Class
Gravity Sewer Trunk Line	FRP	6.0'min. 20.0'max.	SN-46
Gravity Sewer Trunk Line	FRP	20.0'min. 30.0'max.	SN-72

2.2 MATERIALS

A. Bedding and Cover:

1. Bedding: Fine aggregate as specified in Section 310515 "Soils and Aggregates for Earthwork."
2. Soil Backfill from Above Pipe and Bedding to Finish Grade as specified in Section 310515 "Soils and Aggregates for Earthwork."

2.3 ACCESSORIES

A. Pipe Markers: as specified in 330526 "Utility Identification."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that excavation base is ready to receive Work.
- B. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Correct over-excavation with fine aggregate.
- B. Remove large stones or other hard materials that could damage pipe or impede consistent backfilling or compaction.
- C. Protect and support existing sewer lines, utilities, and appurtenances.
- D. Utilities:
 - 1. Maintain profiles of utilities.
 - 2. Coordinate with other utilities to eliminate interference.
 - 3. Notify Engineer if crossing conflicts occur.
- E. Contractor must, in writing, advise affected users a minimum of 48 hours prior to performing work on a service or collector line which will interrupt a customer's wastewater line. Contractor must also notify Arvada's Wastewater Division of the schedule and bypassing maintenance holes necessary to isolate the line on which work will be performed.
 - 1. The Contractor shall provide all labor, materials, and equipment to properly handle and divert all sewage flow when required for construction.
 - 2. If sewage backup occurs and enters a private property during Contractor's bypassing operations, the Contractor shall be responsible for clean-up, repair, property damage and all other costs caused by the backup.
 - 3. Refer to Arvada Specification 523.01.01 "Interruption of Sanitary Service" for additional requirements.

3.3 INSTALLATION

- A. Bedding:
 - 1. Excavate pipe trench as specified in Section 312333 "Trenching and Backfilling."
 - 2. Excavate to lines and grades as indicated on Drawings, or as required to accommodate installation of encasement.
 - 3. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
 - 4. Provide sheeting and shoring as specified and in accordance with OSHA.
- B. Piping:
 - 1. Install pipe, fittings, and accessories according to ASTM D2321, and seal joints watertight.
 - 2. Lay pipe to slope gradients as indicated on Drawings.
 - 3. Maximum Variation from Indicated Slope: 1/8 inch in 10 feet.
 - 4. Begin at downstream end and progress upstream.
 - 5. Assemble and handle pipe according to manufacturer's instructions, except as may be modified on Drawings or by Engineer.
 - 6. Keep pipe and fittings clean until Work has been completed and accepted by Engineer.
 - 7. Cap open ends during periods of Work stoppage.
 - 8. Lay bell and spigot pipe with bells upstream.
 - 9. Backfill and compact as specified in Section 312333 "Trenching and Backfilling."

10. Do not displace or damage pipe when compacting.
11. Make connections to Arvada's Sewer System per City of Arvada Standards Section 525.00. Connections to existing system shall not occur until all testing of the new system has passed.
At locations where connections to existing sanitary sewers are to be installed the Contractor shall locate the existing sewers both vertically and horizontally and verify their exact size and material in advance of the time scheduled for making the connections. The existing sewer systems cannot be shut down, bypass pumping shall be utilized if required.
12. Fiberglass Bonded Joints: Prepare pipe ends and fittings, apply adhesive, and join in accordance with pipe manufacturer's written instructions.

C. Connection to Existing Maintenance Holes:

1. Perform in Accordance to Arvada Specification 523.05.
2. Drilling: Core drill existing maintenance hole to clean opening.
 - a. Use of pneumatic hammers, chipping guns, and sledge hammers are not permitted.
3. Install watertight neoprene gasket and seal with non-shrink concrete grout.
4. Prevent construction debris from entering existing sewer line when making connection.
5. Make connections to Arvada's Sewer System per City of Arvada Standards Section 525.00. Connections to existing system shall not occur until all testing of the new system has passed.
6. At locations where connections to existing sanitary sewers are to be installed the Contractor shall locate the existing sewers both vertically and horizontally and verify their exact size and material in advance of the time scheduled for making the connections. The existing sewer systems cannot be shut down, bypass pumping shall be utilized if required.

D. Wye Branches and Tees:

1. Concurrent with pipe-laying operations, install wye branches and pipe tees at locations indicated on Drawings.
2. Use standard fittings of same material and joint type as sewer main.
3. Maintain minimum 2 feet separation distance between tee connection and maintenance hole.
4. Use saddle wye or tee with stainless-steel clamps for taps into existing piping.
5. Mount saddles with solvent cement or gasket and secure with metal bands.
6. Lay out holes with template and cut holes with mechanical cutter.

E. Sanitary Laterals:

1. Install laterals per City of Arvada Standards.
2. Where depth of main pipeline warrants, increase the pipe stiffness to SD26.

F. Backfilling: Maintain optimum moisture content of bedding material as required to attain specified compaction density. Refer to Sections 310515 "Soils and Aggregates for Earthwork" and 312333 Trenching and Backfilling."

3.4 FIELD QUALITY CONTROL

- A. Request inspection by Engineer prior to placing bedding.
- B. Testing of Gravity Sewer Piping:
 - 1. Perform air tests per UNI-BELL UNI-B-6, Latest Revision.
 - a. Refer to COA Specification 524.00 for additional requirements.
 - 2. Deflection Testing (Mandrel Testing) of Plastic Sewer Piping in accordance with City of Arvada Standards Section 524.03.
 - a. Maximum allowable vertical ring deflection shall per manufactures recommendation.
 - 3. Repair and repeat. Testing shall be continued until the testing requirements are met.
- C. CCTV Testing: All sewer segments (all installed pipe) shall be inspected by closed circuit television (CCTV). All CCTV video and observation reports shall be provided to the City of Arvada as a permanent record of the inspection.

3.5 PIPE ABANDONEMENT

- A. Perform in accordance with Arvada Specification 332.00.
- B. Unless designated for removal, the Contractor shall abandon all pipes and structures indicated on the drawings by filling them in place with CLSM.
- C. Existing pipelines indicated on the Drawings to be abandoned shall be plugged at the required locations.
- D. Pipes shall be closed with an approved plug or cap with required restraint as approved by the Engineer.
- E. Plug abandoned sewer lines structure penetrations on abandoned sections of sewer with a mechanical gripper type plug and a concrete cap to seal the entry.

END OF SECTION 333113

SECTION 400562 - PLUG VALVES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Eccentric plug valves.
 - 2. Valve boxes.
- B. Related Requirements:
 - 1. City of Arvada Standards and Specifications (most recent edition).

1.3 SUBMITTALS

- A. Include, but not limited to, the following:
 - 1. Catalog data or illustrations showing principal dimensions, parts, and materials.
 - 2. Spare parts list referenced to illustration of parts.
 - 3. Assembly or repair instructions.
 - 4. Valve coating information including performance tests of adhesion, hardness, and abrasion resistance.
- B. Actuators, their controls, and accessories shall be the responsibility of the valve manufacturer for sizing, assembly, certification, field testing, and any adjustments necessary to operate the valve as specified.
- C. Certificates and Affidavits: Furnish prior to shipment. Include the following:
 - 1. Test certificates.
 - 2. Affidavit of compliant with applicable AWWA Standards.

1.4 QUALITY ASSURANCE

- A. Test valves in accordance with AWWA C517.
- B. Provide testing and inspection certificates.

- C. Manufacturers shall be experienced in the design and manufacturer of specific valves and accessories for a minimum period of five years.

PART 2 - PRODUCTS

2.1 ECCENTRIC (FULL PORT) PLUG VALVES

A. Manufacturers:

1. DeZurik.PEF.
2. M&H Valve.
3. Clow Valve Company; a subsidiary of McWane, Inc.
4. Henry Pratt Company; a Mueller brand.
5. Kennedy Valve Company; a division of McWane, Inc.
6. Val-Matic Valve & Manufacturing Corp.
7. Furnish materials according to AWWA C517, Cast Iron ASTM A126 Class B or Ductile Iron ASTM A536 Grade 65-45-12 standards.

B. Description:

1. Type:
 - a. Offset disc type.
 - b. Non-lubricated.
 - c. Serviceable (able to be repacked) under full line pressure.
 - d. Eccentric.
 - e. Capable of sealing in both directions at the rated pressure.
 - f. unobstructed flow path when open.
 - g. Drop tight shut-off to the full valve rating with pressure on either side of the plug.
2. Body:
 - a. 30,000-psi tensile strength.
 - b. Top entry, bolted bonnet.
 - c. Body shall be cast with integral piping connections.
3. Plug:
 - a. To be removable without removing the valve from the line.
 - b. To have an integral upper and lower shaft:
 - 1) Seals on the upper and lower journals to prevent entrance of solids into the journals.
 - c. One piece for all valves.
4. Bearings:
 - a. Permanently lubricated.

5. Minimum Working Pressure: 175 psig for valves up to 12 inches.
 - a. At the above rated minimum working pressures, certified by the manufacturer as permitting zero leakage for a 5-minute duration with full pressure applied in either direction.
6. Ports:
 - a. Configuration: Rectangular.
 - b. Valve port area shall meet or exceed standard pipe area per ASME/ANSI B36.10M.
 - c. Minimum Port Area: 100 percent of nominal pipe area.
7. Seats:
 - a. Full 360-degree seating by contact of a resilient seating material on the plug mating with welded-in seating surface in the body.
 - b. Screw in body seats not acceptable.
 - c. Resilient and of the continuous interface type having consistent opening and closing torques.
 - d. Non-jamming in the closed position.
8. Stem Bearings: Self-lubricating type 316 stainless steel.
9. Stem Seals:
 - a. Type: V-ring.
 - b. Externally adjustable and repackable without removing the bonnet from the valve, or self-adjusting.
10. Packing and Gland: Accessible and externally adjustable.
11. End Connections:
 - a. Mechanical Joint: Comply with ANSI/AWWA C111/A21.11.

C. Operation:

1. Valve shall open right.
2. All buried valves shall have a 2-inch square operating nut.
3. A suitably sized steel actuator mounting bracket shall be provided to provide an air gap between the actuator and the valve stem seal. Under no circumstance shall the gear box be mounted directly to the top body flange such that leakage could directly enter the gear box.
4. Provide adjustable limit stops for both opening and closing and a clearly marked position indicator.
5. Greater Than 4 Inches: Worm gear manual operators installed according to Drawings and COA standards.

D. Materials:

1. Body:

- a. Cast iron ASTM A126, Grade B or Ductile iron, ASTM A536.
- b. Lining and Coating: Epoxy, in accordance with AWWA C550.

2. Plug:

- a. Ductile iron, ASTM A536, Grade 65-45-12 or cast iron ASTM A126, Grade B.
- b. Lining: Neoprene Resilient coating, as recommended by valve manufacturer for service conditions.

- 3. Seats: Stainless steel Type 316.
- 4. Stem: Type 316 stainless steel.
- 5. Stem Bearings: Bronze.
- 6. Seals: PTFE.
- 7. Connecting Hardware: Type 316 stainless steel.

2.2 VALVE BOXES

A. Manufacturers:

- 1. Castings Inc., Series 6850.
- 2. Star Pipe Products, Model VB002 CL 35.
- 3. Engineer approved equal.

B. Description:

1. 12-inch Diameter Valves and Smaller:

- a. Material: Cast iron.
- b. Type: Two-piece.

- 2. Lid Inscription: SANITARY
- 3. Shall be provided with extension shafts, operating nuts and valve boxes as follows:
- 4. Extension shafts shall be Type 304 stainless steel and the operating nut shall be 2-in square. Shafts shall be designed to provide a factor of safety of not less than four. Operating nuts shall be pinned to the shafts.
- 5. Top of the operating nut shall be located two inches below the rim of the valve box.
- 6. Valve boxes shall be a heavy pattern cast iron, three-piece, telescoping type box with dome base suitable for installation on the buried valves. Inside diameter shall be at least 4-1/2-in. Barrel length shall be adapted to the depth of cover, with a lap of at least 6-in when in the most extended position. Covers shall be cast iron with integrally-cast direction-to-open arrow, and the word SANITARY shall also be integrally cast. Aluminum or plastic are not acceptable. A means of lateral support for the valve extension shafts shall be provided in the top portion of the valve box.
- 7. The upper section of each box shall have a top flange of sufficient bearing area to prevent settling. The bottom of the lower section shall enclose the stuffing box and operating nut of the valve and shall be oval.

8. All fasteners shall be Type 316 stainless steel.

2.3 SOURCE QUALITY CONTROL

- A. Testing: Hydrostatic Test Per ANSI B16.1 and B16.5.
- B. Submit an affidavit of compliance stating that the valves have been manufactured and tested in accordance with AWWA C504-00, Section 5.2.4 and specifically list all exceptions.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. According to AWWA C517.
- B. Horizontal Piping: Stem horizontal, Plug opening to crown of body.
- C. Vertical Piping: Plug at top when closed.
- D. Plugs: On top when open and on pressure side when closed.

END OF SECTION 400562

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SECTION 400578.29 - COMBINATION AIR VALVES FOR WASTEWATER SERVICE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes: Combination air valves for wastewater treatment facilities.
- B. Related Requirements:
 - 1. City of Arvada Specifications 415.00 and 420.12.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination
 - 1. Section 013100 “Project Management and Coordination” for requirements for coordination.

1.4 ACTION SUBMITTALS

- A. Section 013300 “Submittal Procedures” for requirements for submittals.
- B. Shop Drawings: Indicate materials, dimensions, weights, and end connections on assembly drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- B. Product Data: Submit manufacturer catalog information.
- C. Manufacturer Instructions: Submit special procedures and setting dimensions.

1.6 CLOSEOUT SUBMITTALS

- A. Section 017700 “Closeout Procedures” for requirements for submittals.
- B. Project Record Documents: Record actual locations of combination air valves.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years' experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 "Product Requirements" for requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Furnish temporary end caps and closures on piping and fittings and maintain in place until installation.
 - 3. Provide additional protection according to manufacturer instructions.

1.9 WARRANTY

- A. Section 017700 "Closeout Procedures" for requirements for warranties.
- B. Furnish five-year manufacturer's warranty for combination air valves.

PART 2 - PRODUCTS

2.1 COMBINATION AIR VALVES FOR WASTEWATER SERVICE

- A. Manufacturers:
 - 1. A.R.I. Model D25.
- B. Description:
 - 1. Type:
 - a. Fully automatic, float operated.
 - b. Body: Single.
 - 2. Comply with AWWA C512.
 - 3. Size: As indicated on Drawings.
 - 4. Suitable for sewage service.
 - 5. Provide with flushing capabilities.

6. Pressure Rating: 150 psig.
7. Combination air valves:
 - a. Perform the functions of an air/vacuum valve (exhaust large quantities of air on start-up, admits air on shut-down) and air release valves (release air continuously during operation) to maintain system efficiency and prevent pipeline surges.
8. Connecting fittings and pipe shall be stainless steel and rated for 250 psi service.
9. Tapping saddle shall be stainless steel and from Arvada's Approved Product List.

C. Materials:

1. Body and Cover: Stainless steel, ASTM A351.
2. Float: Type stainless steel conforming to ASTM A240.
3. Seats: Buna-N.
4. Seals: Buna-N.
5. Hardware: Stainless steel.

D. End Connections - Single Body:

1. Size 4 Inches and Smaller:
 - a. Threaded, NPT.
 - b. 1-inch Valves: Furnish 2-inch inlet.
2. Backwash Accessories: Furnish three additional NPT connections.

E. Valve Body Connections:

1. Threaded, NPT.
2. Cleanout: 2 inches.
3. Drain: 1 inch.

F. Accessories:

1. Backwash accessories, including inlet shutoff valve, blowoff valve, rubber supply hose, and quick-disconnect couplings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 "Execution" for requirements for installation examination.
- B. Verify that field dimensions are as indicated on Shop Drawings.
- C. Inspect existing flanges for nonstandard bolt hole configurations or design and verify that new pipe and flanges mate properly.

3.2 PREPARATION

- A. Section 017300 “Execution” for requirements for installation preparation.
- B. Thoroughly clean end connections before installation.
- C. Close pipe and equipment openings with caps or plugs during installation.
- D. Cleaning: Clean surfaces to remove foreign substances.

3.3 INSTALLATION

- A. According to manufacturer instructions.
- B. Provide access for operation, removal, and maintenance, and to avoid discharge to occupied areas or other equipment.
- C. Vent the valve properly and pipe outlet to nearest drain or as directed by the Engineer.

3.4 FIELD QUALITY CONTROL

- A. Section 014000 “Quality Requirements” for requirements for inspecting and testing.

END OF SECTION 400578.29

BID FORMS

The following pages contain forms to be completed and returned with bid submission.

BID BOND

We, the undersigned _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto the City of Arvada, Colorado, in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

THE CONDITION of this obligation is such that whereas the Principal has submitted to the City of Arvada, Colorado the accompanying Bid Proposal, and hereby made a part hereof to enter into a Contract Agreement for the construction of City of Arvada Project No. 24-SR-04, Project Title: North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)

WHEREAS, the City, as a condition for receiving said Bid Proposal, requires the Principal to deposit with the City a Bid Proposal Guaranty, equivalent to not less than 5 Percent of the amount of said Bid Proposal.

NOW THEREFORE,

- (A) If said Bid Proposal shall be rejected; or in the alternate,
- (B) If said Bid Proposal shall be accepted and the Principal shall execute and deliver a Contract Agreement (properly completed in accordance with said Bid Proposal) and shall furnish a Performance and Payment Bond upon the forms prescribed by the City for the faithful performance of said Contract; and for the payment of all persons performing labor or furnishing materials in connection therewith; and shall in all other respects perform the agreement created by the acceptance of said Bid Proposal;

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the City may accept such Bid and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, this ____ day of _____, 20__, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

PRINCIPAL

Name: _____

Address: _____

By: _____

Title: _____

SURETY

_____.

_____.

By: _____.

Title: _____.

Attorney-in-Fact:

(SEAL)

NOTE: Surety Companies executing bonds must be authorized to transact business in the State of Colorado and be acceptable to the City.

BID PROPOSAL

TO: City of Arvada, Colorado (hereinafter called "CITY").

FROM: _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as (a corporation), (a partnership), (an individual).

The Bidder, in compliance with your Advertisement for Bids, hereby proposes to perform all Work in strict accordance with the Contract Documents, for the construction City of Arvada Project No. 24-SR-04, Project Title: North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM) within the time set forth therein, and at the prices stated on the included Bid Schedule as totaled herein.

By submission of this Bid Proposal, each Bidder certifies, and in the case of a joint venture each party thereto certifies as to his/her own organization, that this Bid Proposal has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid Proposal with any other Bidder or with any competitor.

Bidder acknowledges receipt of **Addendum Nos.** Initials: _____

Bidder states that their:

Major Material Suppliers are:

Material They Will Supply

Major Subcontractors are:

Work They Will Perform

CONTRACT TIME AND LIQUIDATED DAMAGES: All work shall be completed, including clean-up, within **300** working days after the date to be specified in the Notice to Proceed. A Notice to Proceed is anticipated to be issued on or about September 5, 2025. The bidder shall agree to pay the owner the sum of \$2,000 for each calendar day that the work exceeds the allotted contract time. Contract time may be adjusted by Change Order.

Total from included Bid Schedule: **TOTAL BID \$** _____

SUBMITTED BY:

Company Name: _____

Contact Names: _____

Address: _____

Phone: (_____) _____ Email(s): _____

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the Contractor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accept and acknowledge this bid is consistent with the specifications and terms and conditions.
- The bid 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: The City standard is net thirty (30) days but every effort is made to meet net fifteen (15) days after the approved partial payment date when the contractor is satisfactorily performing the contract. The final 5% of total payment will be paid once the contract is completed satisfactorily, advertisement for final settlement is complete, and the project is accepted by the City. Payment is the date of the check mailing or date of the credit card transaction.

25-ENG-048 BID SCHEDULE



Project: North Trunk Sewer 86th Pkwy, Beech To Moore St (NTL 2/3/Alkire FM)
City Project No. 24-SR-04

CONTRACTOR:

DATE:

BID PREPARED BY:

Item	Description	Units	Qty	Unit Price	Total Price
Gravity Interceptor 86th Parkway Alignment (Sheets C-1 to C-12)					
1.01	Mobilization/Demobilization/Bonds/Schedule/Permits	LS	1	\$ -	\$ -
1.02	Traffic Control	LS	1	\$ -	\$ -
1.03	Install 21" Sanitary Sewer - PVC or FRP (shall be same material as 1.04, circle material)	LF	151	\$ -	\$ -
1.04	Install 24" Sanitary Sewer - PVC or FRP (Contractor to circle or highlight selected material)	LF	6,117	\$ -	\$ -
1.05	Install 30" Sanitary Sewer - PVC or FRP (shall be same material as 1.04, circle material)	LF	3,866	\$ -	\$ -
1.06	Remove 8" Sanitary Sewer and Install 24" Sanitary Sewer - PVC or FRP (shall be same material as 1.04, circle material)	LF	795	\$ -	\$ -
1.07	36" Bored Steel Casing Pipe	LF	62	\$ -	\$ -
1.08	36" Open-Cut Steel Casing Pipe	LF	50	\$ -	\$ -
1.09	Cathodic Protection	LS	1	\$ -	\$ -
1.10	Backfill with CLSM	CY	590	\$ -	\$ -
1.11	Install Diversion Structure	EA	1	\$ -	\$ -
1.12	Install 96" Sanitary Sewer Maintenance Hole	EA	1	\$ -	\$ -
1.13	Install 60" Sanitary Sewer Maintenance Hole	EA	34	\$ -	\$ -
1.14	Remove and Replace 60" Sanitary Sewer Maintenance Hole	EA	6	\$ -	\$ -
1.15	Pipe abandonment and plug connections	LS	1	\$ -	\$ -
1.16	Trench Stabilization Material	TON	100	\$ -	\$ -
1.17	Sanitary Sewer Service Lines - Reconnect Laterals	EA	4	\$ -	\$ -
1.18	Bypass Pumping	LS	1	\$ -	\$ -
1.19	Asphalt Surface Restoration	SY	6,100	\$ -	\$ -
1.20	Milling and Overlay	SY	12,120	\$ -	\$ -
1.21	Pavement Markings	LS	1	\$ -	\$ -
1.22	Erosion Control	LS	1	\$ -	\$ -
1.23	Dewatering	LS	1	\$ -	\$ -
1.24	Concrete Cut-off Wall at Casing	EA	2	\$ -	\$ -
Alkire St Force Main (Sheets C-13 to C-15)					
2.01	Mobilization/Demobilization/Bonds/Schedule/Permits	LS	1	\$ -	\$ -
2.02	Traffic Control	LS	1	\$ -	\$ -
2.03	Bypassing and Connection to Existing Alkire LS	LS	1	\$ -	\$ -
2.04	Install Force Main Clean-out Manhole	EA	1	\$ -	\$ -
2.05	Install 12" Force Main with Fittings (Unrestrained)	LF	2,322	\$ -	\$ -
2.06	Install 12" Force Main with Fittings (Restrained)	LF	444	\$ -	\$ -
2.07	DIP Yard Piping and Fittings	LF	37	\$ -	\$ -
2.08	Plug Valve and Valve Box	EA	3	\$ -	\$ -
2.09	24" Bored Steel Casing Pipe	LF	60	\$ -	\$ -
2.10	Connection to Gravity Main w/14" piping	LS	1	\$ -	\$ -
2.11	Cathodic Protection	LS	1	\$ -	\$ -
2.12	Trench Stabilization Material	TON	50	\$ -	\$ -
2.13	Concrete Cut-off Wall at Casing	EA	2	\$ -	\$ -
2.14	Asphalt Surface Restoration	SY	1,560	\$ -	\$ -
2.15	Milling and Overlay	SY	2,797	\$ -	\$ -
2.16	Erosion Control	LS	1	\$ -	\$ -
2.17	Dewatering	LS	1	\$ -	\$ -
2.18	Air Valve Vault Assembly	EA	4	\$ -	\$ -
Allowances (Owner Controlled)					
A-1	Grouting Allowance	LS	1	\$ -	\$ -
A-2	Minor Contract Revisions	LS	1	\$	
Bid Summary					
1.01 - 1.23	86th Pkwy Alignment				\$ -
2.01 - 2.19	Alkire St Force Main				\$ -
Allowances	Total allowances				\$
All Items				Total Price	\$

Total Amount of Bid Written Out:

REQUIRED CONTRACTOR SUBMITTAL FORM

SUBMITTAL CHECKLIST:

Bid Proposals shall be submitted in the order listed below with each section clearly identified. **Missing information or required documents may result in submission being deemed non-responsive.**

- ☐ Submit completed Bid Bond, Bid Proposal, Bid Schedule, Required Contractor Submittal, and any other attachments requested.
- ☐ Submit implementation timeline and warranties, if applicable.
- ☐ Attach Contractor's Licensing, if applicable.
- ☐ Insurance – Checking this box accepts that the insurance requirements listed by the City are acceptable.
- ☐ Variations: Checking this box indicates that the contractor has variations to this solicitation. Identify all variations and exceptions to this CSB on a separate sheet/s of paper. 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. For each variation listed, reference the applicable section of the solicitation document, the page number, and the variance. Submittal of a vendor contract is considered excessive in variations and may be cause for determining that the Bid is non-responsive and ineligible for award.

MINIMUM REQUIRED QUALIFICATIONS:

Evidence of these qualifications must be submitted. All qualification projects must have been completed within the past five years and be within the Front Range of Colorado, as defined as Fort Collins to Pueblo.

- ☐ Provide two example projects with demonstrated experience installing pipeline with a ditch crossing.
- ☐ Provide two example projects with demonstrated experience installing large diameter gravity sanitary sewer pipeline (>18-inch diameter and greater).
- ☐ Provide one example project with demonstrated experience installing a sanitary sewer force main.
- ☐ Provide three general references, two for the proposed project manager and one for the proposed site superintendent, and provide resumes for these two team members.

REFERENCES:

- ☐ Check here if Contractor'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: _____

QUALIFICATION PROJECTS:

☐ Check here if qualifications are attached separately, otherwise, use the spaces below.

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

QUALIFICATION PROJECTS: (continued)

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

QUALIFICATION PROJECTS: (continued)

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

CONTRACT DOCUMENTS

The following pages contain documents used upon contract award. They are included here for reference and are subject to change.

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 City of Arvada, a Colorado municipal corporation, 8101

Ralston Road, Arvada, Colorado 80002, hereinafter called the City, 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 is such that the Principal entered into a certain Contract with the City, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof, for the performance of City of Arvada 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 City, 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 City from all cost and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the City all outlay and expense which the City 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 City 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.

NOTICE OF AWARD

Date _____

Company _____
Address _____
City, State Zip _____

RE: Project No. _____, _____

Dear Representative of _____:

The City of Arvada, Colorado (hereinafter called "City") has considered the Bid Proposals submitted for referenced work in response to its Advertisement for Bids dated _____ and Information for Bidders.

You are hereby notified that your Bid Proposal has been accepted, for items and prices stated in the Bid Schedule, in the amount of \$ _____.

You are required to execute the Contract, the Insurance Certificates and a Performance and Payment Bond within seven (7) days from the date of this Notice to you.

The Performance and Payment Bond needs to be filled out, returned (one original must be returned to the City), and accompanied by the Power of Attorney from your surety company. Also, please make sure that the insurance certificate is in the minimum amounts set forth in the Contract Documents and the City of Arvada is named as an additional insured for the specific Project Number and Title. An Additional Insured endorsement certificate should also be attached.

If you fail to execute said Contract and furnish the necessary Insurance Certificates and Bond within the time allotted from this date, the City will be entitled to consider all your rights arising out of the City's acceptance of your Bid Proposal as abandoned and as a forfeiture of your Bid Bond. The City will be entitled to such other rights as may be granted bylaw.

You are required to return an acknowledged copy of this Notice of Award and enclosures to the Project Engineer.

CITY OF ARVADA, COLORADO

City Engineer

BIDDER

Company _____

Receipt of above Notice of Award accompanied with a Performance and Payment Bond form and a copy of the Contract is hereby acknowledged.

This _____ day of _____, 20____.

By: _____

Name: _____

Title: _____

NOTICE TO PROCEED

Date

Company
Address
City, State Zip

RE: Project No. _____, _____

Dear Representative of _____:

You are hereby notified to commence work on referenced Project, in accordance with the Contract dated _____
on or before _____, and you are to complete the Work, including cleanup within _____ calendar days thereafter.

The date of completion of all Work is therefore _____.

CITY OF ARVADA, COLORADO

City Engineer

BIDDER

Receipt of this Notice to Proceed is hereby acknowledged this _____ day of _____, 20____.

Company

By: _____

Title: _____

APPENDIX A – GEOTECHNICAL REPORT

Geotechnical Study North Trunk Line Sanitary Sewer Arvada, Colorado

CDM Smith
555 17th Street, Suite 500
Denver, Colorado 80202



A.G. WASSENAAR, INC.

3211 South Zuni Street
Englewood, Colorado 80110
www.agwco.com (303) 759-8100

Project Number 235083
June 10, 2024

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ATTACHMENTS

SITE PLAN AND VICINITY MAP	FIGURE 1
TEST BORING LOGS	FIGURES 2 THROUGH 5
LABORATORY TEST RESULTS.....	APPENDIX A
SPECIFICATIONS FOR PLACEMENT OF FILL.....	APPENDIX B

1.0 EXECUTIVE SUMMARY

A. G. Wassenaar, Inc. (AGW) completed the geotechnical study for the proposed sanitary sewer at the subject site. Our summary of the data collected during our field and laboratory work and our analysis, opinions, and conclusions are presented. The purpose of our study is to provide geotechnical design criteria for planning, site development, and other construction information.

The subsurface materials encountered in our test borings consist of asphalt, concrete, base course, fill, clay, sand, and gravel overlying sedimentary bedrock. Claystone or sandstone bedrock was encountered at depths ranging from 4 to 17½ feet. Ground water was measured at depths ranging from 7 to 21 feet.

Site development considerations should include provisions for the presence of ground water and caving soils. Dewatering during construction should be anticipated within the proposed sewer line alignment. Proper benching and/or shoring of excavations will be necessary for open trenches. Site concrete may be designed for negligible (S0) sulfate exposure. We encourage the Client to read this report in its entirety and not to solely rely on the cursory information contained in this summary.

2.0 PURPOSE

This report presents results of a geotechnical study for the proposed North Trunk Line sanitary sewer to be located along West 86th Parkway and Alkire Street in Arvada, Colorado. The purpose of our study is to provide geotechnical design criteria for planning, site development, and other construction information. Factual data gathered during the field and laboratory work are summarized on Figures 1 through 5 and in Appendix A. Our opinions and recommendations are based on the data generated during the field exploration, laboratory testing, and our experience with similar type projects. This study was performed in general conformance with our Proposal Number 235083, dated January 5, 2024, revised January 9, 2024 and February 29, 2024.

3.0 PROPOSED CONSTRUCTION

The proposed construction will include approximately 11,000 linear feet of new gravity sanitary sewer along West 86th Parkway between Beech Street and Moore Street and along Moore Street from West 86th Parkway to West 82nd Place. Additionally, approximately 3,000 linear feet of new force main sanitary sewer along Alkire Street from West 86th Parkway to the Alkire lift station is also planned. The force main will consist of 12-inch PVC, and the gravity sewer will consist of 24- and 30-inch PVC. It is our understanding that trenchless crossings with sending and receiving pits to be excavated/constructed will be constructed in some instances. Based on the "City of Arvada, Colorado, North Trunk Line Sanitary Sewer, Project No. 1 (NT2 And NT3), City of Arvada Project No. XX-XX-XX, October 2023", Sheets C1 through C12, prepared by CDM Smith, Project Number 263334-280618, dated October 2023, cut depths to the sewer invert range from 6 to 23 feet near our test boring locations. The approximate locations of our test borings are shown on Figure 1 and the invert

elevations are shown on Figures 2 through 4. If the actual invert elevations vary by more than 3 feet from that shown, the recommendations contained in this report should be reviewed by AGW.

4.0 SITE CONDITIONS

The site is located along West 86th Parkway between Moore and Beech Streets, on Alkire Street between West 86th Parkway and 9005 Alkire Street (Arvada Lift Station), and on Moore Street between West 86th Parkway and West 82nd Place. West 86th Parkway is bordered to the north by open space, acreage lots, and established residential neighborhoods and to the south by established residential neighborhoods. Alkire Street is bordered to the west and east by acreage lots and established residential neighborhoods. Moore Street is an established residential neighborhood street. West 86th Parkway slopes moderately to the east, Alkire Street slopes gently to the north, and Moore Street slopes gently to the north. Vegetation consisting of native and irrigated grass, weeds, bushes, and mature trees were observed on either side of the asphalt roadways. Standley Lake was observed north of West 86th Parkway and Lower Twin Lake was observed west of Alkire Street. An unnamed ditch crosses Alkire Street between Test Borings 3 and 4 and crosses under West 86th Parkway near Test Boring 13. A drainage ditch crosses at the West 86th Parkway and Beech Street intersection near Test Borings 6 and 7, where a large detention area was observed south of West 86th Parkway. No bedrock outcrops were observed.

5.0 FIELD EXPLORATION

Subsurface conditions were explored by drilling 18 test borings along the proposed sewer alignment at the locations chosen by the Client shown on Figure 1. The test borings were advanced using a 4-inch diameter, continuous flight auger powered by a truck-mounted drill rig. At frequent intervals, samples of the subsurface materials were obtained using a Modified California sampler which was driven into the soil by dropping a 140-pound hammer through a free fall of 30 inches. The Modified California sampler is a 2.5-inch outside diameter by 2-inch inside diameter device. The number of blows required for the sampler to penetrate 12 inches or the number of inches that the sampler is driven by 50 blows gives an indication of the consistency or relative density of the soils and bedrock encountered. Results of the penetration tests and locations of sampling are shown on the "Test Boring Logs", Figures 2 through 5. As requested, slotted PVC pipe was installed in Test Borings 3 and 7 to allow for water level monitoring. Test Boring 1 was left open for a delayed water level reading eight days after drilling. All other test borings were backfilled and patched immediately after drilling. Ground water measurements were taken at the time of drilling.

6.0 LABORATORY TESTING

The samples obtained during drilling were returned to the laboratory where they were visually classified by a geotechnical engineer. Laboratory testing was then assigned to specific samples to evaluate their engineering properties. The laboratory tests included Gradation analysis and Atterberg limits tests to evaluate grain size distribution and plasticity. In addition, representative samples were tested for moisture, density, unconfined compressive strength, pH, water soluble sulfates, resistivity,

and chlorides. The test results are summarized on Figures 2 through 5 and are included in Appendix A.

7.0 SUBSURFACE CONDITIONS

The subsurface materials encountered in our test borings consist of asphalt, concrete, base course, fill, clay, sand, and gravel overlying sedimentary bedrock. Claystone or sandstone bedrock was encountered at depths ranging from 4 to 17½ feet. Ground water was measured at depths ranging from 7 to 21 feet. A more complete description of the subsurface conditions is shown on Figures 2 through 5.

7.1 Asphalt, Concrete, and Base Course

Asphalt was encountered in 14 of the 18 test borings and was between 3 and 16-inches thick. Concrete was encountered in four of the 18 test borings and was between 6 and 9-inches thick. Base course was encountered in seven of the 18 test borings and was between 8 and 27-inches thick.

7.2 Fill

Fill was encountered in 16 of the 18 test borings and was between 1 and 6 feet thick. The fill consisted of clay and sand. The clay fill was medium stiff to stiff, sandy to very sandy, with trace gravel to gravelly. The sand fill was medium dense to dense, clayey to very clayey, slightly silty, with trace gravel to very gravelly. The fill was mottled brown to mottled gray in color. The fill samples tested exhibited no to high plasticity.

7.3 Natural Soil

Clay was encountered in nine of the 18 test borings. The clay was medium stiff to stiff, silty, slightly sandy to very sandy, slightly gravelly, with sand lenses, moist to very moist, and brown. The samples tested exhibited moderate to high plasticity.

Sand was encountered in two of the 18 test borings. The sand was medium dense, very gravelly, very clayey, with clay lenses, moist, and brown to light brown. The samples tested exhibited low plasticity.

Sand and gravel was encountered in six of the 18 test borings. The sand and gravel was medium dense to very dense, slightly silty, clayey, moist to wet, and brown to gray. The samples tested exhibited no to low plasticity.

7.4 Bedrock

Claystone was encountered in 15 of the 18 test borings at depths ranging from 4 to 19½ feet. The claystone was weathered to very hard, with trace sand to very sandy, with trace gravel, with sandstone lenses, slightly moist to very moist, and gray to brown. The samples tested exhibited moderate to high plasticity.

Sandstone was encountered in eight of the 18 test borings at depths ranging from 8 to 21 feet. The sandstone was medium hard to very hard, poorly cemented, silty to very silty, moist to wet, and brown to rust. The samples tested exhibited low to moderate plasticity.

7.5 Ground Water

Ground water was measured at depths of 11 and 21 feet in Test Borings 1 and 6, respectively, at the time of drilling. When checked eight days after drilling, ground water was measured at depths ranging from seven to 10 feet in Test Borings 1, 3, and 7. All other borings were backfilled immediately after drilling. Ground water levels will fluctuate with changing seasons and irrigations patterns.

8.0 GEOTECHNICAL CONCERNS

8.1 Ground Water

Ground water was measured at depths ranging from seven to 10 feet below existing grade in three of the 18 test borings. These levels are 2½ to 8 feet above proposed invert elevations. Additionally, ground water can develop within sand, gravel, and sandstone layers, or perch on top of the claystone. Dewatering of trenches and excavations should be anticipated.

9.0 SEISMIC EVALUATION

Based on the subsurface soil profile encountered in the upper 25 feet, our knowledge of the local geotechnical conditions, and averaging the soil properties, this site is assigned Site Class D in accordance with Chapter 20 of ASCE 7-16. Shear wave velocity testing may be used to modify the Site Class.

10.0 FILL PLACEMENT

Where fill soils are necessary beneath structural elements, or in trench backfill, the on-site, inorganic materials may be used. The soil must be placed in maximum 8-inch loose lifts. For A-6 and A-7-6 soils, the soils should be placed within 0 to +4% of optimum moisture content and compacted to a minimum of 95% of standard Proctor maximum dry density according to ASTM D698. For all other soil types, the soils should be placed within -2 to +2% of optimum moisture content and compacted to a minimum of 95% of modified Proctor maximum dry density according to ASTM D1557. Off-site material considered for fill beneath structural elements should be of similar or better quality as the on-site sandy clay and must be evaluated by AGW prior to import. Fill quality specifications as well as a guide specification for proper placement and compaction of fill are presented in Appendix B.

11.0 EXCAVATION DIFFICULTIES

The utility excavations may be constructed using conventional earth moving equipment for the Front Range area. For planning purposes, fill, sand, gravel, and any soil influenced by ground water are 'Type C' soils, the clay is a 'Type B' soil, and the underlying bedrock is a 'Type A' according to OSHA regulations. A final determination of the soil type must be made by the Contractor's "Competent

Person" (as defined by OSHA regulations). Excavations must be properly sloped and/or braced. Local, state, and federal (OSHA) safety codes must be observed.

We recommend keeping any surcharge loading away from the top of the excavation face and the excavation must be protected from excessive drainage runoff. The excavation should be backfilled in an expeditious manner to reduce potential for caving soils. If benching or sloping back the excavation are not feasible, then shoring or shielding of the excavation will be necessary.

The presence of ground water will likely be a constraint upon utility construction. It will be necessary to dewater all trenches constructed below the ground water level. Pumping from the trench in the work area or construction of well points along the trenches should be anticipated. The utility contractor must be made aware of the ground water conditions.

12.0 SITE CONCRETE AND CORROSIVITY

Laboratory tests performed on selected soil and bedrock samples indicate water soluble sulfates ranging from 100 parts per million (ppm) to 500 ppm. Based upon these results and our experience in the area, site concrete may be designed for negligible (S0) sulfate exposure per ACI 318 or ACI 332. ACI 318 or ACI 332 should be consulted for proper concrete mix design properties as they relate to water soluble sulfate exposure.

The pH test results ranged from 7.4 to 8.1, resistivity test results ranged from 390 to 1,100 ohm·cm, and chloride test results ranged from 0.0009% to 0.0105%. These results are summarized on Figures 2 through 5 and in Appendix A. The results should be used to choose the construction materials which will be resistant to the various corrosive forces. Manufacturer's representatives should be contacted regarding the specific corrosivity resistance for their products. In addition, local specifications should be consulted when selecting pipe materials.

13.0 FINAL DESIGN CONSULTATION AND CONSTRUCTION OBSERVATION

This report was prepared for the exclusive use of CDM Smith for the purpose of providing geotechnical criteria for the proposed project. The data gathered and the conclusions and recommendations presented are based on many factors including, but not limited to, the type of structures proposed, the configuration of the structures, the proposed usage of the site, the configuration of surrounding structures, the geologic setting, the materials encountered, and our understanding of the level of risk acceptable to the Client. The conclusions and recommendations contained in this report should not be considered valid for use by others unless accompanied by written authorization from AGW.

AGW should be contacted if the Client desires an explanation of the contents of this report. AGW should be retained to provide future geotechnical services for the site including, but not limited to, consultation during design, observation and testing during construction, and other geotechnically related services. Failure to contract with AGW for these services will eliminate liability for AGW.

14.0 GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical evaluation. The analytical methods used to develop geotechnical recommendations are not an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be tempered by engineering judgment and experience. The solutions or recommendations presented in any geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structures will perform as desired or intended. The engineering recommendations presented in the preceding sections are based on our judgement of those measures that increase the likelihood for the structures and improvements performing satisfactorily. The Developer, Builder, and Owner must understand this concept of risk as they must ultimately decide what an acceptable level of risk is for the proposed development of the site.

15.0 LIMITATIONS

We believe the professional judgments expressed in this report are consistent with that degree of skill and care ordinarily exercised by practicing design professionals performing similar design services in the same locality, at the same time, at the same site, and under the same or similar circumstances and conditions. No other warranty, express or implied, is made. In the event that any changes in the nature, design, or location of the facility are made, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing. Because of the constantly changing state of the practice in geotechnical engineering and the potential for site changes after our field exploration, this report must not be relied upon after a period of three years without AGW being given the opportunity to review and, if necessary, revise our findings.

The test borings drilled for this study were widely spaced to obtain an understanding of subsurface conditions for preliminary planning and development purposes. Variations frequently occur from these conditions which are not indicated by the test borings. These variations are sometimes sufficient to necessitate modifications in the designs. If unexpected subsurface conditions are observed by any party during site development, AGW must be notified to review our recommendations.

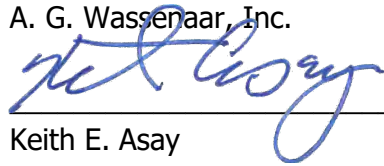
Our scope of services for this project did not include, either specifically or by implication, any research, identification, testing, or assessment relative to past or present contamination of the site by any source, including biological (i.e., mold, fungi, bacteria, etc.). If such contamination were present, it is likely that the exploration and testing conducted for this report would not reveal its existence. If the Client is concerned about the potential for such contamination or pollution, additional studies should be undertaken.

Our scope of services for this project did not include a local or global geological risk assessment. Therefore, issues such as mine subsidence, slope stability, faults, etc. were not researched or

addressed as part of this study. If the Client is concerned about these issues, we are available to discuss the scope of such studies.

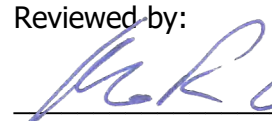
Sincerely,

A. G. Wassenaar, Inc.



Keith E. Asay
Staff Engineer

Reviewed by:



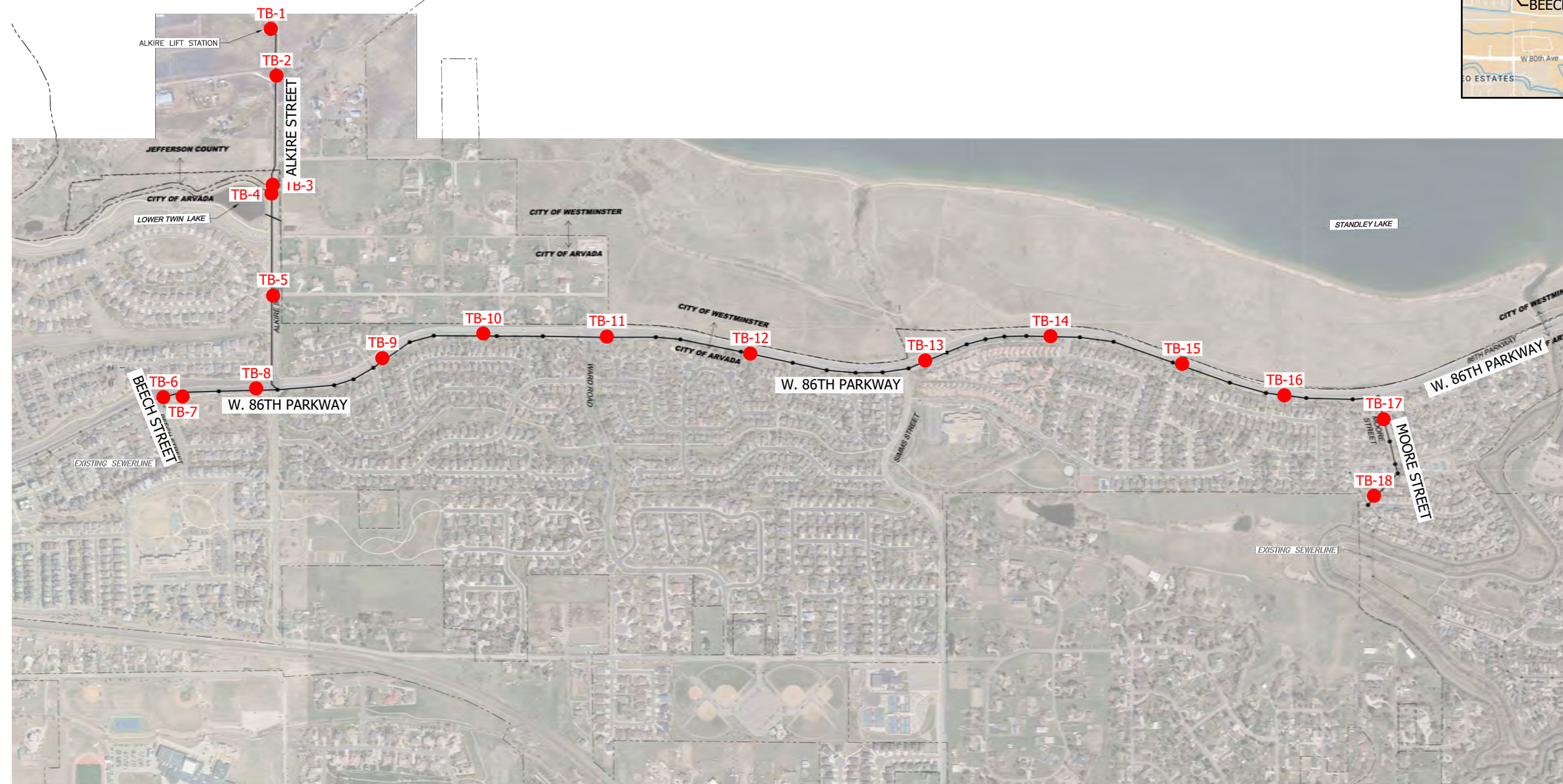
Michael R. Conner, P.E.
Senior Engineer



KEA/MRC/kea



NORTH TRUNK LINE SANITARY SEWER
ARVADA, COLORADO



VICINITY MAP
NOT TO SCALE

NOTES:

1. TEST BORINGS ARE OVERLAID ON THE "CITY OF ARVADA, NORTH TRUNK LINE SANITARY SEWER, PROJECT NO. 1, KEY PLAN", SHEET G-3, PREPARED BY CDM SMITH, PROJECT NO. 263334-280618, DATED OCTOBER 2023.
2. ALL LOCATIONS ARE APPROXIMATE.



SITE PLAN AND VICINITY MAP

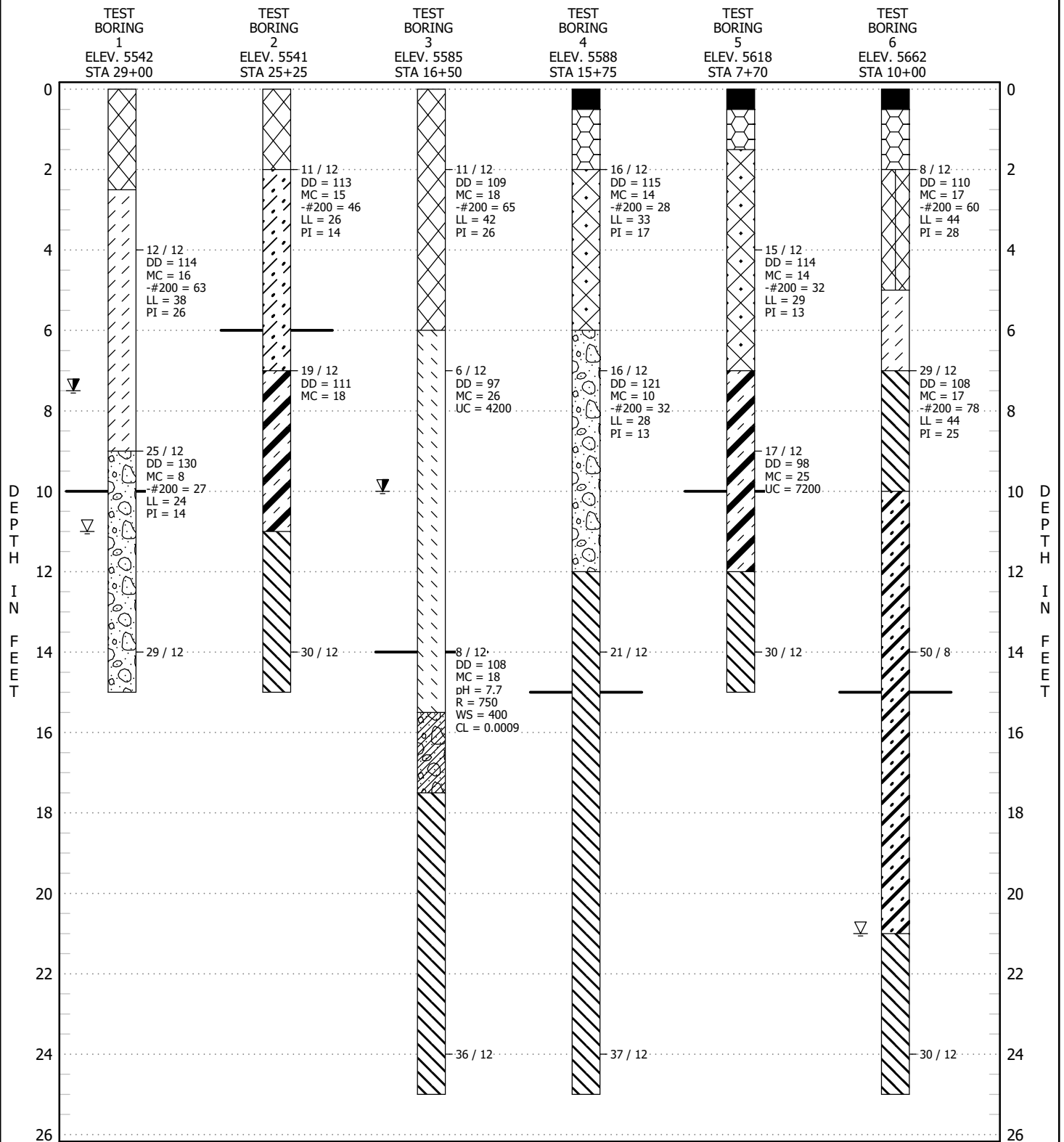
PROJECT NO. 235083
FIGURE 1

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado



SEE FIGURE 5 FOR LEGEND AND NOTES

TEST BORING LOGS

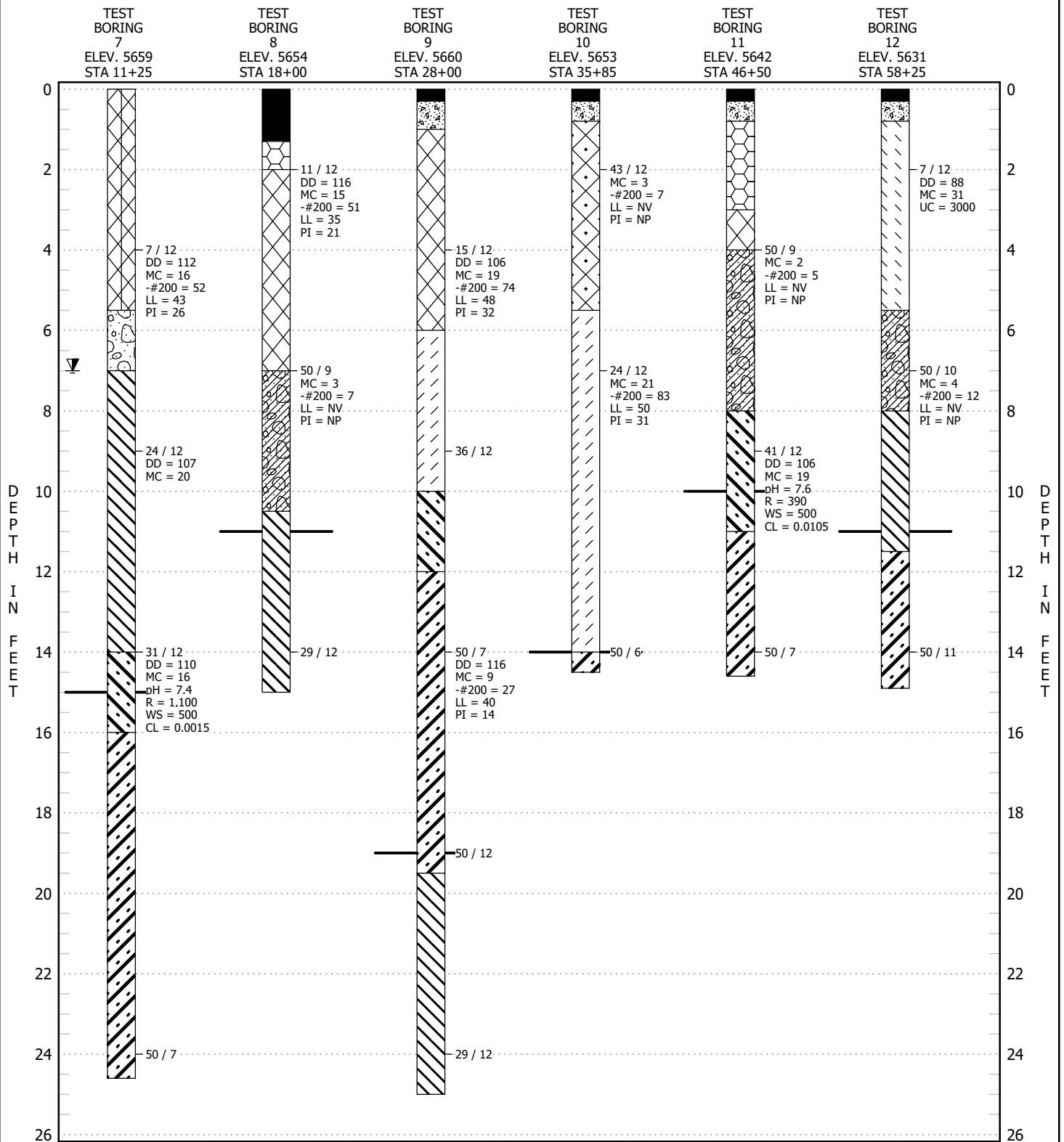
FIGURE 2

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado



SEE FIGURE 5 FOR LEGEND AND NOTES

TEST BORING LOGS

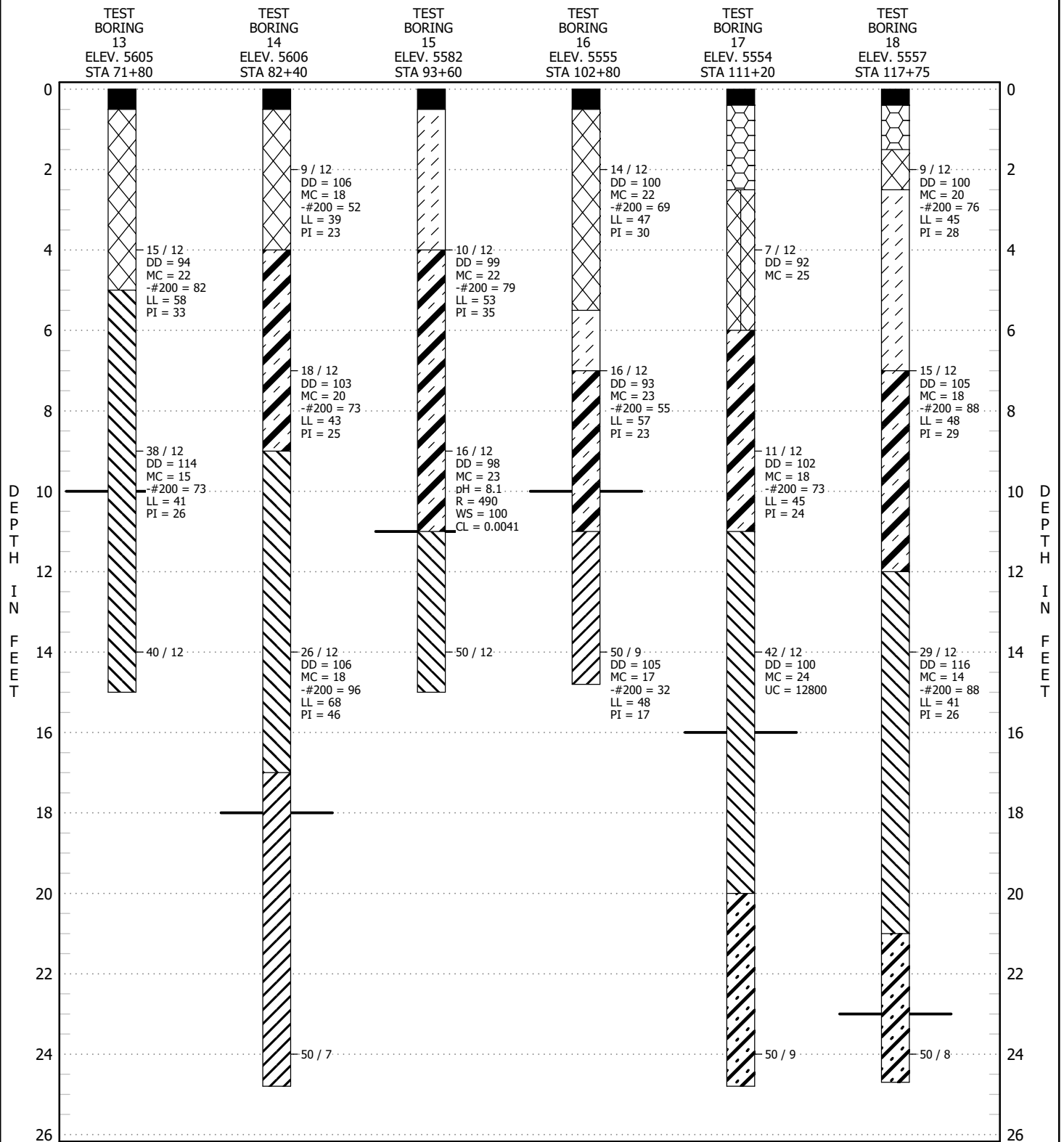
FIGURE 3

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado



SEE FIGURE 5 FOR LEGEND AND NOTES

TEST BORING LOGS

FIGURE 4

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado

SOIL DESCRIPTIONS

	Asphalt
	Base Course
	Concrete
	Fill, clay, stiff to very stiff, silty, sandy
	Fill, clay, soft to medium stiff, silty, sandy
	Fill, sand, medium dense, silty, clayey
	Clay, medium stiff
	Clay, stiff to very stiff
	Sand, medium dense, silty, clayey
	Sand and gravel, medium dense to dense
	Sand and gravel, dense to very dense
	Clay (Weathered Claystone), medium stiff to stiff
	Claystone (Bedrock), firm to medium hard
	Claystone (Bedrock), hard to very hard
	Sandstone (Bedrock), firm to medium hard
	Sandstone (Bedrock), hard to very hard

ABBREVIATIONS

DD	Dry density of sample, pounds per cubic foot (pcf)
MC	Moisture content, percentage of dry weight of soil (%)
SW	Swell under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
COM	Compression under a surcharge of 1000 psf upon wetting (%)
UC	Unconfined compressive strength (psf)
-#200	Percent passing the No. 200 sieve (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Nonplastic
NV	No Value
pH	Acidity or alkalinity of sample
R	Resistivity (ohms-cm)
WS	Water soluble sulfates, parts per million (ppm)
CL	Chlorides (%)
x/y	x blows of a 140-pound hammer falling 30 inches were required to drive a 2.5-inch outside diameter sampler y inches
x/y SS	x blows of a 140-pound hammer falling 30 inches were required to drive a 2.0-inch outside diameter sampler y inches
C-x	Depth of cut to grade of x feet
F-x	Depth of fill to grade of x feet
FG	Finished grade
NR	No sample recovered
ND	No drive taken
Bounce	Sampler bounced during driving
B	Bulk sample
AS	Auger sample
	Well to very well cemented layer
	Practical drilling refusal
	Water level at time of drilling
	Caved depth at time of drilling
	Water level 8 day(s) after drilling
	Caved depth 8 day(s) after drilling

Notes:

1. Test borings were drilled April 22, 2024 to May 10, 2024.
2. Locations of the test borings were staked by AGW at locations chosen by others.
3. The horizontal lines shown on the logs differentiate materials and represent the approximate boundaries between materials. The transitions between materials may be gradual.
4. Elevations are approximate and refer to the topographic site plan.
5. Test boring logs shown are subject to the limitations, explanations, and conclusions of this report.

LEGEND AND NOTES

APPENDIX A

LABORATORY TEST RESULTS

SUMMARY OF LABORATORY TEST RESULTS.....	TABLE A-1
GRADATION AND ATTERBERG TEST RESULTS.....	FIGURES A-1 THROUGH A-16
UNCONFINED COMPRESSION TEST RESULTS	FIGURES A-17 THROUGH A-20

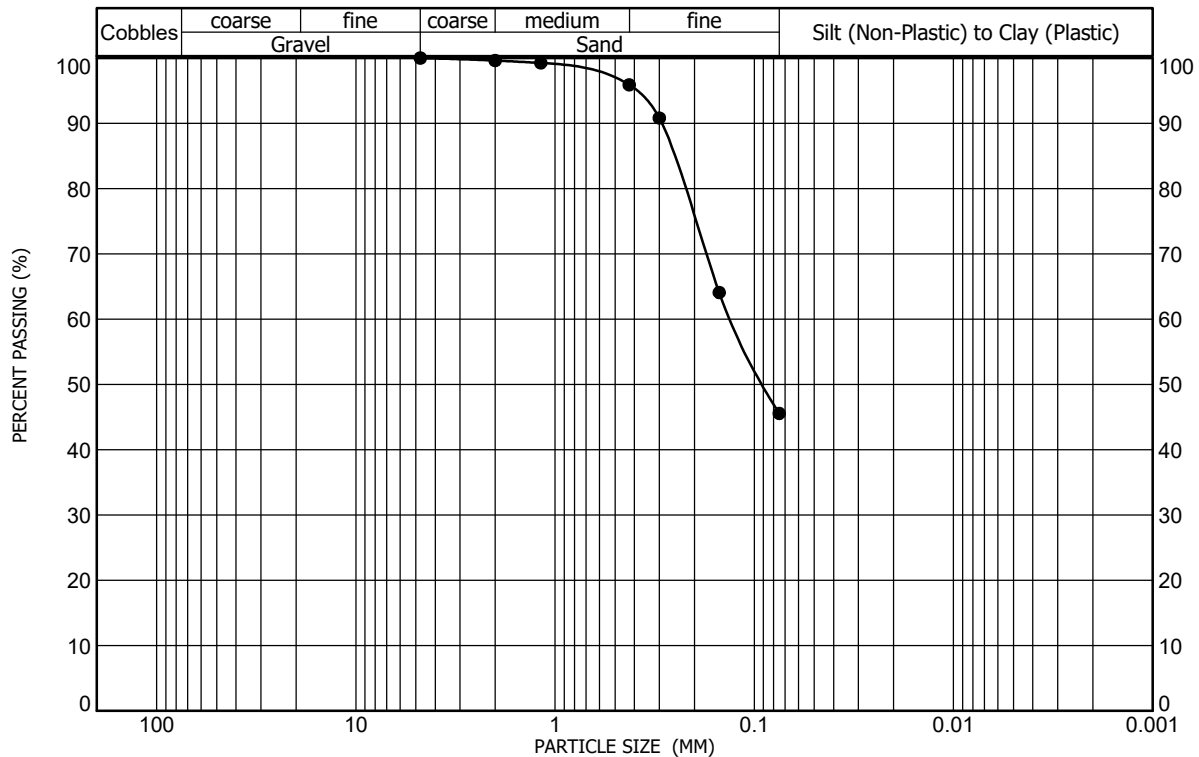
TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
 June 10, 2024

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	% Passing #200 Sieve	Atterberg		Unconfined Compressive Strength (psf)	pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
						Liquid Limit LL	Plasticity Index PI					
1	4	Clay, very sandy, slightly gravelly	114	16	63	38	26					
1	9	Sand, very gravelly, clayey	130	8	27	24	14					
2	2	Sand, very clayey	113	15	46	26	14					
2	7	Clay (Weathered Claystone), sandy	111	18								
3	2	Fill, clay, sandy, slightly gravelly	109	18	65	42	26					
3	7	Clay, sandy	97	26				4,200				
3	14	Clay, sandy	108	18					7.7	750	400	0.0009
4	2	Fill, gravel, clayey, sandy	115	14	28	33	17					
4	7	Sand, very gravelly, very clayey	121	10	32	28	13					
5	4	Fill, sand, very clayey, trace gravel	114	14	32	29	13					
5	9	Clay (Weathered Claystone), sandy	98	25				7,200				
6	2	Fill, clay, very sandy, trace gravel	110	17	60	44	28					
6	7	Claystone, sandy	108	17	78	44	25					
7	4	Fill, clay, very sandy, gravelly	112	16	52	43	26					
7	9	Claystone, slightly sandy	107	20								
7	14	Sandstone, silty	110	16					7.4	1,100	500	0.0015
8	2	Fill, clay, very sandy, slightly gravelly	116	15	51	35	21					
8	7	Sand, very gravelly, slightly silty		3	7	NV	NP					
9	4	Fill, clay, sandy	106	19	74	48	32					
9	14	Sandstone, silty	116	9	27	40	14					
10	2	Fill, sand, very gravelly, slightly silty		3	7	NV	NP					
10	7	Clay, sandy		21	83	50	31					
11	4	Gravel, sandy, slightly silty		2	5	NV	NP					
11	9	Sandstone, silty	106	19					7.6	390	500	0.0105

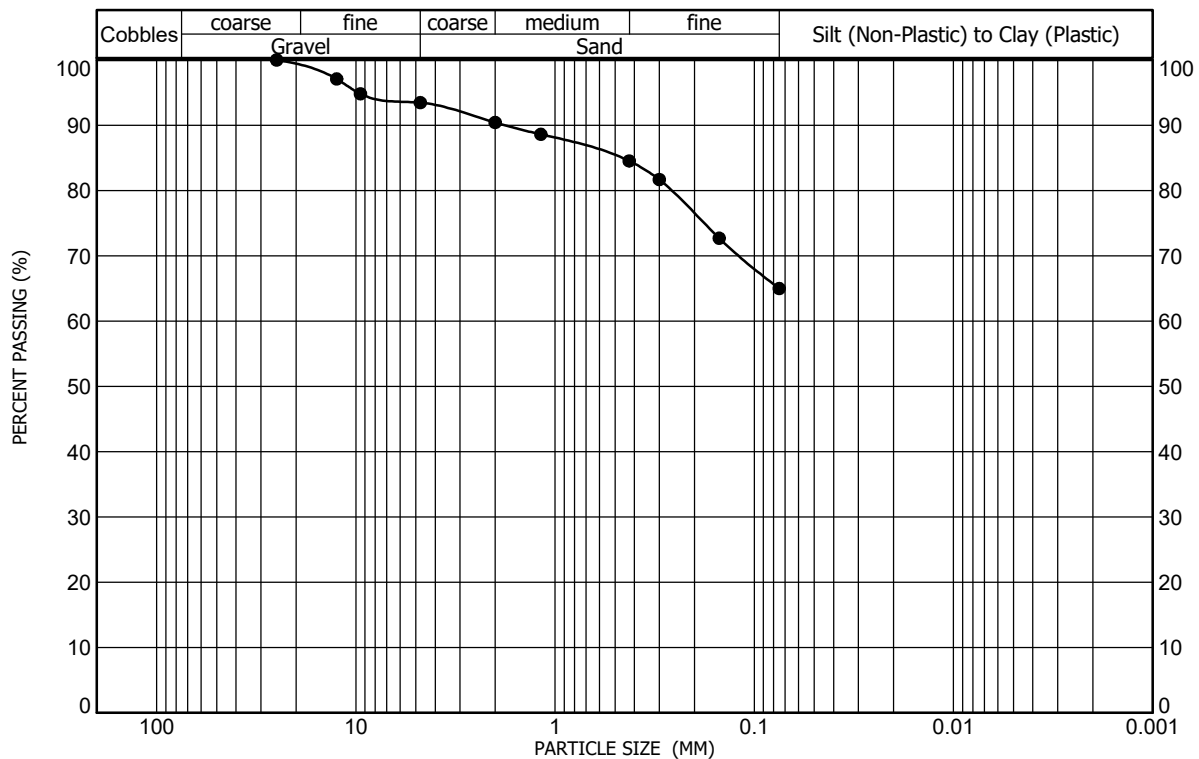
TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS
June 10, 2024

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	% Passing #200 Sieve	Atterberg		Unconfined Compressive Strength (psf)	pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
						Liquid Limit LL	Plasticity Index PI					
12	2	Clay, slightly sandy	88	31				3,000				
12	7	Gravel, very sandy, slightly silty		4	12	NV	NP					
13	4	Fill, clay, sandy	94	22	82	58	33					
13	9	Claystone, sandy	114	15	73	41	26					
14	2	Fill, clay, very sandy, trace gravel	106	18	52	39	23					
14	7	Clay (Weathered Claystone), sandy	103	20	73	43	25					
14	14	Claystone, trace sand	106	18	96	68	46					
15	4	Clay (Weathered Claystone), sandy	99	22	79	53	35					
15	9	Clay (Weathered Claystone), sandy	98	23					8.1	490	100	0.0041
16	2	Fill, clay, sandy, trace gravel	100	22	69	47	30					
16	7	Clay (Weathered Claystone), very sandy	93	23	55	57	23					
16	14	Sandstone, very silty (lens)	105	17	32	48	17					
17	4	Fill, clay, sandy, trace gravel	92	25								
17	9	Clay (Weathered Claystone), sandy, trace gravel	102	18	73	45	24					
17	14	Claystone, slightly sandy	100	24				12,800				
18	2	Fill, clay, sandy, trace gravel	100	20	76	45	28					
18	7	Clay (Weathered Claystone), slightly sandy	105	18	88	48	29					
18	14	Claystone, slightly sandy	116	14	88	41	26					

NV - No Value, NP - Nonplastic

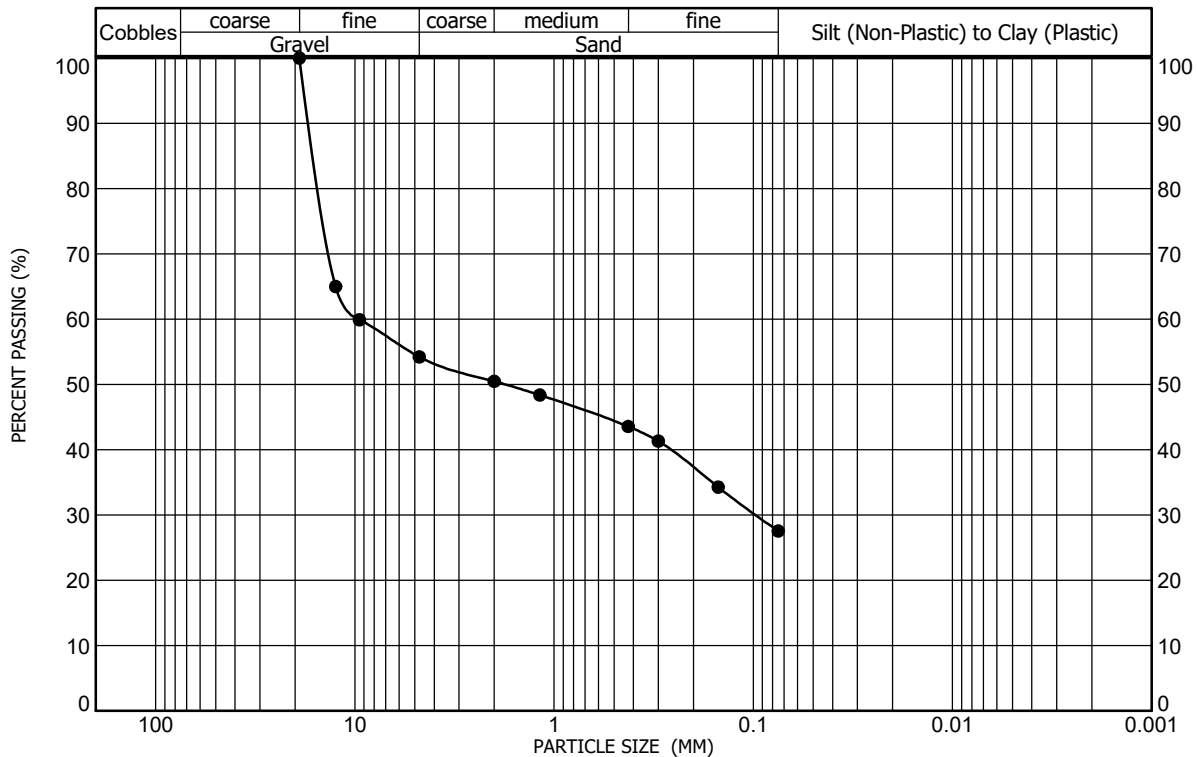


Sample Location _____ Test Boring No. 2 at a depth of 2 feet _____ Gravel (%) 0 Liquid Limit 26
 Sample Description _____ Sand, very clayey _____ Sand (%) 54 Plasticity Index 14
 Classification _____ A-6(3), CLAYEY SAND(SC) _____ Clay/Silt (%) 46

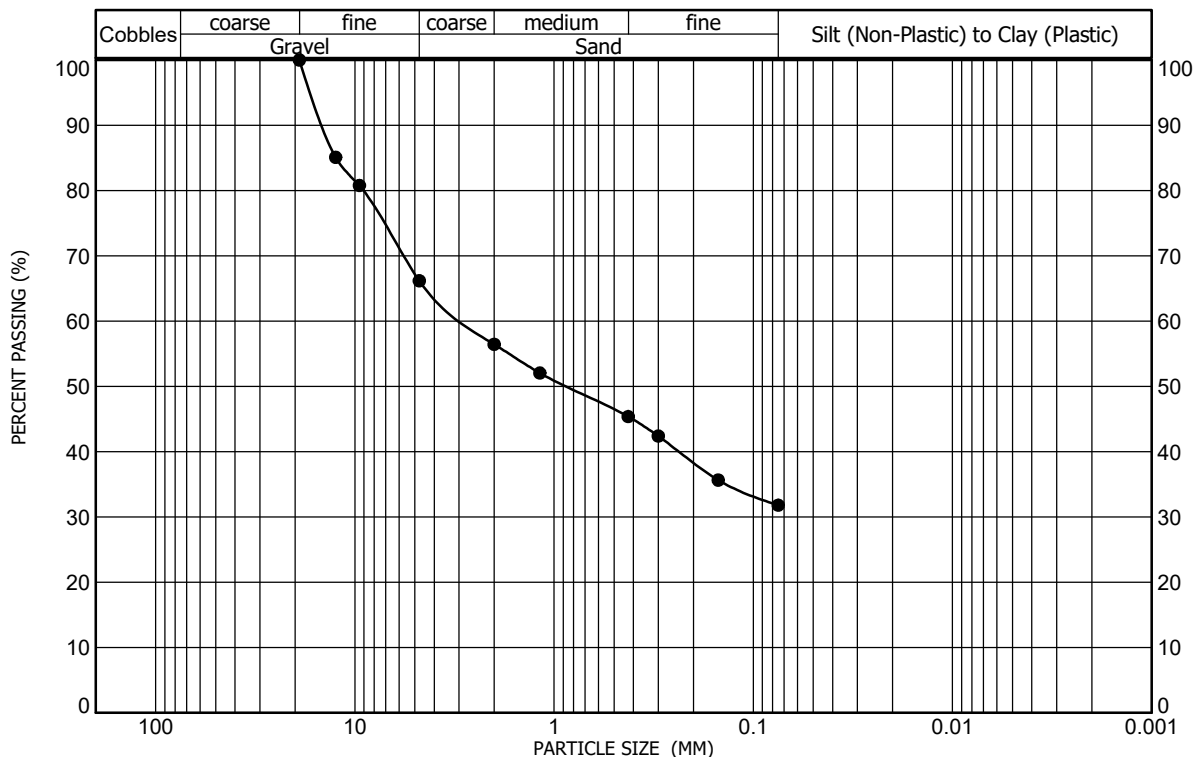


Sample Location _____ Test Boring No. 3 at a depth of 2 feet _____ Gravel (%) 7 Liquid Limit 42
 Sample Description _____ Fill, clay, sandy, slightly gravelly _____ Sand (%) 28 Plasticity Index 26
 Classification _____ A-7-6(14), SANDY LEAN CLAY(CL) _____ Clay/Silt (%) 65

GRADATION AND ATTERBERG TEST RESULTS

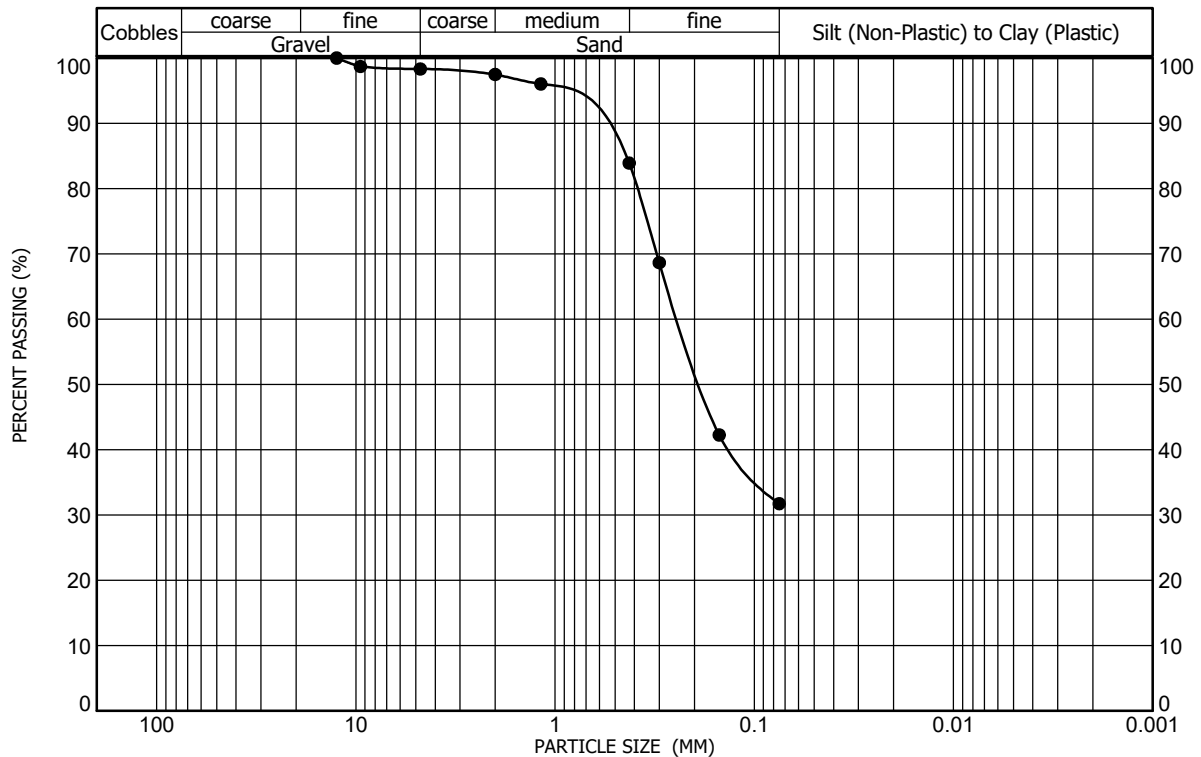


Sample Location Test Boring No. 4 at a depth of 2 feet Gravel (%) 46 Liquid Limit 33
 Sample Description Fill, gravel, clayey, sandy Sand (%) 27 Plasticity Index 17
 Classification A-2-6(1), CLAYEY GRAVEL with SAND(GC) Clay/Silt (%) 28

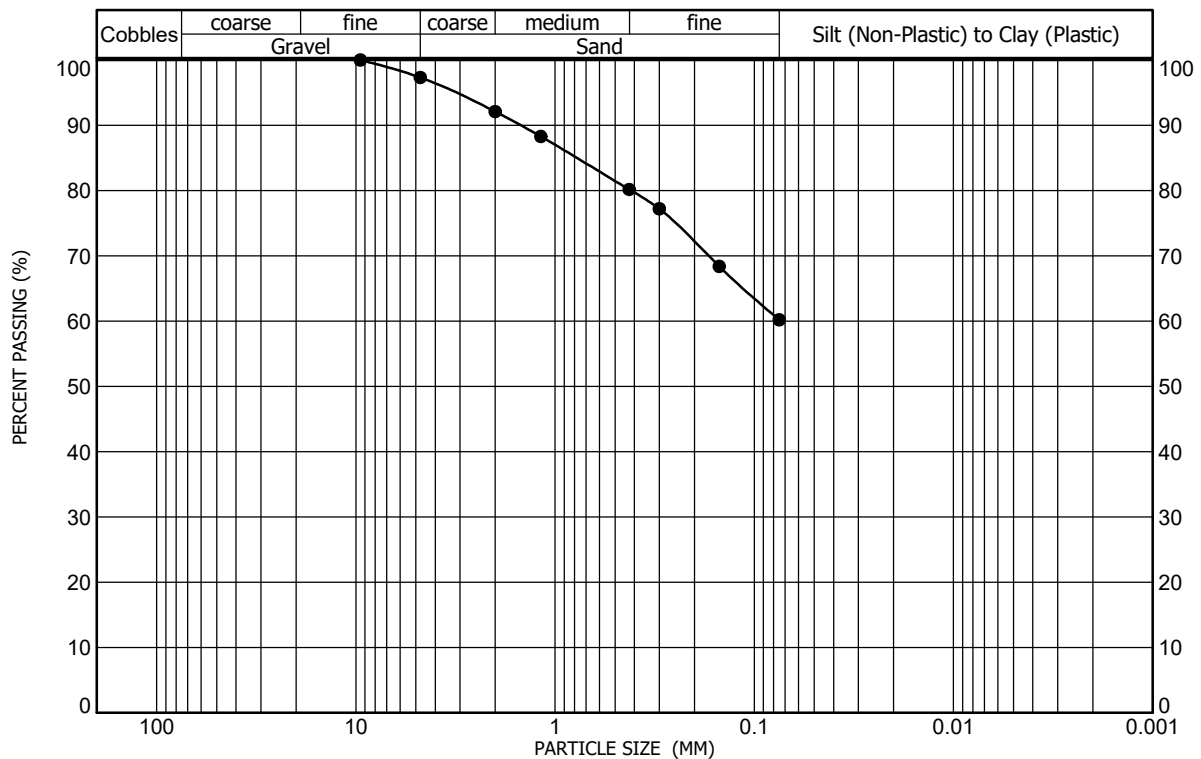


Sample Location Test Boring No. 4 at a depth of 7 feet Gravel (%) 34 Liquid Limit 28
 Sample Description Sand, very gravelly, very clayey Sand (%) 34 Plasticity Index 13
 Classification A-2-6(1), CLAYEY SAND with GRAVEL(SC) Clay/Silt (%) 32

GRADATION AND ATTERBERG TEST RESULTS

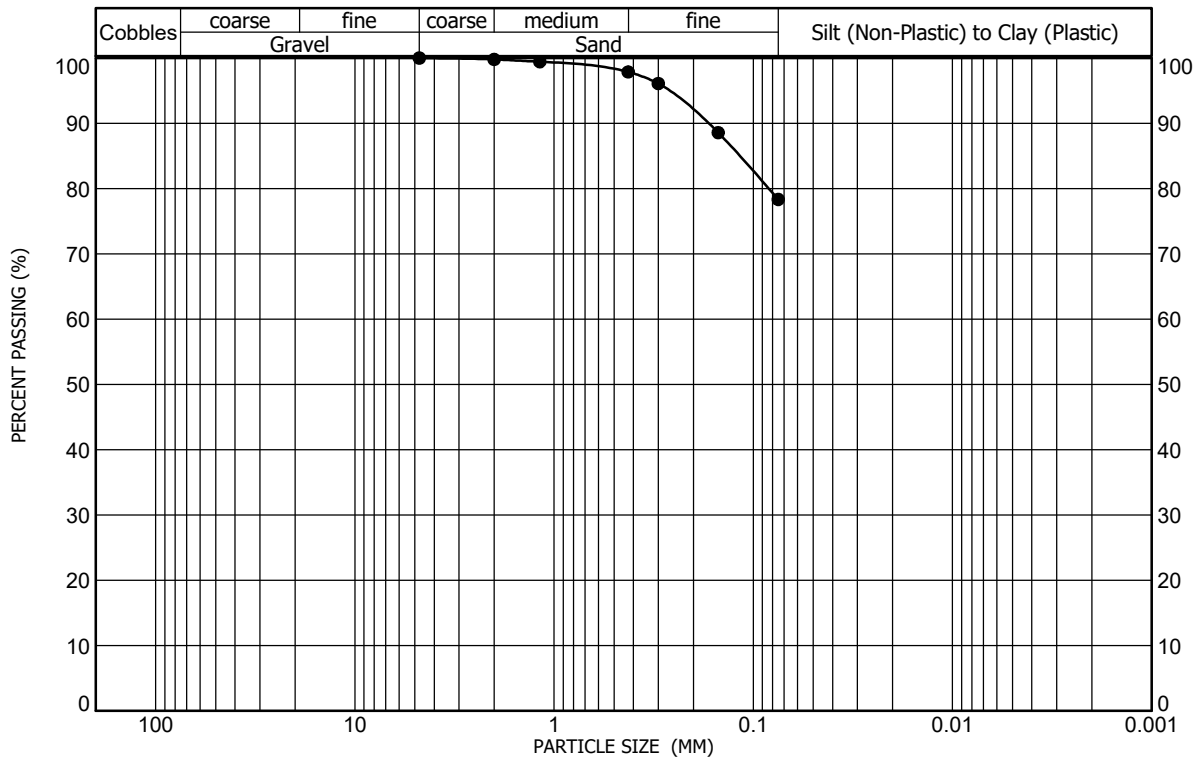


Sample Location _____ Test Boring No. 5 at a depth of 4 feet Gravel (%) 2 Liquid Limit 29
 Sample Description Fill, sand, very clayey, trace gravel Sand (%) 67 Plasticity Index 13
 Classification A-2-6(1), CLAYEY SAND(SC) Clay/Silt (%) 32

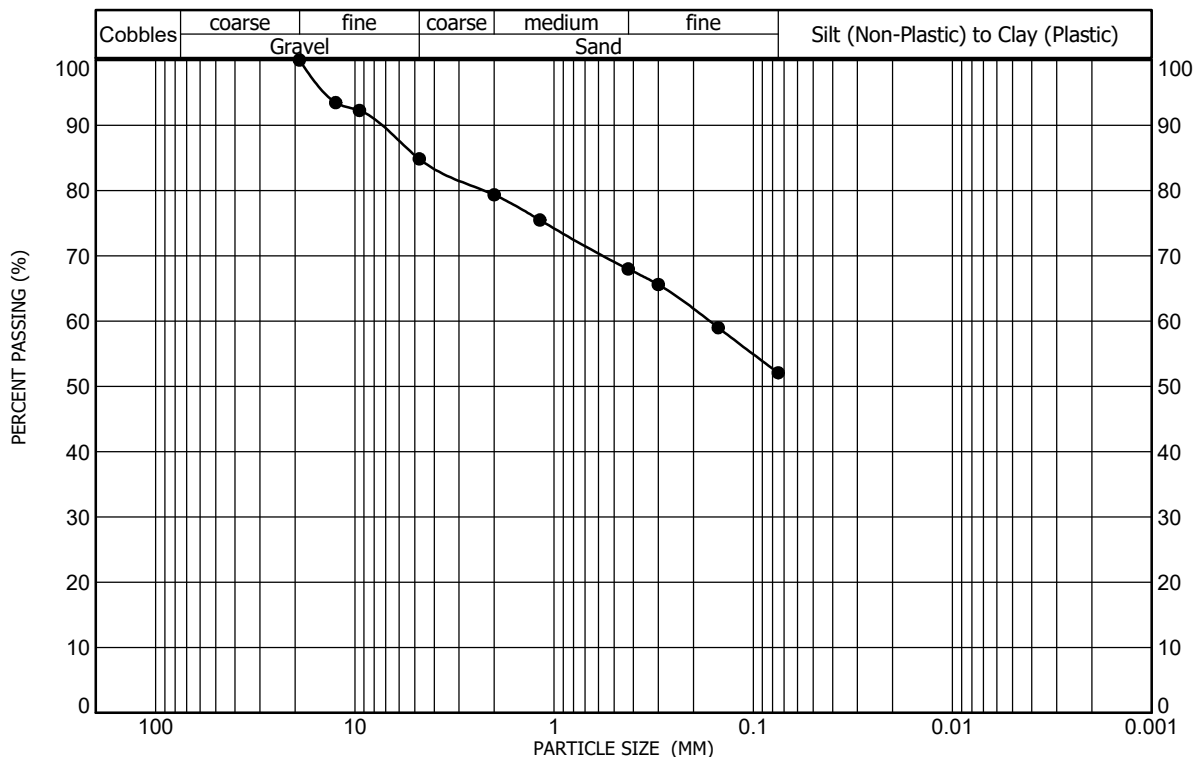


Sample Location _____ Test Boring No. 6 at a depth of 2 feet Gravel (%) 3 Liquid Limit 44
 Sample Description Fill, clay, very sandy, trace gravel Sand (%) 37 Plasticity Index 28
 Classification A-7-6(14), SANDY LEAN CLAY(CL) Clay/Silt (%) 60

GRADATION AND ATTERBERG TEST RESULTS

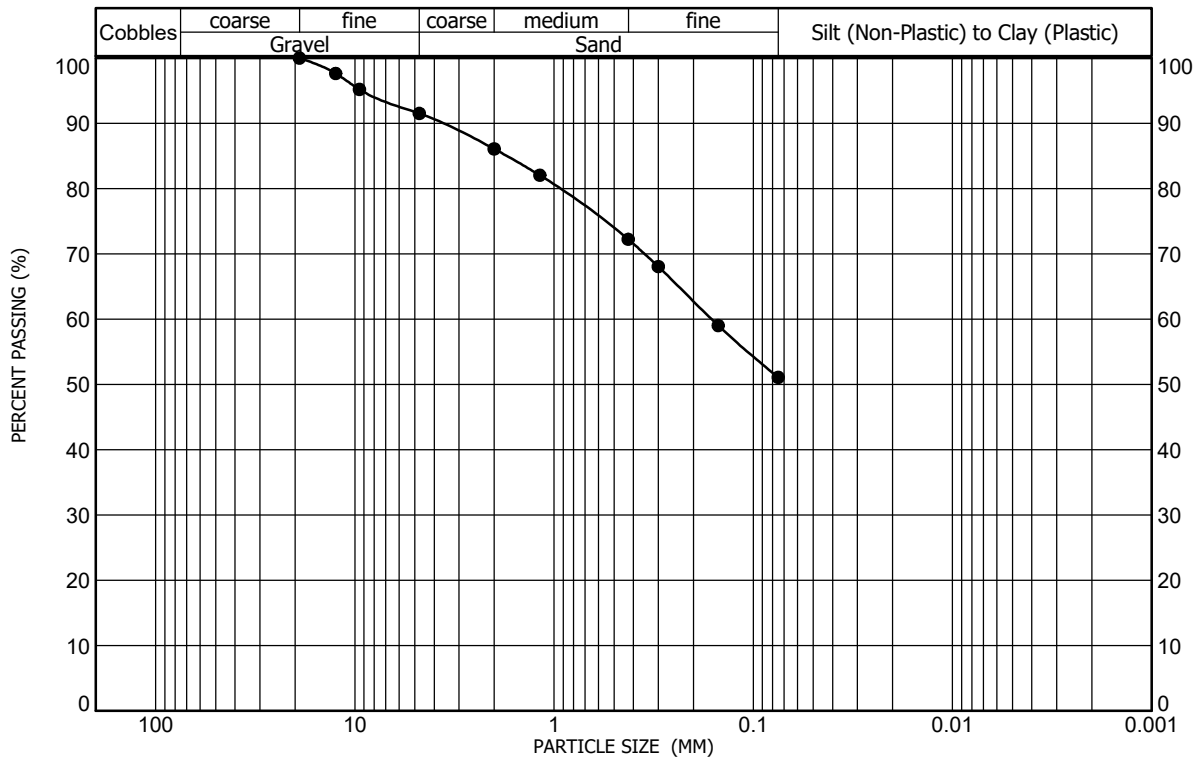


Sample Location _____ Test Boring No. 6 at a depth of 7 feet _____ Gravel (%) 0 Liquid Limit 44
 Sample Description _____ Claystone, sandy _____ Sand (%) 22 Plasticity Index 25
 Classification _____ A-7-6(19), LEAN CLAY with SAND(CL) _____ Clay/Silt (%) 78

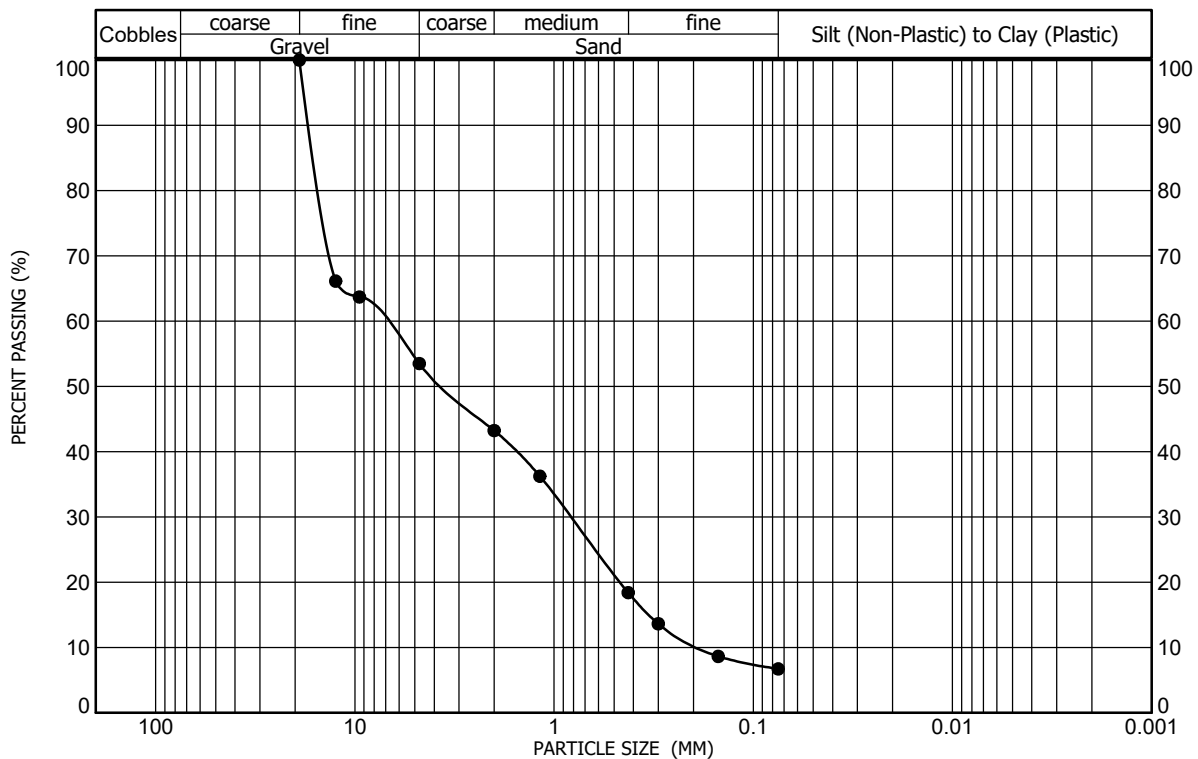


Sample Location _____ Test Boring No. 7 at a depth of 4 feet _____ Gravel (%) 15 Liquid Limit 43
 Sample Description _____ Fill, clay, very sandy, gravelly _____ Sand (%) 33 Plasticity Index 26
 Classification _____ A-7-6(10), SANDY LEAN CLAY with GRAVEL(CL) _____ Clay/Silt (%) 52

GRADATION AND ATTERBERG TEST RESULTS

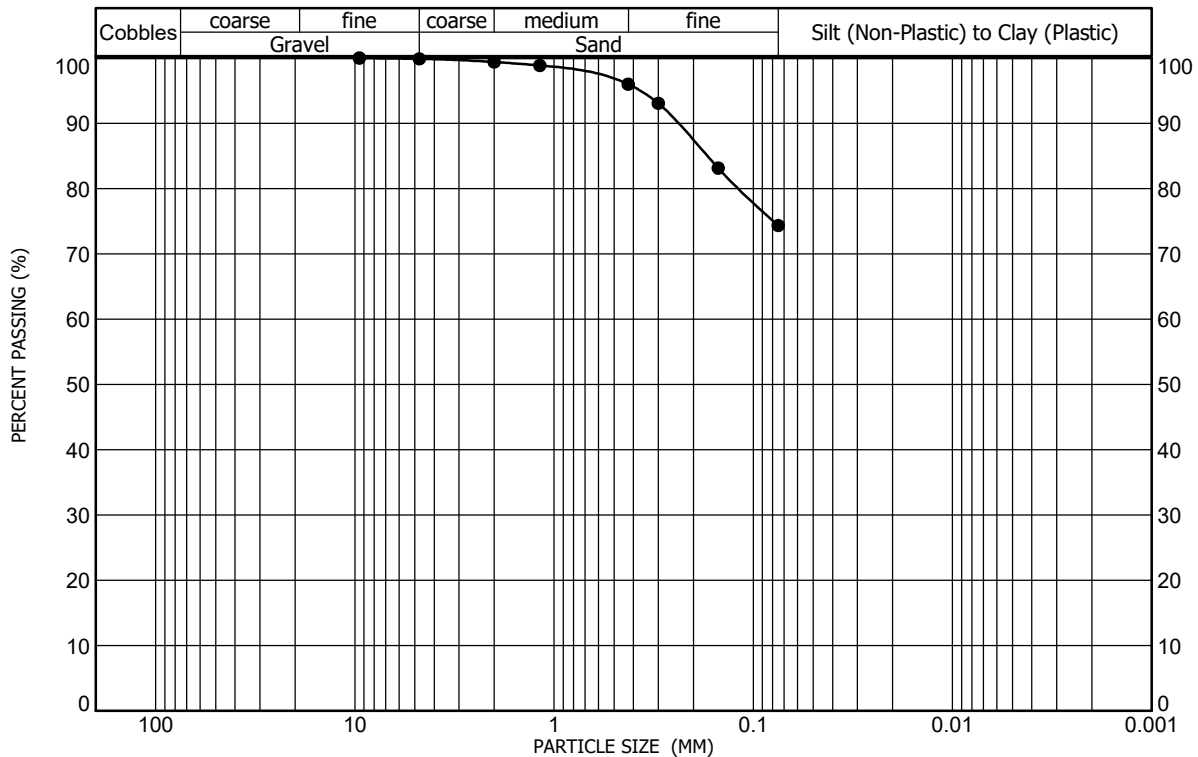


Sample Location Test Boring No. 8 at a depth of 2 feet Gravel (%) 8 Liquid Limit 35
 Sample Description Fill, clay, very sandy, slightly gravelly Sand (%) 40 Plasticity Index 21
 Classification A-6(7), SANDY LEAN CLAY(CL) Clay/Silt (%) 51

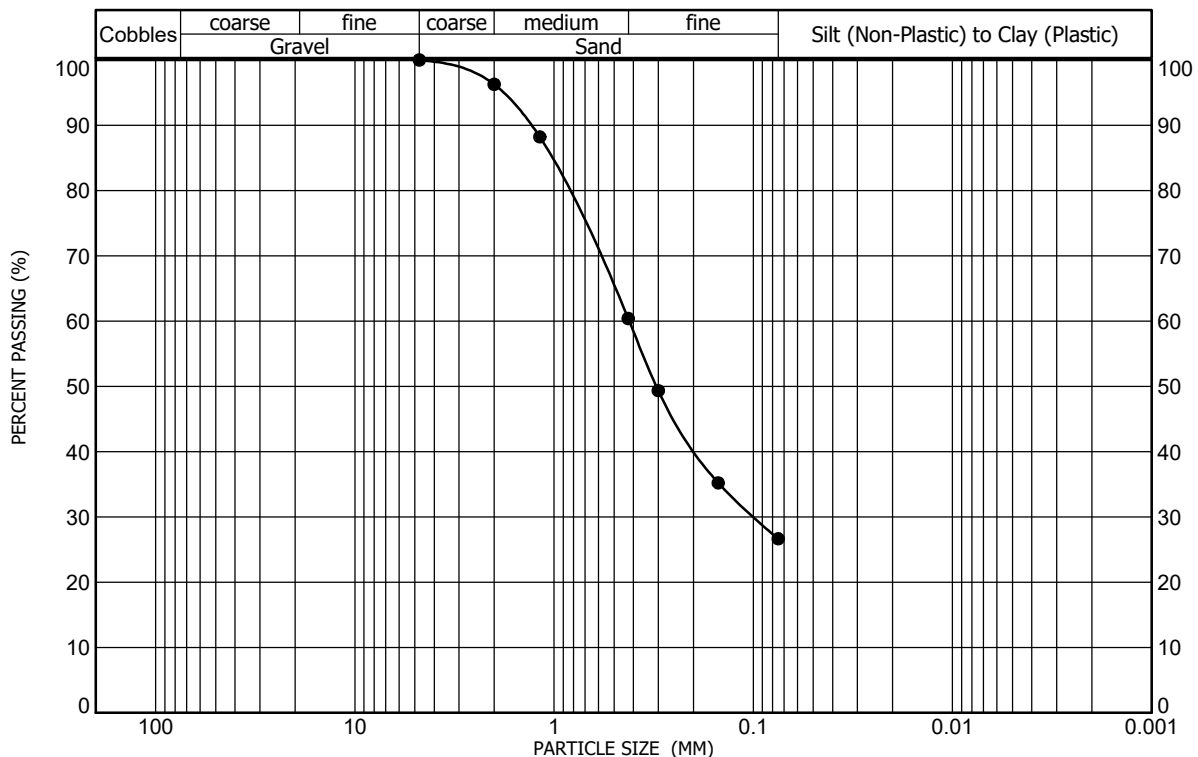


Sample Location Test Boring No. 8 at a depth of 7 feet Gravel (%) 47 Liquid Limit NV
 Sample Description Sand, very gravelly, slightly silty Sand (%) 47 Plasticity Index NP
 Classification A-1-a(0), POORLY GRADED SAND with SILT and GRAVEL(SP-SM) Clay/Silt (%) 7

GRADATION AND ATTERBERG TEST RESULTS

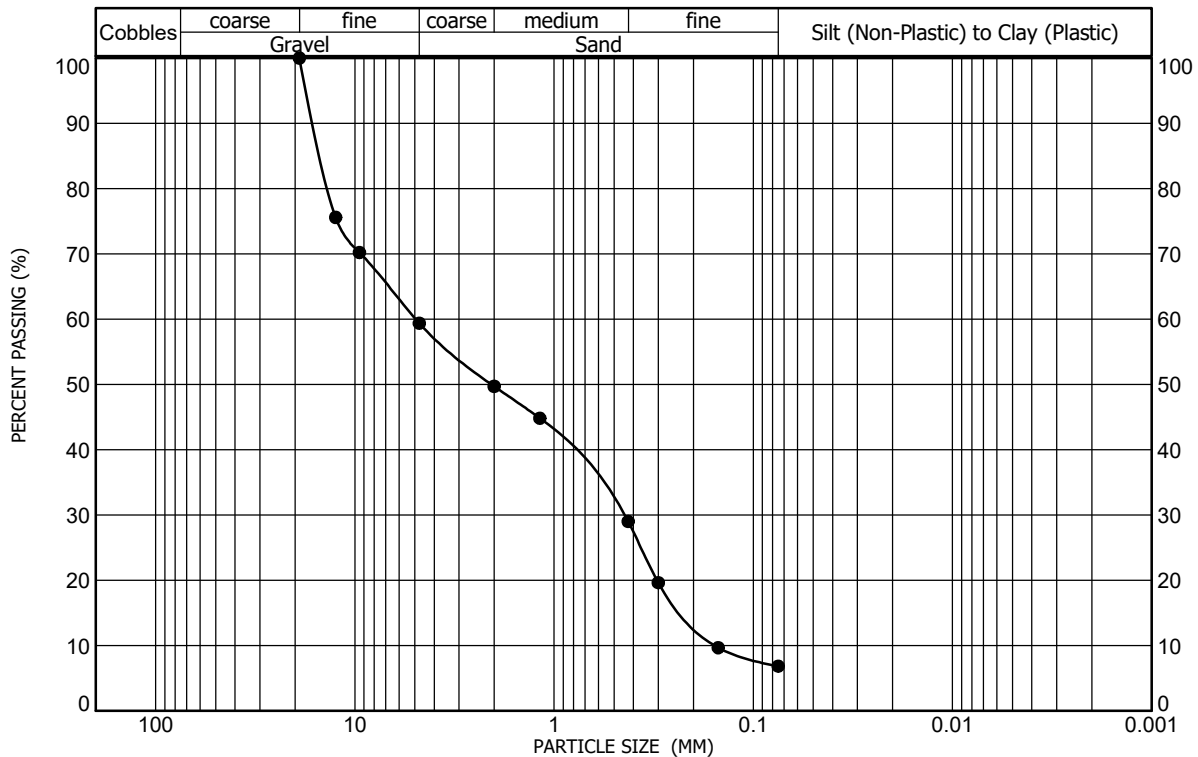


Sample Location Test Boring No. 9 at a depth of 4 feet Gravel (%) 0 Liquid Limit 48
 Sample Description Fill, clay, sandy Sand (%) 26 Plasticity Index 32
 Classification A-7-6(22), LEAN CLAY with SAND(CL) Clay/Silt (%) 74

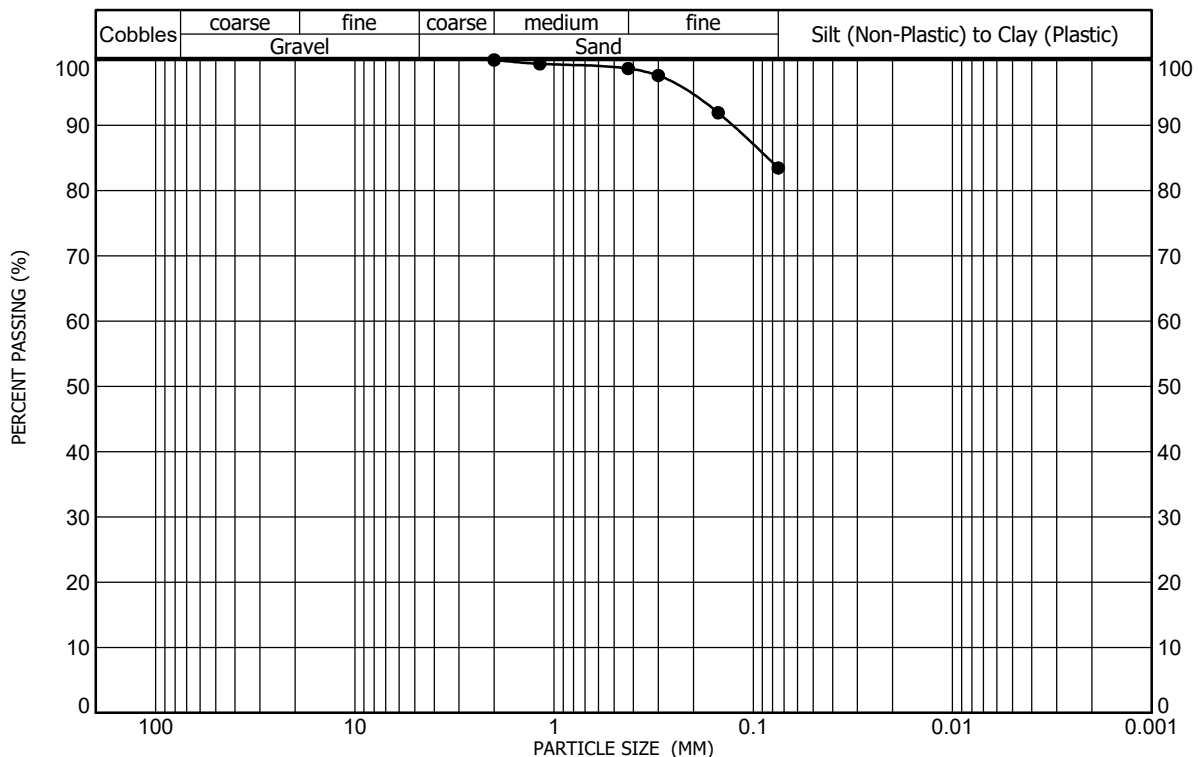


Sample Location Test Boring No. 9 at a depth of 14 feet Gravel (%) 0 Liquid Limit 40
 Sample Description Sandstone, silty Sand (%) 73 Plasticity Index 14
 Classification A-2-6(0), SILTY SAND(SM) Clay/Silt (%) 27

GRADATION AND ATTERBERG TEST RESULTS

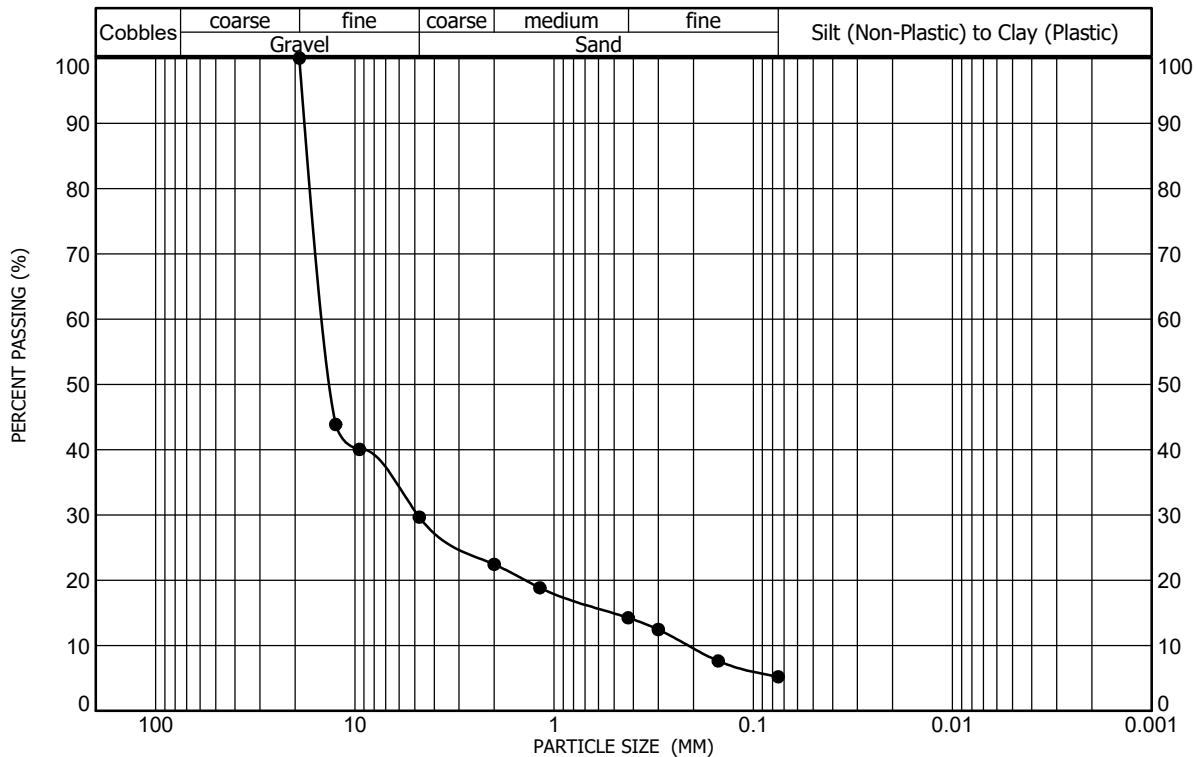


Sample Location _____ Test Boring No. 10 at a depth of 2 feet _____ Gravel (%) 41 Liquid Limit NV
 Sample Description Fill, sand, very gravelly, slightly silty Sand (%) 53 Plasticity Index NP
 Classification A-1-a(0), POORLY GRADED SAND with SILT and GRAVEL(SP-SM) Clay/Silt (%) 7

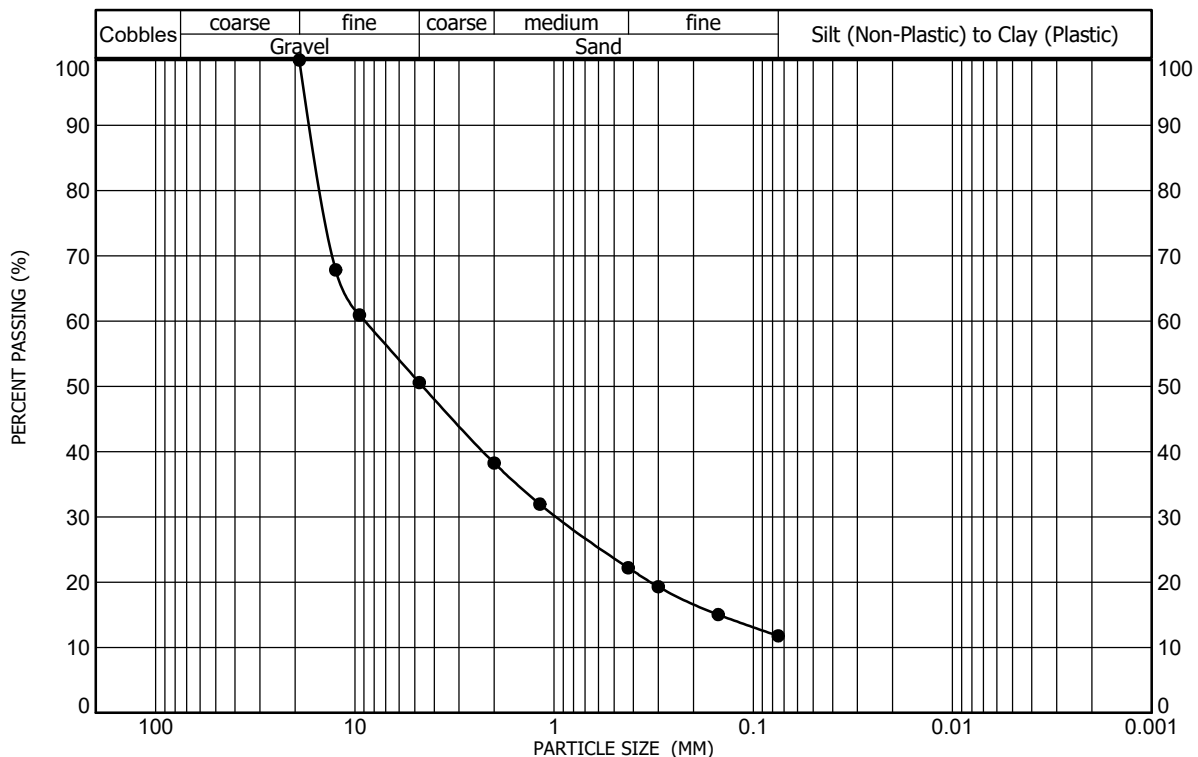


Sample Location _____ Test Boring No. 10 at a depth of 7 feet _____ Gravel (%) 0 Liquid Limit 50
 Sample Description Clay, sandy Sand (%) 17 Plasticity Index 31
 Classification A-7-6(26), FAT CLAY with SAND(CH) Clay/Silt (%) 83

GRADATION AND ATTERBERG TEST RESULTS

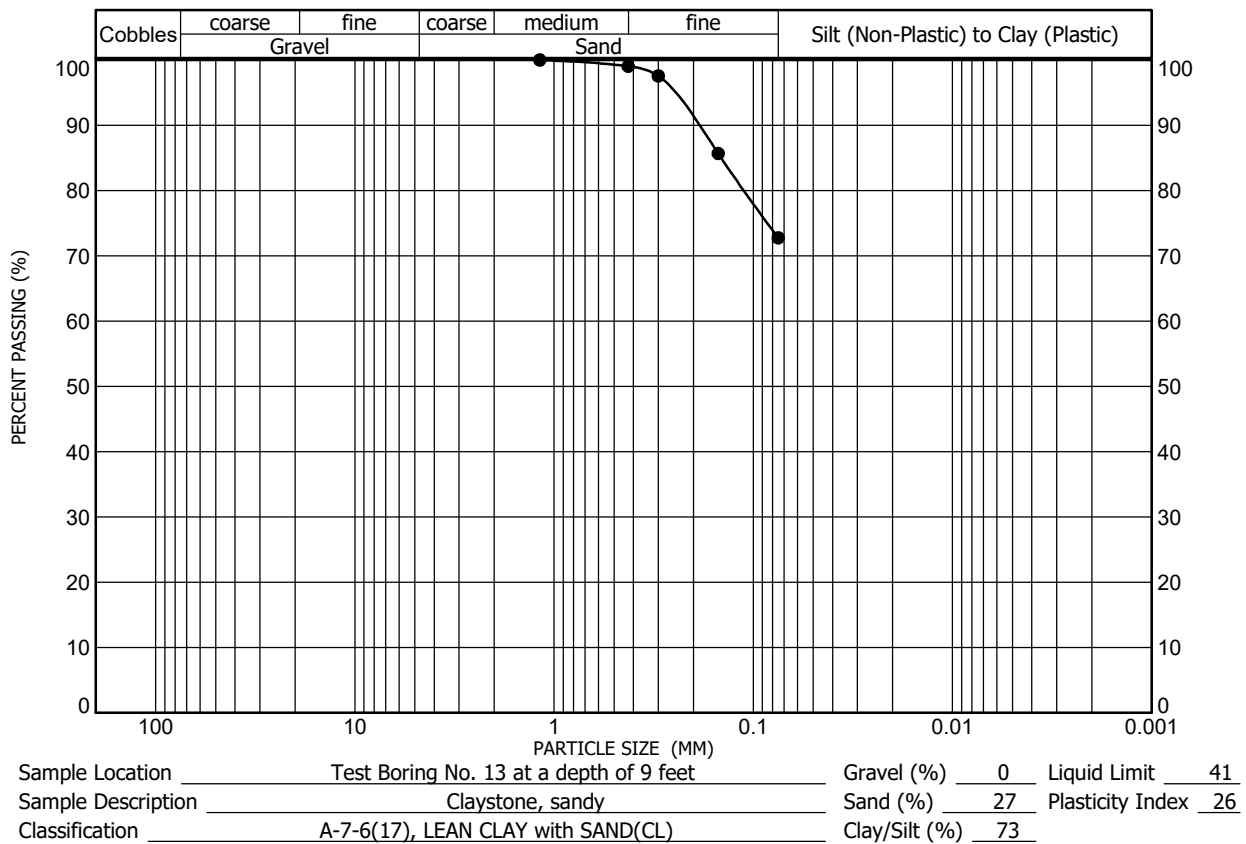
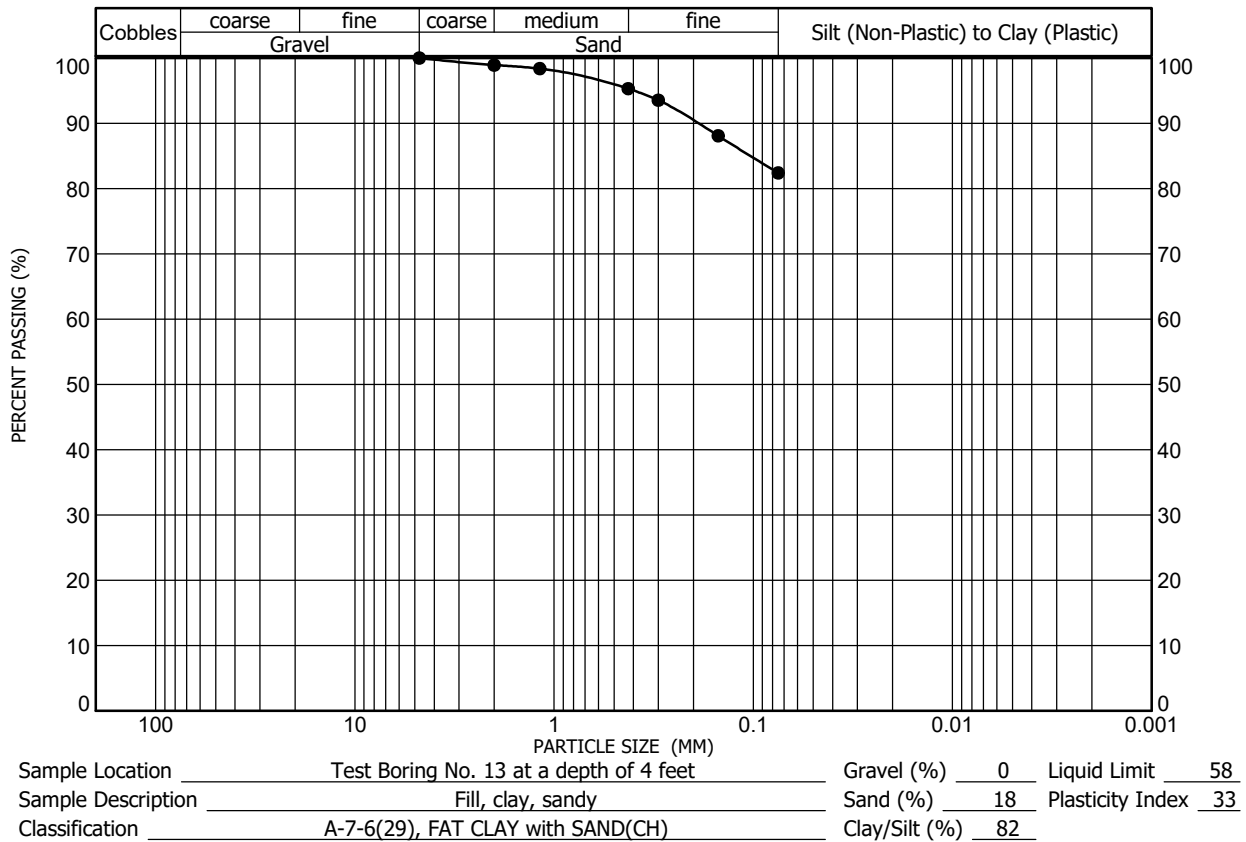


Sample Location _____ Test Boring No. 11 at a depth of 4 feet Gravel (%) 70 Liquid Limit NV
 Sample Description Gravel, sandy, slightly silty Sand (%) 24 Plasticity Index NP
 Classification A-1-a(0), POORLY GRADED GRAVEL with SILT and SAND(GP-GM) Clay/Silt (%) 5

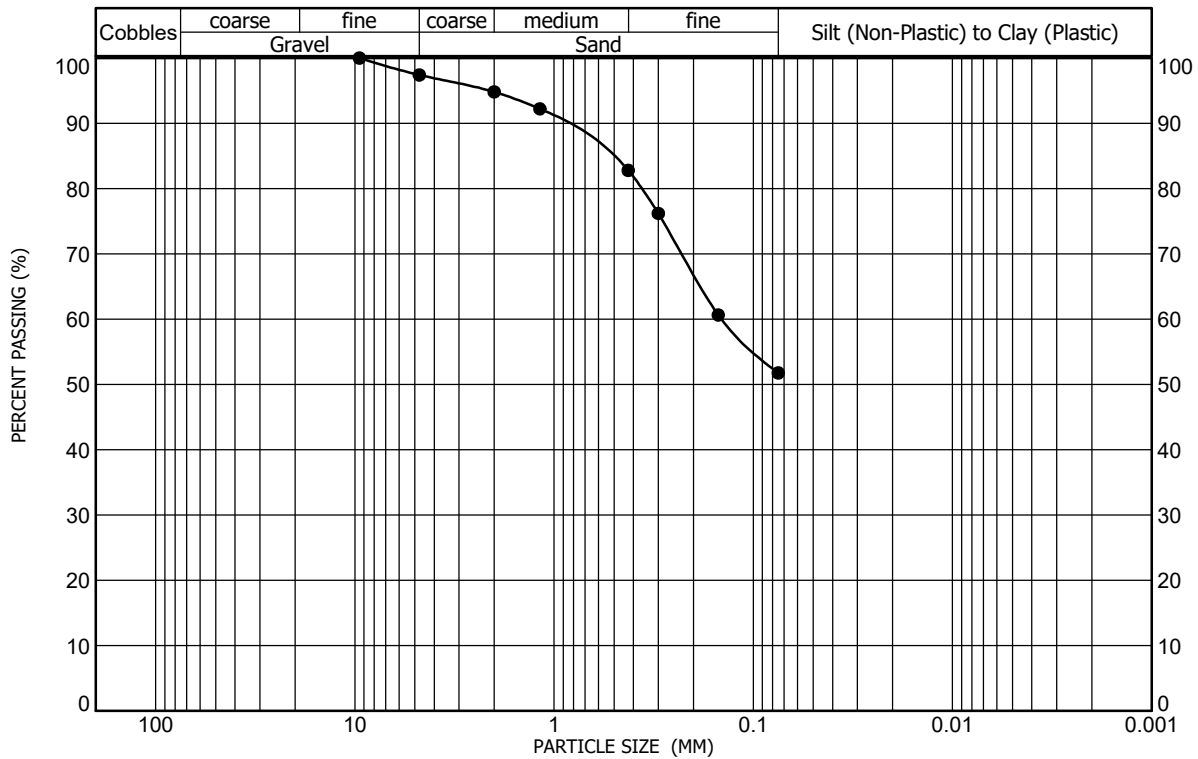


Sample Location _____ Test Boring No. 12 at a depth of 7 feet Gravel (%) 49 Liquid Limit NV
 Sample Description Gravel, very sandy, slightly silty Sand (%) 39 Plasticity Index NP
 Classification A-1-a(0), WELL-GRADED GRAVEL with SILT and SAND(GW-GM) Clay/Silt (%) 12

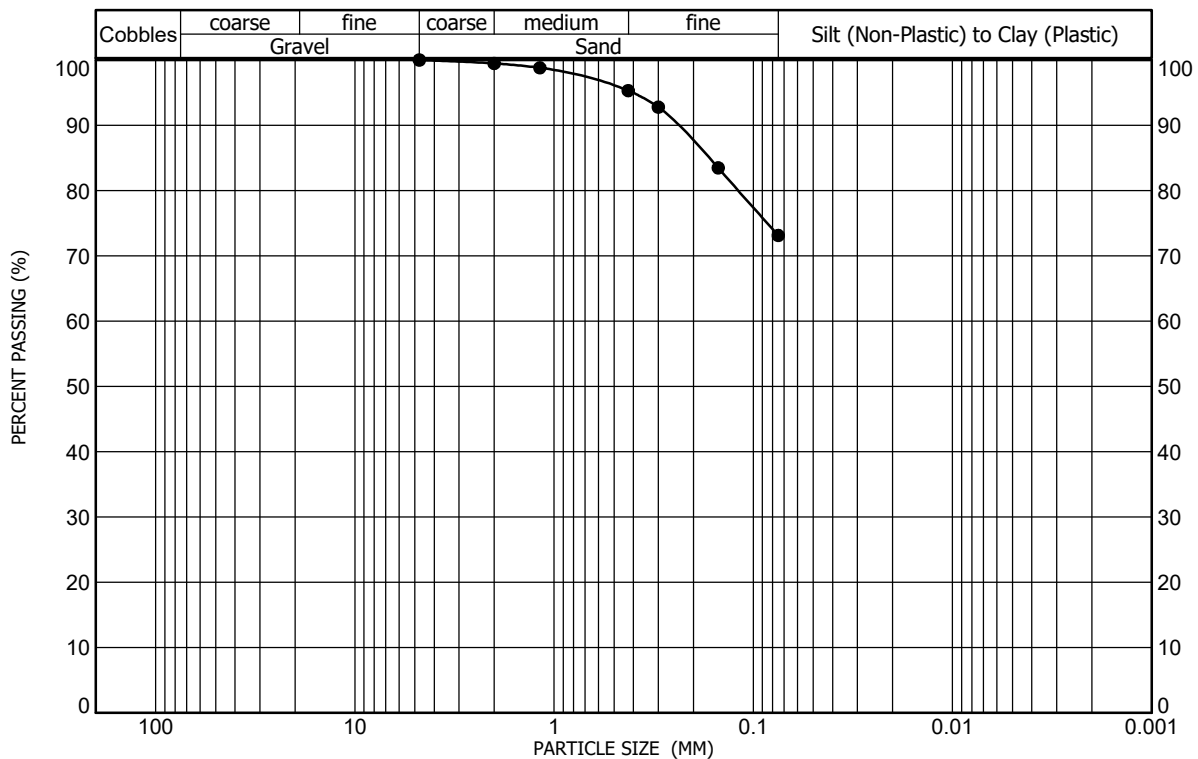
GRADATION AND ATTERBERG TEST RESULTS



GRADATION AND ATTERBERG TEST RESULTS

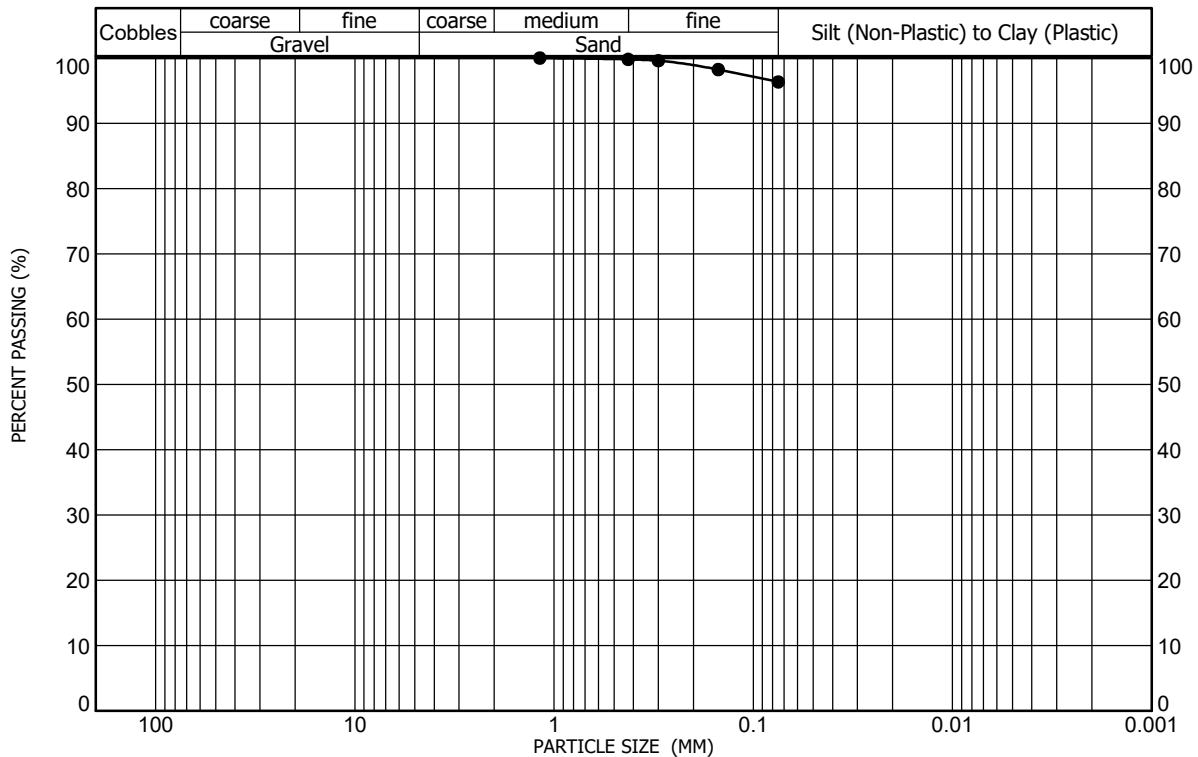


Sample Location Test Boring No. 14 at a depth of 2 feet Gravel (%) 3 Liquid Limit 39
 Sample Description Fill, clay, very sandy, trace gravel Sand (%) 46 Plasticity Index 23
 Classification A-6(8), SANDY LEAN CLAY(CL) Clay/Silt (%) 52

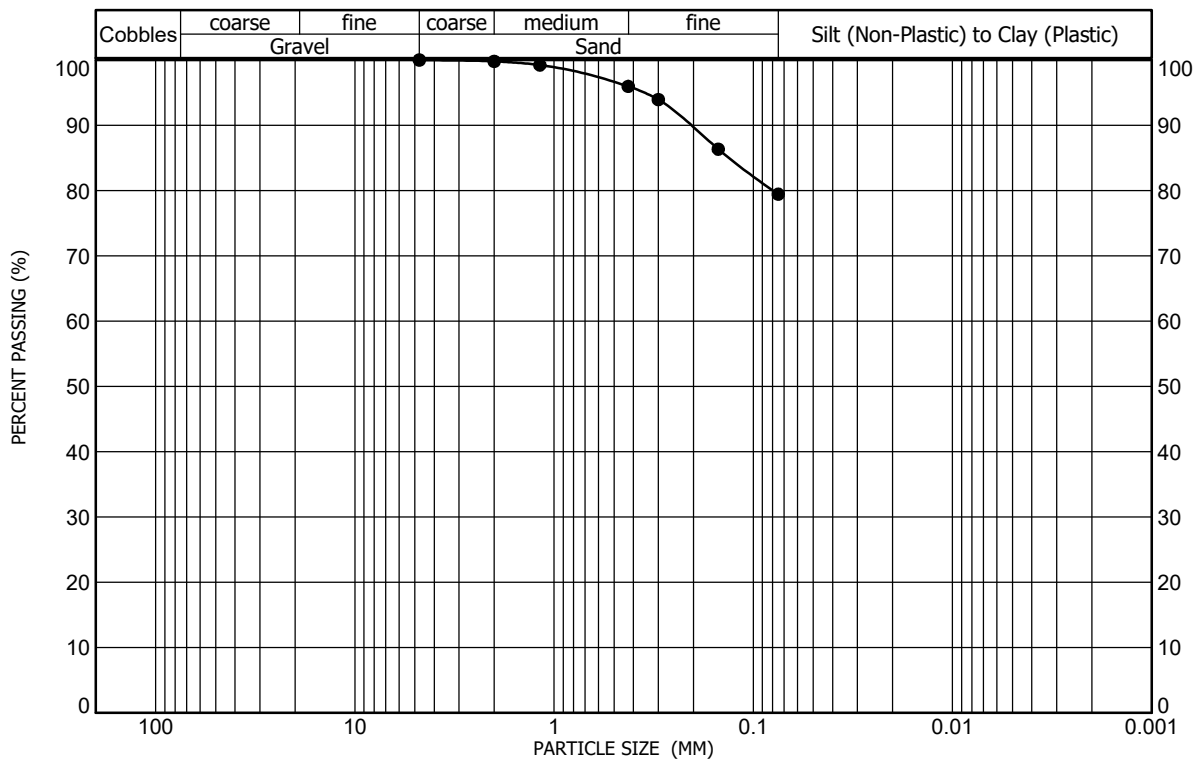


Sample Location Test Boring No. 14 at a depth of 7 feet Gravel (%) 0 Liquid Limit 43
 Sample Description Clay (Weathered Claystone), sandy Sand (%) 27 Plasticity Index 25
 Classification A-7-6(17), LEAN CLAY with SAND(CL) Clay/Silt (%) 73

GRADATION AND ATTERBERG TEST RESULTS

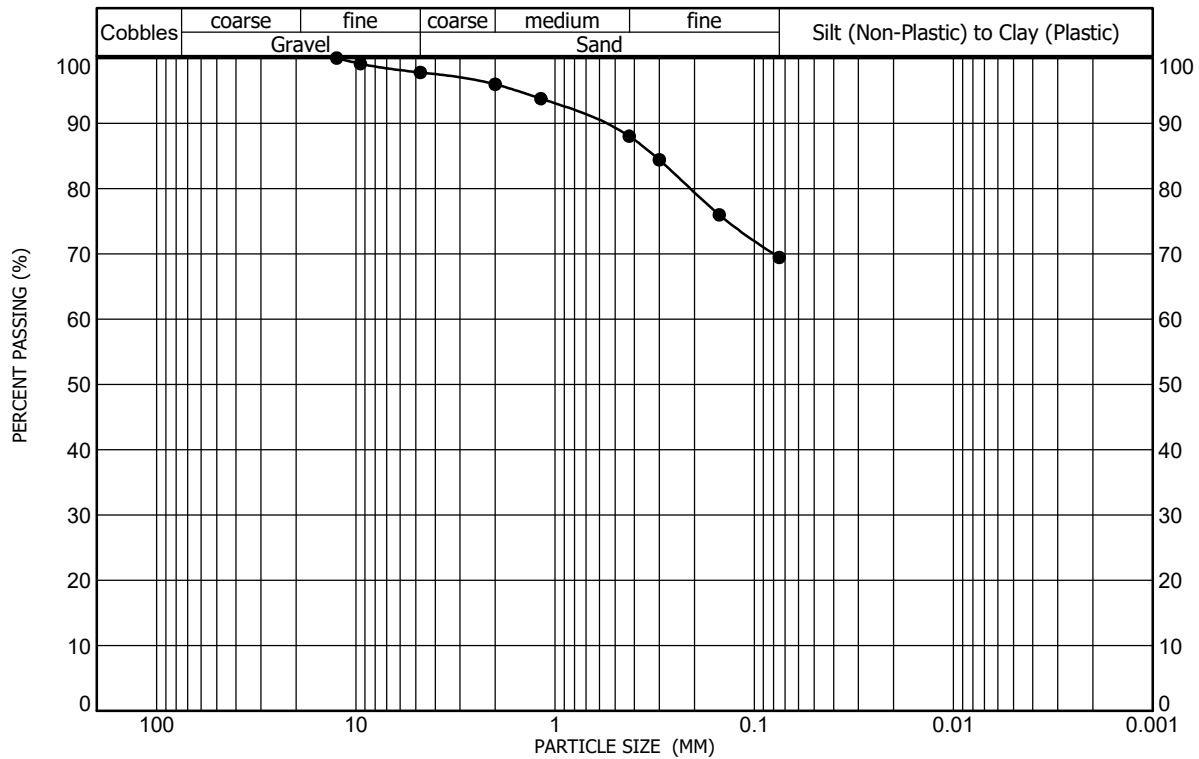


Sample Location Test Boring No. 14 at a depth of 14 feet Gravel (%) 0 Liquid Limit 68
 Sample Description Claystone, trace sand Sand (%) 4 Plasticity Index 46
 Classification A-7-6(50), FAT CLAY(CH) Clay/Silt (%) 96

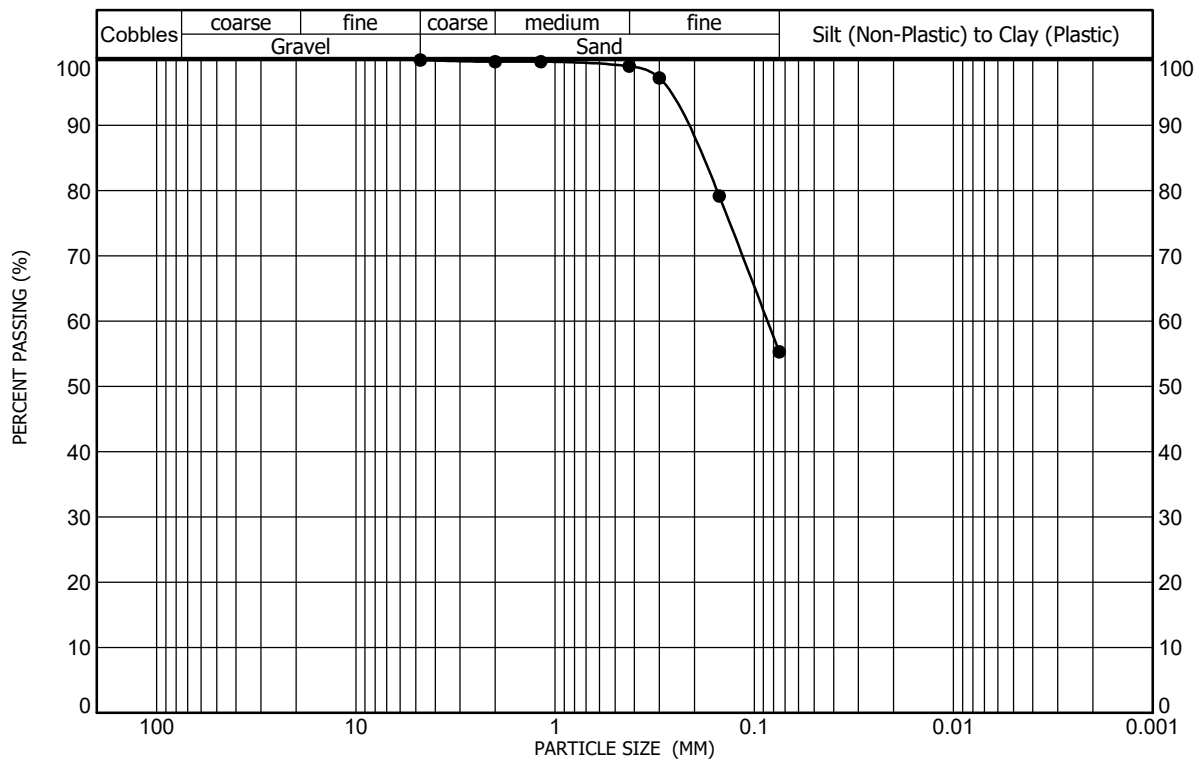


Sample Location Test Boring No. 15 at a depth of 4 feet Gravel (%) 0 Liquid Limit 53
 Sample Description Clay (Weathered Claystone) sandy Sand (%) 21 Plasticity Index 35
 Classification A-7-6(28), FAT CLAY with SAND(CH) Clay/Silt (%) 79

GRADATION AND ATTERBERG TEST RESULTS

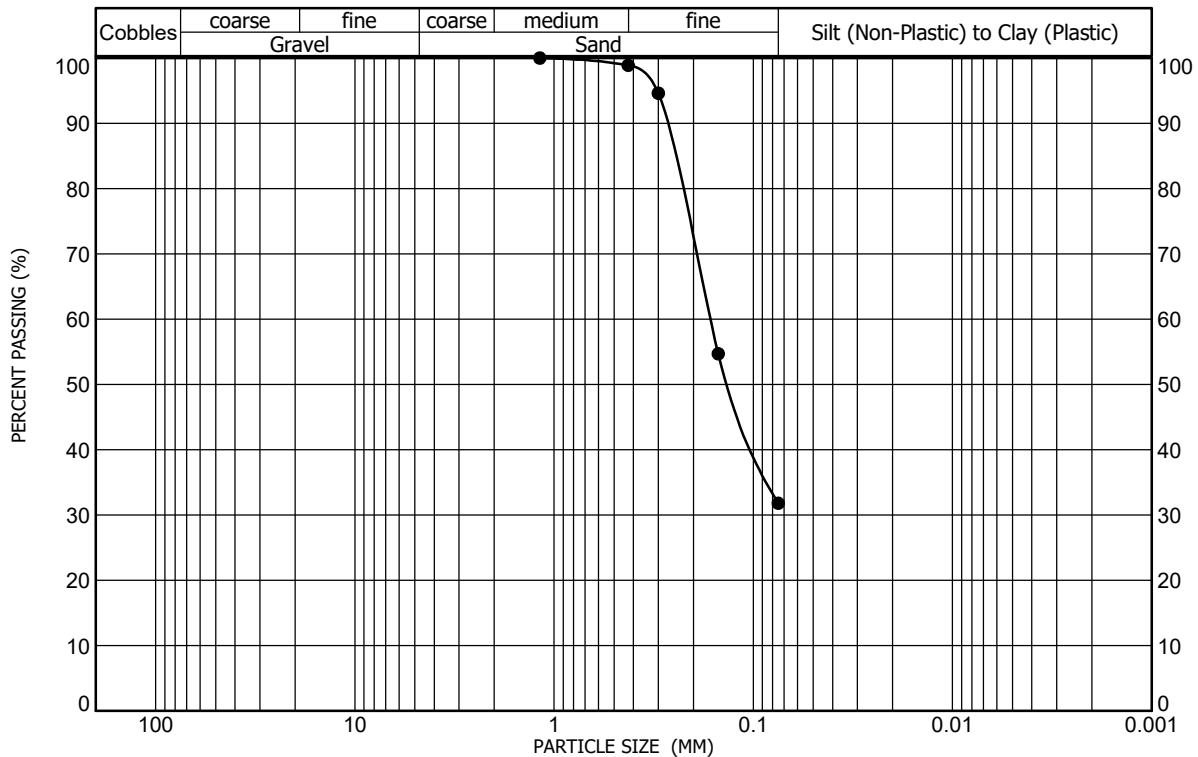


Sample Location _____ Test Boring No. 16 at a depth of 2 feet _____ Gravel (%) 2 Liquid Limit 47
 Sample Description _____ Fill, clay, sandy, trace gravel _____ Sand (%) 28 Plasticity Index 30
 Classification _____ A-7-6(19), SANDY LEAN CLAY(CL) _____ Clay/Silt (%) 69

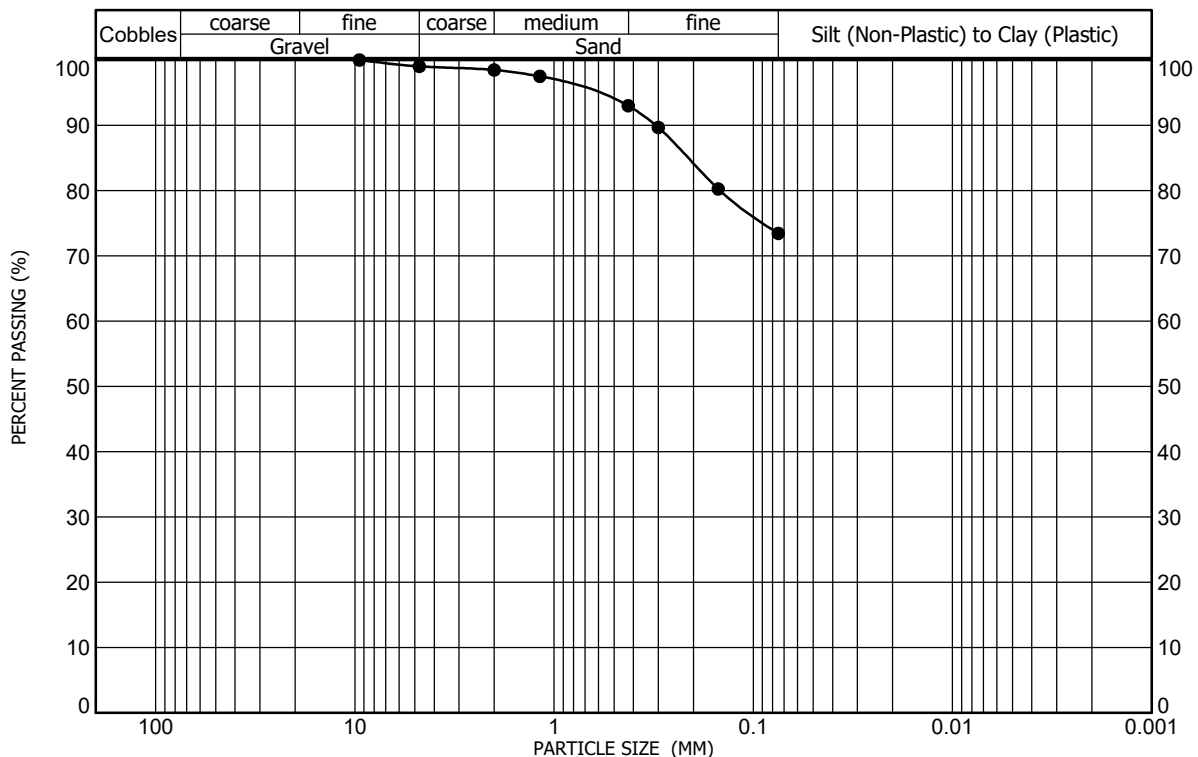


Sample Location _____ Test Boring No. 16 at a depth of 7 feet _____ Gravel (%) 0 Liquid Limit 57
 Sample Description _____ Clay (Weathered Claystone), very sandy _____ Sand (%) 45 Plasticity Index 23
 Classification _____ A-7-5(11), SANDY ELASTIC SILT(MH) _____ Clay/Silt (%) 55

GRADATION AND ATTERBERG TEST RESULTS

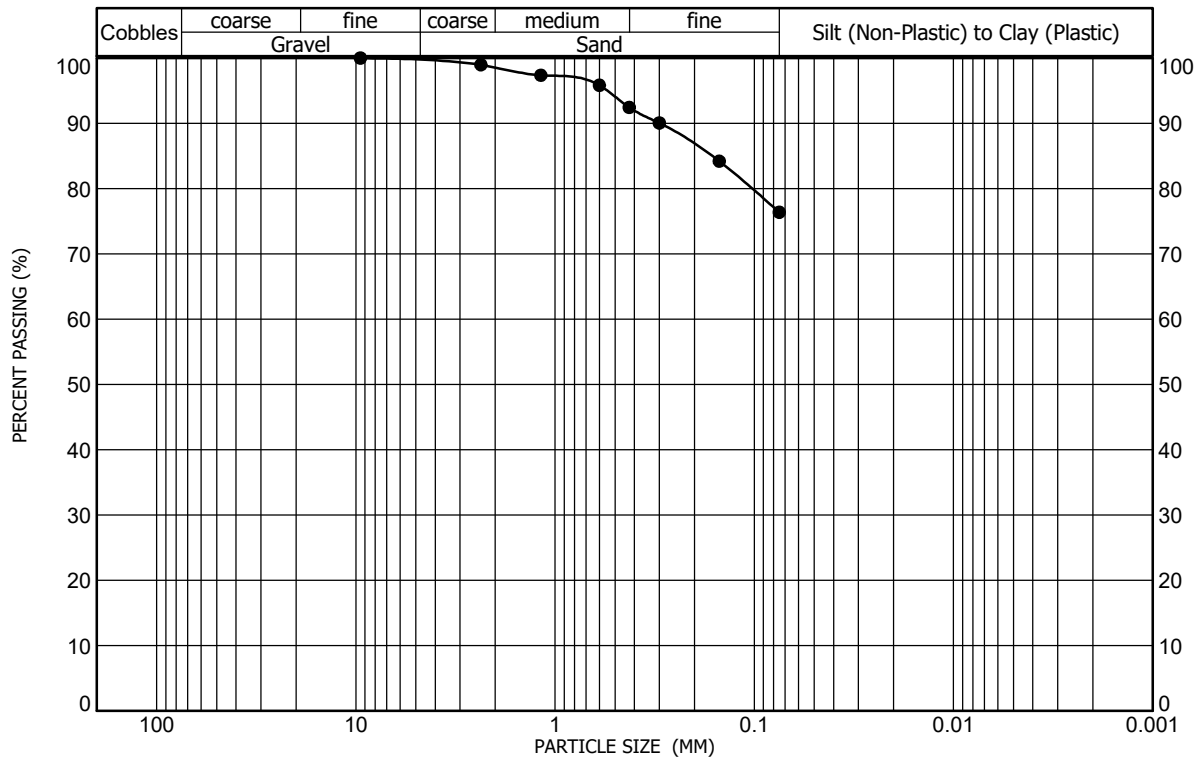


Sample Location _____ Test Boring No. 16 at a depth of 14 feet _____ Gravel (%) 0 Liquid Limit 48
 Sample Description _____ Sandstone, very silty (lens) _____ Sand (%) 68 Plasticity Index 17
 Classification _____ A-2-7(1), SILTY SAND(SM) _____ Clay/Silt (%) 32

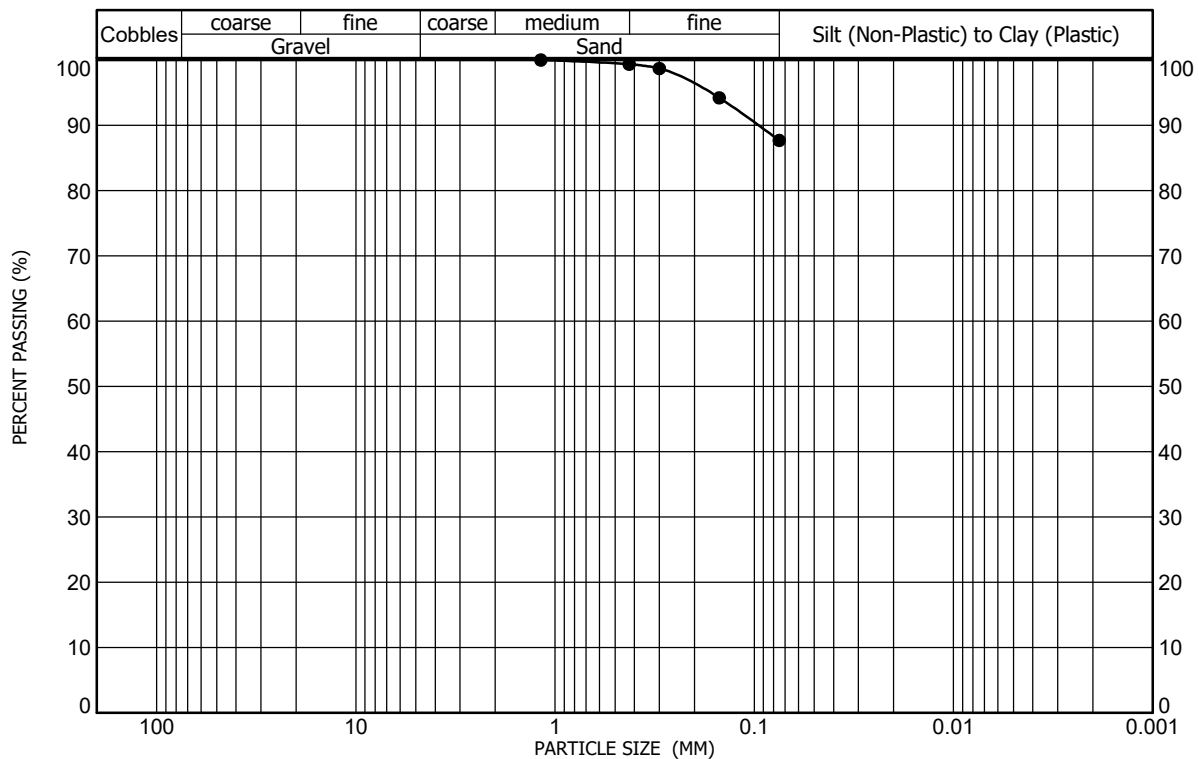


Sample Location _____ Test Boring No. 17 at a depth of 9 feet _____ Gravel (%) 1 Liquid Limit 45
 Sample Description _____ Clay (Weathered Claystone), sandy, trace gravel _____ Sand (%) 26 Plasticity Index 24
 Classification _____ A-7-6(17), LEAN CLAY with SAND(CL) _____ Clay/Silt (%) 73

GRADATION AND ATTERBERG TEST RESULTS

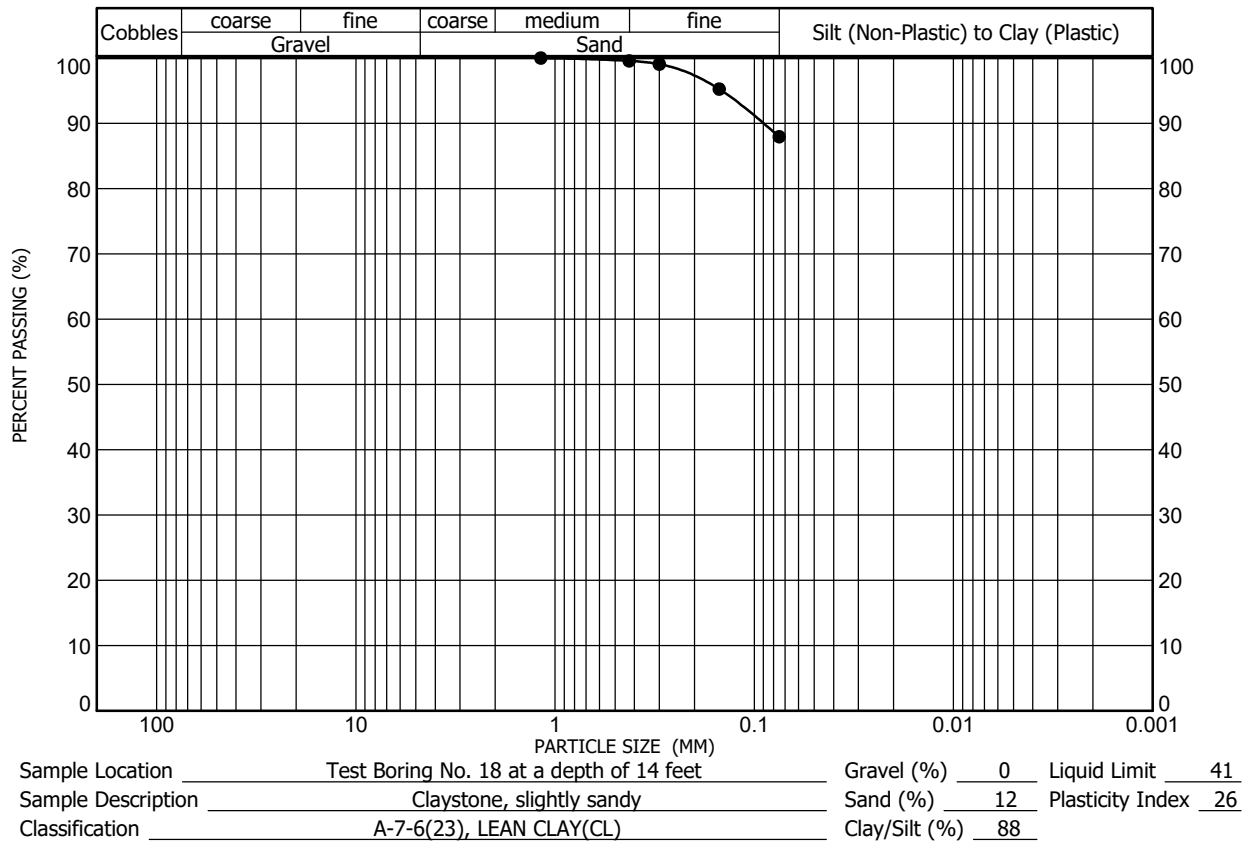


Sample Location Test Boring No. 18 at a depth of 2 feet Gravel (%) 1 Liquid Limit 45
 Sample Description Fill, clay, sandy, trace gravel Sand (%) 23 Plasticity Index 28
 Classification A-7-6(20), LEAN CLAY with SAND(CL) Clay/Silt (%) 76



Sample Location Test Boring No. 18 at a depth of 7 feet Gravel (%) 0 Liquid Limit 48
 Sample Description Clay (Weathered Claystone), slightly sandy Sand (%) 12 Plasticity Index 29
 Classification A-7-6(27), LEAN CLAY(CL) Clay/Silt (%) 88

GRADATION AND ATTERBERG TEST RESULTS



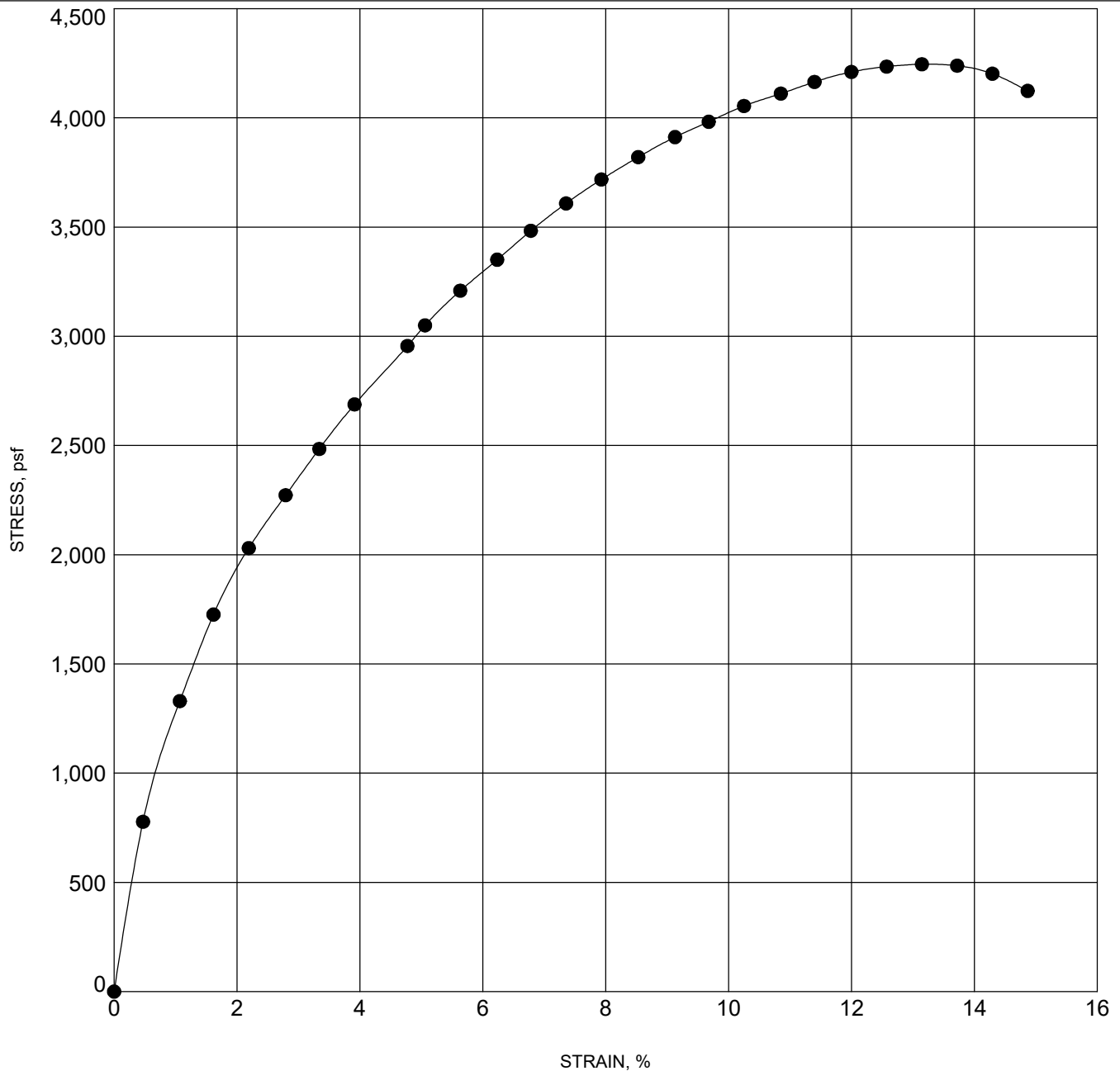
GRADATION AND ATTERBERG TEST RESULTS

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado



BOREHOLE	DEPTH	Classification	γ_d	MC%
● 3	7.0	Clay, sandy	97	26

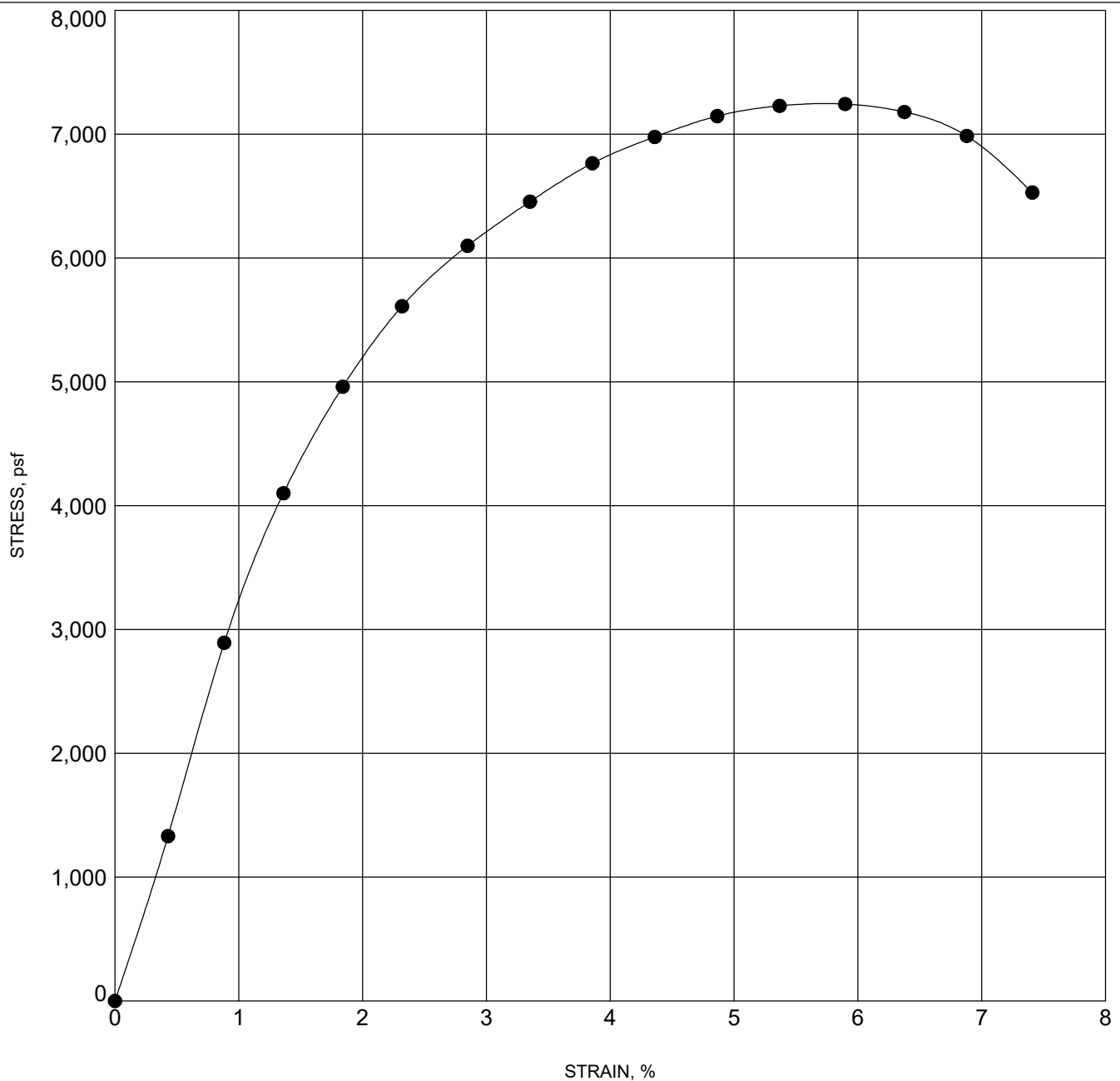
FIGURE A-17
206

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado



BOREHOLE	DEPTH	Classification	γ_d	MC%
● 5	9.0	Clay (Weathered Claystone), sandy	98	25

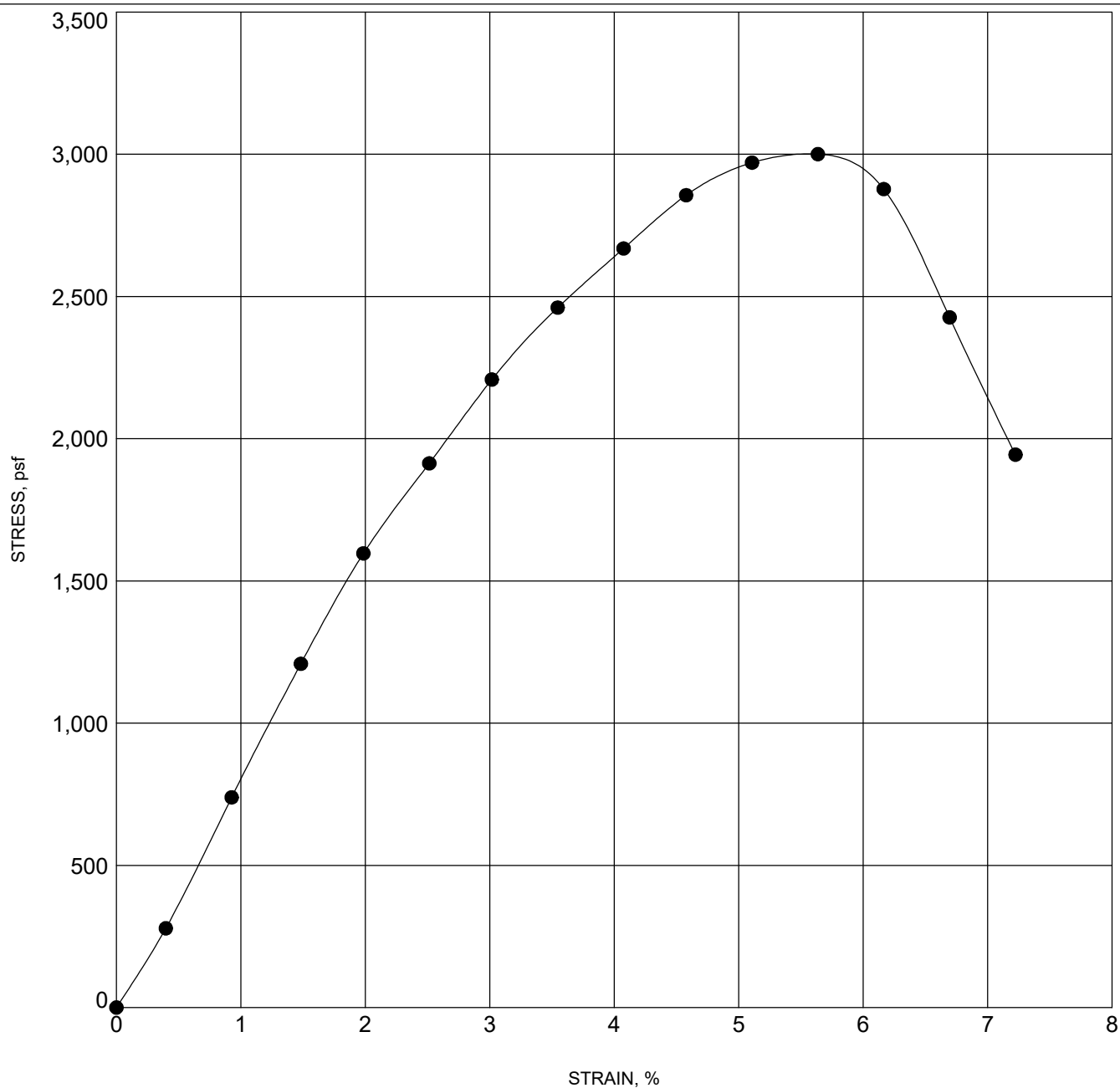
FIGURE A-18
207

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado



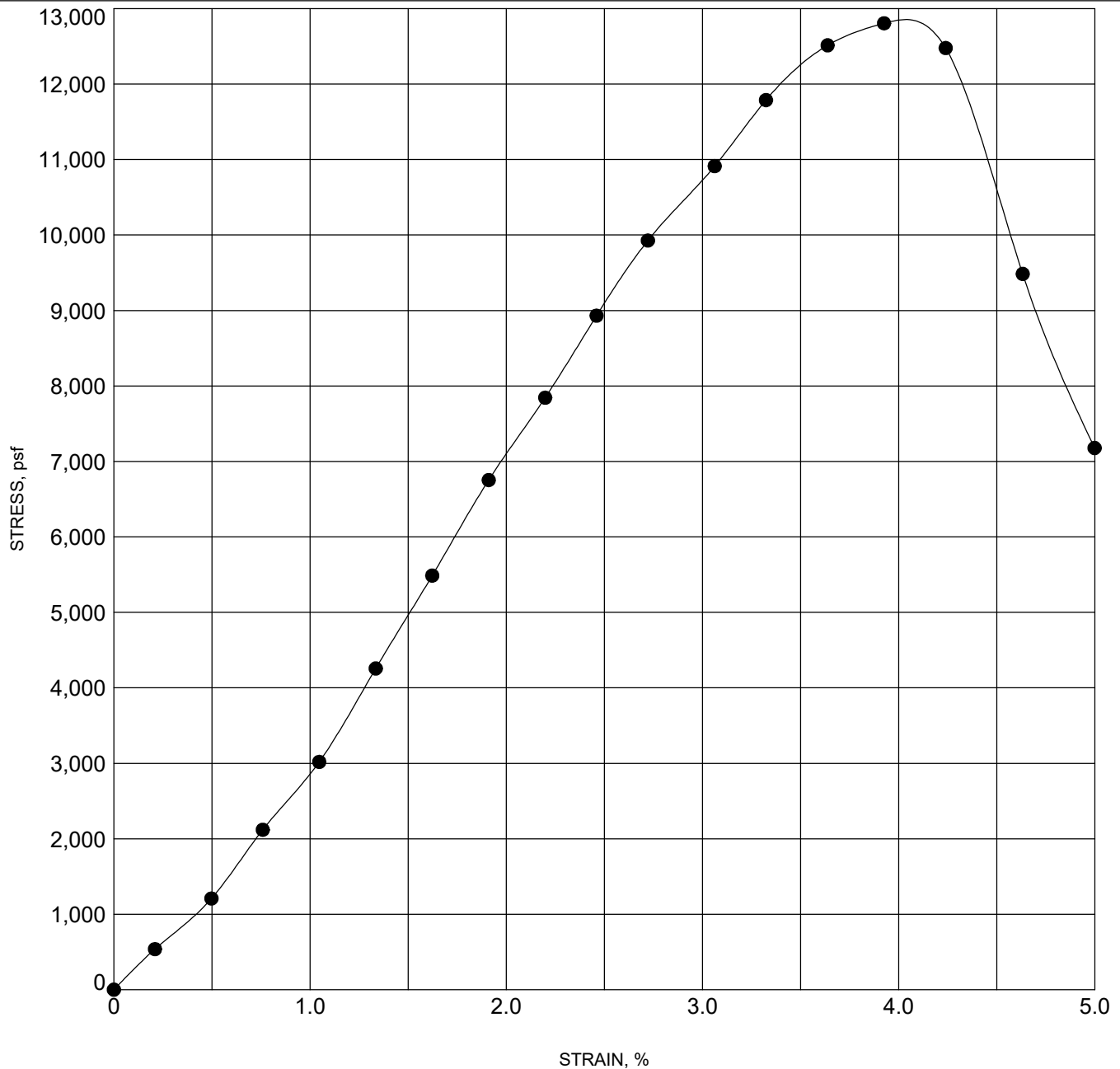
BOREHOLE	DEPTH	Classification	γ_d	MC%
● 12	2.0	Clay, slightly sandy	88	31

CLIENT CDM Smith

PROJECT NAME North Trunk Line Sanitary Sewer

PROJECT NUMBER 235083

PROJECT LOCATION Arvada, Colorado



BOREHOLE	DEPTH	Classification	γ_d	MC%
● 17	14.0	Claystone, slightly sandy	100	24

APPENDIX B

SPECIFICATIONS FOR PLACEMENT OF FILL

APPENDIX B

SPECIFICATIONS FOR PLACEMENT OF FILL

GENERAL

AGW, as the Client's representative, should observe fill placement and conduct tests to determine if the materials placed, methods of placement, and compaction are in reasonable conformance with these specifications. Specifications presented in this Appendix are general in nature. They should be used for construction except where specifically superseded by those presented in the study.

Structural areas include those areas that will support constructed appurtenances (e.g., foundations, slabs, flatwork, pavements, etc.) and fill embankments or slopes that support significant fills or constructed appurtenances. Structural areas will be defined by AGW.

FILL MATERIAL

Fill material should consist of on- or off-site soils which are relatively free of vegetable matter and rubble. Off-site materials should be evaluated by AGW prior to importation. No organic material, frozen material, rock greater than 6 inches, or other unsuitable material should be placed in the fill. Cohesive soil is a mixture of clay, sand, and silt with more than 35% passing a No. 200 sieve and a Plasticity Index of at least 11. Cohesive soils classify as an A-6 or A-7 by the AASHTO Classification system. Granular soils are all materials which do not classify as cohesive.

Proposed import material should be a material having 100% finer than 3 inches in diameter and not more than 75% passing a No. 200 sieve with a Plasticity Index less than 30. Soil not meeting these specifications, but proposed for import fill, must be evaluated by AGW.

PREPARATION OF FILL SUBGRADE

Vegetation, topsoil, existing fill, and any other deleterious materials should be removed from the fill area. The area to be filled should then be scarified, moistened or dried as necessary, and compacted to the moisture content and compaction level specified below prior to placement of subsequent layers of fill.

PLACEMENT OF FILL MATERIAL

The materials should be delivered to the fill in a manner which will permit a well and uniformly compacted fill. Before compacting, the fill material should be properly broken down, mixed, and spread in approximately horizontal layers not greater than 8 inches in loose thickness.

MOISTURE CONTROL

The material must contain uniformly distributed moisture for proper compaction. The Contractor will be required to add moisture to the materials if, in the opinion of AGW, sufficient and uniform moisture is not present in the fill. If the fill materials are too wet for proper compaction, aerating and/or mixing with drier materials will be required.

Moisture content should be controlled as a percentage deviation from optimum. Optimum moisture content is defined as the moisture content corresponding to the maximum density of a laboratory compacted sample according to ASTM D698 for cohesive soils or ASTM D1557 for granular soils. The moisture content specifications are:

	<u>Cohesive Soils</u>	<u>Granular Soils</u>
1. Beneath Structural Areas:	0 to +4%	-2 to +2%
2. Beneath Non-Structural Areas:	-3 to +3%	-3 to +3%

COMPACTION

When the moisture content and conditions of each layer are satisfactory, the fill should be compacted. Laboratory moisture-density tests should be performed on typical fill materials to determine the maximum dry density. Field density tests must then be made to determine fill compaction. The compaction standard used to determine the maximum density is ASTM D698 for cohesive soils and ASTM D1557 for granular soils. The following compaction specifications should be followed:

- | | |
|----------------------------------|----------------------------|
| 1. Beneath Structural Areas: | 95% of Maximum Dry Density |
| 2. Beneath Non-Structural Areas: | 90% of Maximum Dry Density |

If the fill contains less than 10% passing the No. 200 sieve, it may be necessary to control compaction based on relative density (ASTM D2049). Compaction around structures and beneath walkways or other slabs should be to at least 70% relative density. Compaction beneath foundations and areas supporting vehicle loads should be to at least 80% relative density.

DEEP FILLS

Where fill depths exceed 20 feet, additional compactive effort will be necessary to limit fill settlement. Fills placed between 20 and 25 feet below final overlot grade should be compacted to 100% of the maximum dry density at a moisture content of $\pm 2\%$ of optimum. Where fill depths exceed 25 feet, we recommend a granular fill (less than 35% passing the No. 200 Sieve) be placed below the 25-foot depth and compacted to a minimum of 95% of a modified Proctor maximum dry density to limit potential fill settlement. Relative density of at least 85% will be required when necessary. Relative density of at least 85% will be required when necessary.

RESPONSIBILITY

Any mention of essentially full-time testing and observation does not mean AGW will accept responsibility for future fill performance. AGW is not responsible for constant or exhaustive inspection of the work, the means and methods of construction or the safety procedures employed by Client's contractor. Performance of construction observation services does not constitute a warranty or guarantee of any type. Since even with diligent observation, some construction defects, deficiencies, or omissions in the Contractor's work may occur undetected. Client shall hold its Contractor solely responsible for the quality and completion of the project, including construction, in accordance with the construction documents. Any duty hereunder is for the sole benefit of the Client and not for any third party, including the Contractor or any subcontractor.

CITY OF ARVADA, COLORADO

NORTH TRUNK SEWER

86TH PKWY, BEECH TO MOORE ST (NTL 2/3/ALKIRE FM)

CITY OF ARVADA PROJECT NO. 24-SR-04

MARCH 2025

ISSUED FOR BID (IFB)
NOT FOR CONSTRUCTION

CDWA APPROVAL BLOCK

THE SIGNATURE OF THE GENERAL MANAGER OF THE CHURCH DITCH WATER AUTHORITY (CDWA) IS FOR THE PURPOSE OF ACKNOWLEDGING ACCEPTANCE OF THE DESIGN OF THE PERMITTED STRUCTURES ONLY. THE SIGNATURE SHALL NOT IN ANY WAY CHANGE THE RIGHTS AND OBLIGATIONS OF EITHER PARTY WITH RESPECT TO THE (TITLE OF EASEMENT OR LICENSE AGREEMENT) TO WHICH THESE DESIGN ARE ATTACHED. CDWA IS EXPRESSLY RELYING UPON THE DESIGN STANDARDS AND PERFORMANCE STANDARDS SET FORTH IN THESE DRAWINGS AS PRESENTED BY CITY OF ARVADA, AND CITY OF ARVADA SHALL BE SOLELY RESPONSIBLE THAT, AS CONSTRUCTED, THE PERMITTED STRUCTURES SHALL PERFORM AS SPECIFIED HEREIN.

GENERAL MANAGER, CHURCH DITCH WATER AUTHORITY

CONTACTS:

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CDWA
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GENERAL MANAGER
14025 WEST 82ND AVENUE
ARVADA, CO 80005
303-423-6010



LOCATION PLAN

**CDM
Smith**
DENVER, COLORADO

Water

Environment

Transportation

Energy

Facilities

LIST OF DRAWINGS

SHEET

GENERAL

G-0	COVER
G-1	SURVEY NOTES, LEGEND, SYMBOLS AND ABBREVIATIONS
G-2	GENERAL NOTES I
G-3	ADD'L NOTES AND SUE
G-4	KEY PLAN I
G-5	KEY PLAN II

CIVIL

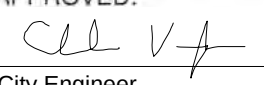
C-1	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 1+00 TO STA 10+00
C-2	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 10+00 TO STA 20+00
C-3	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 20+00 TO STA 30+00
C-4	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 30+00 TO STA 40+00
C-5	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 40+00 TO STA 50+00
C-6	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 50+00 TO STA 60+00
C-7	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 60+00 TO STA 70+00
C-8	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 70+00 TO STA 80+00
C-9	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 80+00 TO STA 90+00
C-10	WEST 86TH PARKWAY GRAVITY PLAN AND PROFILE STA 90+00 TO STA 100+00
C-11	WEST 86TH PARKWAY AND MOORE STREET GRAVITY PLAN AND PROFILE STA 100+00 TO STA 110+00
C-12	WEST 84TH PLACE AND MOORE STREET GRAVITY PLAN AND PROFILE STA 110+00 TO STA 111+40
C-13	ALKIRE STREET FORCE MAIN PLAN AND PROFILE STA 1+00 TO STA 11+00
C-14	ALKIRE STREET FORCE MAIN PLAN AND PROFILE STA 11+00 TO STA 21+00
C-15	ALKIRE STREET FORCE MAIN PLAN AND PROFILE STA 21+00 TO STA 30+13
C-16	ARVADA LIFT STATION YARD PIPING PLAN

CIVIL DETAILS

CD-1	CIVIL DETAILS I
CD-2	CIVIL DETAILS II
CD-3	CIVIL DETAILS III

EROSION CONTROL

EC-1	WEST 86TH PARKWAY EROSION CONTROL PLAN STA 1+00 TO STA 20+00
EC-2	WEST 86TH PARKWAY EROSION CONTROL PLAN STA 20+00 TO STA 40+00
EC-3	WEST 86TH PARKWAY EROSION CONTROL PLAN STA 40+00 TO STA 60+00
EC-4	WEST 86TH PARKWAY EROSION CONTROL PLAN STA 60+00 TO STA 80+00
EC-5	WEST 86TH PARKWAY EROSION CONTROL PLAN STA 80+00 TO STA 100+00
EC-6	WEST 86TH PARKWAY AND MOORE STREET EROSION CONTROL PLAN STA 100+00 TO STA 111+40
EC-7	ALKIRE STREET EROSION CONTROL PLAN STA 1+00 TO STA 21+00
EC-8	ALKIRE STREET EROSION CONTROL PLAN STA 21+00 TO STA 30+13
EC-9	EROSION CONTROL DETAILS I
EC-10	EROSION CONTROL DETAILS II

APPROVED:  3/12/25 NTL 2/3
City Engineer Date Job Number

Review is for general compliance with the City of Arvada, "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.



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GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ARVADA "ENGINEERING CODE OF STANDARDS SPECIFICATIONS 2023 EDITION OR MOST CURRENT VERSION, UNLESS OTHERWISE SPECIFIED HEREIN AND HAVE A PRINTED COPY ONSITE AT ALL TIMES.
2. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE LICENSED WITH THE CITY OF ARVADA.
3. 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.
4. ALL CONTRACTORS AND SUBCONTRACTORS SHALL HAVE A SET OF APPROVED DRAWINGS AND SPECIFICATIONS SIGNED BY THE CITY ENGINEER OR DESIGNEE.
5. 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.
6. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR BURIED UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION AND FOR PROTECTING THEM DURING CONSTRUCTION.
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL PROJECT SAFETY INCLUDING, BUT NOT LIMITED TO, TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL AND SECURITY.
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. CONTRACTOR SHALL OBTAIN STORMWATER CONSTRUCTION PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE), WATER QUALITY CONTROL DIVISION, PRIOR TO CLEARING, GRADING, OR EXCAVATING. A COPY OF THE APPROVED PERMIT MUST BE SUBMITTED TO THE CITY OF ARVADA ENGINEERING DIVISION 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.
10. 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. NOTE THAT NO PERMIT WILL BE APPROVED THAT REQUESTS WATER BE DISCHARGED INTO THE CHURCH DITCH.
11. 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 SPECIFICATIONS".
12. 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 APPROVED TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL ON EXISTING ROADS DURING CONSTRUCTION.
13. ALL UTILITY EASEMENTS MUST REMAIN UNOBSTRUCTED AND FULLY ACCESSIBLE ALONG THEIR ENTIRE LENGTH FOR MAINTENANCE EQUIPMENT.
14. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING STREET IMPROVEMENTS SUCH AS, BUT NOT LIMITED TO SIGNS, UTILITIES, LANDSCAPING, AND PRIVATE PROPERTY FROM BEING DISTURBED OR DESTROYED DURING CONSTRUCTION. THE OWNER'S REPRESENTATIVE AND THE CONTRACTOR SHALL JOINTLY INSPECT ALL EXISTING IMPROVEMENTS FOR DAMAGE. ALL DAMAGE CAUSED BY THE CONTRACTOR WILL BE CORRECTED AND PAID FOR BY THE CONTRACTOR PRIOR TO ACCEPTANCE OF WORK.
15. ALL TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SAFETY OF THE WORKERS PROVIDED FOR AS REQUIRED BY THE MOST RECENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION". ALL OPEN TRENCHES SHALL BE ADEQUATELY PROTECTED FROM PEDESTRIANS PER CITY STANDARDS AND SPECIFICATIONS. AN ACCESSIBLE PEDESTRIAN ROUTE SHALL BE MAINTAINED THROUGH THE WORK AREA AT ALL TIMES UNLESS A DETOUR ROUTE HAS BEEN APPROVED ON THE TRAFFIC CONTROL PLAN. TRENCH SUPPORT SHALL BE DESIGNED BY AN ENGINEER CERTIFIED IN THE STATE OF COLORADO.
16. IF EXISTING CONDITIONS OR DIMENSIONS VARY FROM THOSE SHOWN ON DRAWINGS, CONTRACTOR SHALL NOTIFY ENGINEER SO PROPER ADJUSTMENTS CAN BE MADE.
17. WASTE MATERIALS SHALL BE DISPOSED OF BY CONTRACTOR AT NO ADDITIONAL COST TO THE CITY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN A DISPOSAL SITE FOR UNUSED MATERIAL, DEMOLITION MATERIAL, AND HAZARDOUS WASTE MATERIAL.
18. THE STREETS IN AND ADJACENT TO THE CONSTRUCTION AREA SHALL BE CLEANED OF DEBRIS, GENERATED BY THE PROJECT, BY THE CONTRACTOR AT THE EARLIEST OPPORTUNITY, OR IMMEDIATELY WHEN DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE FOR THE SAFETY OF TRAFFIC OR PEDESTRIANS. IN NO CASE SHALL THE STREET BE LEFT UNCLEAN AFTER COMPLETION OF THE DAY'S WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE NECESSARY EQUIPMENT AND MATERIALS TO SATISFACTORILY CLEAN THE ROADWAY AT NO ADDITIONAL COST TO THE PROJECT.
19. LOCATION OF ALL EXISTING UTILITIES (PRIVATE OR PUBLIC) SHALL BE IDENTIFIED OR VERIFIED BY CONTRACTOR PRIOR TO MOBILIZATION, CONSTRUCTION, OR ORDERING OF MATERIALS. THE CONTRACTOR SHALL BEAR THE FULL COST OF REMOVAL, REPLACEMENT, AND DELAY RELATED UNVERIFIED EXISTING CONDITIONS. WHERE THE CONTRACTOR FINDS CONFLICTS OR DISCREPANCIES THEY SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
20. EXISTING SEWERS, WATER MAINS, GAS MAINS, TELEPHONE CONDUITS, ELECTRIC CABLES, AND OTHER UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN ON THE DRAWINGS ONLY TO THE EXTENT SUCH INFORMATION HAS BEEN MADE AVAILABLE TO OR DISCOVERED BY THE ENGINEER. IT IS EXPECTED THAT THERE MAY BE DISCREPANCIES AND OMISSIONS IN THE LOCATION AND QUANTITIES OF BURIED UTILITIES AND STRUCTURES SHOWN. THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR BUT IS NOT GUARANTEED TO BE EITHER CORRECT OR COMPLETE AND ALL RESPONSIBILITY FOR THE ACCURATE COMPLETENESS THEREOF IS EXPRESSLY DISCLAIMED. THE CONTRACTOR SHALL MAKE SUCH INVESTIGATION AS HE THINKS NECESSARY TO VERIFY ITS CORRECTNESS AND COMPLETENESS. THE CONTRACTOR SHALL FIELD LOCATE AND PROTECT, AHEAD OF EXCAVATION, ALL UNDERGROUND UTILITIES, AND STRUCTURES SO THAT THEY WILL NOT BE ACCIDENTALLY CUT OR DAMAGED BY CONSTRUCTION OPERATION.

21. ALL OPEN CUT ROADS AND STREETS SHALL HAVE A MINIMUM OF ONE LANE OPEN AT ALL TIMES FOR EMERGENCY ACCESS. CONTRACTOR SHALL PROVIDE TWO-WAY TRAFFIC CONTROL AT ALL OPEN CUT ROAD WORK. CONTRACTOR SHALL OPEN CUT EXISTING GRAVEL AND ASPHALT SURFACED ROADS WHERE INDICATED ON THE DRAWINGS. THICKNESS AND TYPE OF REPLACEMENT ASPHALT, BASE COURSE, AND AGGREGATE ROAD BASE SHALL BE AS SPECIFIED AND SHALL, AT A MINIMUM, MATCH EXISTING SURFACING.
22. THE CONTRACTOR SHALL COORDINATE DRIVEWAY ACCESS TO ALL ADJOINING PROPERTIES ACCESSIBLE TO THE PUBLIC AND EMERGENCY VEHICLES. DESIGN FOR MAINTAINING ACCESS WILL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE CONTROLLING AGENCY FOR REVIEW AND APPROVAL.
23. CONTRACTOR SHALL COMPLY WITH TRENCH PLATE REQUIREMENTS OF THE GOVERNING JURISDICTION. IF TRENCH PLATE REQUIREMENTS ARE NOT SPECIFIED, THE CONTRACTOR SHALL APPLY SKID RESISTANT COATING ON THE TRENCH PLATES AND COLD MIX ASPHALT CONCRETE AT THE EDGES. THE TRENCH PLATES SHALL BE NOTCHED INTO THE ASPHALT CONCRETE OR TRAVELED SURFACE TO PREVENT SLIPPAGE AND ROCKING UNDER TRAFFIC.
24. THE CONTRACTOR SHALL BACKFILL UTILITY TRENCHES EACH EVENING AND SHALL LAY NO MORE THAN ONE SECTION OF SEWER, STRUCTURE TO STRUCTURE (INCLUDING LATERAL CONNECTIONS), BEFORE RETURNING TO BACKFILL, COMPACT THE SUBGRADE AND INSTALL THE BASE WHERE APPLICABLE. UPON COMPLETION OF THE WORK, THE LINES SHALL BE CLEANED, WITH ALL DEBRIS REMOVED AT DOWNSTREAM MANHOLE. ALL MANHOLES SHALL BE EXAMINED FOR PROPER GRADE AND WATER TIGHTNESS. THE CONTRACTOR SHALL ASSIST THE ENGINEER BY PROVIDING ALL INSPECTION ASSISTANCE AS REQUIRED. THE CONTRACTOR SHALL MAKE NOTE OF ANY CORRECTIONS REQUIRED AND SHALL PERFORM ALL REMEDIAL ACTIONS PRIOR TO THE FINAL ACCEPTANCE BY THE CITY.
25. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
26. HORIZONTAL STATIONING ALONG THE PIPELINE ALIGNMENT IS FOR LEVEL LINE MEASUREMENT AND FOR PAYMENT OF THE PIPELINES. CONTRACTOR SHALL PROVIDE THE ACTUAL PIPE LENGTH TO BE DETERMINED BY THE SLOPE OR CURVE ON WHICH THE PIPE IS INSTALLED.
27. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS AND UTILITY OWNERS IN WRITING 72 HOURS PRIOR TO ANY CONSTRUCTION OR SHUT-OFF IN SERVICE. THE NOTICES MUST HAVE CONTRACTOR'S PHONE NUMBER AND NAME OF THE CONTACT PERSON, AND EMERGENCY PHONE NUMBER FOR AFTER HOURS CALLS, TO INCLUDE CITY DAYTIME AND EMERGENCY CONTACT INFORMATION.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING GROUNDWATER ENCOUNTERED DURING CONSTRUCTION OF ANY PORTION OF THE PROJECT. NO CONSTRUCTION SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, THE CITY, AND ENGINEER AT THE TIME OF OCCURRENCE. CONTRACTOR SHALL OBTAIN AND PAY FOR THE DEWATERING PERMIT.
29. NO BEDDING MATERIAL SHALL BE PLACED ABOVE THE SPRINGLINE OF THE PIPE UNTIL A CITY REPRESENTATIVE HAS AUTHORIZED BACKFILLING. IT SHALL BE THE DUTY OF THE CONTRACTOR TO NOTIFY THE CITY 48 HOURS IN ADVANCE OF PROPOSED BACKFILL OPERATIONS SO A CITY REPRESENTATIVE MAY INSPECT PIPE AND THE BEDDING PRIOR TO BACKFILLING.
30. ALL MATERIALS, WORKMANSHIP, CONSTRUCTION DETAILS, AND TESTING SHALL CONFORM TO STANDARDS AND SPECIFICATIONS REGARDING WATER, SANITARY, SEWER, AND STORM DRAINAGE INFRASTRUCTURE, LATEST REVISION SET FORTH BY THE CITY OF ARVADA.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SURVEY MONUMENTS AND CORNER MARKERS. SURVEY MONUMENTS AND PROPERTY CORNER MARKERS DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REESTABLISHED BY A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF COLORADO.
32. DIMENSIONS TO STRUCTURE, REFERENCED PIPING, PAVING, AND OTHER IMPROVEMENTS ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS 14 DAYS IN ADVANCE OF THE CONSTRUCTION PROGRESS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS, BUILDINGS, OR OTHER STRUCTURES RESULTING FROM CONTRACTOR'S CONSTRUCTION ACTIVITIES. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE OWNER AND ENGINEER AT NO COST TO THE OWNER.
34. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING STAGING AREAS FOR THEIR WORK. STAGING AREAS SHALL BE APPROVED BY THE OWNER.
35. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, COUNTY, AND LOCAL LAWS AND ORDINANCES RELATING TO THE SAFETY AND CHARACTER OF WORK, EQUIPMENT, AND PERSONNEL. THIS INCLUDES, BUT IS NOT LIMITED TO SHEETING, SHORING, BRACING, VENTILATION, CONFORMANCE WITH TRAFFIC CONTROL AND MAINTENANCE OF BARRICADES AND WARNING DEVICES.
36. PORTIONS OF THE WORK ARE LOCATED IN JEFFERSON COUNTY WHERE CONTRACTOR SHALL COMPLY WITH LOCAL RULES AND REGULATIONS.
37. FINAL ACCEPTANCE AND WARRANTY SHALL BE AS SET FORTH IN SECTION 200 OF THE CITY'S ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS.

STREET NOTES:

1. OWNER WILL PAY AND/OR PERFORM COMPACTION TESTING AT THE FREQUENCY AND LOCATIONS SPECIFIED IN SECTION 31 23 33. THE USE OF OWNER'S TESTING AGENCY DOES NOT RELIEVE CONTRACTOR OF BEING IN FULL COMPLIANCE WITH THE SPECIFICATIONS.
2. THE CONTRACTOR SHALL RENEW OR REPLACE ANY EXISTING TRAFFIC STRIPPING AND/OR PAVEMENT MARKINGS, WHICH HAVE BEE EITHER REMOVED OR THE EFFECTIVENESS OF WHICH HAS BEEN REDUCED DURING HIS OPERATION. RENEWAL OF PAVEMENT STRIPPING AND MARKING SHALL BE DONE IN CONFORMANCE WITH THE CITY OF ARVADA STANDARD SPECIFICATIONS. ALL ROADWAY CENTERLINE MARKING SHALL BE REPLACED EACH DAY AFTER CONSTRUCTION IS COMPLETE.
3. CURB, GUTTER, SIDEWALK, DRIVEWAYS OR OTHER STREET IMPROVEMENTS, AS ANY FENCING, DESTROYED, REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITH THE SAME TYPE AND DIMENSIONS OF UNITS REMOVED AND SHALL BE EQUAL TO AND CONSISTENT WITH THE UNDISTURBED PORTIONS OF THE IMPROVEMENTS EXISTING PRIOR TO THE TRENCH EXCAVATION UNLESS SPECIFIED OTHERWISE. THE COST OF REPLACEMENT OF WORK AND REMOVAL OF ALL DEBRIS FROM THE SITE SHALL BE AT THE EXPENSE OF THE CONTRACTOR AND SHALL MEET ALL OF THE CITY OF ARVADA'S STANDARD SPECIFICATIONS AS SPECIFIED HEREIN.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION.

ALL TRAFFIC CONTROLS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) LATEST EDITION. CONTRACTOR SHALL SUBMIT A TRAFFIC MANAGEMENT PLAN TO THE CITY OF ARVADA AS PART OF THE TRAFFIC CONTROL PLAN.

5. AT LEAST 5 WORKING DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION ACTIVITIES THE TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE CITY. THE PLAN SHALL BE PREPARED BY A CERTIFIED TRAFFIC CONTROL SUPERVISOR. NO WORK SHALL BEGIN UNTIL ALL TRAFFIC CONTROL DEVICES HAVE BEEN PLACED IN ACCORDANCE WITH THE APPROVED PLAN. THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN THE TRAFFIC CONTROL DEVICES FOR THE ENTIRE DURATION OF THE PROJECT.

GENERAL NOTES SEWER:

1. THE CONTRACTOR SHALL SET THE MAINTENANCE HOLE RIMS AT THE FINISHED GRADE ELEVATIONS. THIS MAY REQUIRE FIELD ADJUSTMENT IF THE FINISHED GRADE IS DIFFERENT THAN THE PROPOSED RIM ELEVATIONS.
2. PROPOSED MAINTENANCE HOLE RING AND COVERS SHALL CONFORM TO THE CITY OF ARVADA REQUIREMENTS. ANY EXISTING MANHOLE RINGS AND COVERS SHALL BE RETURNED TO THE CITY OF ARVADA.
3. IN ALL DUCTILE IRON PIPING FITTINGS SHALL HAVE A PRESSURE RATING OF NO LESS THAN 350 PSI AND PIPING OF NO LESS THAN 250 PSI.
4. BACKFILL WITHIN ROADWAYS SHALL BE IMPORTED SELECT COMMON FILL PER SPECIFICATIONS 31 05 15 AND 31 23 33.
5. RESTRAINED JOINTS SHALL BE REQUIRED WHERE INDICATED ON THE DRAWINGS AND AS SPECIFIED.
6. ALL SANITARY SEWER MAINS TESTING SHALL BE DONE IN ACCORDANCE WITH THE CITY OF ARVADA STANDARDS AND SPECIFICATIONS (LATEST REVISION).
7. MAINTAIN A MINIMUM OF TEN FEET OF HORIZONTAL SEPARATION BETWEEN ALL SANITARY SEWER OR RECLAIMED WATER MAINS AND DOMESTIC WATER MAINS AND SERVICES.
8. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO START OF CONSTRUCTION.
9. MAINTENANCE HOLES, BARRELS AND CONES SHALL BE CONSTRUCTED OF PRECAST CONCRETE. CAST-IN-PLACE MAINTENANCE HOLES SHALL BE ALLOWED IN SPECIAL CIRCUMSTANCES WITH APPROVAL BY THE CITY ENGINEER.
10. AT ALL POINTS OF CONNECTION OF SEWER AND/OR FORCE MAIN LINE TO EXISTING INFRASTRUCTURE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATING AND VERIFYING LOCATION OF THE POINT OF CONNECTION PRIOR TO ANY CONSTRUCTION.
11. THE FORCE MAIN SHALL BE HYDROSTATIC TESTED AND FLUSHED IN ACCORDANCE WITH THE CITY OF ARVADA STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL SUBMIT A TESTING PLAN AND TIE-IN PLAN TO OWNER FOR APPROVAL AT LEAST ONE WEEK IN ADVANCE AND DONE IN THE PRSENCE OF OWNER OR A REPRESENTATIVE.
12. CONTRACTOR SHALL SUBMIT A TIE-IN PLAN FOR CONNECTING TO THE ALKIRE LIFT STATION. ALL TIE-INS TO EXISTING SYSTEMS MUST HAVE A BY-PASS PLAN SUBMITTED TO THE OWNER FOR APPROVAL A MINIMUM ONE WEEK IN ADVANCE.

BYPASS PUMPING NOTES:

1. CONTRACTOR SHALL SUBMIT A BYPASS PUMPING PLAN FOR REVIEW AND APPROVAL BY THE CITY OF ARVADA.
2. CONTRACTOR SHALL COORDINATE WITH THE CITY TO ASSESS AVAILABLE FLOW MONITORING DATA AND ENSURE BYPASS PUMPING EQUIPMENT CAN PROPERLY CONNECT TO FORCE MAIN BYPASS CONNECTIONS PRIOR TO COMMENCING BYPASS OPERATIONS.
3. CONTRACTOR IS RESPONSIBLE FOR ENSURING BYPASS PUMPS AND CONNECTIONS ARE ADEQUATELY SIZED TO CONVEY THE ANTICIPATED FLOWS.
4. CONTRACTOR SHALL HAVE AN EMERGENCY BACKUP PLAN AND FACTORS OF SAFETY PER SPECIFICATIONS.
5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SITE ACCESS AND IMPACTS TO THE ALKIRE LIFT STATION SITE WITH THE CITY WITH THE BYPASS PUMPING PLAN.

EROSION CONTROL NOTES:

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. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. REFER TO THE STORM WATER MANAGEMENT PLAN (SWMP) IN THE SPECIFICATIONS FOR STORMWATER CONTROLS AND REQUIREMENTS.

REV. NO.	DATE	DRWN	CHKD		REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

GENERAL NOTES I

APPROVED: [Signature]
City Engineer
3/12/25 Date
NTL 2/3 Job Number

Review is for general compliance with the City of Arvada.
"Engineering Code of Standards and Specifications 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 liability for facilities designed by others.



PROJECT NO. 263334-295058
FILE NAME: G002NFNT.DWG

SHEET NO.

G-2

XREFs: [CDMS 2234] Images: []
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C:\Users\GANJIV\Documents\CDM Smith Inc\Arvada NTL 2_3\Project Files\01_Gen\10 CAD\G003NFNT.dwg
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CHURCH DITCH WATER AUTHORITY (CDWA) NOTES:

1. DEFINITIONS

A. FACILITY OWNER – CDWA

B. PROPERTY OWNER – (CITY OF ARVADA)

C. CONTRACTOR – (TO BE COMPLETED)

D. ENGINEER – (CDM SMITH)
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "DESIGN CRITERIA FOR FACILITIES OF THE CHURCH DITCH WATER AUTHORITY," LATEST EDITION, EXCEPT AS SPECIFICALLY MODIFIED BY THESE PROJECT DRAWINGS.
3. CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD CDWA HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT TO THE MAXIMUM EXTENT PERMITTED BY LAW.
4. CDWA AND ITS AGENTS OR CONSULTANTS DO NOT WARRANT OR GUARANTEE THE ADEQUACY OF DESIGNS REVIEWED AND APPROVED BY CDWA. CDWA'S REVIEW OF PROJECT REPORTS, PLANS, AND SPECIFICATIONS IS FOR THE SOLE BENEFIT OF CDWA TO DETERMINE IF PROJECT DETAILS CONFORM TO CDWA DESIGN GUIDELINES, WHICH ARE NECESSARY TO REASONABLY ASSURE THAT PROJECTS DO NOT ADVERSELY AFFECT THE FACILITIES OR OPERATIONS OF CDWA.
5. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH CDWA REPRESENTATIVES AND CITY OF ARVADA AT LEAST 72 HOURS PRIOR TO START OF CONSTRUCTION. THOSE IN ATTENDANCE SHALL INCLUDE OWNER'S REPRESENTATIVE, ENGINEER, CONTRACTOR, AND OTHER AFFECTED AGENCIES. CONSTRUCTION PLANS AND SCHEDULE WILL BE DISTRIBUTED AT THE PRE-CONSTRUCTION MEETING.
6. TECHNICAL APPROVAL BY CDWA OF THE DESIGN OF THE IMPROVEMENTS SPECIFIED HEREIN SHALL NOT CONSTITUTE AUTHORIZATION TO BEGIN WORK. AN EASEMENT OR LICENSE AGREEMENT APPROVED TEMPORARY ACCESS AND CONSTRUCTION PERMIT (INCLUDING SCHEDULE THAT INCLUDES THE DAY, MONTH, AND YEAR WHEN WORK IS ALLOWED), AND WRITTEN NOTICE TO PROCEED FROM CDWA'S GENERAL MANAGER ARE ALSO REQUIRED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. FOLLOWING THE APPROVAL OF THE DESIGN PLANS AND EASEMENT OR LICENSE AGREEMENT, AND PRIOR TO THE PRE-CONSTRUCTION MEETING, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT A CONSTRUCTION SCHEDULE TO CDWA FOR REVIEW AND APPROVAL. CDWA'S APPROVAL OF THE CONSTRUCTION SCHEDULE IS IN CDWA'S SOLE DISCRETION, AND CDWA MAY REFUSE TO APPROVE A SCHEDULE IF CDWA DETERMINES IT MAY IMPACT THE DITCH'S OPERATIONS OR CDWA'S ABILITY TO MAINTAIN OR ACCESS ITS FACILITIES.
7. CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITY TO AREAS DEFINED AS PERMANENT AND/OR TEMPORARY CONSTRUCTION EASEMENTS, UNLESS OTHERWISE AUTHORIZED BY CDWA AND PROPERTY OWNER.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS ACCESS FOR CDWA PERSONNEL AND EQUIPMENT ALONG THE LENGTH OF THE EXISTING DITCH AND PRESCRIPTIVE EASEMENT THROUGHOUT THE COURSE OF THE PROJECT.
9. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY CDWA. CDWA RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DO NOT CONFORM TO STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO CDWA FOR ENGINEERING REVIEW AND APPROVAL PRIOR TO INSTALLATION OF MATERIALS OR FACILITIES FOR WHICH SHOP DRAWINGS ARE CREATED.
10. CONTRACTOR SHALL VERIFY ACCURACY BETWEEN WORK SET FORTH ON THESE PLANS AND WORK REQUIRED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND CDWA REPRESENTATIVE PRIOR TO START OF CONSTRUCTION.
11. IT IS THE ENGINEER'S RESPONSIBILITY TO RESOLVE CONSTRUCTION PROBLEMS WITH CDWA DUE TO CHANGED CONDITIONS ENCOUNTERED BY CONTRACTOR DURING THE PROGRESS OF ANY PORTION OF THE PROPOSED WORK. IF, IN THE SOLE OPINION OF CDWA, PROPOSED ALTERATIONS TO THE APPROVED CONSTRUCTION PLANS INVOLVES SIGNIFICANT CHANGES TO THE CHARACTER OF THE WORK, OR TO FUTURE CONTIGUOUS PUBLIC OR PRIVATE IMPROVEMENTS, THE ENGINEER SHALL BE RESPONSIBLE FOR SUBMITTING REVISED PLANS TO CDWA FOR REVIEW AND APPROVAL, PRIOR TO ANY FURTHER CONSTRUCTION RELATED TO THAT PORTION OF THE WORK.
12. GROUNDWATER ENCOUNTERED DURING CONSTRUCTION SHALL NOT BE RELEASED TO THE DITCH OR OTHER FACILITIES WITHOUT WRITTEN APPROVAL FROM THE CDWA GENERAL MANAGER.
13. ALL CONCRETE USED FOR THE PROJECT SHALL CONFORM TO ACI 350. THE CONTRACTOR SHALL SUPPLY CDWA WITH SHOP DRAWINGS AND SPECIFICATIONS FOR ALL PRE-FABRICATED CONCRETE STRUCTURES TO ENSURE CONFORMANCE TO ACI 350.
14. WHERE THE EXISTING SIDES OR BOTTOM OF THE DITCH ARE DISTURBED AND ARE TO BE REPLACED, THE TOP TWO FEET OF BACKFILL MATERIAL SHALL BE CLAY CONTAINING AT LEAST 40 PERCENT BY DRY WEIGHT PASSING THE #200 SIEVE (FINES) AND A PLASTICITY INDEX OF 15 OR GREATER. AS AN ALTERNATIVE, THE EXISTING MATERIAL CAN BE MIXED WITH TWO PERCENT POWDERED DRY BENTONITE (BY DRY WEIGHT) PROVIDED THE EXISTING SOILS CONTAIN AT LEAST 25 PERCENT FINES. THE MATERIALS UPON COMPACTION SHALL HAVE A PERMEABILITY LESS THAN OR EQUAL TO 1X10⁻⁶ CM/SEC AS DETERMINED BY ASTM D 5084.
15. THE CHANNEL CLAY LINING SHALL BE COMPACTED TO 90% OF THE MODIFIED PROCTOR (ASTM D1557) AND WITHIN -2% TO +2% OF THE OPTIMUM MOISTURE CONTENT. FILL SHALL BE PLACED IN THIN LIFTS WITH MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. PLACEMENT ON DITCH SLOPES MAY REQUIRE OVERBUILDING AND CUTTING BACK TO OBTAIN THE REQUIRED COMPACTION.
16. ALL PROPOSED MATERIAL TYPES TO BE USED AS BEDDING, CLAY LINING AND BACKFILL SHALL BE SUBMITTED TO CDWA FOR APPROVAL PRIOR TO PLACEMENT.
17. MATERIALS GRAIN SIZE ANALYSIS (ASTM D422), ATTERBERG LIMITS (ASTM D4318), AND MOISTURE-DENSITY RELATIONSHIP TESTS (ASTM D1557) SHALL BE COMPLETED, AS A MINIMUM, ON EACH SOIL TYPE OR AT A RATE OF 300 CY OF MATERIAL PLACED, WHICHEVER IS GREATER.
18. COMPACTION OF BEDDING, CLAY LINING AND ALL TYPES OF BACKFILL SHALL BE TESTED AT A RATE OF AT LEAST FOUR TESTS PER 1,000 SQUARE FEET OF FILL MATERIAL PER LIFT. THIS FREQUENCY MAY BE ALTERED BY THE ENGINEER OR CDWA REPRESENTATIVE DEPENDING ON THE PROJECT, THE METHODS BY WHICH THE CONTRACTOR IS USING TO OBTAIN COMPACTION, OR IF CDWA DETERMINES CIRCUMSTANCES WARRANT ADDITIONAL TESTING. THE TESTING SHALL BE AT VARIOUS DEPTHS AND LOCATIONS. THE ENGINEER OR CDWA'S REPRESENTATIVE RESERVES THE RIGHT TO REQUEST ADDITIONAL TESTS AND DETERMINE THE LOCATION OF TESTING. THE TESTING MAY BE COMPLETED EITHER BY SAND CONE DENSITY TEST (ASTM D1556) OR BY THE NUCLEAR GAUGE (ASTM D6938) METHODS. TEST RESULTS SHALL BE SUBMITTED TO CDWA'S REPRESENTATIVE WITHIN 24 HOURS OF THE TEST OR ON THE NEXT WORKING DAY.

19. ON STEEP SIDE SLOPES, FILL MATERIALS, WHETHER CLAY LINING OR SUBGRADE SOILS, MAY BE REQUIRED TO BE PLACED IN HORIZONTAL LIFTS ALONG THE SLOPE TO ACHIEVE THE REQUIRED COMPACTION. THIS METHOD WILL CREATE AN OVERBUILT SECTION THAT WILL BE CUT BACK TO FORM THE DESIGN SLOPE.
20. CONTRACTOR SHALL MAINTAIN SILT FENCE AND OTHER EROSION AND SEDIMENT CONTROL BMPS ON A DAILY BASIS, AND SHALL PREVENT DEBRIS FROM ENTERING INTO THE DITCH. THE CONTRACTOR WILL BE RESPONSIBLE FOR DAILY CLEANING OF DEBRIS THAT ENTERS THE DITCH, IF BMPS FAIL. CONTRACTOR SHALL FULLY COMPLY WITH EROSION CONTROL REQUIREMENTS OF THE APPROPRIATE COUNTY OR MUNICIPALITY MS4.
21. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND REVEGETATION OF ANY AREAS IMPACTED BY CONSTRUCTION ACTIVITIES, WHETHER ON THE CONSTRUCTION SITE ITSELF OR ANY LAND WITHIN CDWA AUTHORITY, TO EXISTING PRIOR TO CONSTRUCTION OR BETTER.
22. UNLESS ANOTHER SPECIFIC MAINTENANCE AGREEMENT IS IN PLACE, CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FUNCTIONING OF FACILITY IMPROVEMENTS FOR A MINIMUM OF TWO YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION OR FINAL ACCEPTANCE OF THE IMPROVEMENTS BY CDWA, WHICHEVER IS LATER. ANY FAILURE DURING THIS PERIOD OF GUARANTEE SHALL BE REMEDIED BY CONTRACTOR TO THE SATISFACTION OF CDWA AT CONTRACTOR'S EXPENSE.
23. AS-BUILT DOCUMENTS ARE TO BE SUPPLIED TO CDWA PRIOR TO SUBSTANTIAL COMPLETION OR FINAL ACCEPTANCE OF THE IMPROVEMENTS. RECORD DOCUMENTS SHALL BE SUBMITTED ELECTRONICALLY IN BOTH PDF AND AUTOCAD FORMAT PRIOR TO CDWA ACCEPTANCE. AS-BUILT DRAWINGS SHALL BE SIGNED AND STAMPED BY A COLORADO-REGISTERED PROFESSIONAL ENGINEER.

SUE NOTES:

1. ALL EXISITNG UTILITIES DEPICTED ON PLAN AND PROFILE DRAWINGS ARE "QUALITY LEVEL B" (ASCE 38-02) UNLESS SHOWN IN THE TABLE, THIS SHEET.
2. THE LOCATIONS OF "QUALITY LEVEL A (ASCE 38-02) FOR EXISTING UTILITIES (UTILITY POTHOLES) ARE IDENTIFIED ON THE PLAN AND PROFILE DRAWINGS. THE "QUALITY LEVEL A" DATA IS SUMMARIZED IN THE TABLE INCLUDED ON DRAWINGS G-3.
3. POTHOLES WITH A BOTTOM DEPTH REPORTED AND NO TOP DEPTH REPORTED INDICATE THAT THE HOLE WAS EXCAVATED TO THE DEPTH REPORTED IN THE BOTTOM DEPTH COLUMN AND NO PIPE WAS FOUND.

POTHOLE LOG TABLE

PH #	POTHOLE EXCAVATION DATE	SURFACE MATERIAL	TOP DEPTH (in.)	BOTTOM DEPTH (in.)	UTILITY SIZE (in.)	UTILITY MATERIAL	UTILITY TYPE	UTILITY OWNER	COMMENTS
1	7/10/2024	ASPH	59.00	75.00	16.00	PVC	WATER	ARVADA	
1a	7/11/2024	ASPH	NA	94.00	NA	NA	WATER	ARVADA	FOUND SQUEEGE AT 94"
2	7/10/2024	ASPH	25.00	27.00	2.00	PLS	GAS	XCEL	
3	7/10/2024	ASPH	NA	120.00	NA	NA	WATER	ARVADA	10' DEEP, 36" SWATH
4	7/10/2024	ASPH	38.00	40.00	2.00	PLS	ELEC	XCEL	
4	7/10/2024	ASPH	40.00	44.00	4.00	PVC	GAS	XCEL	
5	7/11/2024	ASPH	54.50	55.75	1.25	PLS	GAS	XCEL	
6	7/11/2024	ASPH	71.00	79.00	8.00	PVC	WATER	ARVADA	
7	7/11/2024	ASPH	47.50	48.50	1.50	PLS	GAS	XCEL	
8	7/11/2024	ASPH	60.00	68.00	8.00	PVC	WATER	ARVADA	
9	7/11/2024	ASPH	49.50	52.50	3.00	PLS	GAS	XCEL	MULTIPLE LINES FOUND IN ONE HOLE
9	7/11/2024	ASPH	56.00	59.00	3.00	PVC	UNKNOWN	UNKNOWN	
9	7/11/2024	ASPH	63.00	NA	NA	EXPOSED	UNKNOWN	UNKNOWN	
9	7/11/2024	ASPH	53.00	56.00	3.00	PLS	PHONE		
9	7/11/2024	ASPH	26.00	29.00	3.00	PVC	UNKNOWN	UNKNOWN	EMPTY BROKEN CONDUIT
10	8/1/2024	ASPH	NA	113.00	NA	NA	STORM	ARVADA	113" HIT ROCKS
11	7/26/2024	ASPH	38.50	44.50	6.00	FB	GAS	XCEL	
12	7/23/2024	ASPH	NA	43.00	NA	NA	GAS	XCEL	3-4" OF DIRT AND THEN ROCKS UP TO SOFTBALL SIZE
13	7/23/2024	ASPH	30.50	32.25	1.75	PLS	GAS	XCEL	
14	7/23/2024	ASPH	70.00	78.00	8.00	PVC	WATER	ARVADA	
15	7/26/2024	ASPH	NA	119.00	NA	NA	FORCE MAIN	ARVADA	119" HIT SQUEEGE BACKFILL
16	7/26/2024	ASPH	93.00	105.00	12.00	PVC	WATER	ARVADA	
17	7/12/2024	ASPH	62.25	80.25	18.00	FB	HP GAS	XCEL	
17a	7/12/2024	ASPH	48.00	52.00	4.00	PLS	GAS	XCEL	
18	7/12/2024	ASPH	61.50	79.50	18.00	FB	GAS	XCEL	
19	7/23/2024	ASPH	94.00	106.00	12.00	PVC	WATER	ARVADA	
20	7/24/2024	ASPH	NA	93.00	8.00	NA	FORCE MAIN	ARVADA	93" HIT RIVER ROCK
20	7/24/2024	ASPH	NA	94.00	10.00	NA	FORCE MAIN	ARVADA	93" HIT RIVER ROCK
21	7/24/2024	ASPH	NA	60.00	8.00	NA	FORCE MAIN	ARVADA	HIT RIVER ROCK
21	7/24/2024	ASPH	NA	60.00	10.00	NA	FORCE MAIN	ARVADA	HIT RIVER ROCK
22	8/1/2024	ASPH	NA	121.00	8.00	NA	FORCE MAIN	ARVADA	
22	8/1/2024	ASPH	NA	121.00	10.00	NA	FORCE MAIN	ARVADA	
23	8/1/2024	ASPH	70.00	82.00	12.00	PVC	WATER	ARVADA	
24	7/24/2024	ASPH	91.00	101.00	10.00	NA	FORCE MAIN	ARVADA	

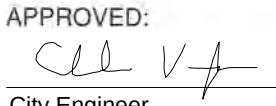
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

ADDT'L NOTES AND SUE

APPROVED: 
City Engineer
3/12/25 Date
NTL 2/3 Job Number
Review is for general compliance with the City of Arvada. "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.



PROJECT NO. 263334-295058
FILE NAME: G003NFNT.DWG
SHEET NO.
G-3

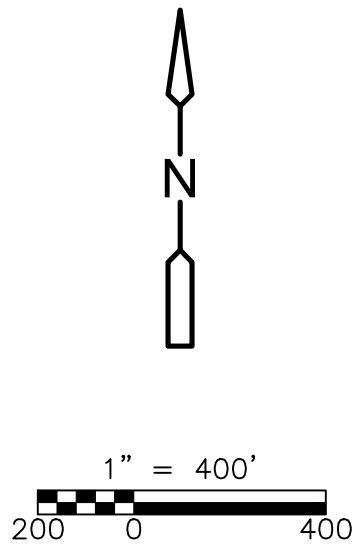
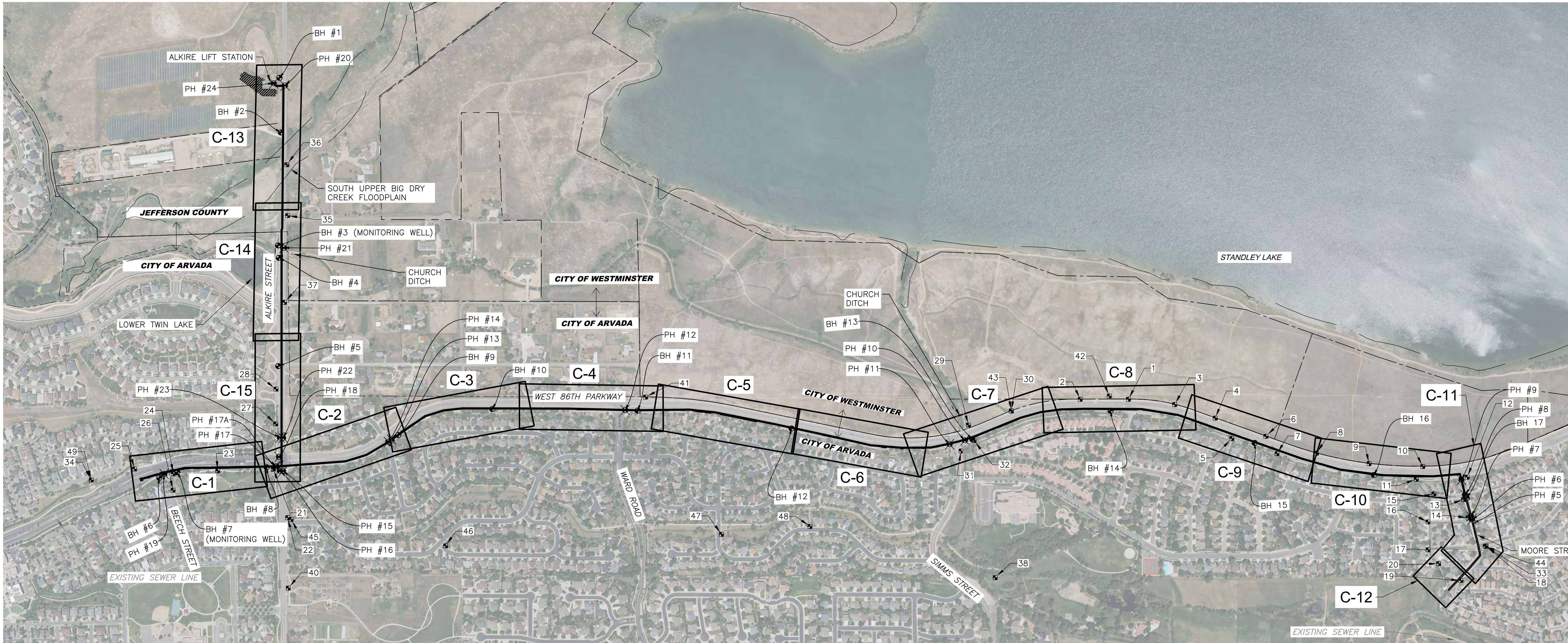
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KEY PLAN

SCALE: 1" = 400'

SURVEY CONTROL POINTS TABLE						SURVEY CONTROL POINTS TABLE					
SL.NO	POINT NO.	ELEVATION	NORTHING	EASTING	DESCRIPTION	SL.NO	POINT NO.	ELEVATION	NORTHING	EASTING	DESCRIPTION
1	9000	5607.69	736180.35	105918.67	SPU	16	9015	5556.98	735267.84	108148.30	SPU
2	9001	5605.44	736180.46	105560.04	CP	17	9016	5555.78	735060.72	108148.62	SPU
3	9002	5604.48	736141.29	106262.98	SPU	18	9017	5552.51	735089.88	108581.04	SPU
4	9003	5594.75	736040.34	106564.39	SPU	19	9018	5557.33	734833.18	108393.32	CP
5	9004	5591.31	735888.68	106688.19	CP	20	9019	5554.69	734958.36	108227.52	SPU
6	9005	5581.03	735904.95	106941.73	SPU	21	9060	5654.44	735661.38	99552.59	SPU-TRI
7	9006	5577.06	735776.30	107024.17	CP	22	9061	5655.63	735299.36	99659.52	SPU-TRI
8	9007	5567.30	735779.42	107317.80	SPU	23	9062	5654.50	735649.11	99138.54	SPU-TRI
9	9008	5556.94	735702.02	107709.93	SPU	24	9063	5660.00	735626.09	98807.89	SPU-TRI
10	9009	5553.61	735680.41	108109.45	SPU	25	9064	5663.27	735662.33	98519.47	SPU-TRI
11	9010	5555.53	735584.61	108061.52	CP	26	9065	5661.08	735504.05	98806.32	SPK-NAIL
12	9011	5549.84	735600.73	108440.96	SPU	27	9066	5653.47	735997.32	99570.51	SPU-TRI
13	9012	5554.74	735435.35	108413.67	SPU	28	9067	5631.54	736256.28	99572.43	SPU-TRI
14	9013	5554.54	735299.16	108446.00	SPU	29	9460	5603.30	735988.90	104727.40	SR-N05-PU
15	9014	5557.74	735477.23	108192.40	SPU	30	9461	5601.79	736093.49	105046.22	CP

SURVEY CONTROL POINTS TABLE						SURVEY CONTROL POINTS TABLE					
SL.NO	POINT NO.	ELEVATION	NORTHING	EASTING	DESCRIPTION	SL.NO	POINT NO.	ELEVATION	NORTHING	EASTING	DESCRIPTION
31	9462	5605.48	735795.59	104671.86	CP-40D	41	19400	5647.00	736197.06	102323.75	SPC-1.25IN-P-CP
32	9463	5605.56	735873.56	104769.78	SPU	42	19401	5612.05	736205.08	105775.94	SAC-2IN-CP-BASE
33	9482	5552.56	735087.48	108573.88	FBC-2IN-COA-BM-482	43	19461	5601.79	736093.49	105046.22	SPU-TRI
34	9874	5670.47	735579.77	98197.31	BM-874	44	19482	5552.61	735087.47	108573.85	FBC-2IN-COA-BM-482
35	19100	5576.34	737546.90	99659.09	FAC-1.5IN-ILLEG-FLUSH	45	19533	5656.73	735287.11	99684.38	FMON-CHS-SQ-COA-BM-533
36	19101	5553.74	737925.90	99652.77	FR-N04-0.25'-ABOVE-FG	46	19534	5649.01	735090.57	100835.65	FMON-CHS-SQ-COA-BM-534
37	19102	5591.00	736901.92	99636.86	FPC-1.25IN-Y-"JEHN-ENG-LS-36561"-IN-RNG-BOZ-0.2'-BELOW-FG	47	19539	5614.21	735176.04	102889.03	FMON-CHS-SQ-COA-BM-539
38	19201	5590.31	734853.83	104926.29	FBC-3.25IN-SET-1986-LS-5447-IN-CONC-FLUS	48	19540	5601.90	735234.57	103547.78	FMON-CHS-SQ-COA-BM-540
39	19202	5533.93	740160.52	99628.99	FAC-2.5IN-ILLEG-IN-RNG-BOX-NO-LID-0.6'-BELOW-ASPH-PAVED-OVER	49	19874	5670.50	735579.79	98197.40	FBC-2.5IN-COA-BM-874-CHECK
40	19203	5685.55	734775.50	99663.85	FAC-2.5IN-SET-1996-PE-LS-9748-0.4'-BELOW-GRADE-LEANING-NE-SHOT-CAP						

REV. NO.	DATE	DRWN	CHKD	REMARKS	

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

KEY PLAN I

APPROVED: [Signature]
City Engineer Date: 3/12/25 NTL 2/3
Job Number

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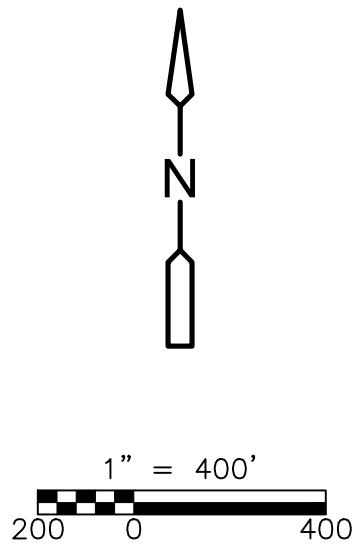
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FILE NAME: G004NFNT.DWG

SHEET NO.

G-4

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PREDICTED PEAK FLOW			
DIAMETER (INCH)	MAINTENANCE HOLE	EXISTING AVERAGE DWF (GPM)	EXISTING PEAK WWF (GPM) (SEE NOTE)
8	MH-9107	5	22
21	MH-7843	96	217
8	MH-5733	1.6	7.3
8	MH-5824	2.1	7.2
8	MH-5825	2.4	8.2
8	MH-5815	13.4	45.8
8	MH-12434	1.1	3.9
21	MH-5820	966	2290
-	ALKIRE LIFT STATION	325	1370

NOTE: EXISTING PEAK WWF ASSUMED AS THE 5-YEAR WWF STORM.

KEY PLAN

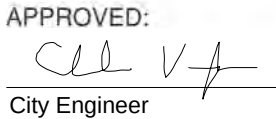
SCALE: 1" = 400'

					DESIGNED BY: T. WEIDER
					DRAWN BY: V. GANJI
					SHEET CHK'D BY: D. NELSON
					CROSS CHK'D BY: B. HALL
					APPROVED BY: D. NELSON
REV. NO.	DATE	DRWN	CHKD	REMARKS	DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

KEY PLAN II

APPROVED:  3/12/25 NTL 2/3
City Engineer Date Job Number

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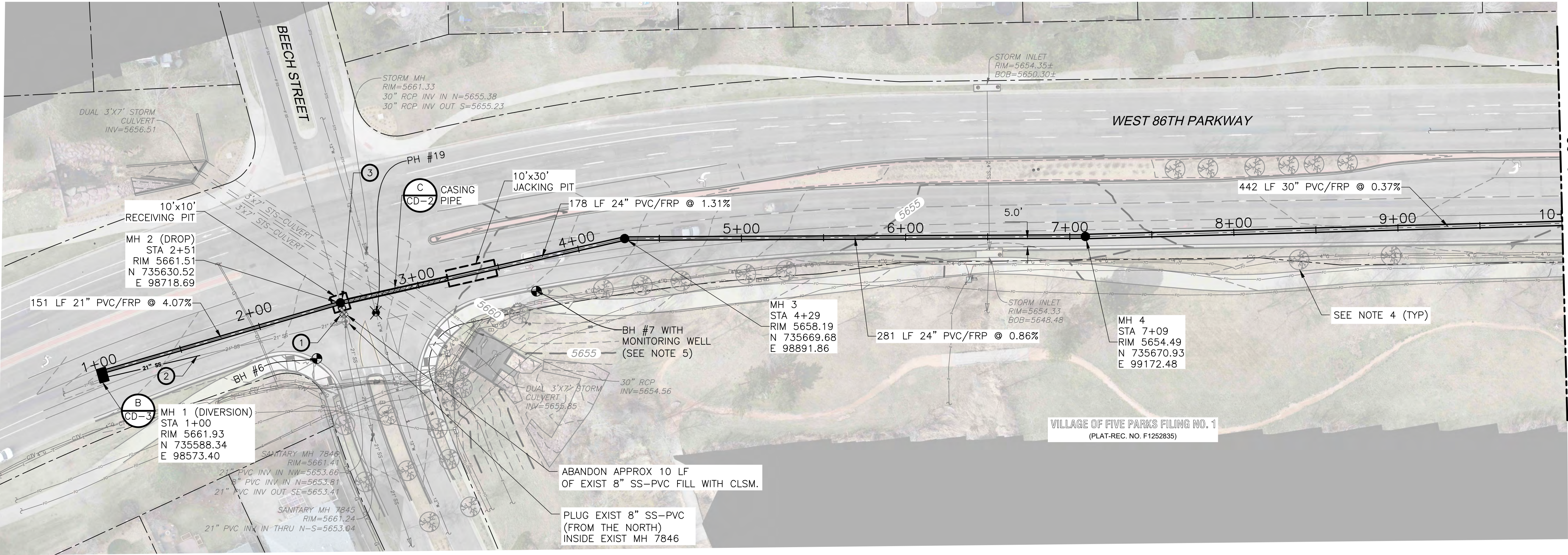
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FILE NAME: G005NFNT.DWG

SHEET NO.

G-5

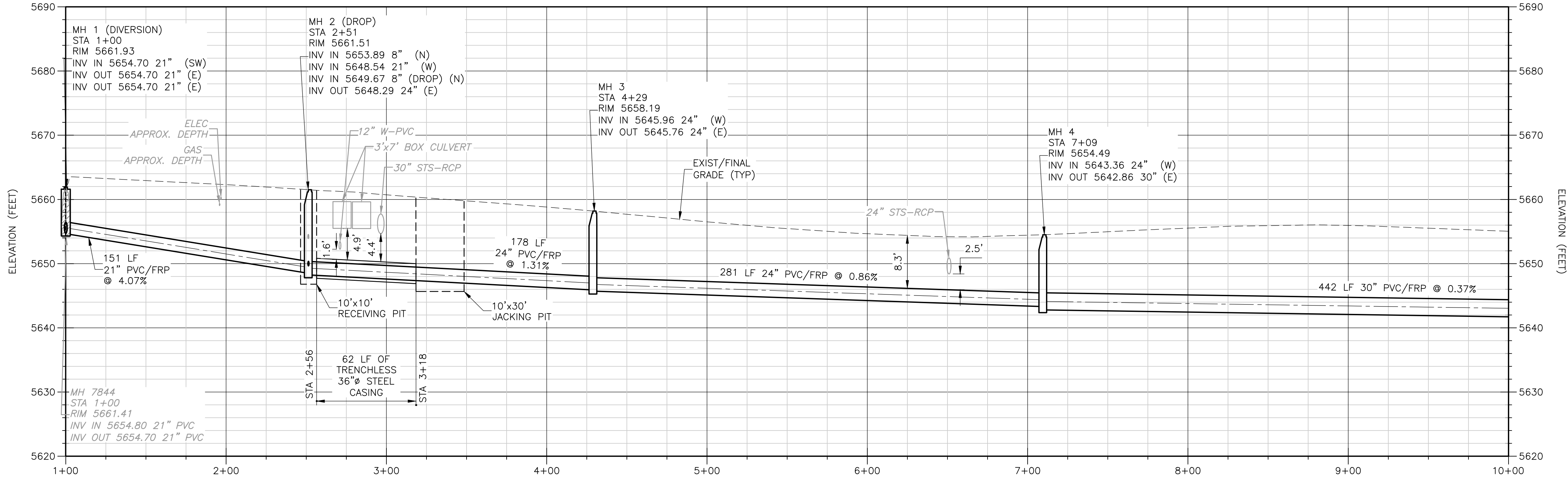
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PLAN

1" = 40'



PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

NOTES:

- SHAFT LOCATIONS ARE SHOWN FOR PLANNING PURPOSES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE FINAL SIZE AND LOCATION OF SHAFTS WITHIN THE WORK AREA SHOWN TO FACILITATE THEIR MEANS AND METHODS.
- CONTRACTOR TO PROVIDE A MONITORED EXCAVATION SUPPORT SYSTEM DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO FOR ALL TRENCHLESS INSTALLATION SEGMENTS. TRENCH BOXES ARE NOT TO BE USED FOR LAUNCHING SHAFTS.
- BASELINE VALUES REPRESENTING A CONTRACTUAL DEFINITION OF WHAT GROUND CONDITIONS ARE ASSUMED TO BE ENCOUNTERED WITH RESPECT TO THE TRENCHLESS SEGMENT ARE PROVIDED IN THE AUGER BORING SPECIFICATION 330507.21.
- CONTRACTOR TO HIRE ARBORIST TO PROTECT TREES DURING CONSTRUCTION WHERE TREE CANOPY OVERHANGS ALIGNMENT.
- MONITORING WELL INSTALLED FOR CONTRACTOR. CONTRACTOR SHALL ABANDON AND RESTORE SURFACE UPON COMPLETION OF WORK. GEOTECHNICAL REPORT INCLUDED WITH SPECIFICATION MANUAL FOR BIDDING PURPOSES.
- COORDINATE BY-PASS PUMP AND ROUTING WITH APPROPRIATE MUNICIPALITIES AND LANDOWNERS SEE SHEET G-5 FOR BASELINE BYPASS VALUES.
- INSTALL CATHODIC PROTECTION ON CASING PER DETAILS AND COA SPECIFICATION 420.19. CONTRACTOR SHALL INSTALL TEST STATIONS IN PROTECTED AREA OUTSIDE ROADWAY AND BEHIND SIDEWALK. COORDINATE TEST STATION LOCATION WITH OWNER OR FIELD REPRESENTATIVE.

BUILD NOTES:

- PERFORM SANITARY SEWER MAIN AND MH ABANDONMENT PER COA SPECIFICATION 532.07.
- REMOVE AND REPLACE EXIST 21" PVC A MIN. OF 60 LF ON SAME ALIGNMENT AND GRADE AS NECESSARY TO FACILITATE PARALLEL PIPE INSTALLATION.
- LINE DROP MH PER CITY OF ARVADA STANDARDS AND SPECIFICATIONS SECTION 514.06.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
GRAVITY PLAN AND PROFILE
STA 1+00 TO STA 10+00

APPROVED:
City Engineer Date: 3/12/25 NTL 2/3
Job Number

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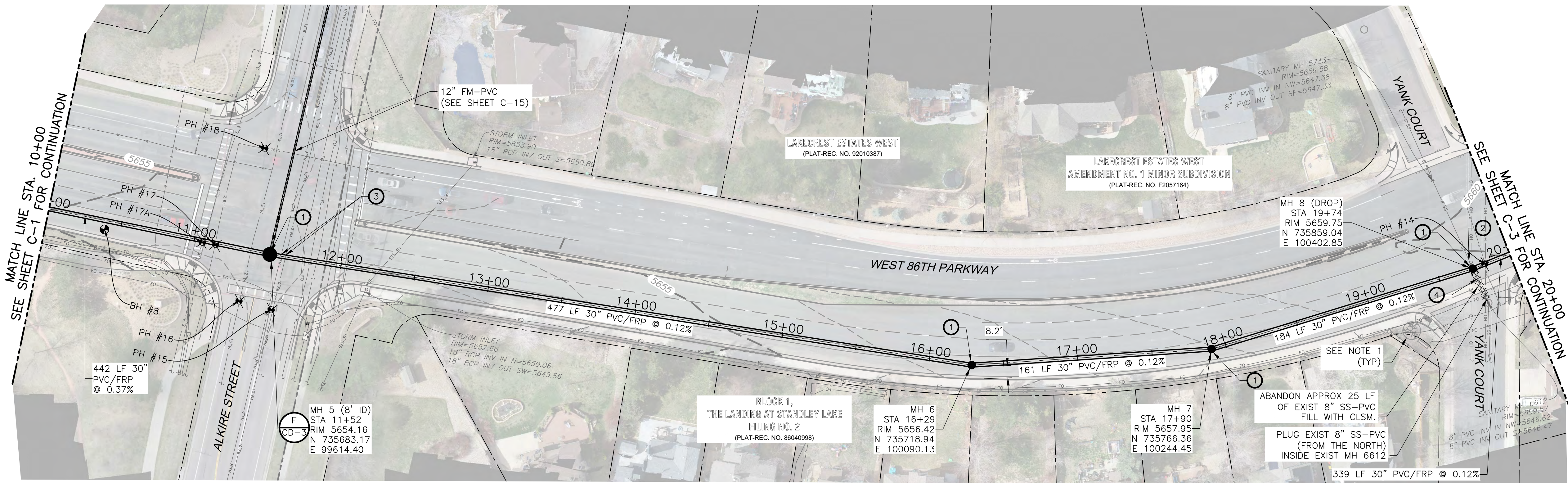
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FILE NAME: C001SSPP.DWG

SHEET NO.

C-1

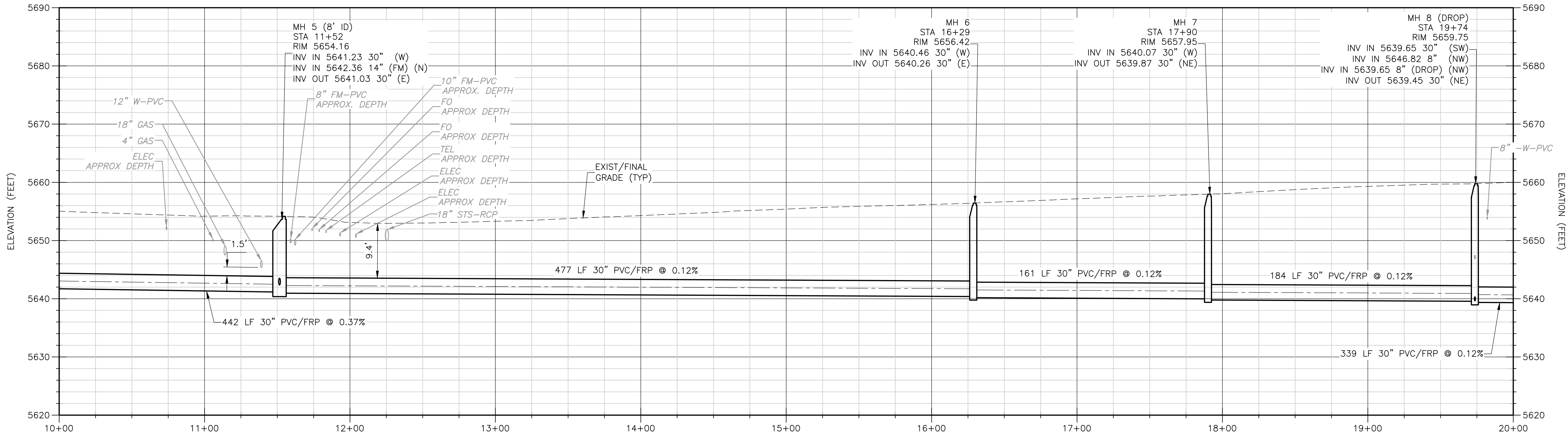
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PLAN

1" = 40'



PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

NOTES:

- CONTRACTOR TO HIRE ARBORIST TO PROTECT TREES DURING CONSTRUCTION WHERE TREE CANOPY OVERHANGS ALIGNMENT.
- COORDINATE BYPASS PUMP AND ROUTING WITH APPROPRIATE MUNICIPALITIES AND LANDOWNERS. SEE SHEET G-5 FOR BASELINE BYPASS VALUES.

BUILD NOTES:

- LINE MH PER CITY OF ARVADA CORROSION PROTECTION STANDARDS AND SPECIFICATIONS SECTION 550.06.
- CONTRACTOR TO REMOVE AND REPLACE SEWER CONNECTION A MINIMUM OF 10 LF WITH SAME SIZE AND MATERIAL OF THE EXISTING CONNECTION. INCLUDE DROP CONNECTION MATERIALS WHERE NEEDED.
- CONTRACTOR TO OBTAIN SURVEY LOCATIONS OF FORCE MAIN CROSSINGS FOR RECORD DRAWINGS.
- PERFORM SANITARY SEWER MAIN AND MH ABANDONMENT PER COA SPECIFICATION 532.07.



APPROVED:

City Engineer *CEL V-J* 3/12/25 NTL 2/3
Date Job Number

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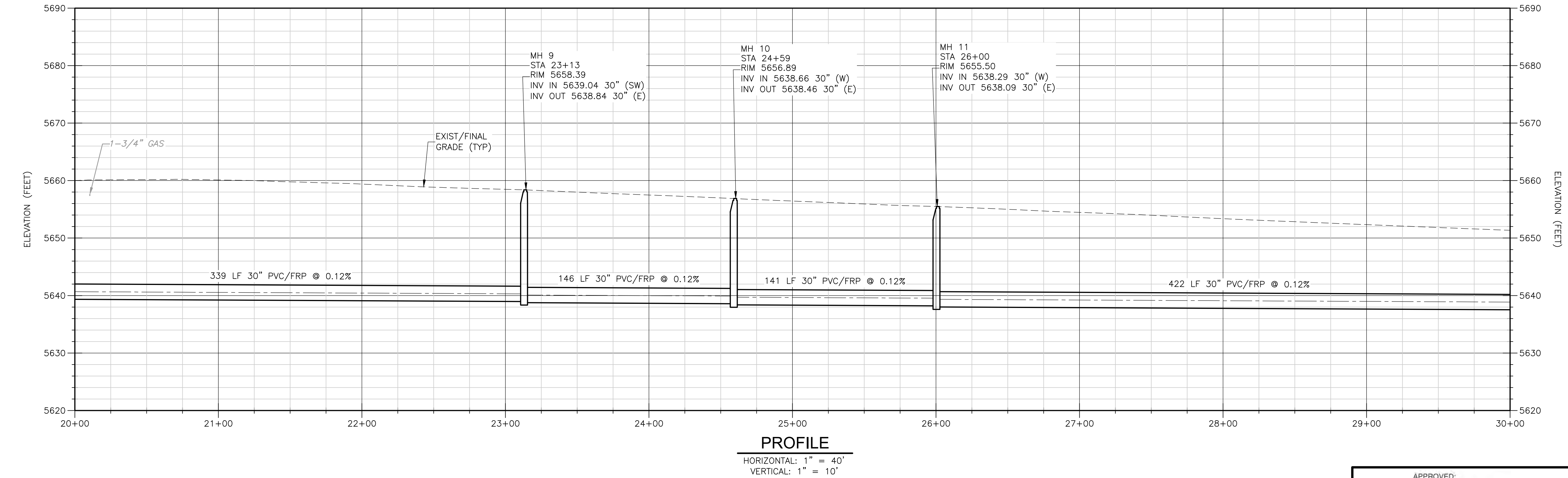
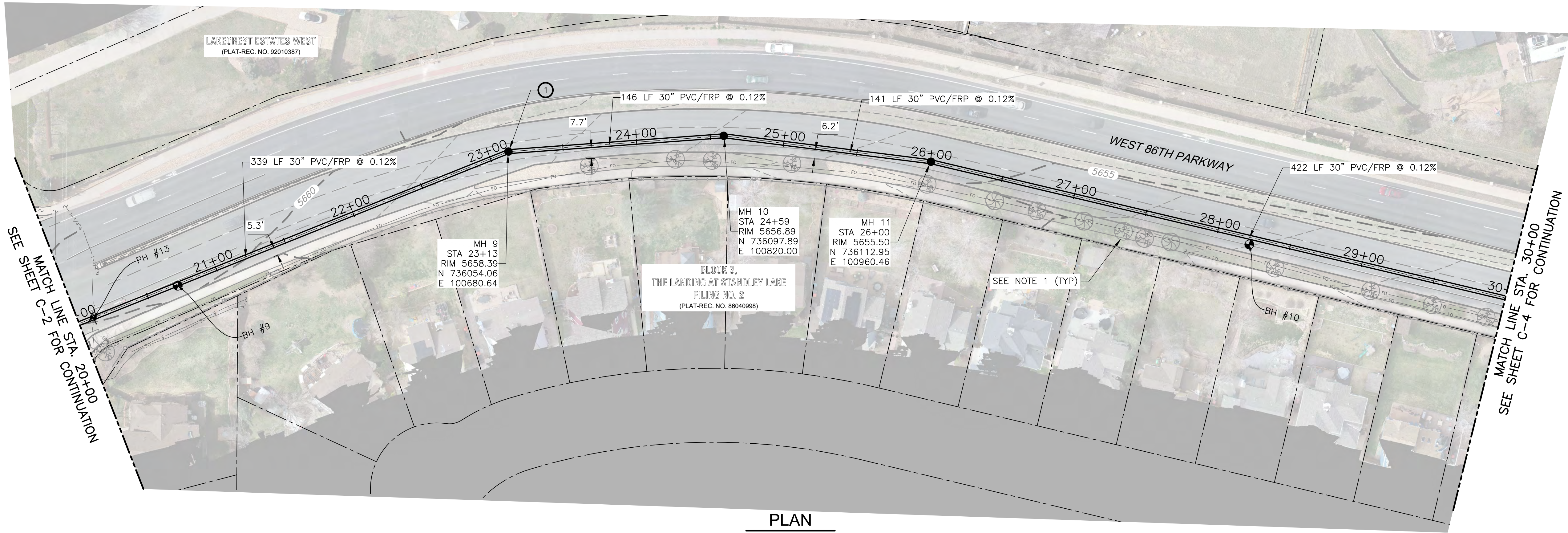
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SHEET NO.

C-2

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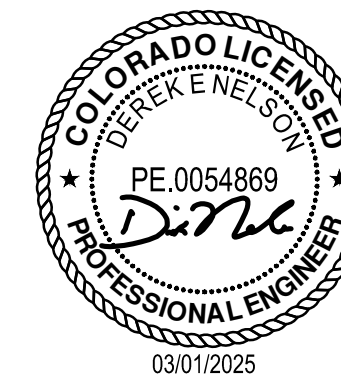
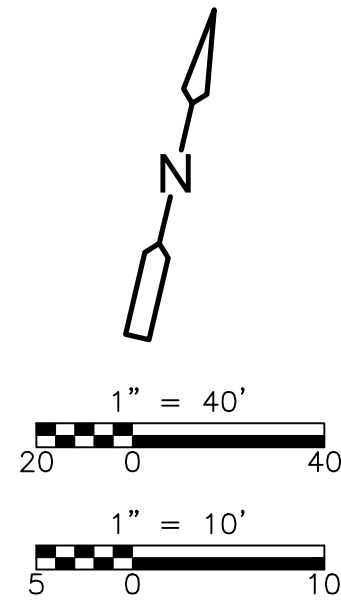


NOTES:

- CONTRACTOR TO HIRE ARBORIST TO PROTECT TREES DURING CONSTRUCTION WHERE TREE CANOPY OVERHANGS ALIGNMENT.

BUILD NOTES:

- LINE MH PER CITY OF ARVADA CORROSION PROTECTION STANDARDS AND SPECIFICATIONS SECTION 550.06.



APPROVED: *[Signature]* 3/12/25 NTL 2/3
City Engineer Date Job Number

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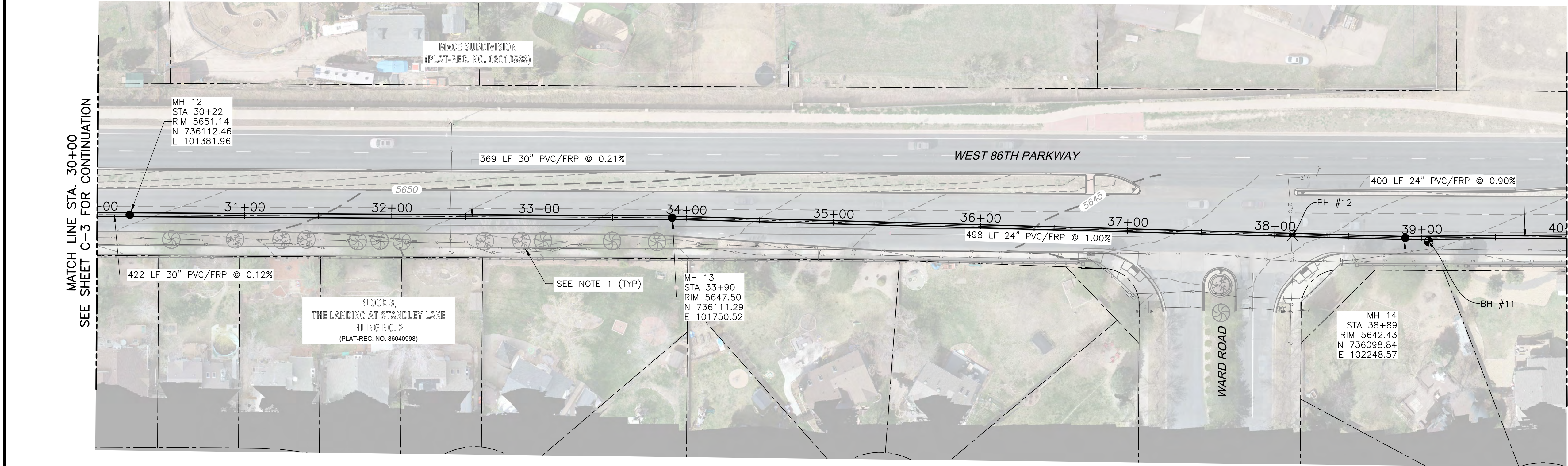
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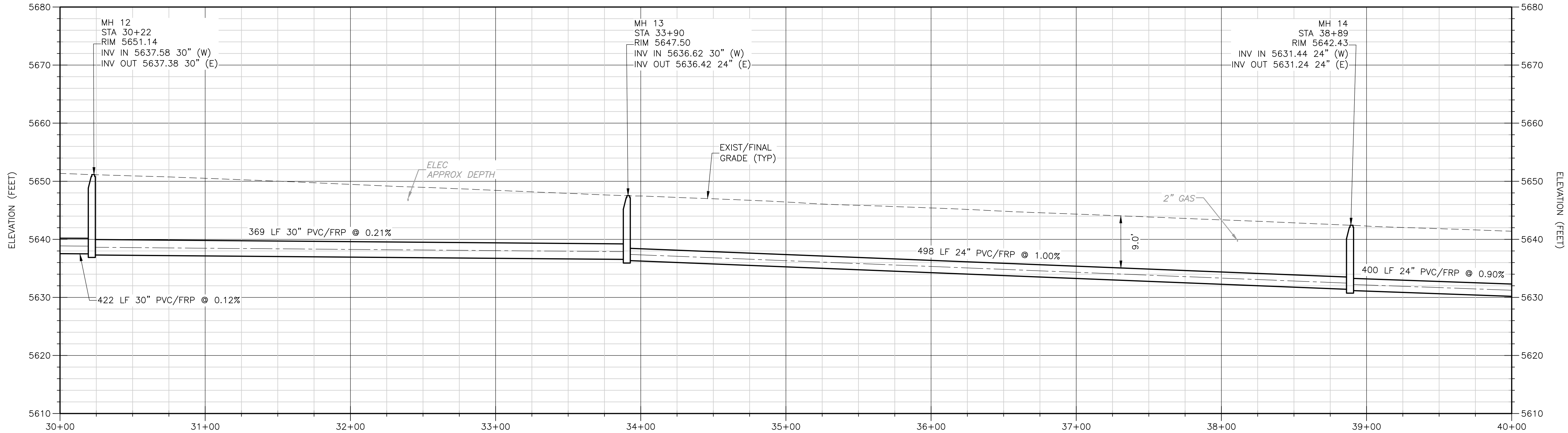
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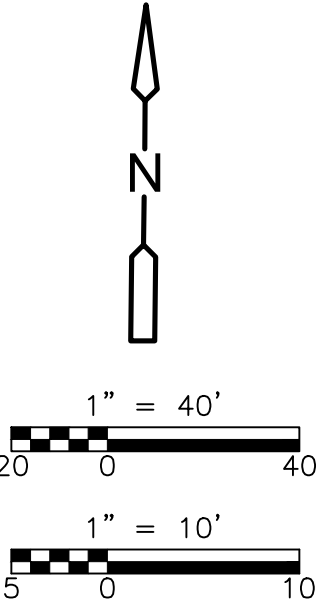
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PLAN
1" = 40'



PROFILE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'



- NOTES:
- CONTRACTOR TO HIRE ARBORIST TO PROTECT TREES DURING CONSTRUCTION WHERE TREE CANOPY OVERHANGS ALIGNMENT.

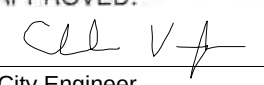
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
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APPROVED BY: D. NELSON
DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

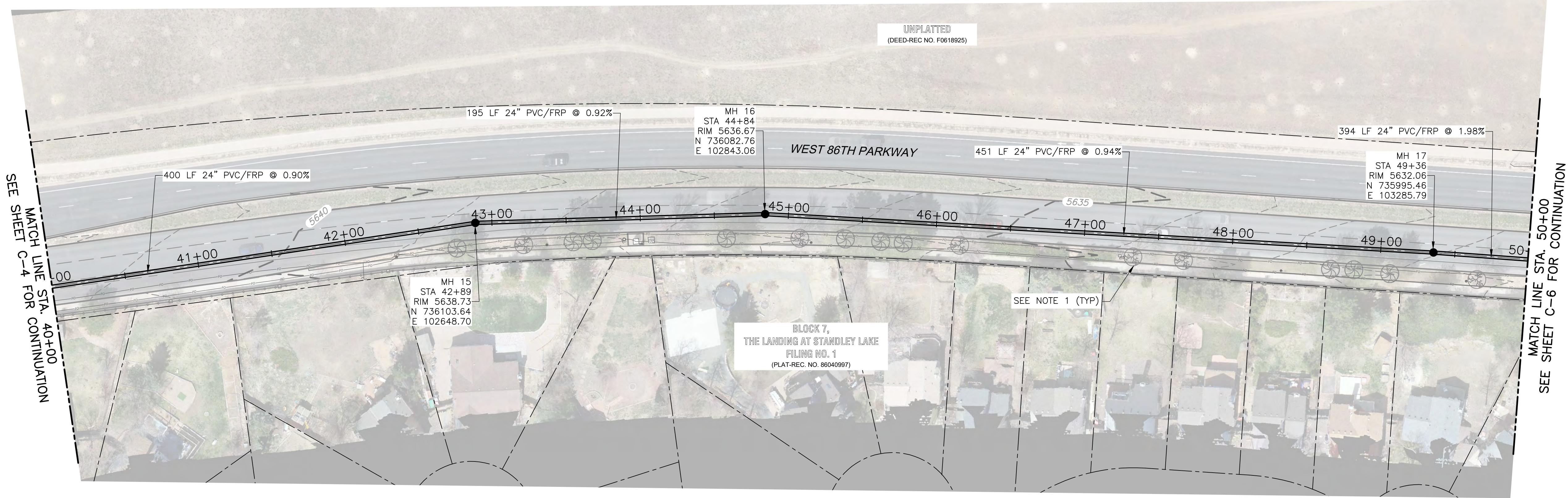
WEST 86TH PARKWAY
GRAVITY PLAN AND PROFILE
STA 30+00 TO STA 40+00

APPROVED: 
City Engineer
3/12/25 Date
NTL 2/3 Job Number
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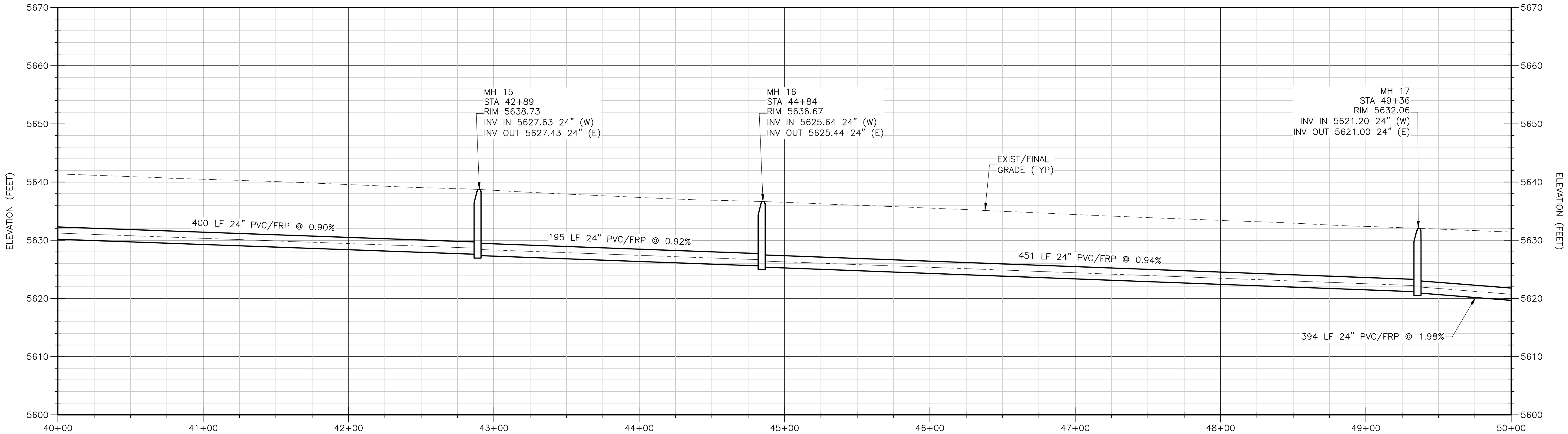
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SHEET NO.
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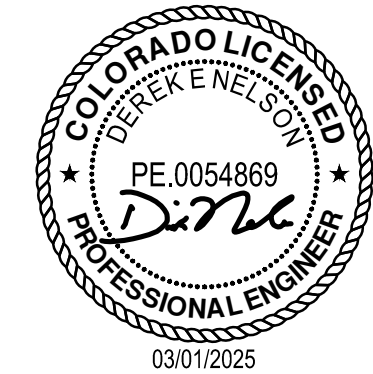
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CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
GRAVITY PLAN AND PROFILE
STA 40+00 TO STA 50+00

APPROVED: *[Signature]* 3/12/25 NTL 2/3
City Engineer Date Job Number

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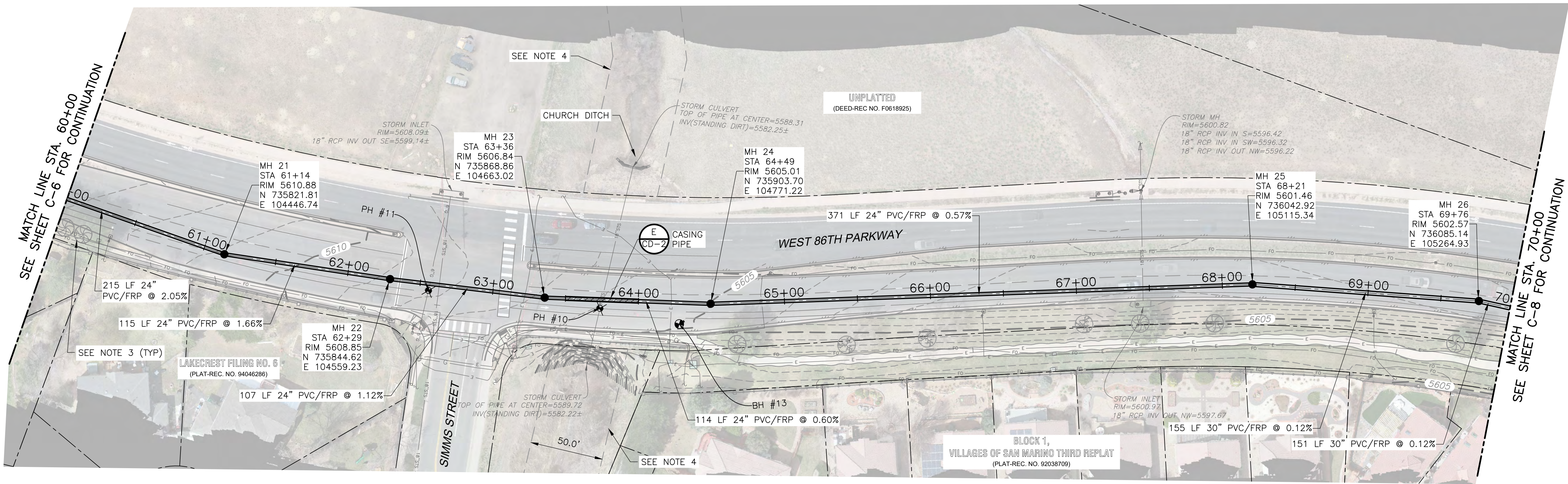
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C-5

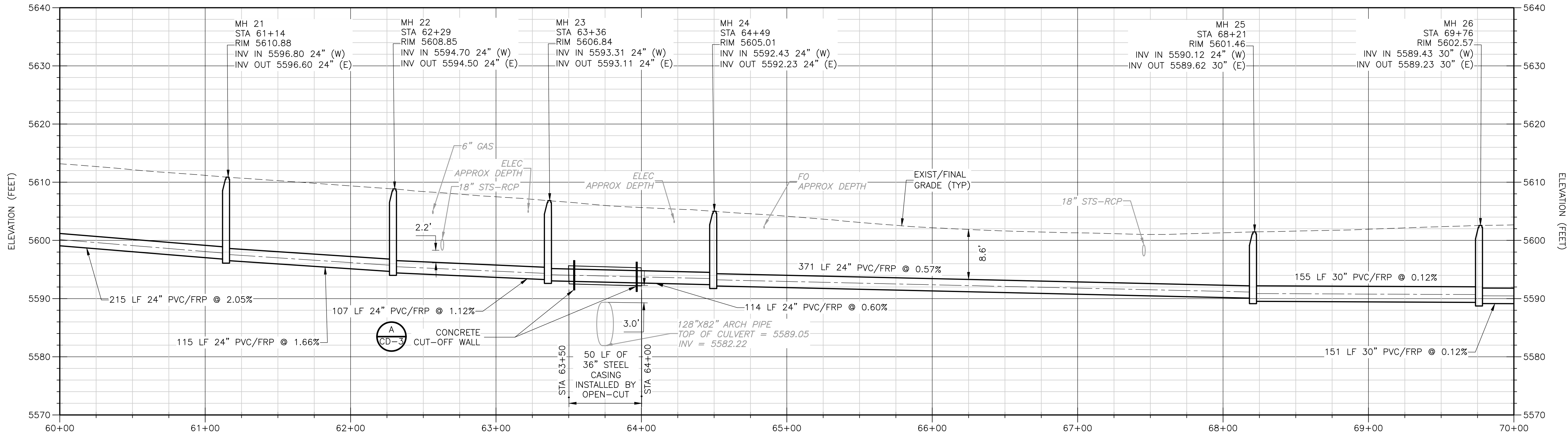
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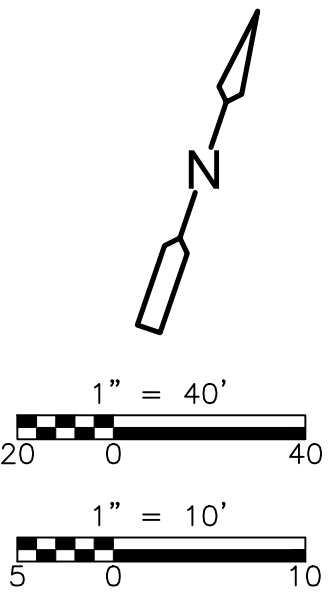
PLAN

1" = 40'



PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'



NOTES:

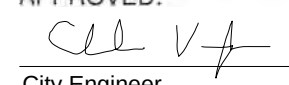
- CONTRACTOR SHALL VERIFY TOP ELEVATION OF CULVERT AT CHURCH DITCH PRIOR TO CONSTRUCTION.
- REFER TO SHEET G-3 FOR CHURCH DITCH GENERAL NOTES.
- CONTRACTOR TO HIRE ARBORIST TO PROTECT TREES DURING CONSTRUCTION WHERE TREE CANOPY OVERHANGS ALIGNMENT.
- 50-FOOT PRESCRIPTIVE EASEMENT ESTABLISHED BY CHURCH DITCH.
- INSTALL CATHODIC PROTECTION ON CASING PER DETAILS AND COA SPECIFICATION 420.19. CONTRACTOR SHALL INSTALL TEST STATIONS IN PROTECTED AREA OUTSIDE ROADWAY AND BEHIND SIDEWALK. COORDINATE TEST STATION LOCATION WITH OWNER OR FIELD REPRESENTATIVE.



PROJECT NO. 263334-295058
FILE NAME: C007SSPP.DWG

SHEET NO.

C-7

APPROVED: 
City Engineer
3/12/25 Date
NTL 2/3 Job Number

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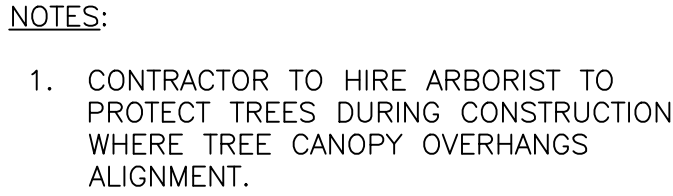
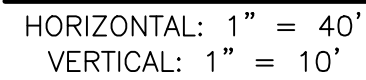


555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

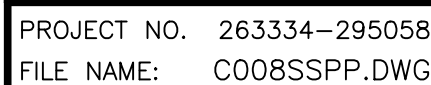
WEST 86TH PARKWAY
GRAVITY PLAN AND PROFILE
STA 60+00 TO STA 70+00

ISSUED FOR BID - NOT FOR CONSTRUCTION


$$1'' = 40'$$


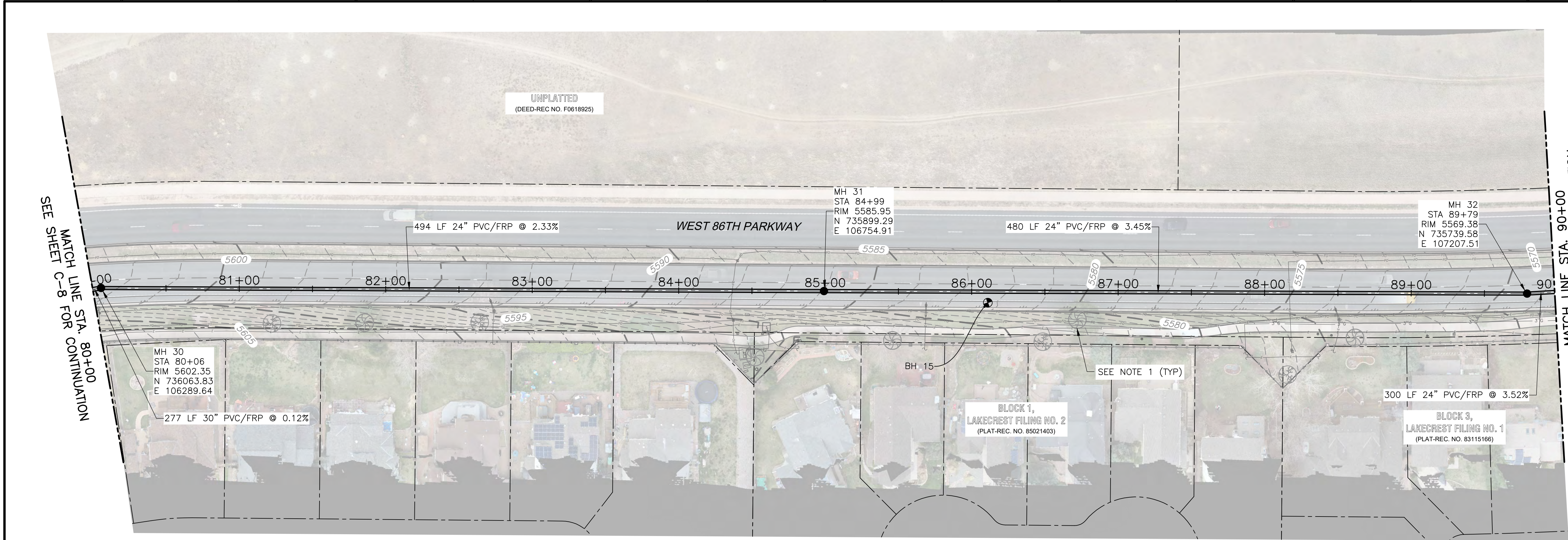
WEST 86TH PARKWAY
GRAVITY PLAN AND PROFILE
STA 70+00 TO STA 80+00

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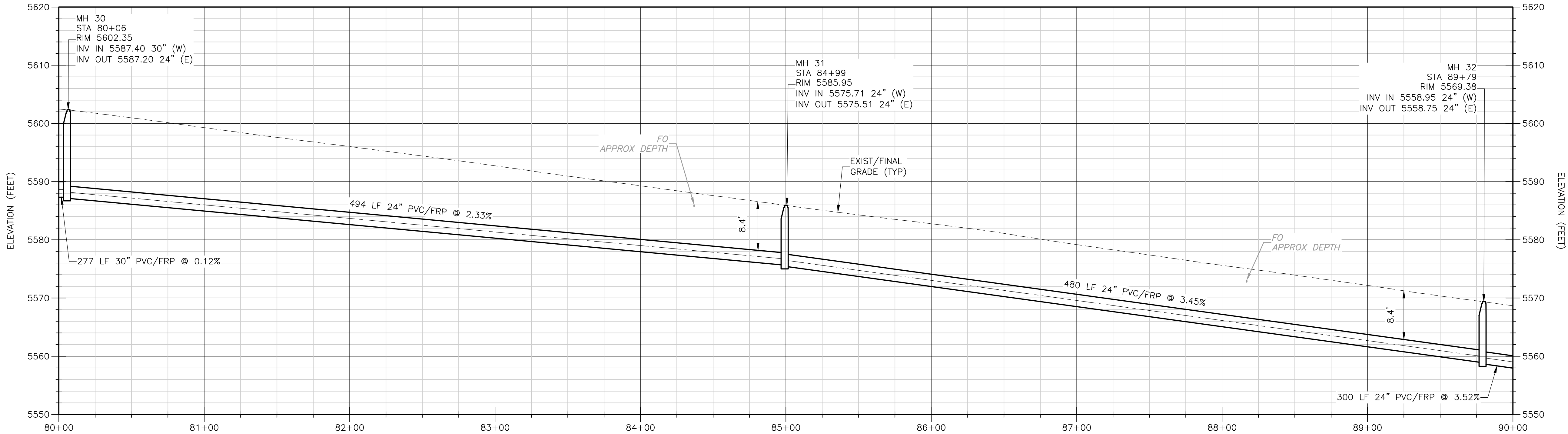
C-8

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PLAN

1" = 40'



PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025

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555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
GRAVITY PLAN AND PROFILE
STA 80+00 TO STA 90+00

APPROVED: *[Signature]* 3/12/25 NTL 2/3
City Engineer Date Job Number

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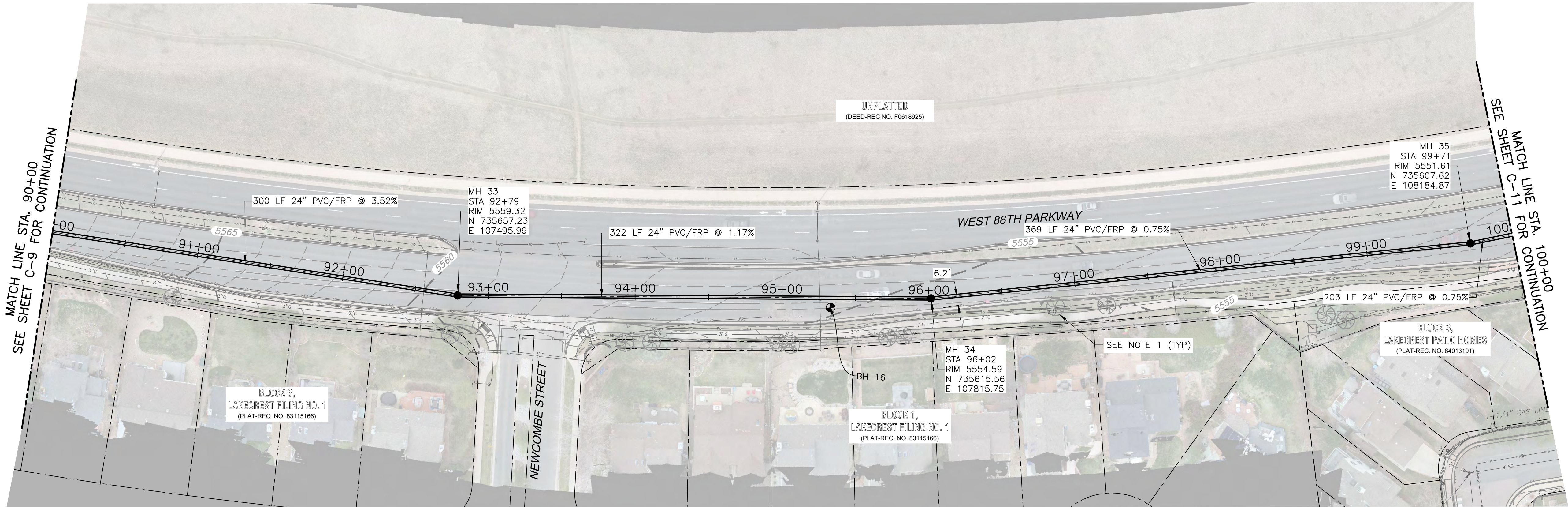
PROJECT NO. 263334-295058
FILE NAME: C009SSPP.DWG

SHEET NO.

C-9

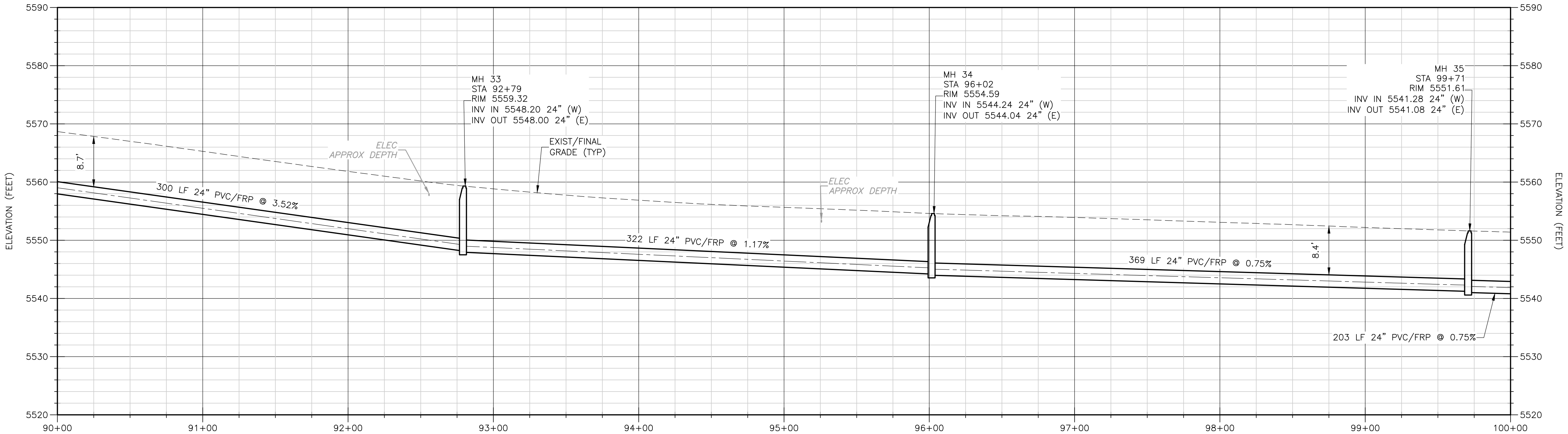
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PLAN

1" = 40'



PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

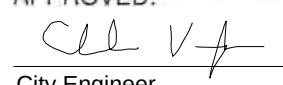
DESIGNED BY:	T. WEIDER
DRAWN BY:	V. GANJI
SHEET CHK'D BY:	D. NELSON
CROSS CHK'D BY:	B. HALL
APPROVED BY:	D. NELSON
DATE:	MARCH 2025

REV. NO.	DATE	DRWN	CHKD	REMARKS



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
GRAVITY PLAN AND PROFILE
STA 90+00 TO STA 100+00

APPROVED: 
City Engineer Date 3/12/25 NTL 2/3
Job Number

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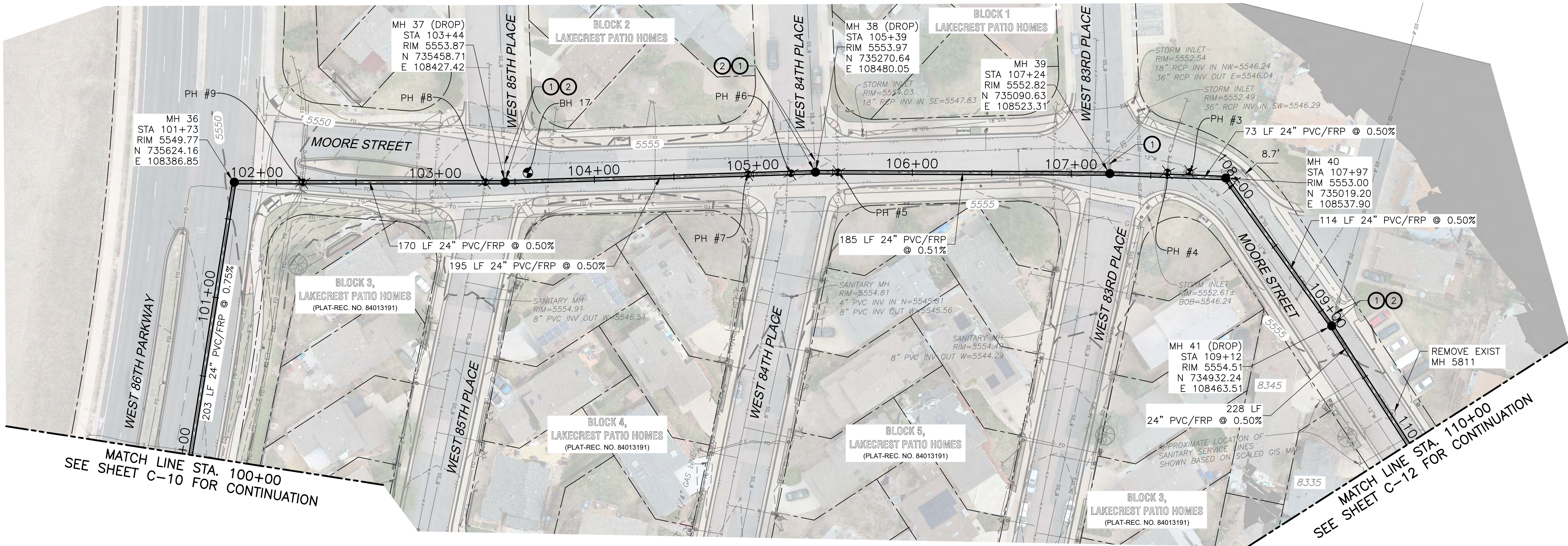
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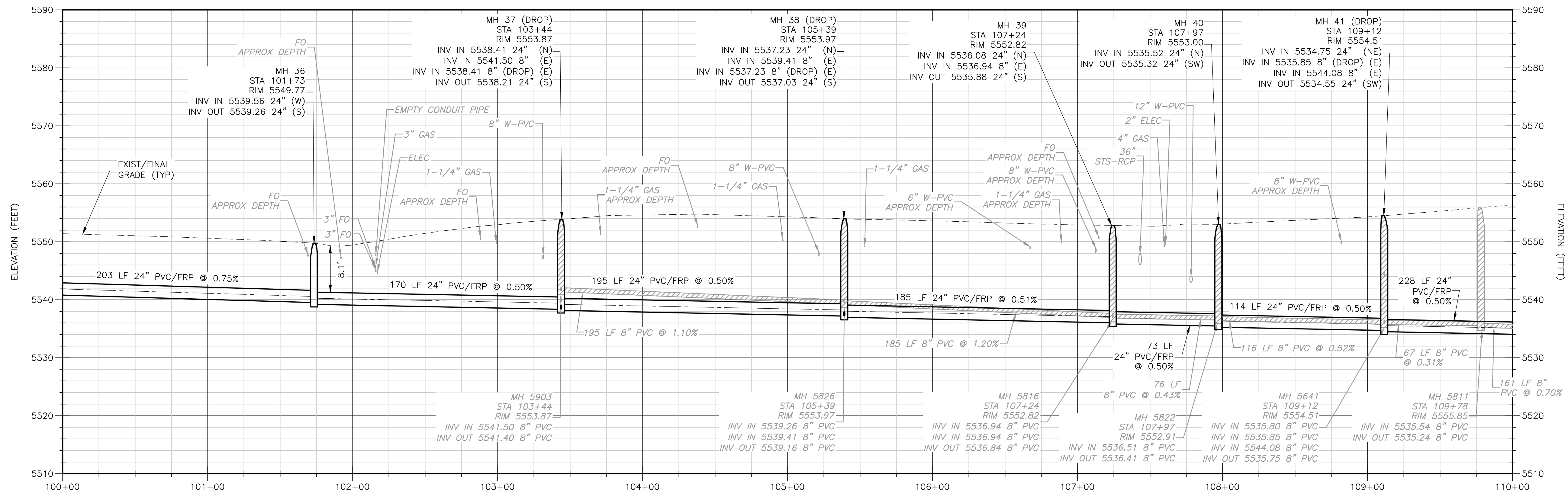
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PLAN
1" = 40'



PROFILE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

- NOTES:
- KNOWN SEWER SERVICES SHOWN IN TABLE THIS SHEET. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. CONTRACTOR SHALL MAINTAIN SEWER SERVICE DURING CONSTRUCTION. LOCATION OF SERVICE LATERAL IS TO BE NOTED ON RECORD DRAWINGS. CONTRACTOR TO RECONNECT SERVICES.
 - CURB, GUTTER, AND MEDIAN TO BE REMOVED TO THE NEAREST JOINT PER CITY STANDARDS IF DAMAGED.
 - CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS AND UTILITY OWNERS IN WRITING 72 HOURS PRIOR TO ANY CONSTRUCTION OR SHUT-OFF OF SERVICE.
 - COORDINATE BY-PASS PUMP AND ROUTING WITH APPROPRIATE MUNICIPALITIES AND LANDOWNERS. SEE SHEET G-5 FOR BASELINE BYPASS VALUES.

- BUILD NOTES:
- CONTRACTOR TO REMOVE AND REPLACE SEWER CONNECTION A MINIMUM OF 10 LF WITH SAME SIZE AND MATERIAL OF THE EXISTING CONNECTION. INCLUDE DROP CONNECTION MATERIALS WHERE NEEDED.
 - LINE DROP MH PER CITY OF ARVADA STANDARDS AND SPECIFICATIONS SECTION 514.06.

SEWER SERVICES
ADDRESS
8335 MOORE ST
8345 MOORE ST



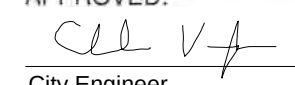
DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJIV
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025

REV. NO.	DATE	DRWN	CHKD	REMARKS



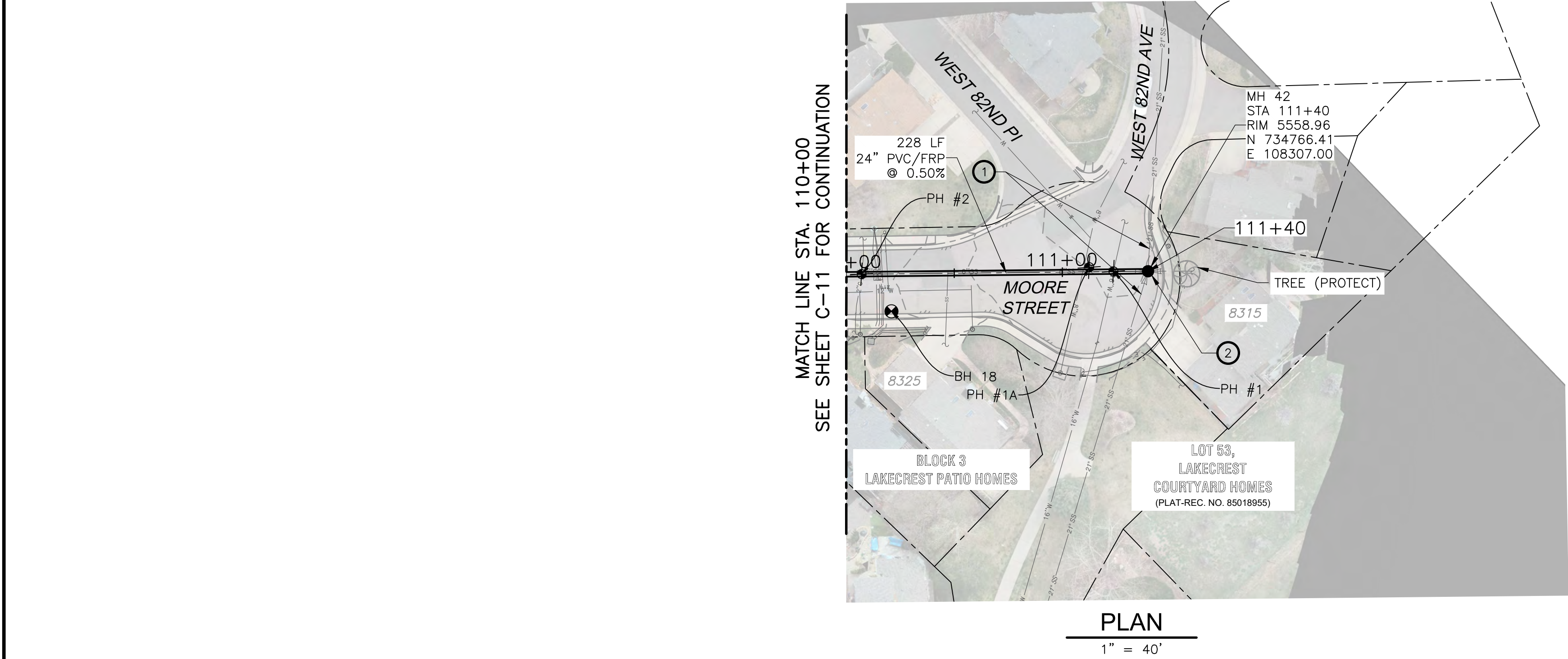
CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY AND MOORE STREET
GRAVITY PLAN AND PROFILE
STA 100+00 TO STA 110+00

APPROVED: 
City Engineer
3/12/25 Date
NTL 2/3 Job Number
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PROJECT NO. 263334-295058
FILE NAME: C011SSPP.DWG
SHEET NO.
C-11

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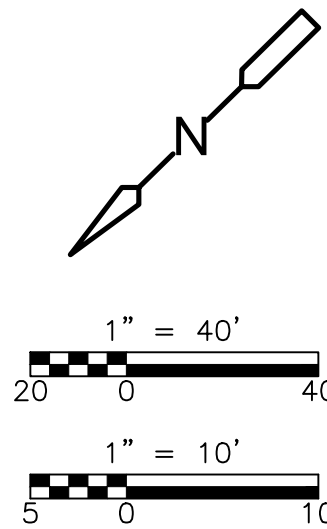


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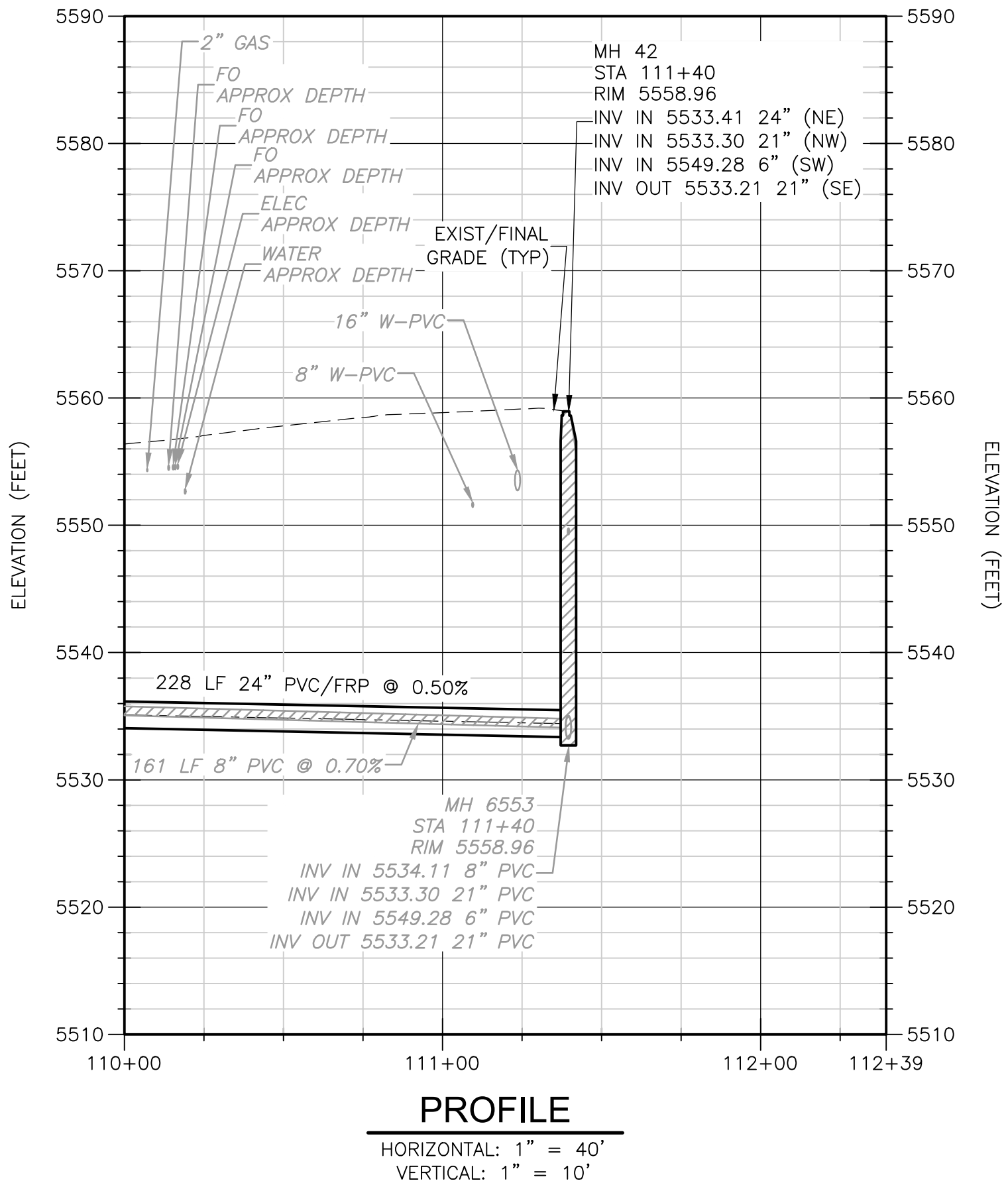
1. KNOWN SEWER SERVICES SHOWN IN TABLE THIS SHEET. CONTRACTOR TO VERIFY SEWER SERVICES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL MAINTAIN SEWER SERVICE DURING CONSTRUCTION. LOCATION OF SERVICE LATERAL IS TO BE NOTED ON RECORD DRAWINGS.
2. CONTRACTOR SHALL PROVIDE ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES/ UTILITIES AND HOMEOWNER PROPERTY IN ACCORDANCE WITH DIV 31, 23, & 33. SPECIFICATIONS.
3. CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS IN WRITING 72 HOURS PRIOR TO ANY CONSTRUCTION OR SHUT-OFF OF SERVICE.
4. CONTRACTOR TO PROVIDE A MONITORED EXCAVATION SUPPORT SYSTEM DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO FOR MAINTENANCE HOLE 42 INSTALLATION.
5. CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE TREE ADJACENT TO MH 42 FROM PERMANENT DAMAGE PER COA STANDARDS AND SPECIFICATIONS AND ARBORIST RECOMMENDATIONS.
6. COORDINATE BYPASS PUMP AND ROUTING WITH APPROPRIATE MUNICIPALITIES AND LANDOWNERS. SEE SHEET G-5 FOR BASELINE BYPASS VALUES.

BUILD NOTES:

- ① CONTRACTOR TO REMOVE AND REPLACE SEWER CONNECTION A MINIMUM OF 10 LF WITH SAME SIZE AND MATERIAL OF THE EXISTING CONNECTION. INCLUDE DROP CONNECTION MATERIALS WHERE NEEDED.
- ② LINE DROP MH PER CITY OF ARVADA STANDARDS AND SPECIFICATIONS SECTION 514.06.



SEWER SERVICES
ADDRESS
8325 MOORE ST
8315 MOORE ST



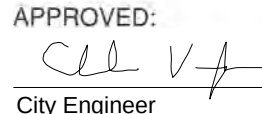
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

MOORE STREET
GRAVITY PLAN AND PROFILE
STA 110+00 TO STA 111+40

APPROVED: 
City Engineer Date 3/12/25 Job Number NTL 2/3

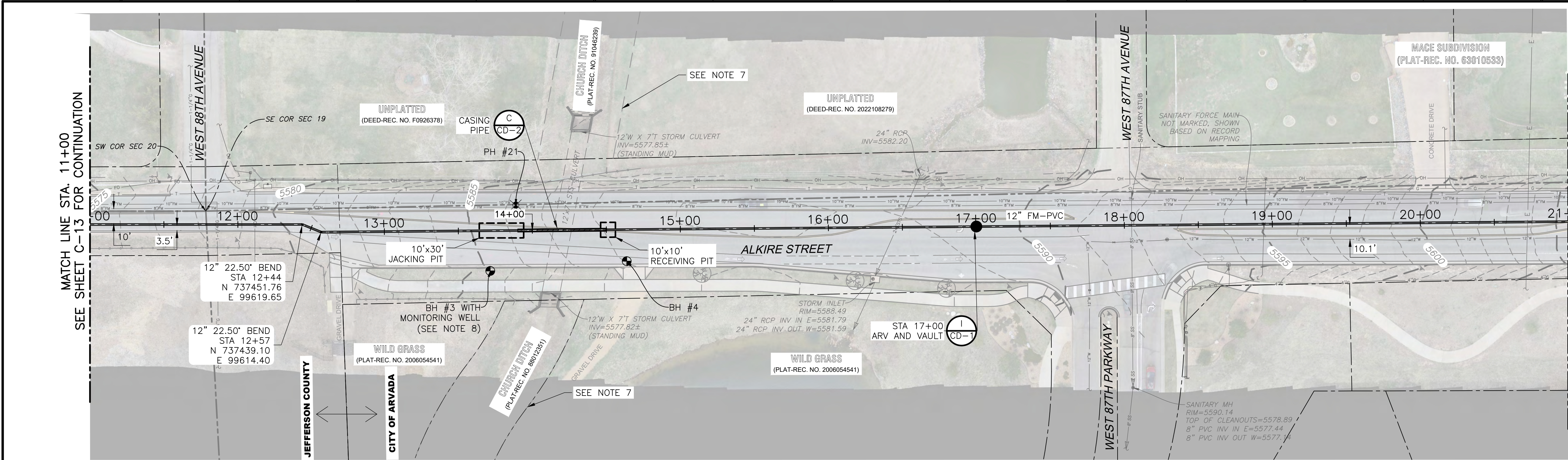
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PROJECT NO. 263334-295058
FILE NAME: C012SSPP.DWG

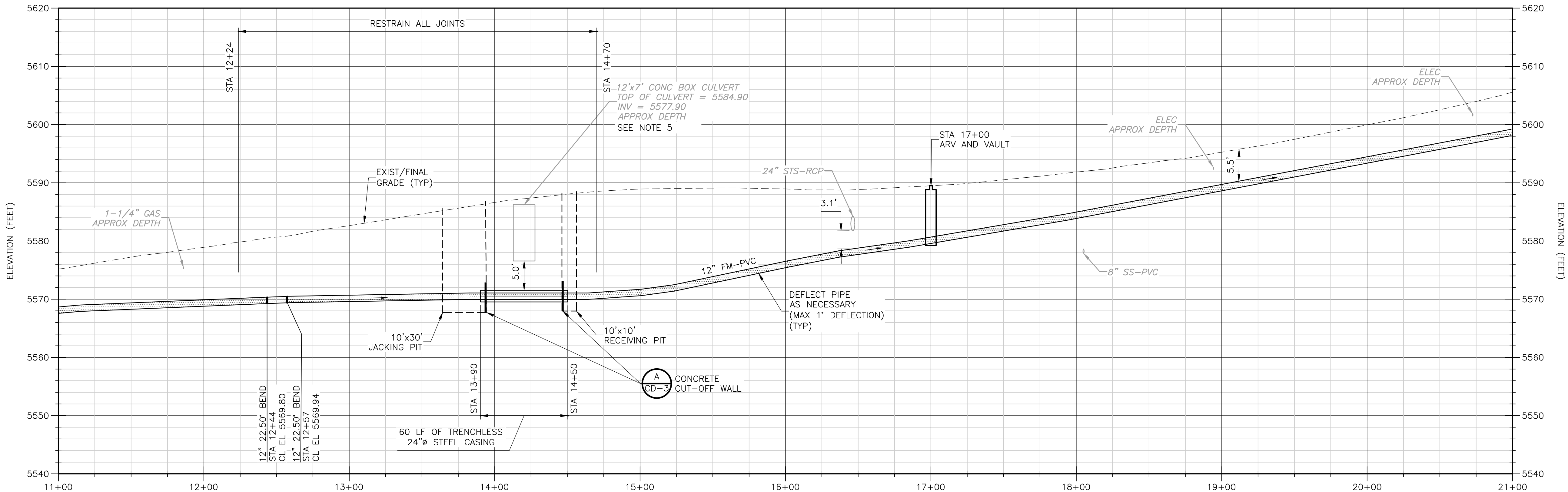
SHEET NO.
C-12

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PLAN

1" = 40'



PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

NOTES:

- CONTRACTOR TO VERIFY LOCATION OF 8" AND 10" FORCE MAINS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL OBTAIN SURVEYED COORDINATE INFORMATION OF FORCE MAINS WHILE EXPOSED FOR RECORD DRAWINGS.
- SHAFT LOCATIONS ARE SHOWN FOR PLANNING PURPOSES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE FINAL SIZE AND LOCATION OF SHAFTS WITHIN THE WORK AREA SHOWN TO FACILITATE THEIR MEANS AND METHODS.
- CONTRACTOR TO PROVIDE A MONITORED EXCAVATION SUPPORT SYSTEM DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO FOR ALL TRENCHLESS INSTALLATION SEGMENTS. TRENCH BOXES ARE NOT TO BE USED FOR LAUNCHING SHAFTS.
- BASELINE VALUES REPRESENTING A CONTRACTUAL DEFINITION OF WHAT GROUND CONDITIONS ARE ASSUMED TO BE ENCOUNTERED WITH RESPECT TO THE TRENCHLESS SEGMENT ARE PROVIDED IN THE AUGER BORING SPECIFICATION 330507.21.
- CONTRACTOR SHALL VERIFY INVERT OF CULVERT PRIOR TO CONSTRUCTION.
- SEE CHURCH DITCH GENERAL NOTES SHEET G-3.
- 50-FOOT PRESCRIPTIVE EASEMENT ESTABLISHED BY CHURCH DITCH.
- MONITORING WELL INSTALLED FOR CONTRACTOR. CONTRACTOR SHALL ABANDON AND RESTORE UPON COMPLETION OF WORK. GEOTECHNICAL REPORT INCLUDED WITH SPECIFICATION MANUAL FOR BIDDING PURPOSES.
- INSTALL CATHODIC PROTECTION ON CASING PER DETAILS AND COA SPECIFICATION 420.19. CONTRACTOR SHALL INSTALL TEST STATIONS IN PROTECTED AREA OUTSIDE ROADWAY.
- CONTRACTOR TO ACQUIRE ALL PERMITS AND APPROVALS FOR WORKING WITHIN JEFFERSON COUNTY ROW.
- CONTRACTOR TO INCLUDE SURVEYED LOCATIONS OF NEW 12" FORCE MAIN APPURTENANCES AND FITTINGS WITH RECORD DRAWINGS.
- ARV VENT PIPE TO BE ROUTED OUTSIDE OF ROADWAY AND LOCATION COORDINATED WITH OWNER OR FIELD REPRESENTATIVE.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

ALKIRE STREET
FORCA MIAIN PLAN AND PROFILE
STA 11+00 TO STA 21+00

APPROVED: *CEL V-J*
City Engineer Date 3/12/25 NTL 2/3
Job Number

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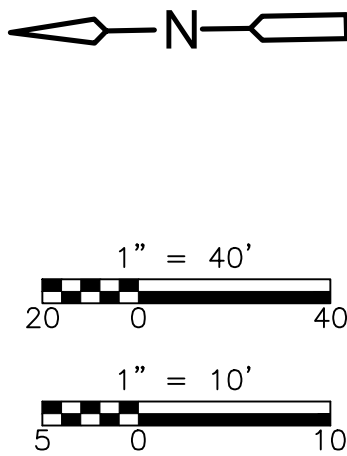
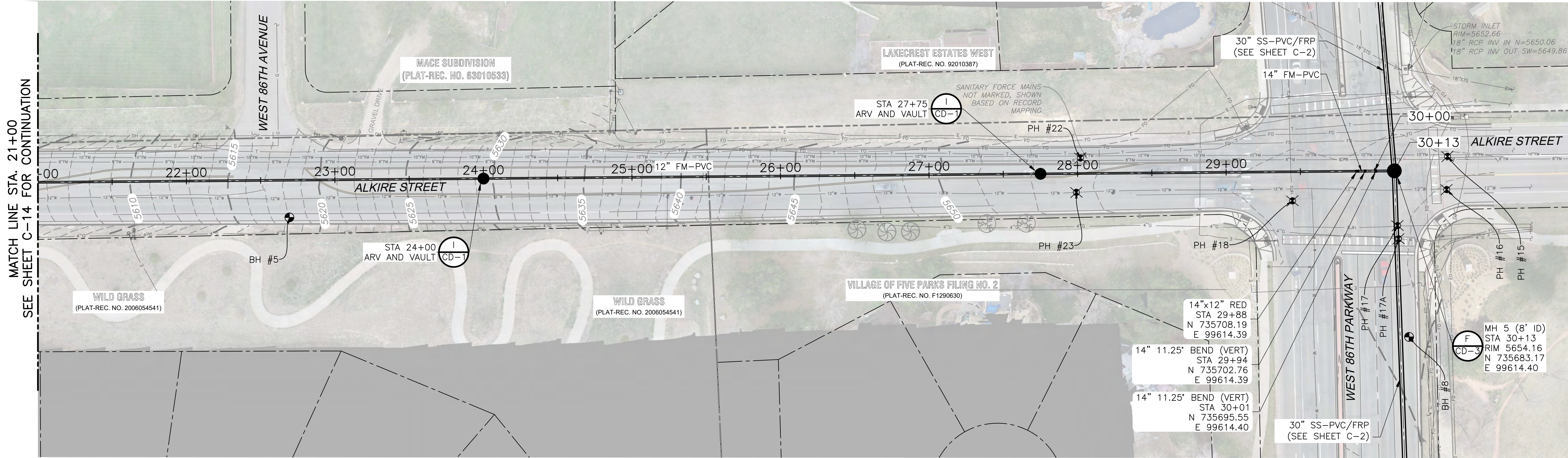
PROJECT NO. 263334-295058
FILE NAME: C014FMPP.DWG

SHEET NO.

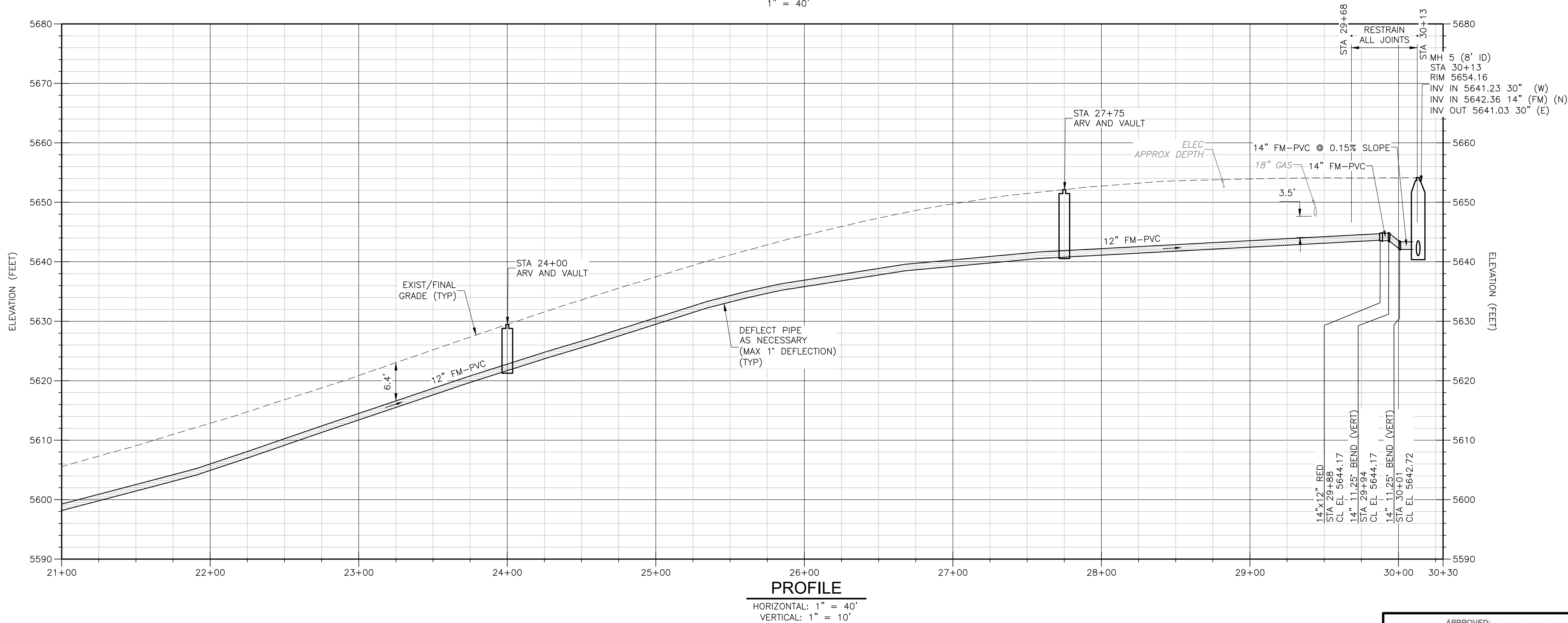
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- NOTES:
- CONTRACTOR TO VERIFY LOCATION OF 8" AND 10" FORCE MAINS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL OBTAIN SURVEYED COORDINATE INFORMATION OF FORCE MAINS WHILE EXPOSED FOR RECORD DRAWINGS.
 - CONTRACTOR TO INCLUDE SURVEYED LOCATIONS OF NEW 12" FORCE MAIN APPURTENANCES AND FITTINGS WITH RECORD DRAWINGS.
 - ARV VENT PIPE TO BE ROUTED OUTSIDE OF ROADWAY AND LOCATION COORDINATED WITH OWNER OR FIELD REPRESENTATIVE.



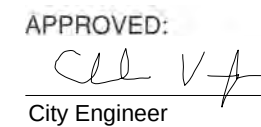
DESIGNED BY:	T. WEIDER
DRAWN BY:	V. GANJI
SHEET CHK'D BY:	D. NELSON
CROSS CHK'D BY:	B. HALL
APPROVED BY:	D. NELSON
DATE:	MARCH 2025

REV. NO.	DATE	DRWN	CHKD	REMARKS



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

ALKIRE STREET
FORCE MAIN PLAN AND PROFILE
STA 21+00 TO STA 30+13

APPROVED: 
City Engineer
3/12/25 Date
NTL 2/3 Job Number

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PROJECT NO. 263334-295058
FILE NAME: C015FMPP.DWG

SHEET NO.

C-15

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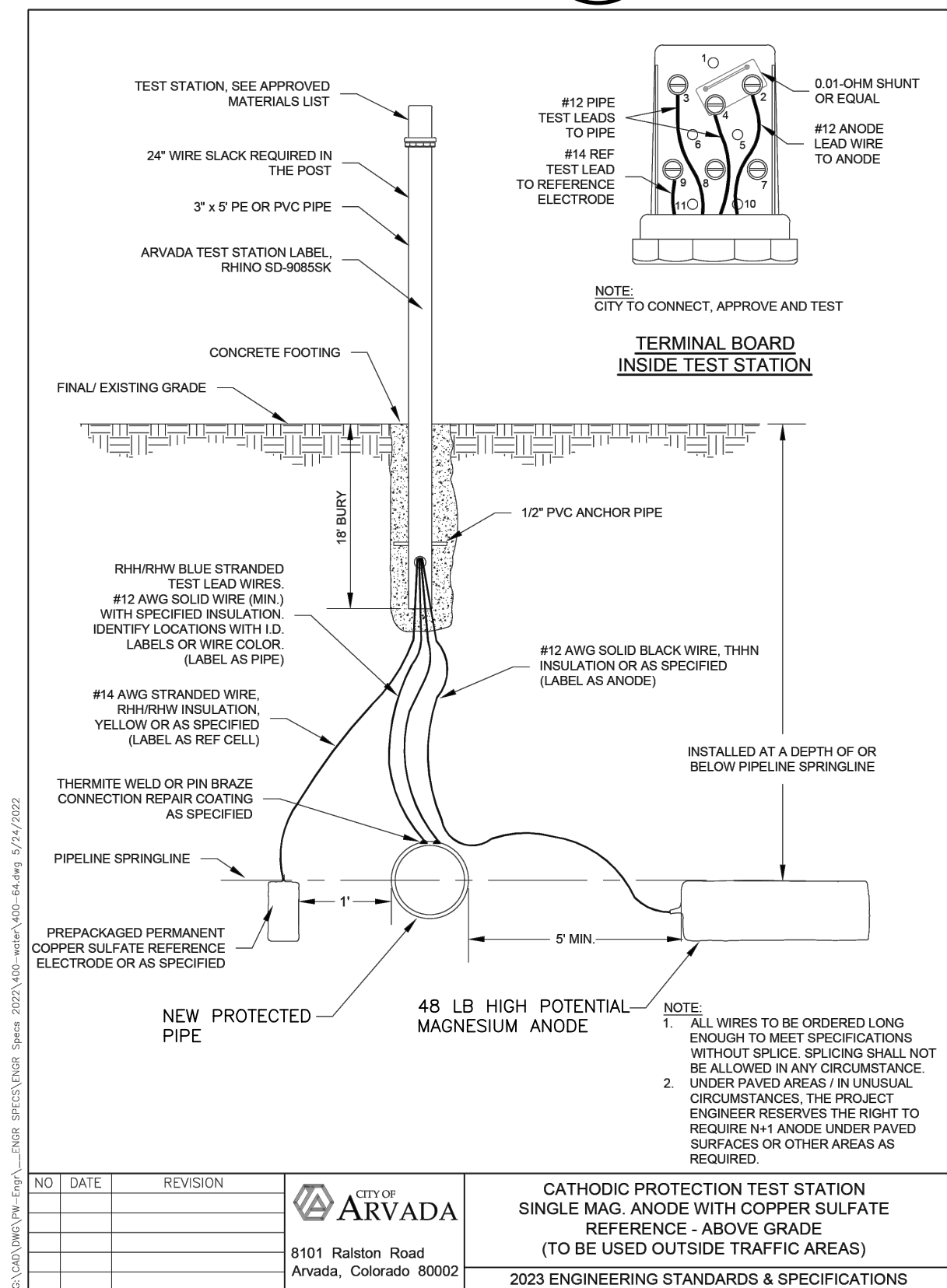
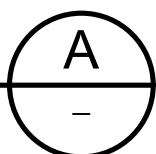
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NO	DATE	REVISION
1	2023	2023 REVISIONS

	PIPE BEDDING AND BACKFILL LIMITS SEWER MAINS
8101 Ralston Road Arvada, Colorado 80002	2023 ENGINEERING STANDARDS & SPECIFICATIONS

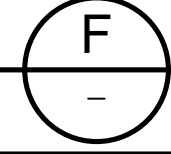
500-1

DETAIL
NTS



400-64

DETAIL
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS

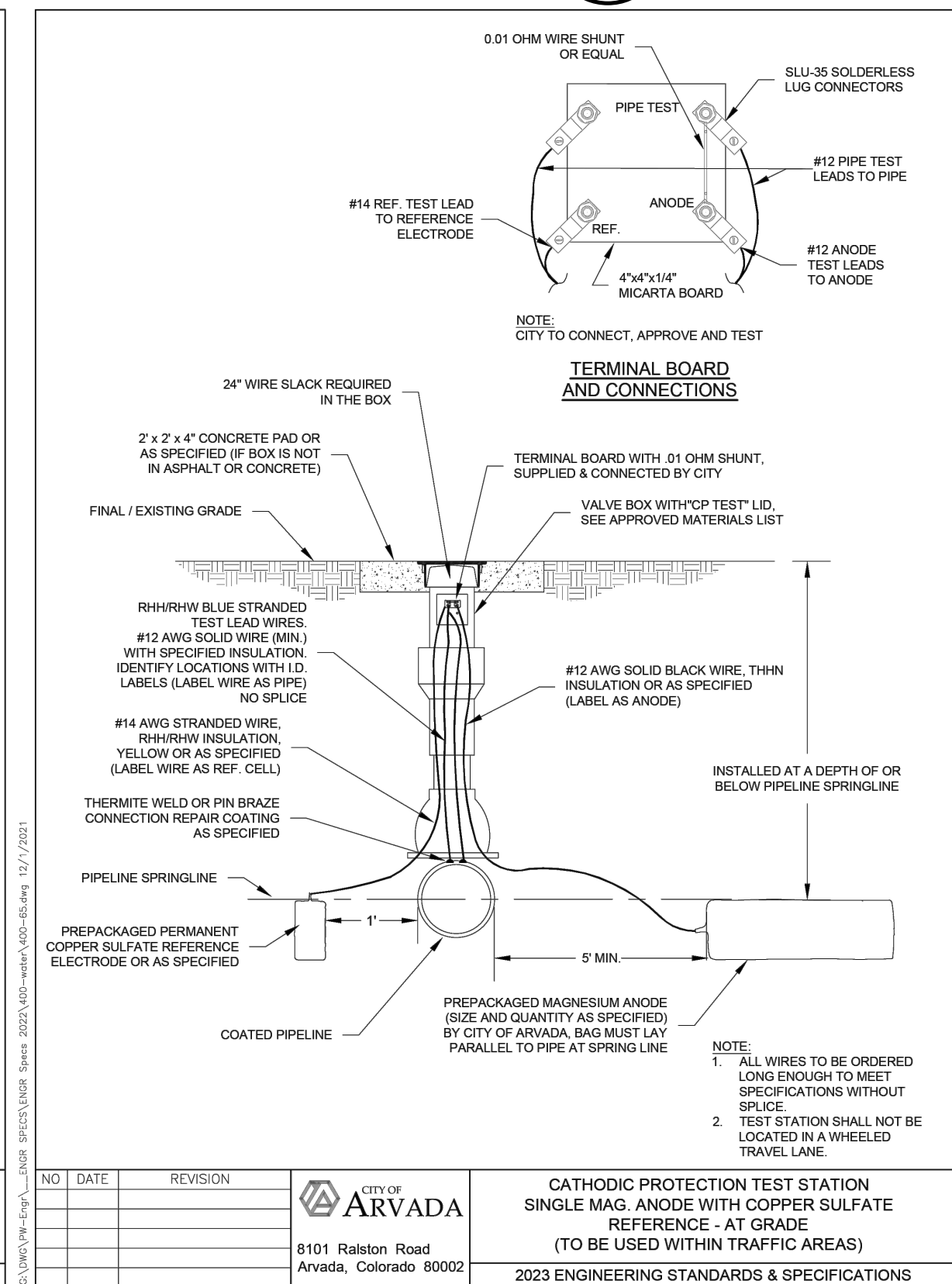
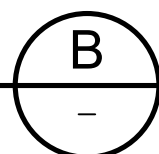
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NO	DATE	REVISION
1	2023	2023 REVISIONS

	TYPICAL MAINTENANCE HOLE
8101 Ralston Road Arvada, Colorado 80002	2023 ENGINEERING STANDARDS & SPECIFICATIONS

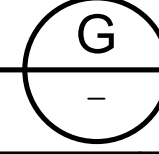
500-3

DETAIL
NTS



400-65

DETAIL
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS



555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

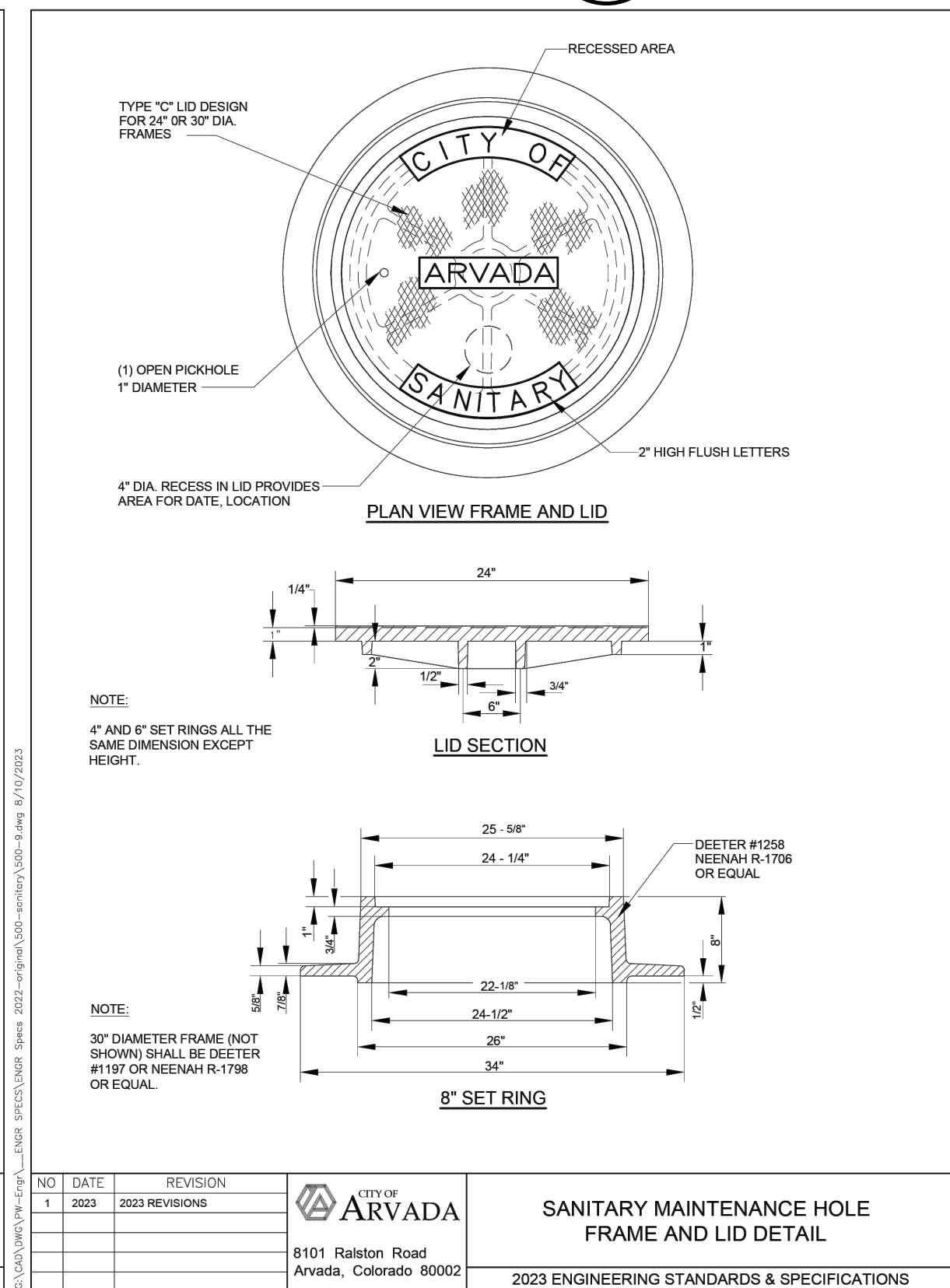
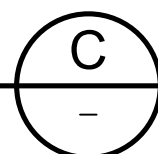
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NO	DATE	REVISION
1	2023	2023 REVISIONS

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8101 Ralston Road Arvada, Colorado 80002	2023 ENGINEERING STANDARDS & SPECIFICATIONS

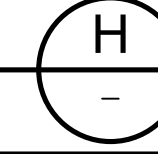
500-4

DETAIL
NTS



500-9

DETAIL
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS

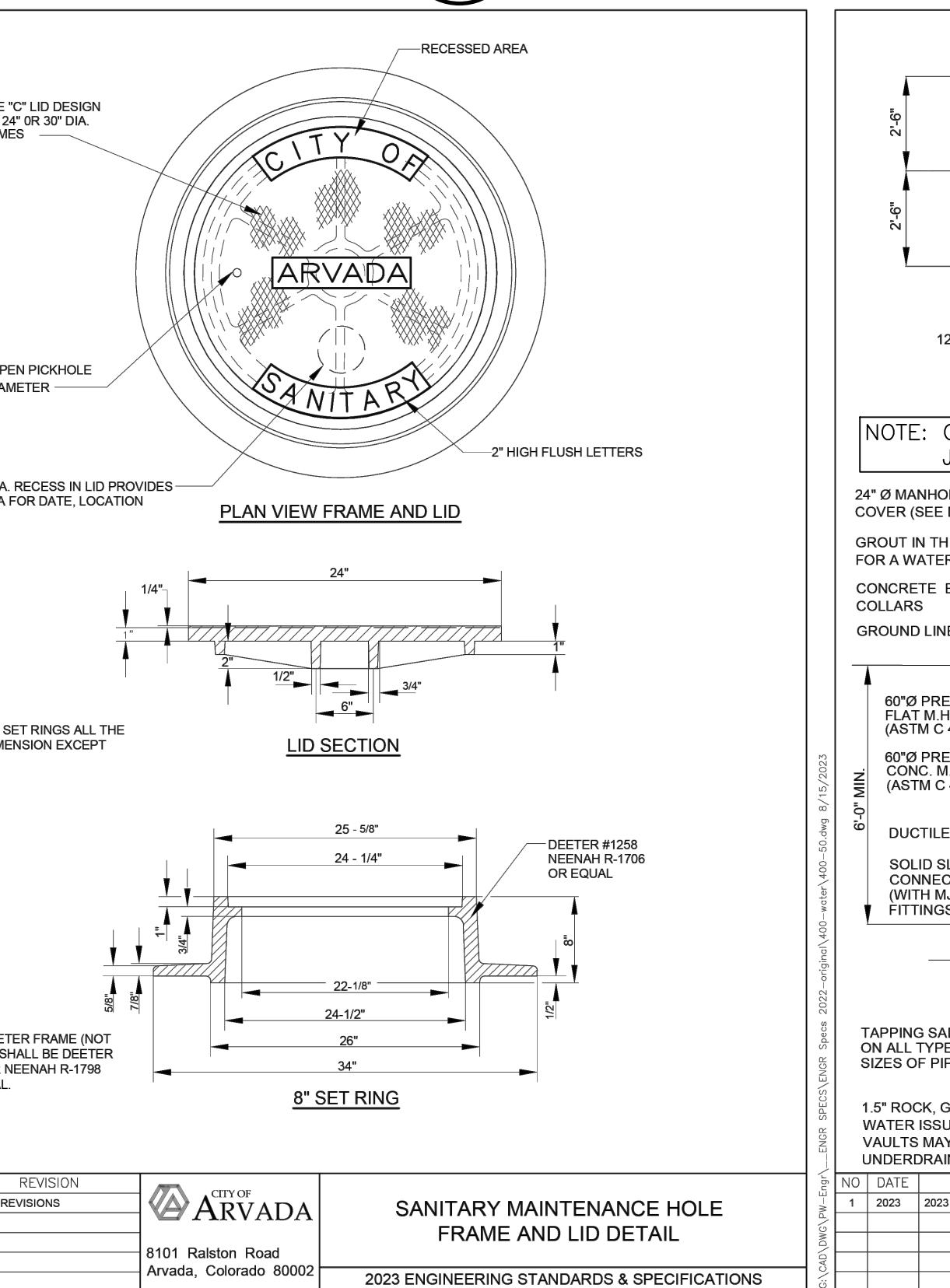
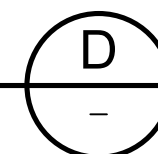
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NO	DATE	REVISION
1	2023	2023 REVISIONS

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8101 Ralston Road Arvada, Colorado 80002	2023 ENGINEERING STANDARDS & SPECIFICATIONS

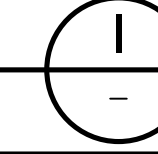
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DETAIL
NTS



500-9

DETAIL
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS

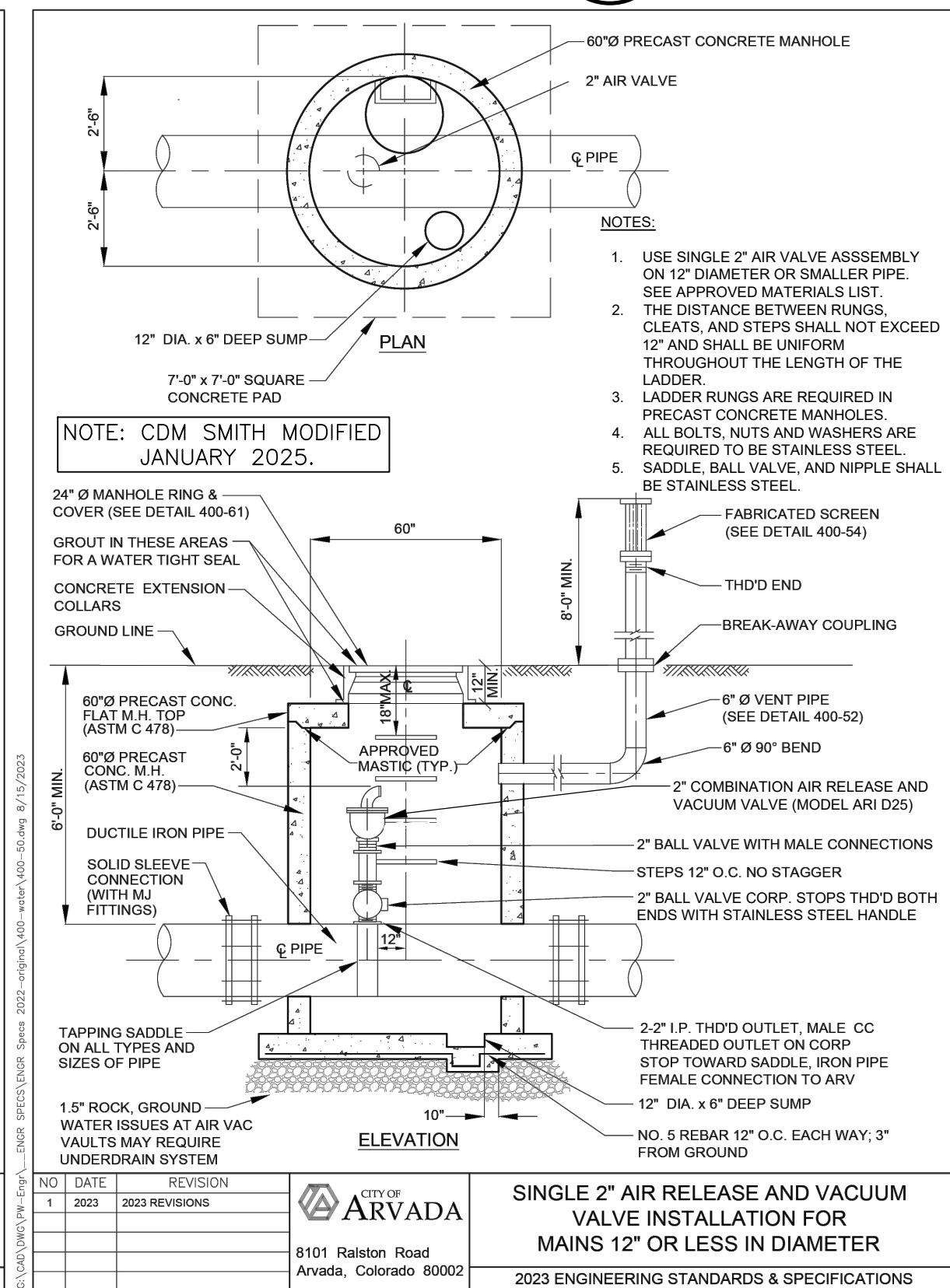
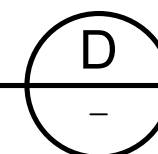
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NO	DATE	REVISION
1	2023	2023 REVISIONS

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8101 Ralston Road Arvada, Colorado 80002	2023 ENGINEERING STANDARDS & SPECIFICATIONS

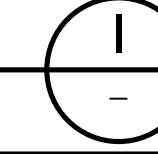
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DETAIL
NTS



500-5

DETAIL
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS

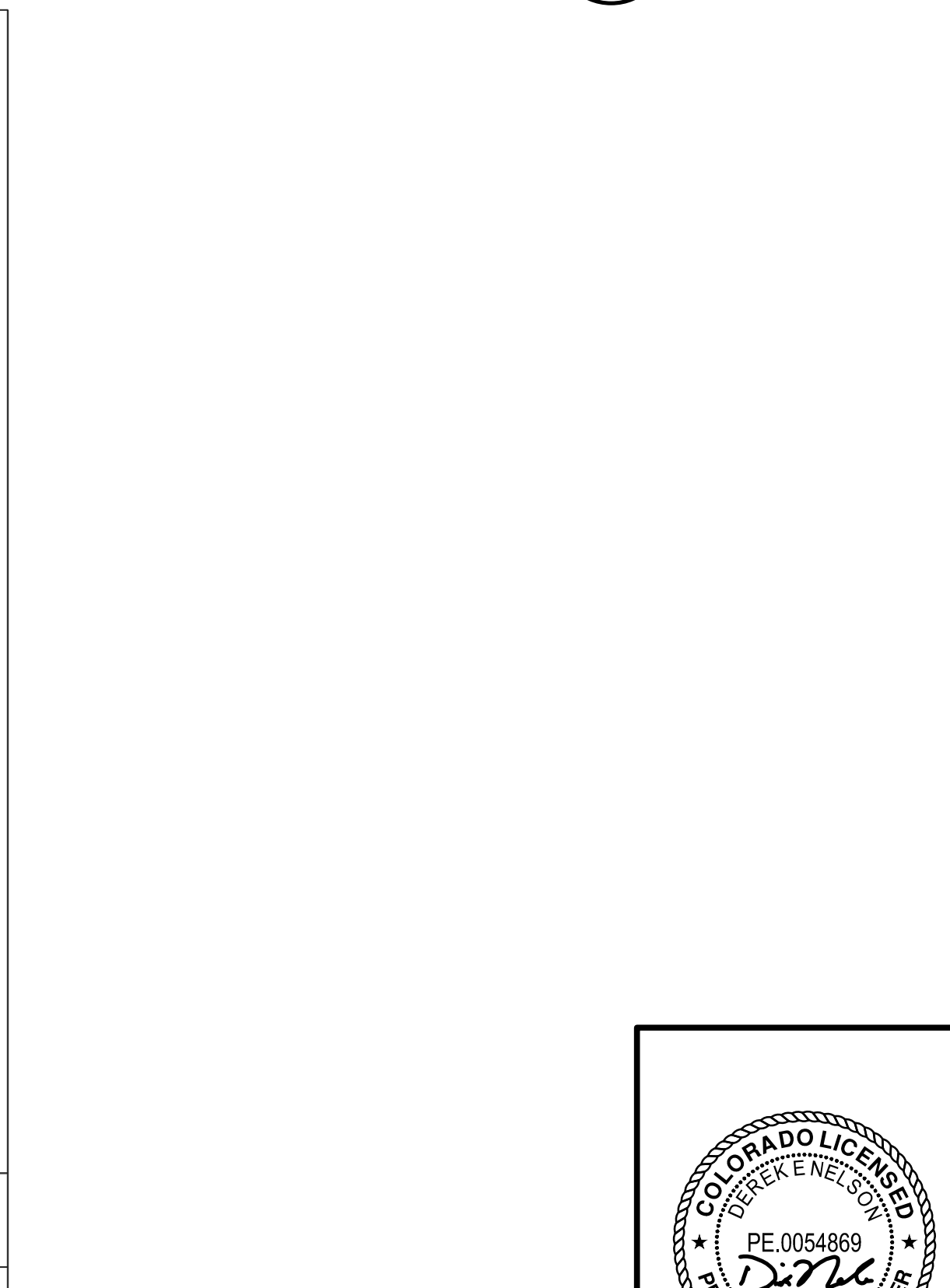
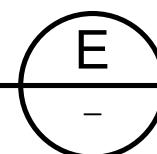
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NO	DATE	REVISION
1	2023	2023 REVISIONS

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8101 Ralston Road Arvada, Colorado 80002	2023 ENGINEERING STANDARDS & SPECIFICATIONS

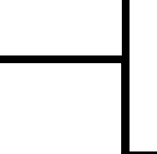
500-7

DETAIL
NTS



500-7

DETAIL
NTS



REV. NO.	DATE	DRWN	CHKD	REMARKS

APPROVED:
City Engineer
3/12/25 Date
NTL 2/3 Job Number

Review is for general compliance with the City of Arvada.
"Engineering Code of Standards and Specifications for the
Design and Construction of Public Improvements", latest edition.
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Engineer sealing these plans. The City does not accept liability
for facilities designed by others.

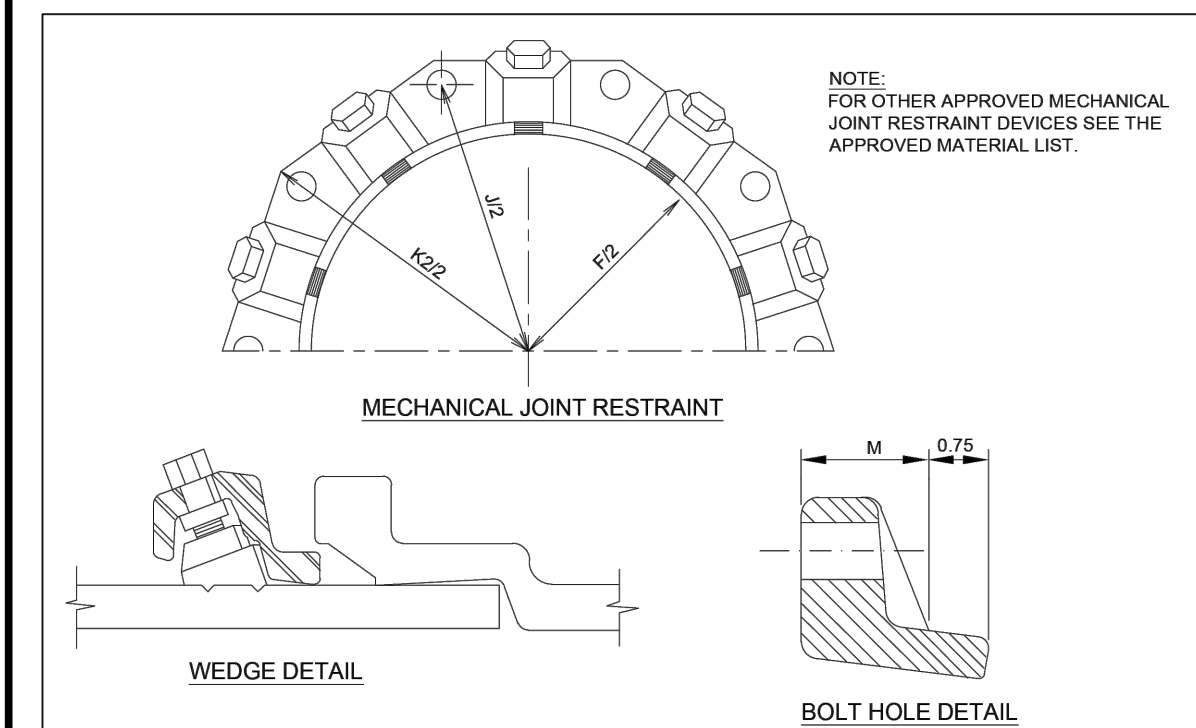
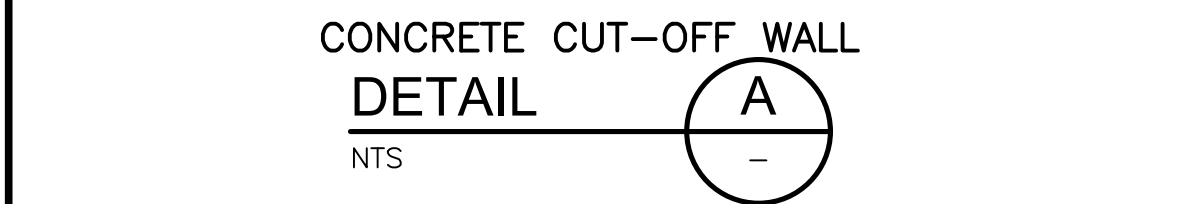
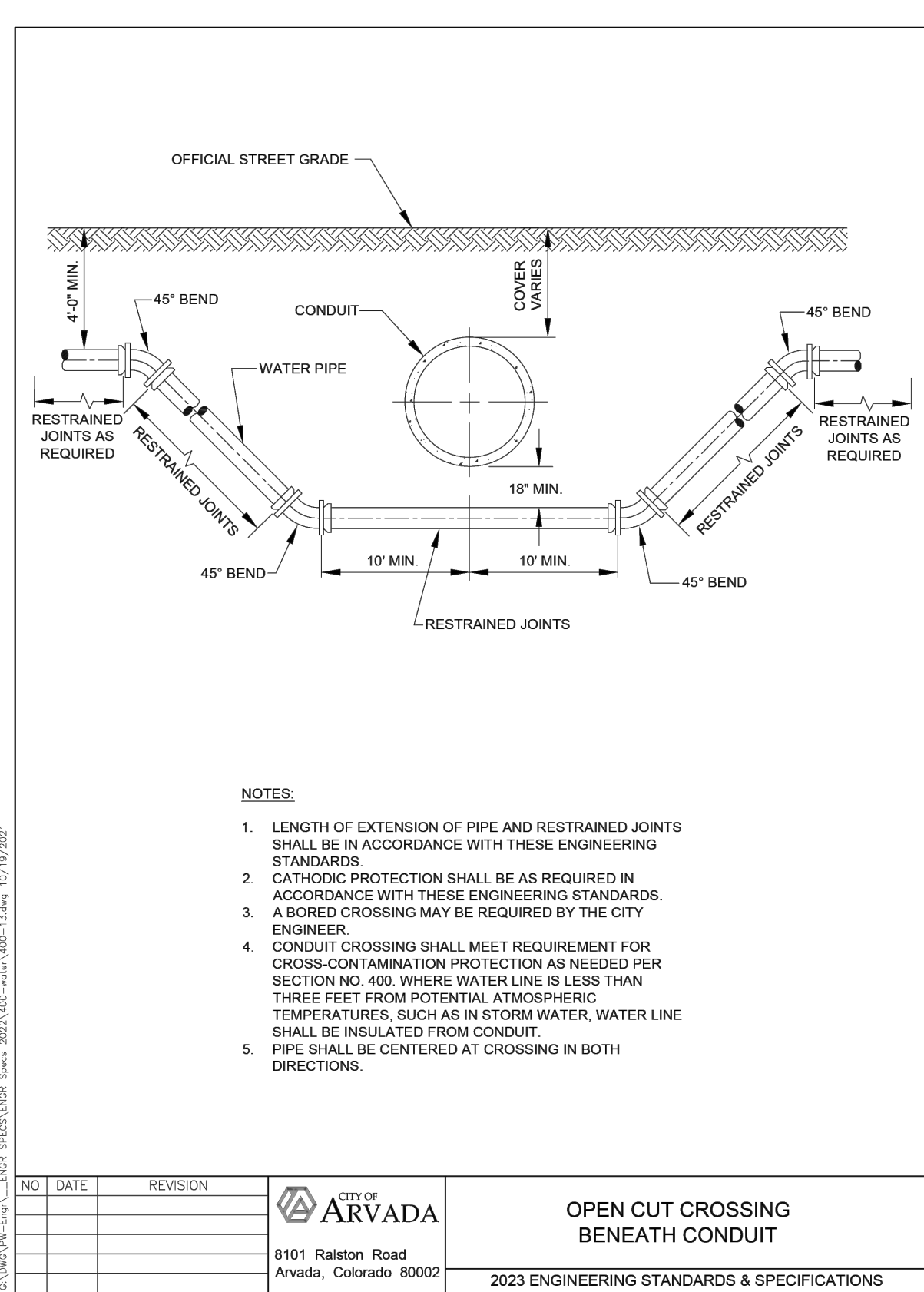
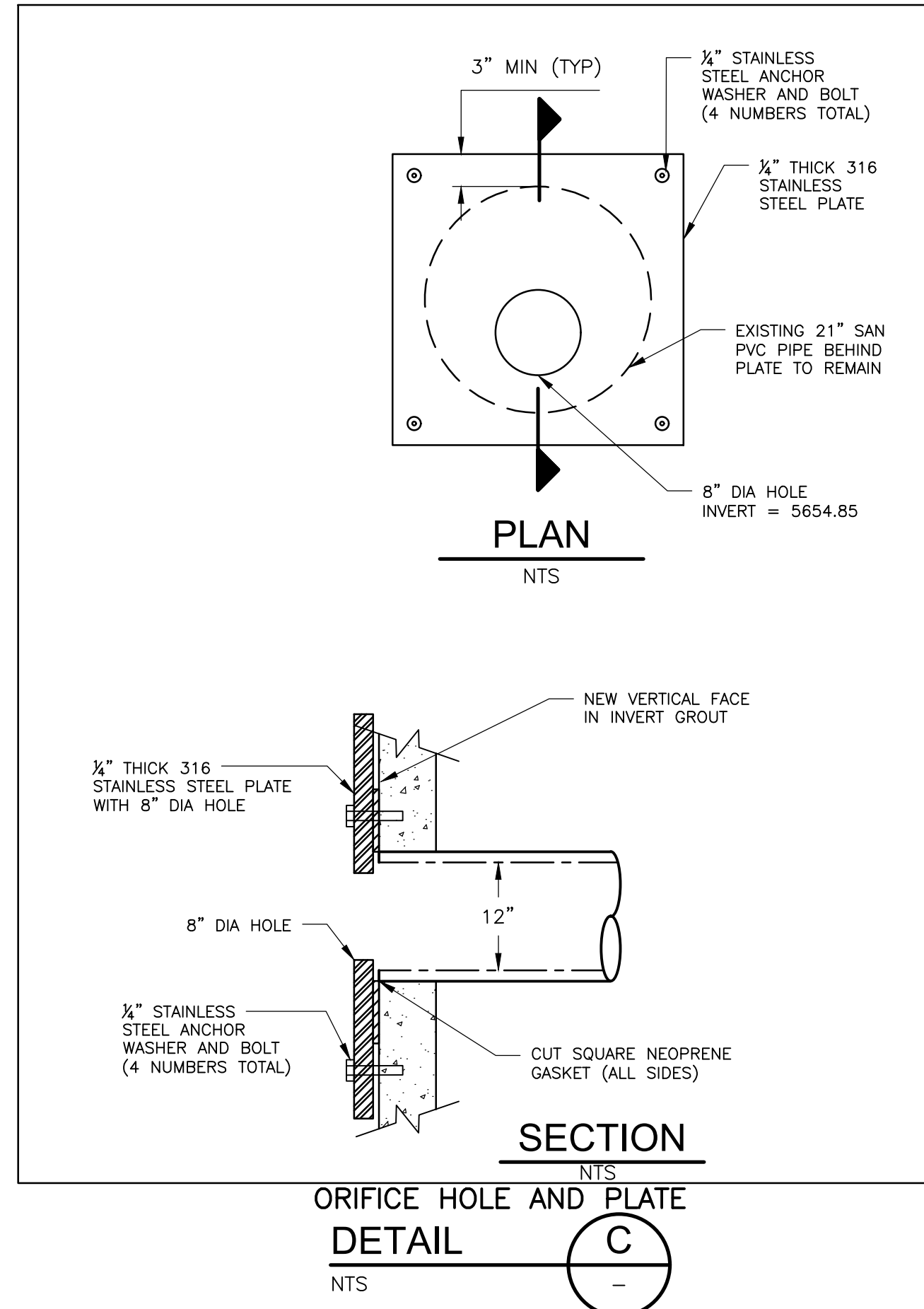
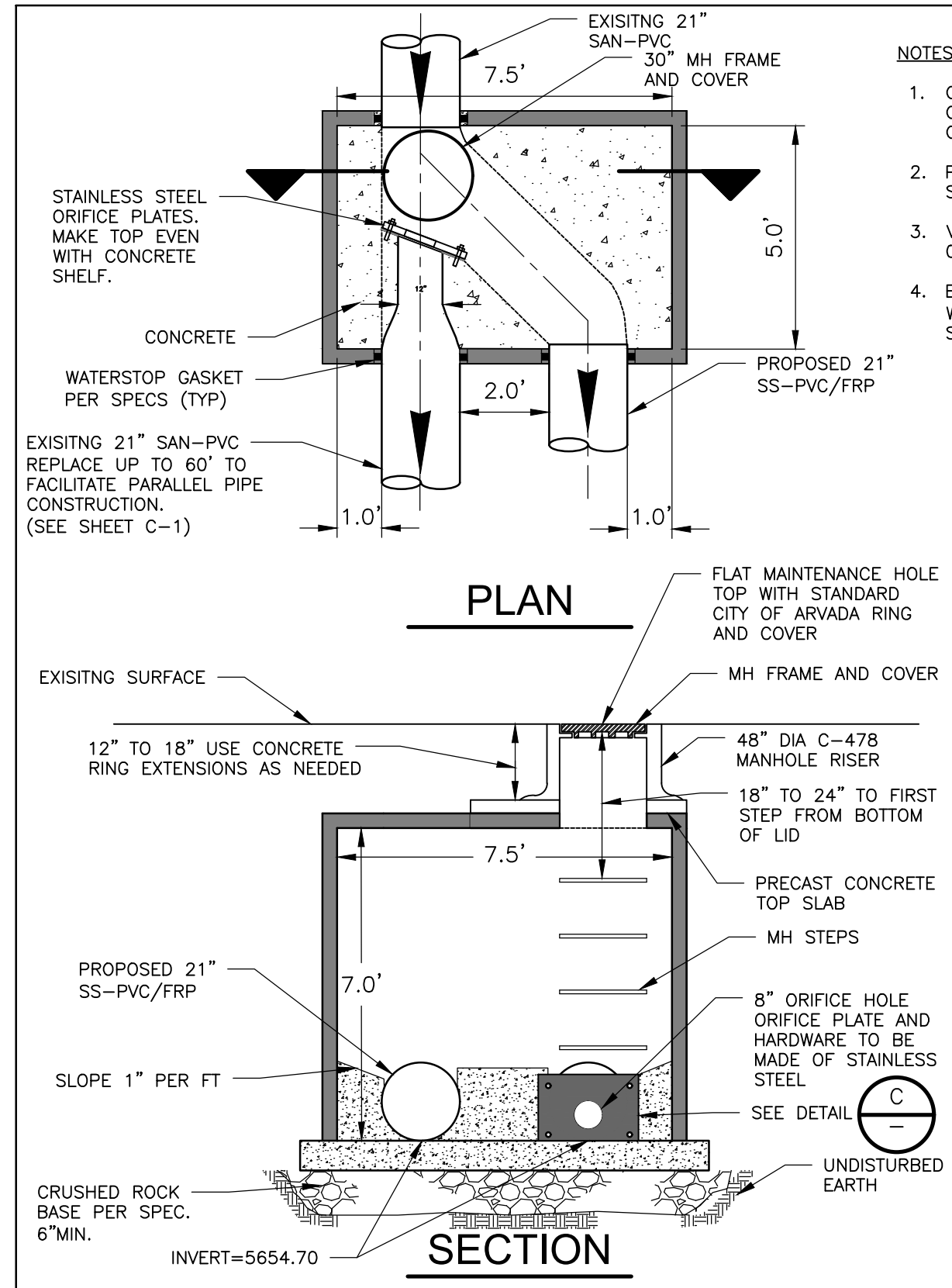
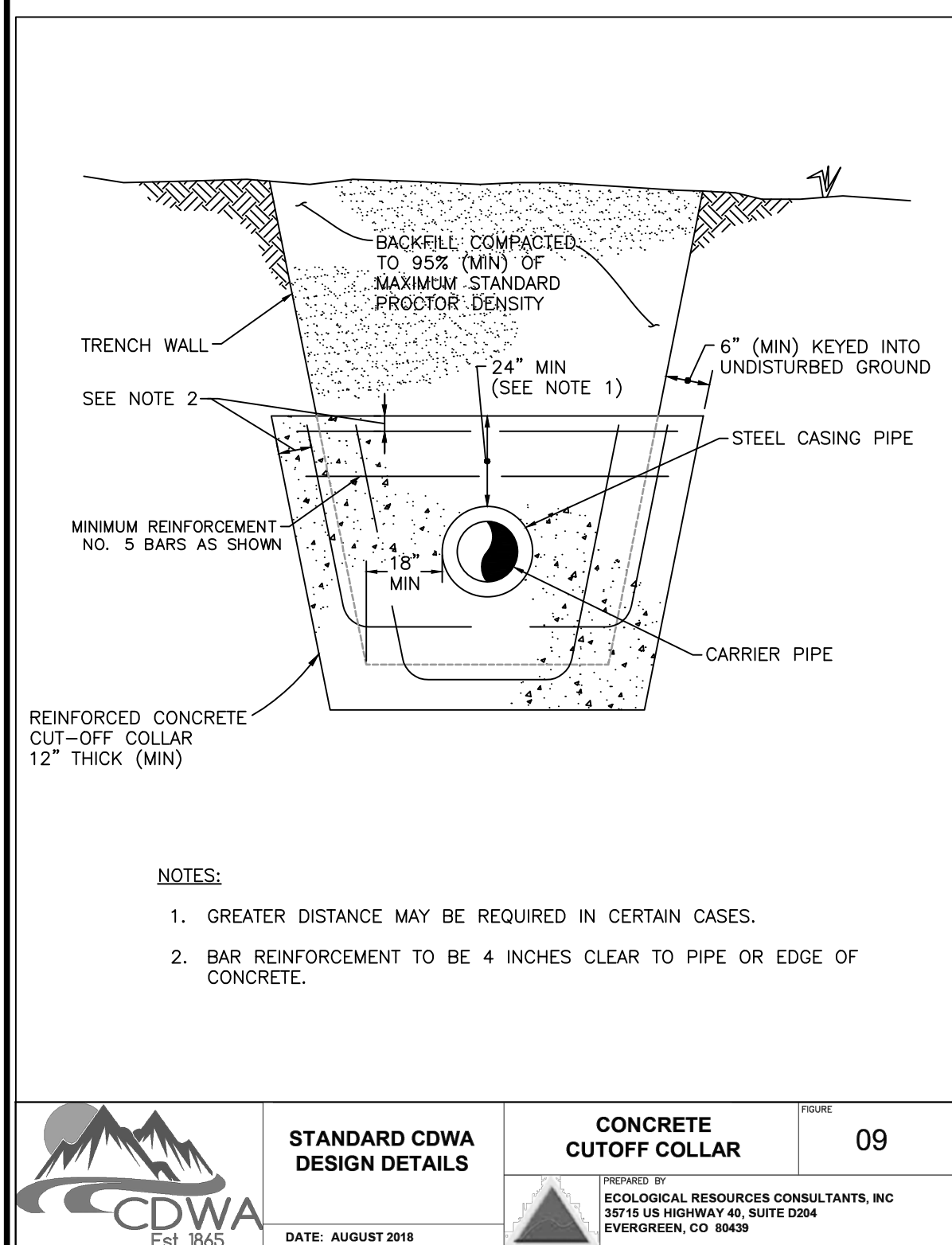


PROJECT NO. 263334-295058
FILE NAME: CD001STD1.DWG

SHEET NO.

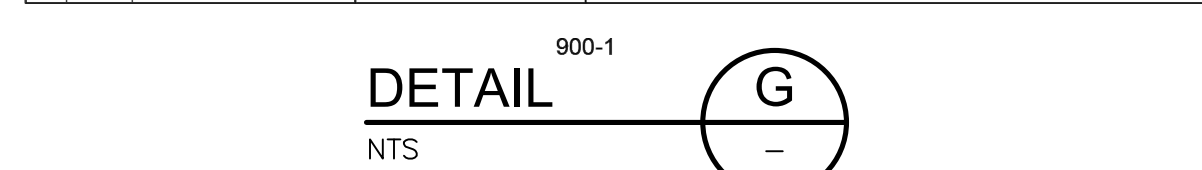
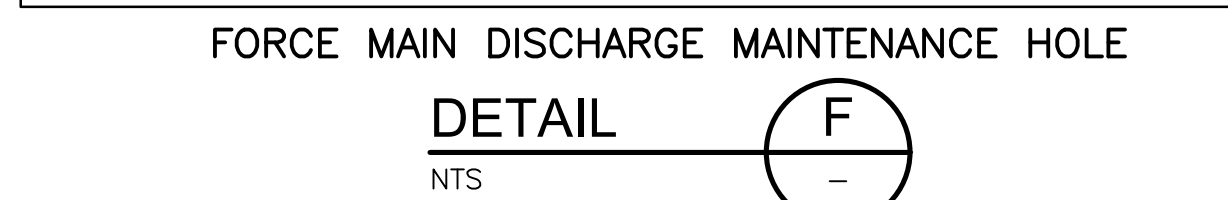
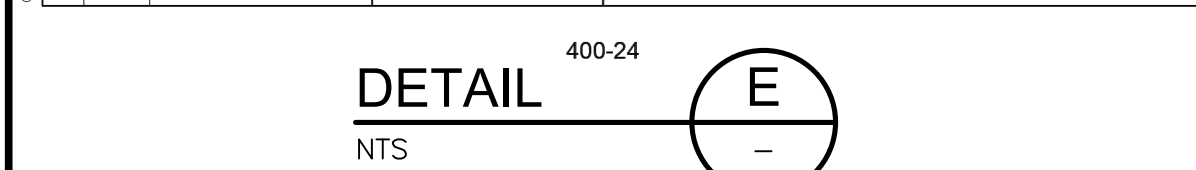
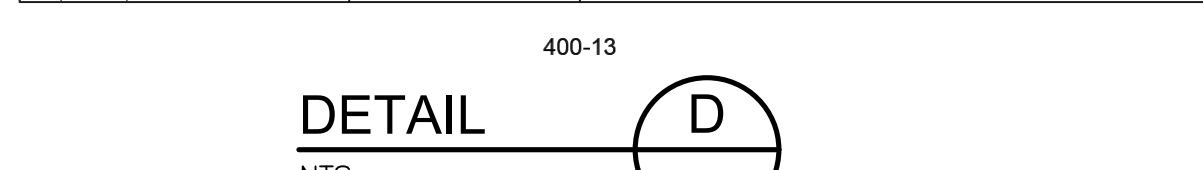
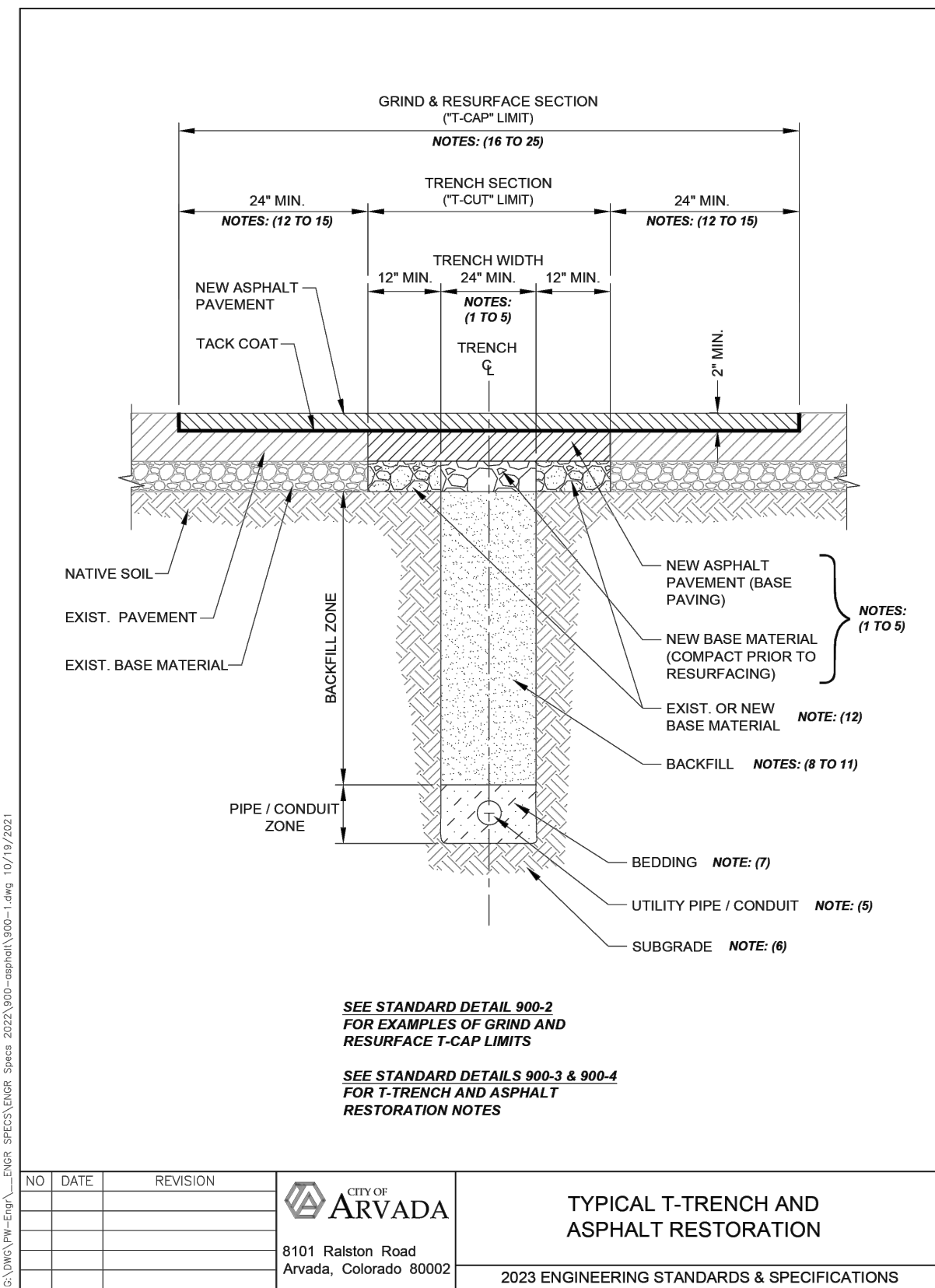
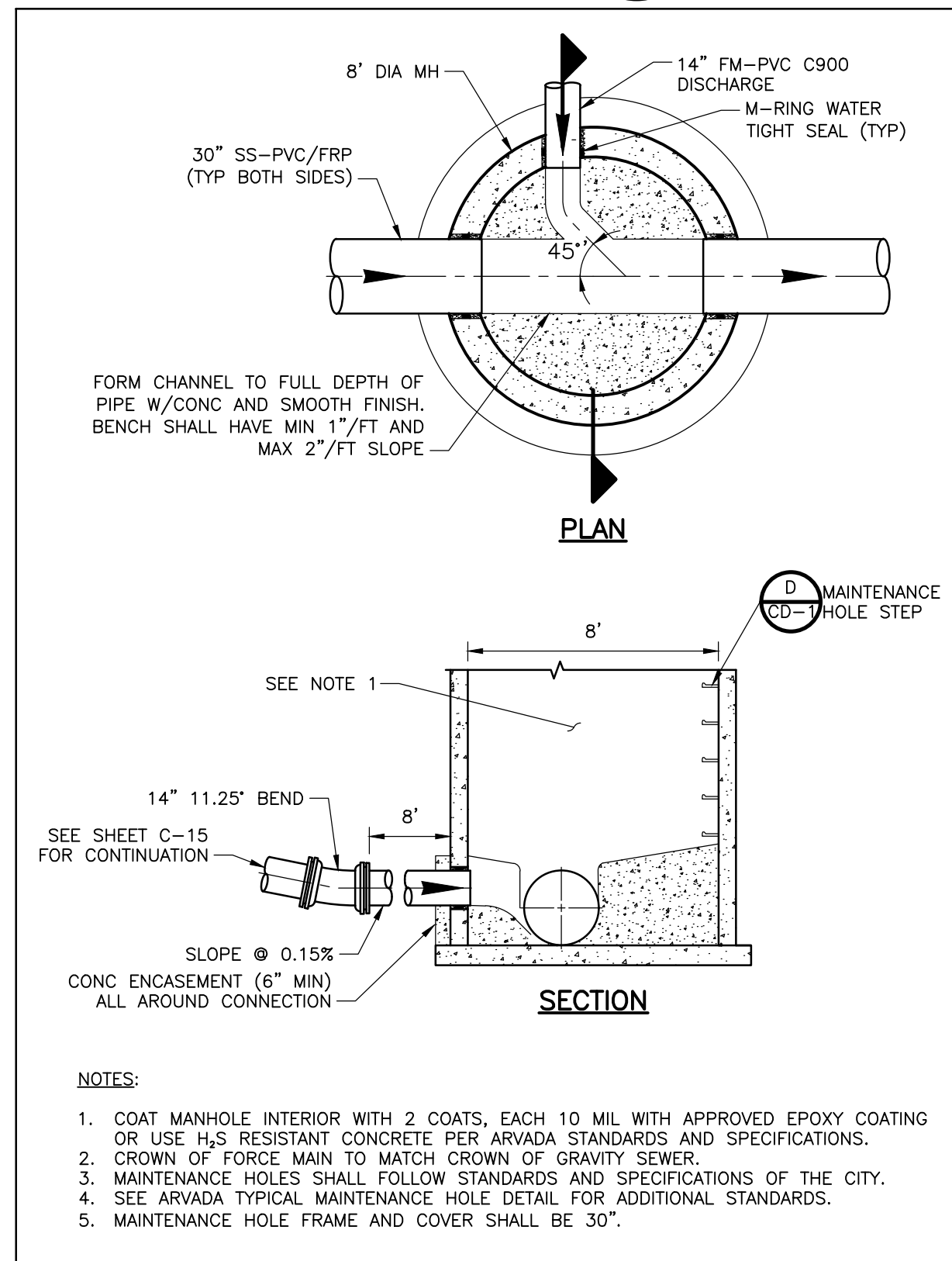
CD-1

ISSUED FOR BID - NOT FOR CONSTRUCTION



DIMENSIONS							
NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES	
4"	4	4	9.13	7.50	4.90	0.50	P V C
6"	6	6	11.13	9.50	7.00	0.50	
8"	6	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	D I P
30"	20	20	39.12	36.88	32.22	1.50	
36"	24	24	46.00	43.75	38.52	1.50	
30"	20	20	39.12	36.88	32.17	2.25	
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	

NO	DATE	REVISION	 CITY OF ARVADA	8101 Ralston Road Arvada, Colorado 80002	MECHANICAL JOINT RESTRAINT DETAILS 2023 ENGINEERING STANDARDS & SPECIFICATIONS



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: _____	T. WEIDER
DRAWN BY: _____	V. GANJI
SHEET CHK'D BY: _____	D. NELSON
CROSS CHK'D BY: _____	B. HALL
APPROVED BY: _____	D. NELSON
DATE: _____	MARCH 2025

**CDM
Smith**
555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

CIVIL DETAILS III

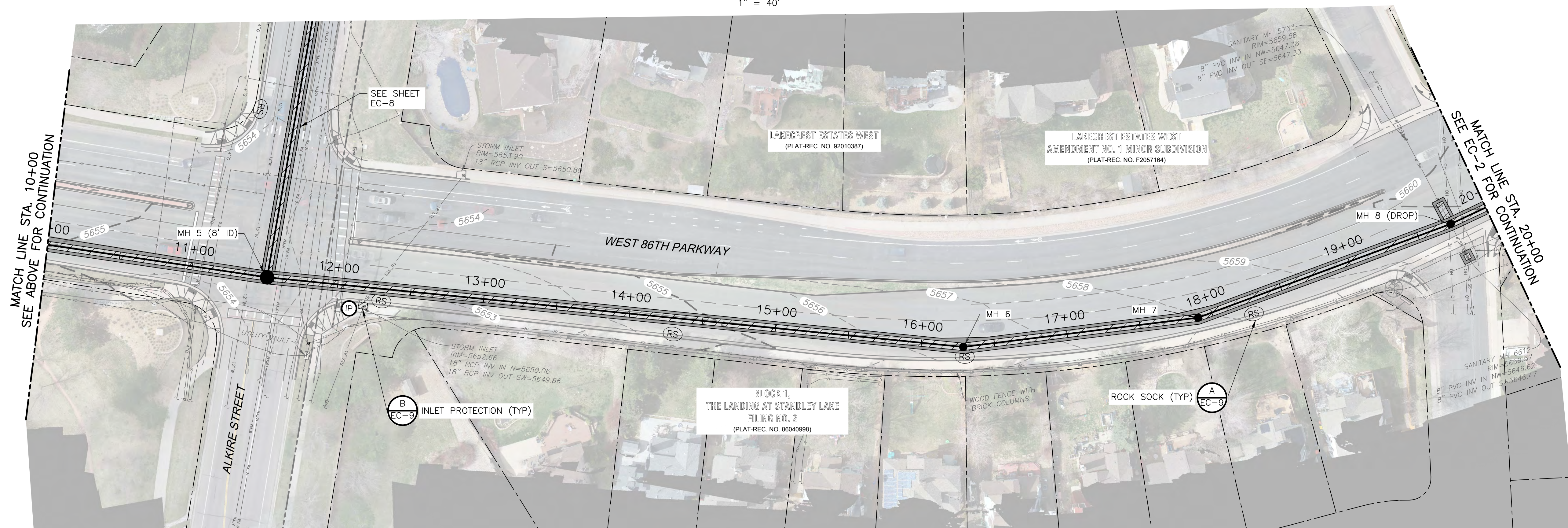
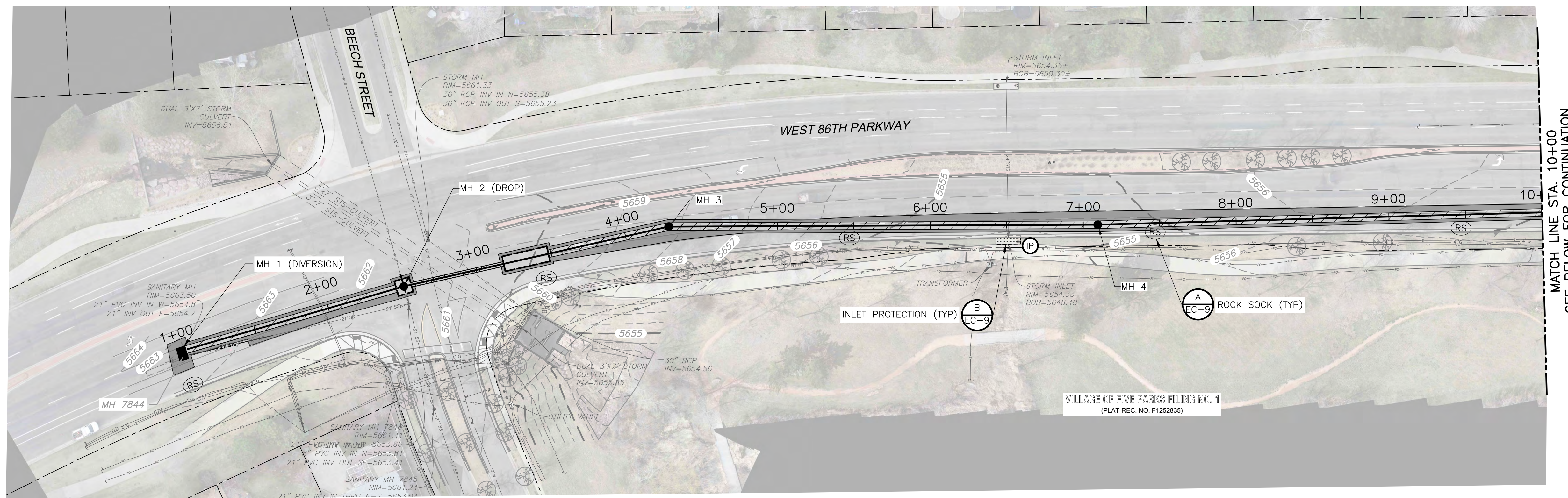
APPROVED: _____
City Engineer

Date 3/12/25
Job Number NTL 2/3

Review is for general compliance with the City of Arvada "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.

A circular professional engineer seal for the state of Colorado. The outer ring contains the text "COLORADO LICENSED" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. Inside the ring, the name "DEREK E NELSON" is printed in a bold, sans-serif font. Below the name, the license number "PE.0054869" is printed. A handwritten signature, "Derek Nelson", is written across the license number. At the bottom of the seal, the date "03/01/2025" is printed.

PROJECT NO. 263334-295058
FILE NAME: CD003STDT.DWG
SHEET NO.
CD-3



					DESIGNED BY: T. WEIDER
					DRAWN BY: V. GANJI
					SHEET CHK'D BY: D. NELSON
					CROSS CHK'D BY: B. HALL
					APPROVED BY: D. NELSON
					DATE: MARCH 2025
REV. NO.	DATE	DRWN	CHKD	REMARKS	



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
EROSION CONTROL PLAN
STA 1+00 TO STA 20+00

APPROVED: Cell VJ 3/12/25 NTL 2/3
City Engineer Date Job Number

Review is for general compliance with the City of Arvada "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.



PROJECT NO. 263334-295058
FILE NAME: EC01STPL.DWG

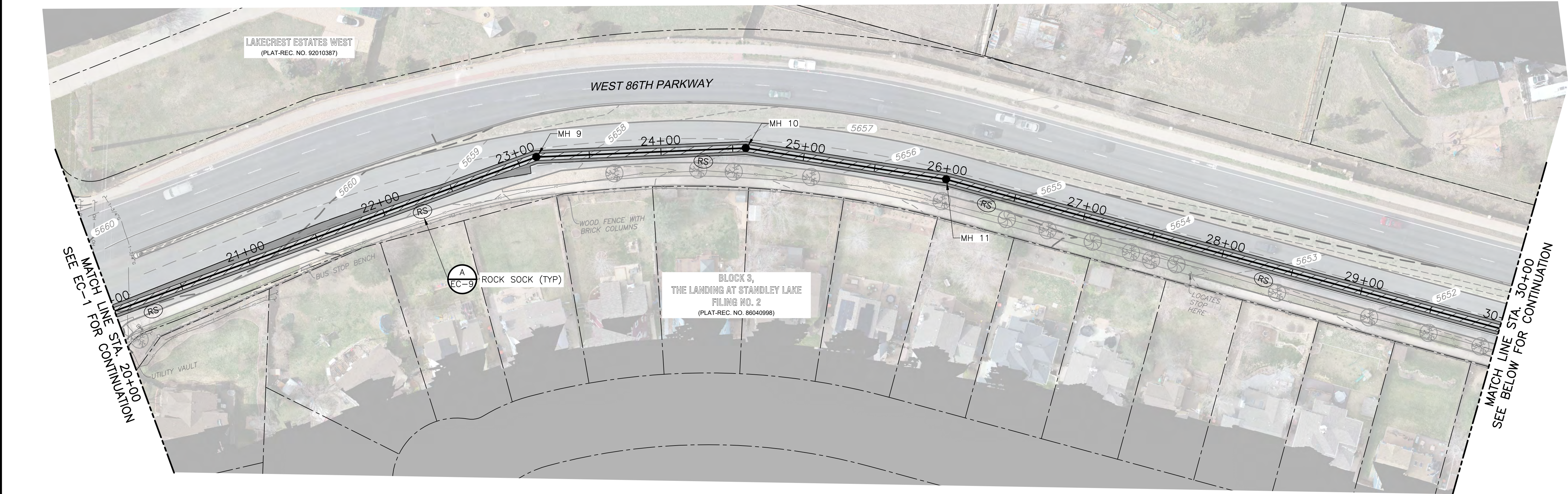
SHEET NO.

EC-1

ISSUED FOR BID - NOT FOR CONSTRUCTION

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PLAN

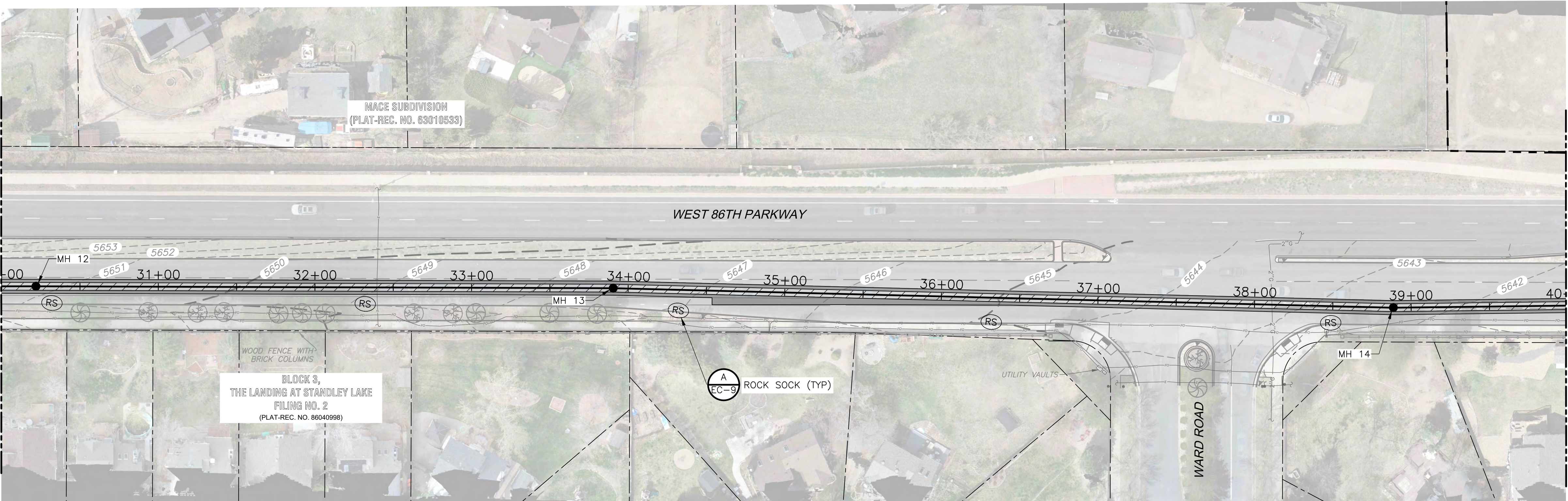
1" = 40'

CONSTRUCTION NOTES:

- CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS PER SPECIFICATIONS.
- CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE SWMP PLAN AND LOCAL JURISDICTIONAL GUIDELINES.
- CONTRACTOR SHALL PERFORM PAVEMENT MARKINGS IN ACCORDANCE WITH COA SPECIFICATIONS 732.00.
- REFER TO ARVADA STANDARD DETAIL 900-2 FOR GENERAL NOTES FOR T-PATCH SECTIONS.
- ASPHALT REPLACEMENT SECTIONS SHOWN ARE FOR BIDDING PURPOSES. FINAL LIMITS SHALL COORDINATED AND APPROVED BY CITY OF ARVADA STREETS INSPECTORS.

BMP LEGENDS:

- T- CUT LIMITS
- T- CAP LIMITS
- RS ROCK SOCK
- INLET PROTECTION



PLAN

1" = 40'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
EROSION CONTROL PLAN
STA 20+00 TO STA 40+00

APPROVED: *[Signature]* 3/12/25 NTL 2/3
City Engineer Date Job Number

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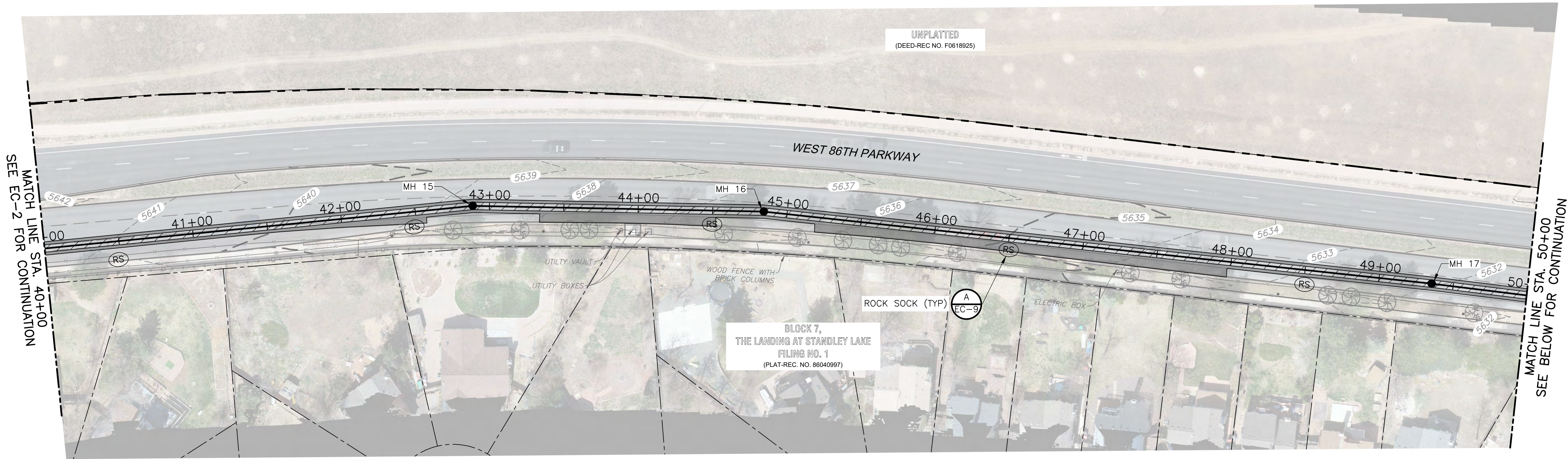
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FILE NAME: EC02STPL.DWG

SHEET NO.

EC-2

ISSUED FOR BID - NOT FOR CONSTRUCTION

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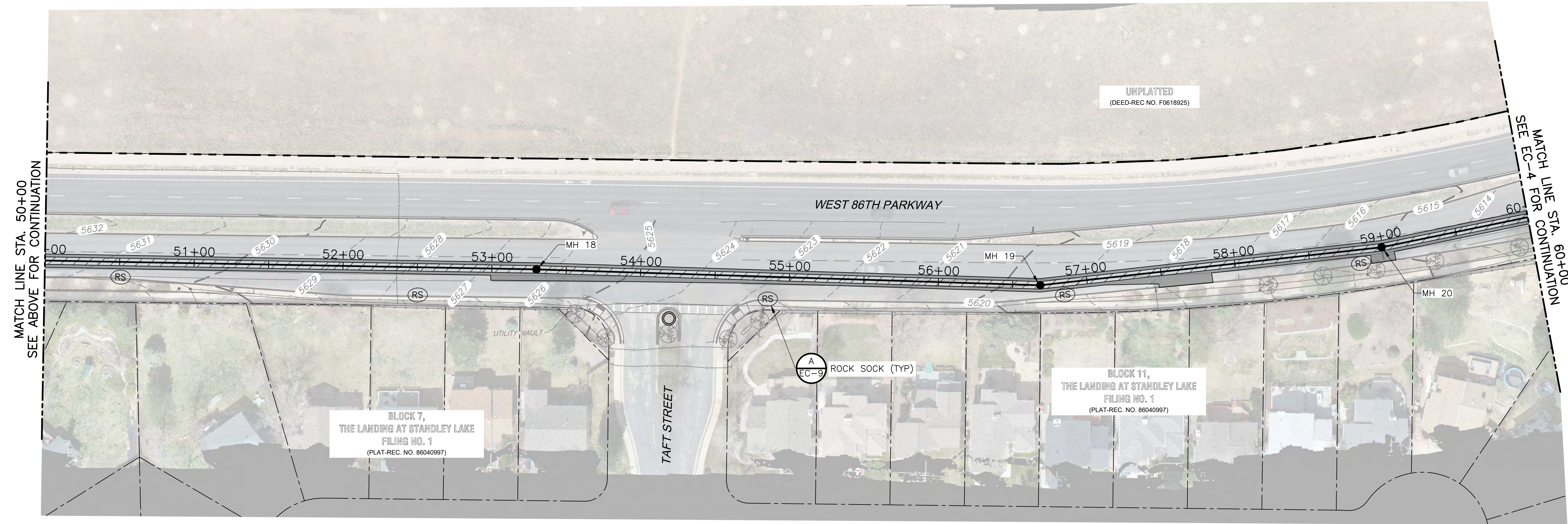
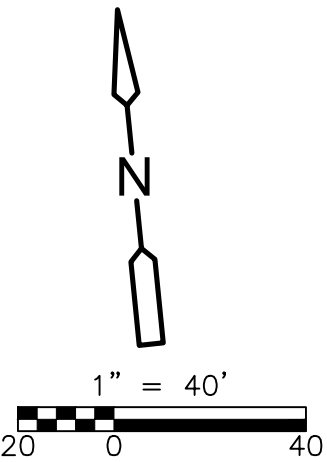
PLAN
1" = 40'

CONSTRUCTION NOTES:

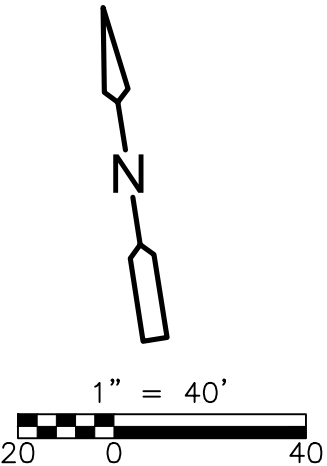
1. CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS PER SPECIFICATIONS.
2. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE SWMP PLAN AND LOCAL JURISDICTIONAL GUIDELINES.
3. CONTRACTOR SHALL PERFORM PAVEMENT MARKINGS IN ACCORDANCE WITH COA SPECIFICATIONS 732.00.
4. REFER TO ARVADA STANDARD DETAIL 900-2 FOR GENERAL NOTES FOR T-PATCH SECTIONS.
5. ASPHALT REPLACEMENT SECTIONS SHOWN ARE FOR BIDDING PURPOSES. FINAL LIMITS SHALL COORDINATED AND APPROVED BY CITY OF ARVADA STREETS INSPECTORS.

BMP LEGENDS:

- T- CUT LIMITS
- T- CAP LIMITS
- RS ROCK SOCK
- INLET PROTECTION



PLAN
1" = 40'



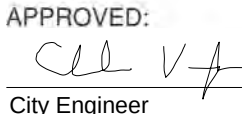
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
EROSION CONTROL PLAN
STA 40+00 TO STA 60+00

APPROVED: 
City Engineer Date 3/12/25 NTL 2/3
Job Number

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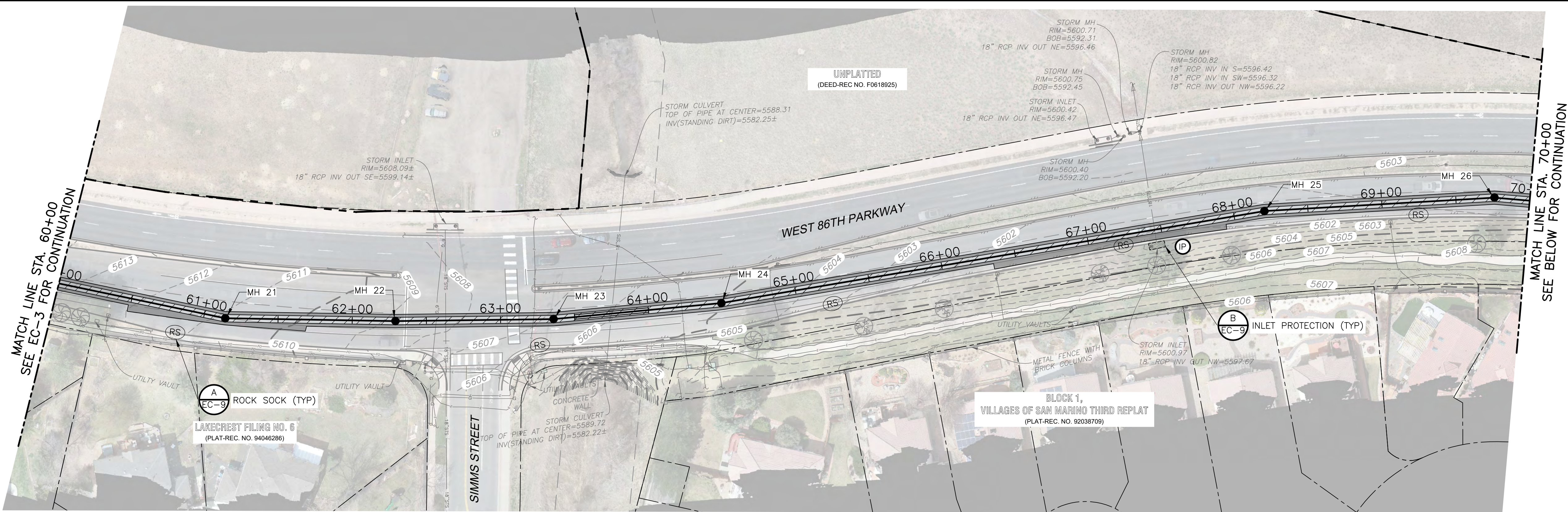
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FILE NAME: EC03STPL.DWG

SHEET NO.

EC-3

ISSUED FOR BID - NOT FOR CONSTRUCTION

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PLAN

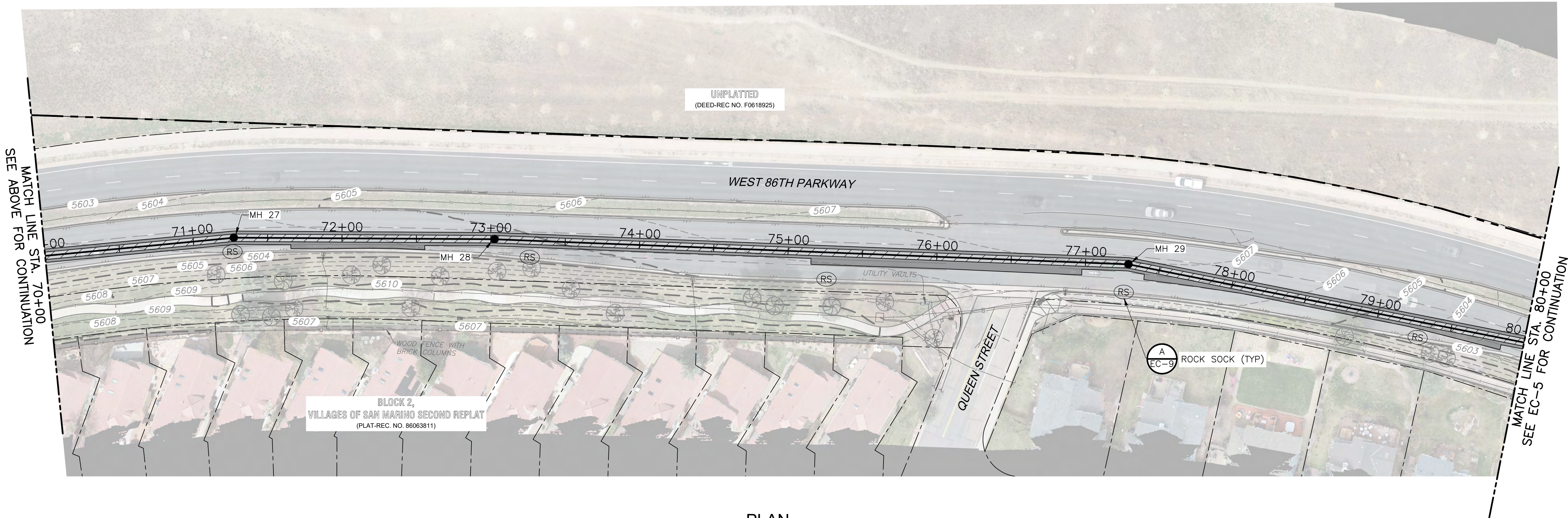
1" = 40'

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS PER SPECIFICATIONS.
2. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE SWMP PLAN AND LOCAL JURISDICTIONAL GUIDELINES.
3. CONTRACTOR SHALL PERFORM PAVEMENT MARKINGS IN ACCORDANCE WITH COA SPECIFICATIONS 732.00.
4. REFER TO ARVADA STANDARD DETAIL 900-2 FOR GENERAL NOTES FOR T-PATCH SECTIONS.
5. ASPHALT REPLACEMENT SECTIONS SHOWN ARE FOR BIDDING PURPOSES. FINAL LIMITS SHALL COORDINATED AND APPROVED BY CITY OF ARVADA STREETS INSPECTORS.

BMP LEGENDS:

- T- CUT LIMITS
- T- CAP LIMITS
- RS ROCK SOCK
- INLET PROTECTION



PLAN

1" = 40'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

WEST 86TH PARKWAY
EROSION CONTROL PLAN
STA 60+00 TO STA 80+00

APPROVED: *CEL V-J*
City Engineer
3/12/25 Date
NTL 2/3 Job Number

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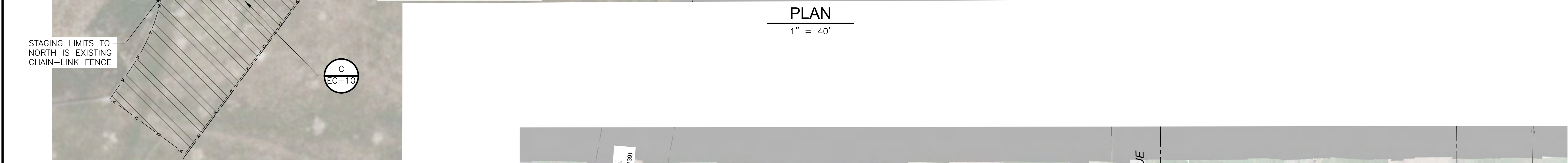
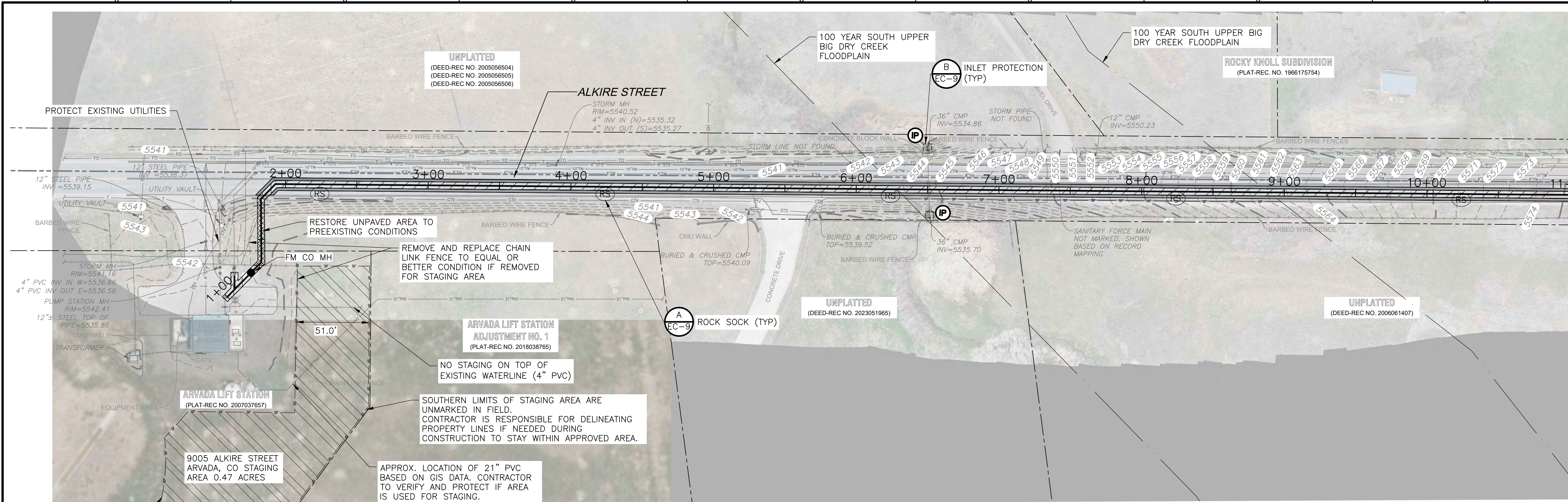
PROJECT NO. 263334-295058
FILE NAME: EC04STPL.DWG

SHEET NO.

EC-4

ISSUED FOR BID - NOT FOR CONSTRUCTION

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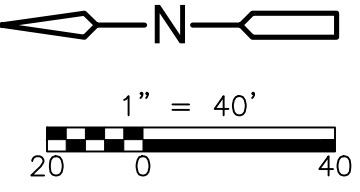
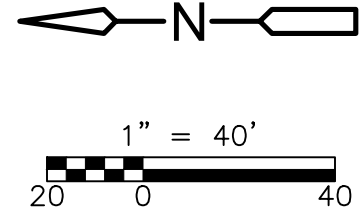


MATCH LINE STA. 11+00
 SEE BELOW FOR CONTINUATION

MATCH LINE STA. 21+00
 SEE EC-8 FOR CONTINUATION

- CONSTRUCTION NOTES:
- CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS PER SPECIFICATIONS.
 - CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE SWMP PLAN AND LOCAL JURISDICTIONAL GUIDELINES.
 - CONTRACTOR SHALL PERFORM PAVEMENT MARKINGS IN ACCORDANCE WITH COA SPECIFICATIONS 732.00.
 - REFER TO ARVADA STANDARD DETAIL 900-2 FOR GENERAL NOTES FOR T-PATCH SECTIONS.
 - ASPHALT REPLACEMENT SECTIONS SHOWN ARE FOR BIDDING PURPOSES. FINAL LIMITS SHALL COORDINATED AND APPROVED BY CITY OF ARVADA STREETS INSPECTORS.
 - CONTRACTOR IS RESPONSIBLE FOR SITE SECURITY IF THEY CHOOSE TO USE AVAILABLE STAGING AREA.
 - SUBMIT STAGING AREA PLAN AND COORDINATE SITE ACCESS WITH OWNER.

- BMP LEGENDS:
- T- CUT LIMITS
 - T- CAP LIMITS
 - RS ROCK SOCK
 - INLET PROTECTION
 - SILT FENCE
 - STAGING AREA



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
 DRAWN BY: V. GANJI
 SHEET CHK'D BY: D. NELSON
 CROSS CHK'D BY: B. HALL
 APPROVED BY: D. NELSON
 DATE: MARCH 2025

565 17th Street, Suite 500
 Denver, CO 80202
 Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
 NORTH TRUNK SEWER
 86TH PKWY, BEECH TO MOORE ST
 (NTL 2/3/ALKIRE FM)

ALKIRE STREET
 EROSION CONTROL PLAN
 STA 1+00 TO STA 21+00

APPROVED:
 City Engineer

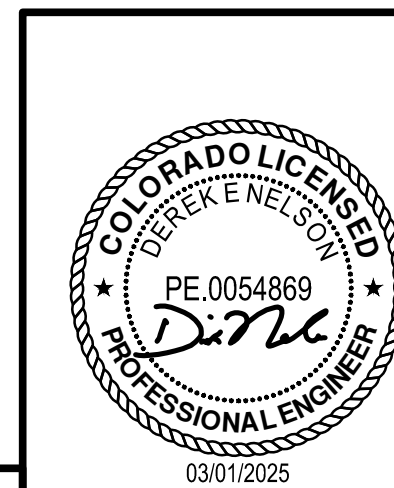
3/12/25
 Date

NTL 2/3
 Job Number

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PROJECT NO. 263334-295058
 FILE NAME: EC07STPL.DWG

SHEET NO.
 EC-7



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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

ALKIRE STREET
EROSION CONTROL PLAN
STA 21+00 TO STA 30+13

APPROVED: [Signature] 3/12/25 NTL 2/3
City Engineer Date Job Number

Review is for general compliance with the City of Arvada, "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.

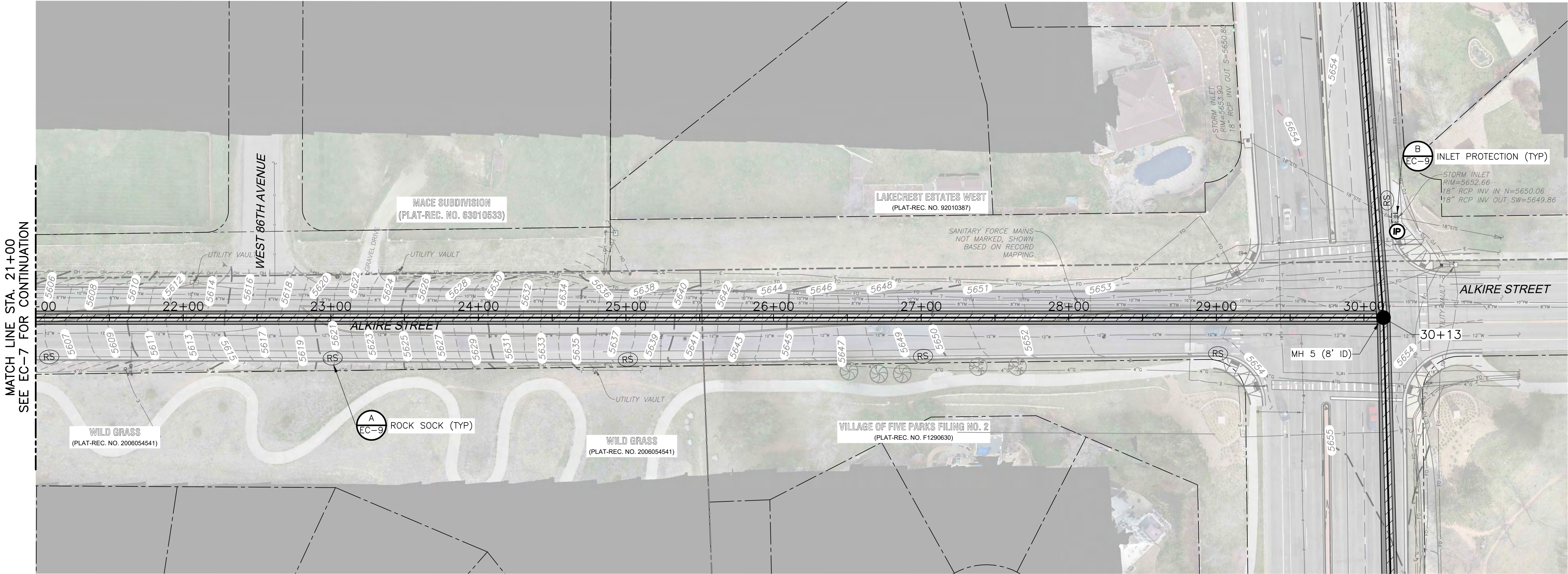


PROJECT NO. 263334-295058
FILE NAME: EC08STPL.DWG

SHEET NO.

EC-8

ISSUED FOR BID - NOT FOR CONSTRUCTION



PLAN

1" = 40'

CONSTRUCTION NOTES:

- CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS PER SPECIFICATIONS.
- CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE SWMP PLAN AND LOCAL JURISDICTIONAL GUIDELINES.
- CONTRACTOR SHALL PERFORM PAVEMENT MARKINGS IN ACCORDANCE WITH COA SPECIFICATIONS 732.00.
- REFER TO ARVADA STANDARD DETAIL 900-2 FOR GENERAL NOTES FOR T-PATCH SECTIONS.
- ASPHALT REPLACEMENT SECTIONS SHOWN ARE FOR BIDDING PURPOSES. FINAL LIMITS SHALL COORDINATED AND APPROVED BY CITY OF ARVADA STREETS INSPECTORS.

BMP LEGENDS:

- T- CUT LIMITS
- T- CAP LIMITS
- RS ROCK SOCK
- INLET PROTECTION

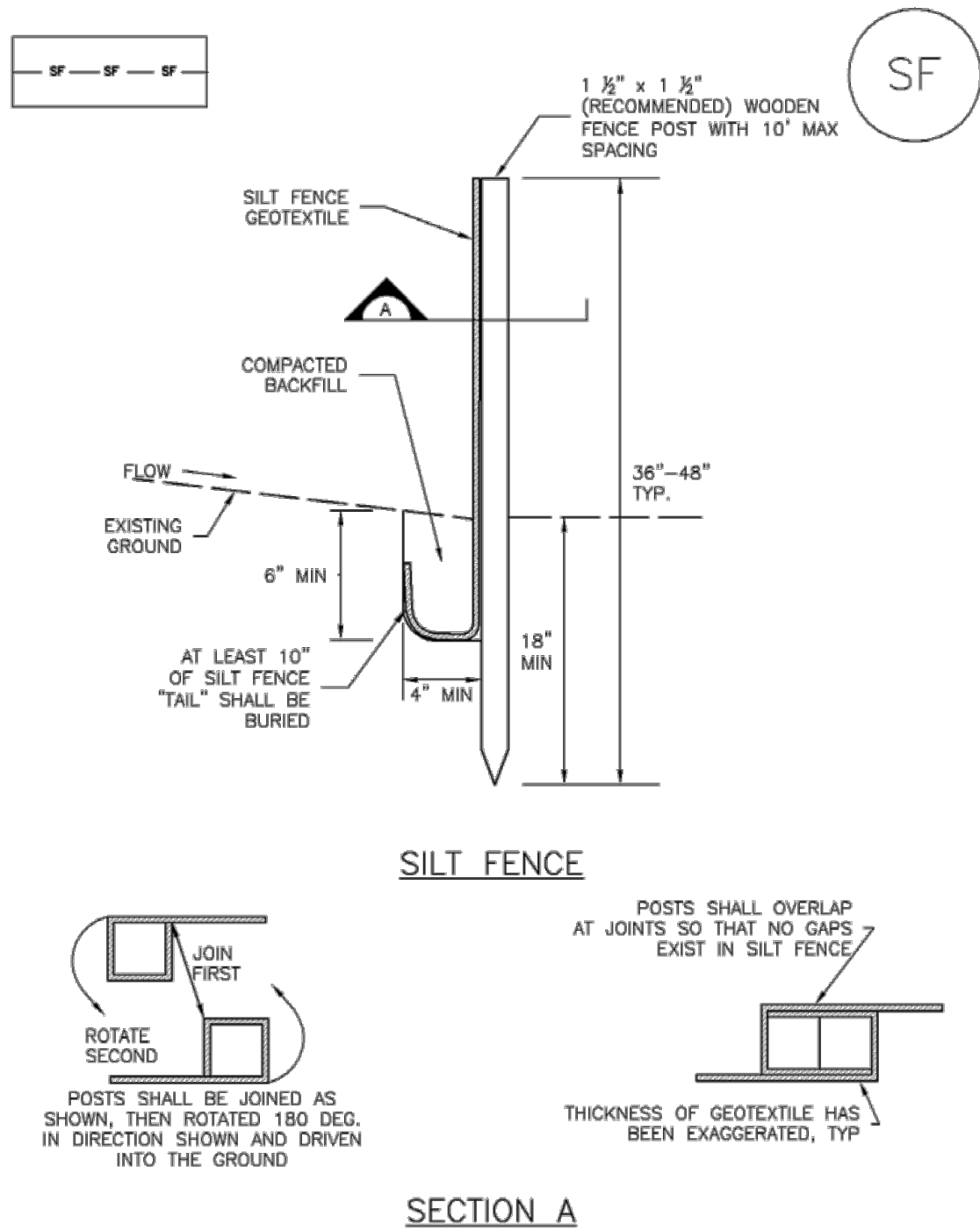
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Silt Fence (SF)

SC-1

SC-1

Silt Fence (SF)



SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF ALBUQUERQUE, NOT AVAILABLE IN AUTOCAD)

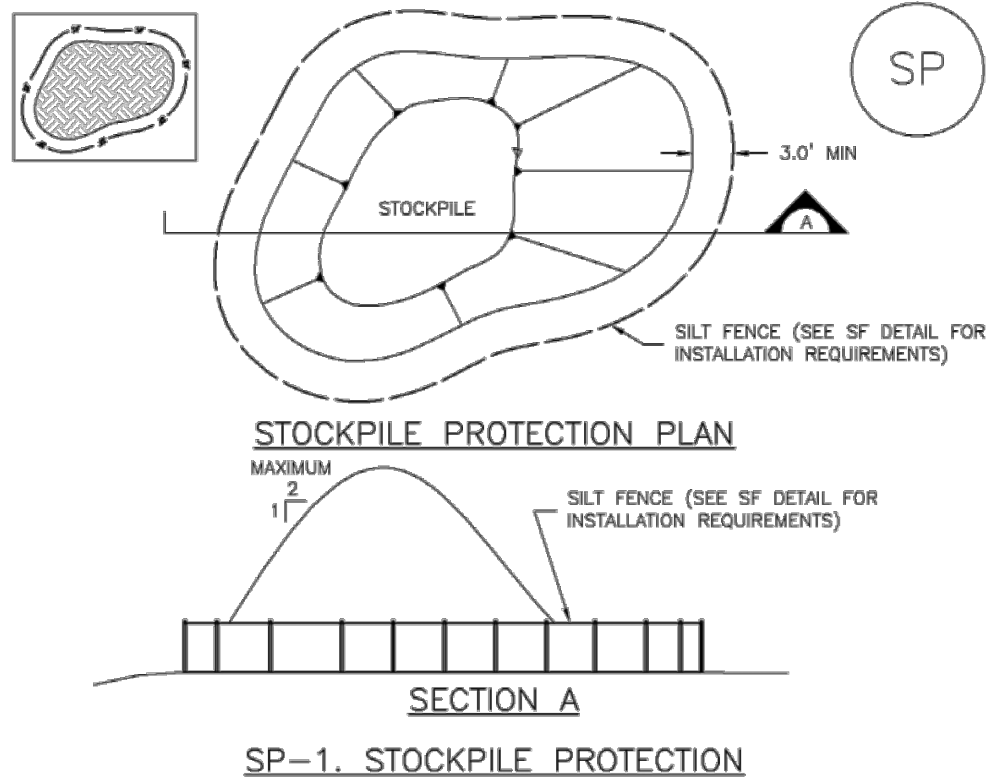
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Stockpile Management (SP)

MM-2

MM-2

Stockpile Management (SM)



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.

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

STOCKPILE PROTECTION MAINTENANCE NOTES

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

DETAIL

NTS

A

DETAIL

NTS

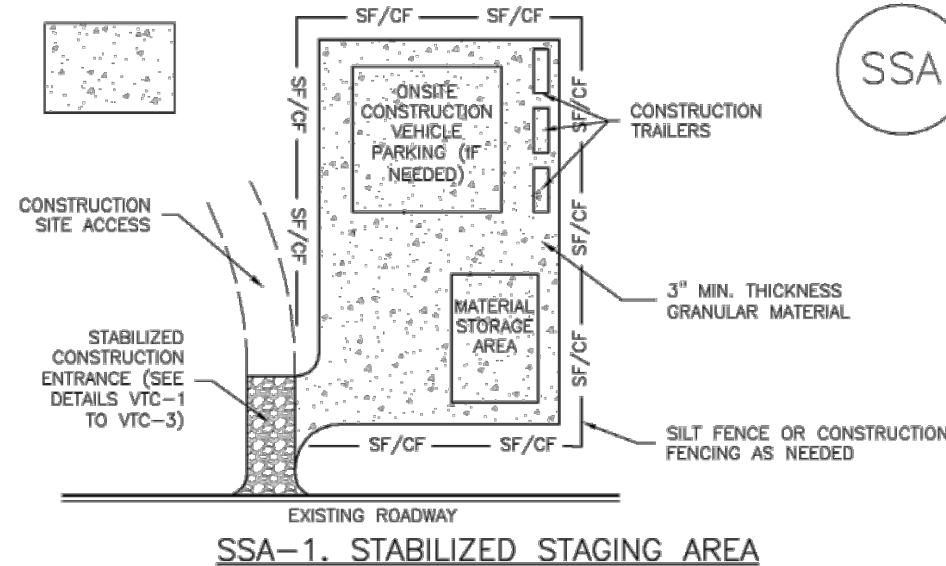
B

Stabilized Staging Area (SSA)

SM-6

SM-6

Stabilized Staging Area (SSA)



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
 - LOCATION OF STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

DETAIL

NTS

C

SM-4

Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
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3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

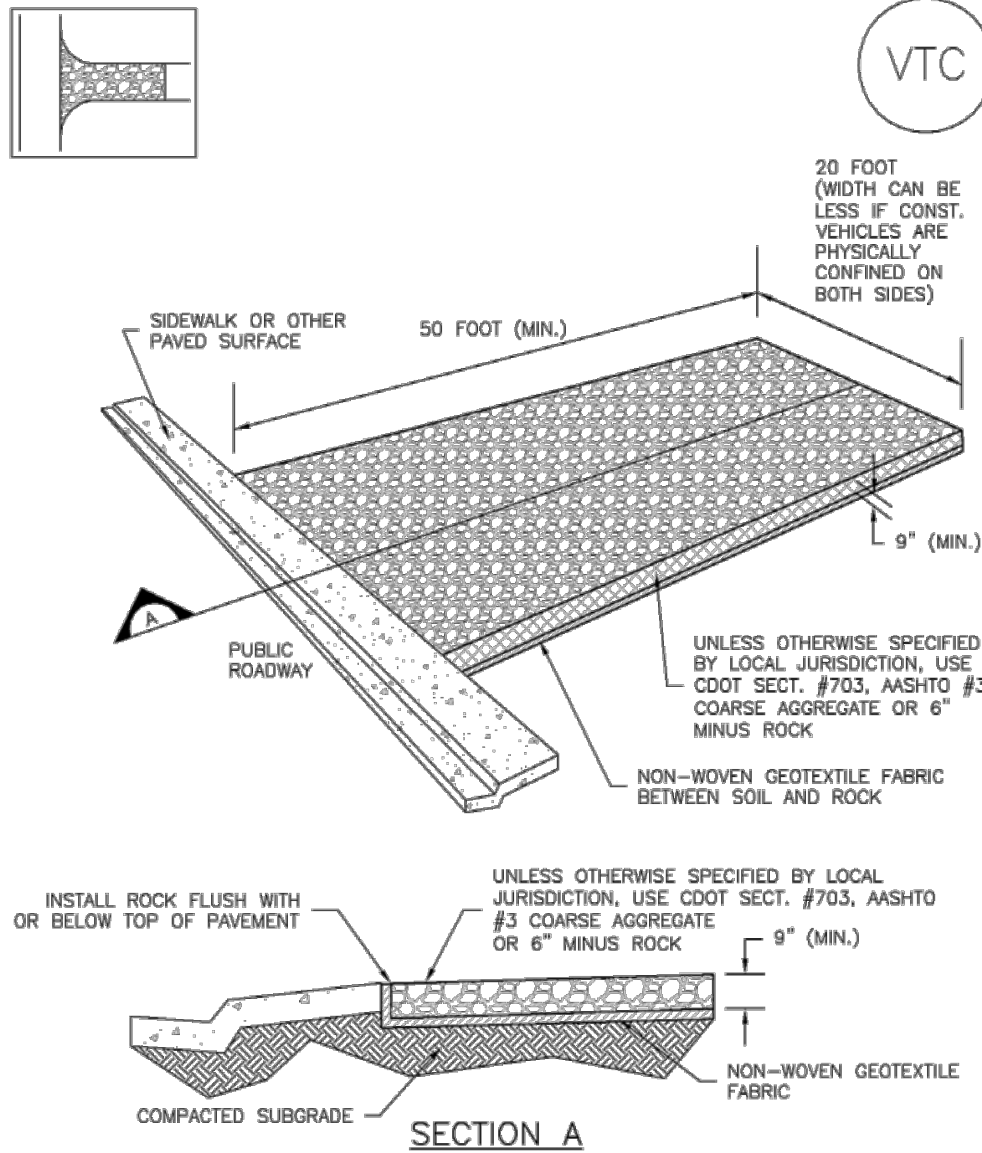
DETAIL

NTS

D

Vehicle Tracking Control (VTC)

SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

DETAIL

NTS

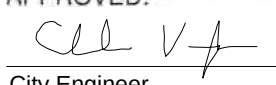
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REV. NO.	DATE	DRWN	CHKD	REMARKS
DESIGNED BY:		T. WEIDER		
DRAWN BY:		V. GANJI		
SHEET CHK'D BY:		D. NELSON		
CROSS CHK'D BY:		B. HALL		
APPROVED BY:		D. NELSON		
DATE:		MARCH 2025		



CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

EROSION CONTROL DETAILS II

APPROVED: 
City Engineer
3/12/25 Date
NTL 2/3 Job Number

Review is for general compliance with the City of Arvada "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.



PROJECT NO. 263334-295058
FILE NAME: EC10STD.TDWG

SHEET NO.

EC-10

GENERAL NOTES:

1. Project Scope: This project updates the existing bike lane on 86th Parkway with green pavement markings, additional bike lane symbols, and updated signage to enhance cyclist visibility and safety. Work includes transitions to adjacent trails and warnings for vehicular traffic at key intersections.
2. Applicable Standards: All work shall conform to the following unless otherwise noted:
 - Manual on Uniform Traffic Control Devices (MUTCD), 11th Edition, 2023.
 - FHWA Interim Approval IA-14 (Green-Colored Pavement for Bike Lanes).
 - Colorado DOT Standard Specifications for Road and Bridge Construction, Section 627 (Pavement Markings).
 - City of Arvada Engineering Code of Standards and Specifications 2023 to present.
3. Pavement Markings:
 - Green Pavement: Continuous solid green coating applied to the full width of the bike lane, using water-based acrylic paint or Methyl Methacrylate (MMA), 15–20 mils wet thickness (paint) or 80–120 mils (MMA), meeting FHWA IA-14 chromaticity standards. Skid resistance $\geq$ 45 BPN with glass beads/aggregate.
 - White Symbols: Thermoplastic bicycle symbols with 4 in. solid white line, 90–125 mils thick, minimum reflectivity 250 mcd/m²/lx, per MUTCD.Symbol Placement: First symbol 50 ft from bike lane start (e.g., post-intersection), spaced 500 ft on straight sections.
4. Signage:

General Requirements: All signs shall conform to MUTCd and City of Arvada requirements (See city of arvada sign post detail 700-TR-1).
5. Application Conditions:
 - Surface preparation: Pavement clean, dry, free of debris/oil, per manufacturer specs.
 - Weather: Apply markings at 50°F and rising, no precipitation within 24 hours.
 - Curing: Use fast-drying materials (10–30 min cure time) to minimize traffic disruption.
6. Coordination: Contractor shall coordinate with City of Arvada Engineering team for final approval of sign designs, symbol spacing, and material specifications prior to installation. Submit plans for review.
7. Traffic Control Plan: The contractor shall develop and implement a Traffic Control Plan (TCP) in accordance with MUTCD and City of Arvada requirements. The TCP shall minimize disruption to vehicular and bicycle traffic, ensure worker and road user safety, and protect freshly applied pavement markings during curing. Submit the TCP to the City of Arvada Traffic Division for approval prior to commencing work.



PROJECT NO.
86TH PKWAY BIKE LANE IMPROVEMENT
GENERAL NOTES

ENGINEER
MA
CHECKED BY
MA
DESIGN BY
MA

SHT **2**

Public Works Department
Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640

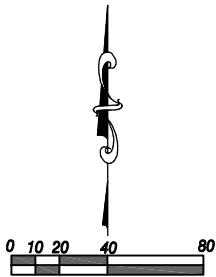
NO.	REVISION	DATE	BY
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All striping and painting work only on the south section of 86th Pkwy.
Work between Beech St and Moore St.

NOTES:

1. All work conforms to MUTCD (11th Ed., 2023), FHWA IA-14, CDOT Section 627, and City of Arvada Engineering standards unless noted.
2. Contractor to verify all dimensions, locations, and conditions prior to construction.
3. Maintain safe access for cyclists and pedestrians at all times during construction.
4. All existing signs and bike symbols are to remain unless otherwise noted.
5. Bike lane symbols are centered in asphalt surface within the lane and should not overlap with the concrete gutter. (Dimension adjustment is allowed by engineer approval)



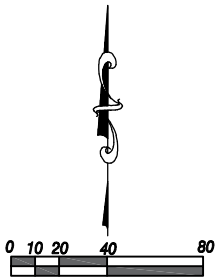
SHT	7	ENGINEER MA CHECKED BY DESIGN BY MA	PROJECT NO. 86TH PKWAY BIKE LANE IMPROVEMENT BEECH ST TO ALKIRE ST	 CITY OF ARVADA	Public Works Department Engineering Division 8101 Ralston Road Arvada, Colorado 80002 Phone 720-898-7640	NO.	REVISION	DATE	BY
						1			
						2			
						3			
						4			
						5			



All striping and painting work only on the south section of 86th Pkwy.

NOTES:

1. All work conforms to MUTCD (11th Ed., 2023), FHWA IA-14, CDOT Section 627, and City of Arvada Engineering standards unless noted.
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5. Bike lane symbols are centered in asphalt surface within the lane and should not overlap with the concrete gutter. (Dimension adjustment is allowed by engineer approval)

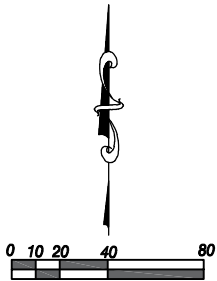


PROJECT NO. 86TH PKWAY BIKE LANE IMPROVEMENT ALKIRE ST TO YANK CT		 CITY OF ARVADA		Public Works Department Engineering Division 8101 Ralston Road Arvada, Colorado 80002 Phone 720-898-7640		NO. 1 2 3 4 5		REVISION		DATE		BY	
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- NOTES:
- 1. All work conforms to MUTCD (11th Ed., 2023), FHWA IA-14, CDOT Section 627, and City of Arvada Engineering standards unless noted.
 - 2. Contractor to verify all dimensions, locations, and conditions prior to construction.
 - 3. Maintain safe access for cyclists and pedestrians at all times during construction.
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Public Works Department

Engineering Division

8101 Ralston Road

Arvada, Colorado 80002

Phone 720-898-7640

CITY OF

ARVADA

PROJECT NO.

86TH PKWAY BIKE LANE IMPROVEMENT

YANK CT TO WARD RD

ENGINEER

MA

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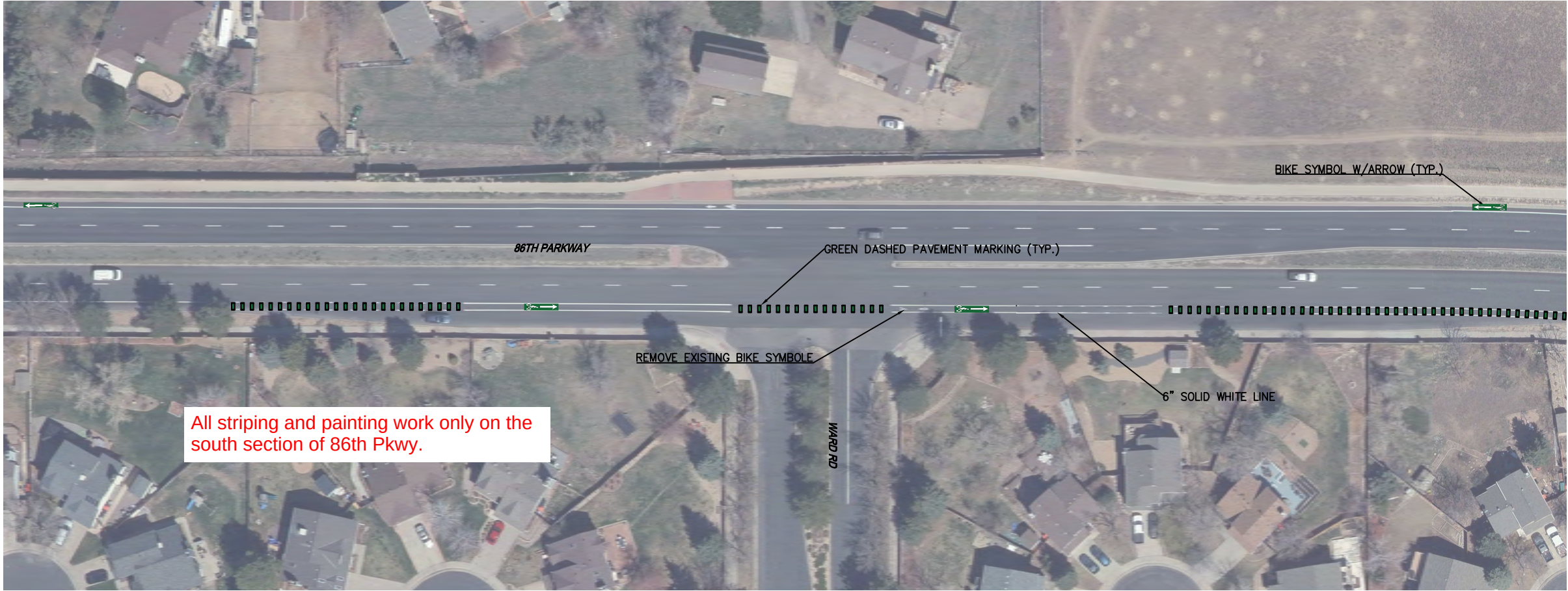
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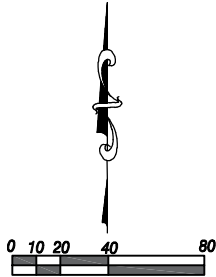
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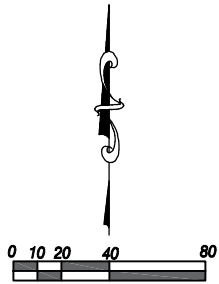


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- NOTES:
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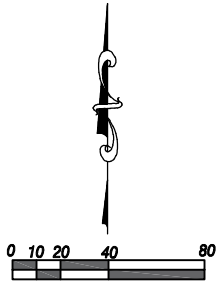


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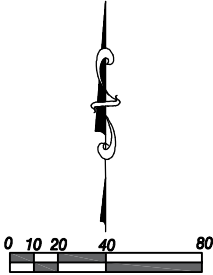
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PROJECT NO. 86TH PKWAY BIKE LANE IMPROVEMENT TAFT ST		 CITY OF ARVADA		Public Works Department Engineering Division 8101 Ralston Road Arvada, Colorado 80002 Phone 720-898-7640		NO. 1 2 3 4 5		REVISION		DATE		BY	
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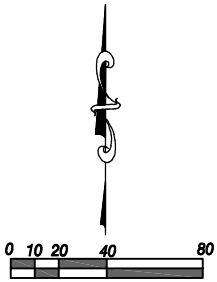


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- NOTES:
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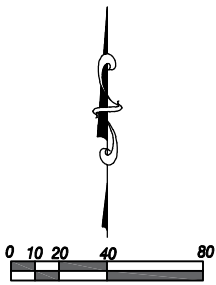
All striping and painting work only on the south section of 86th Pkwy.

PROJECT NO. 86TH PKWAY BIKE LANE IMPROVEMENT QUEEN ST		 CITY OF ARVADA		Public Works Department Engineering Division 8101 Ralston Road Arvada, Colorado 80002 Phone 720-898-7640		NO.		REVISION		DATE		BY	
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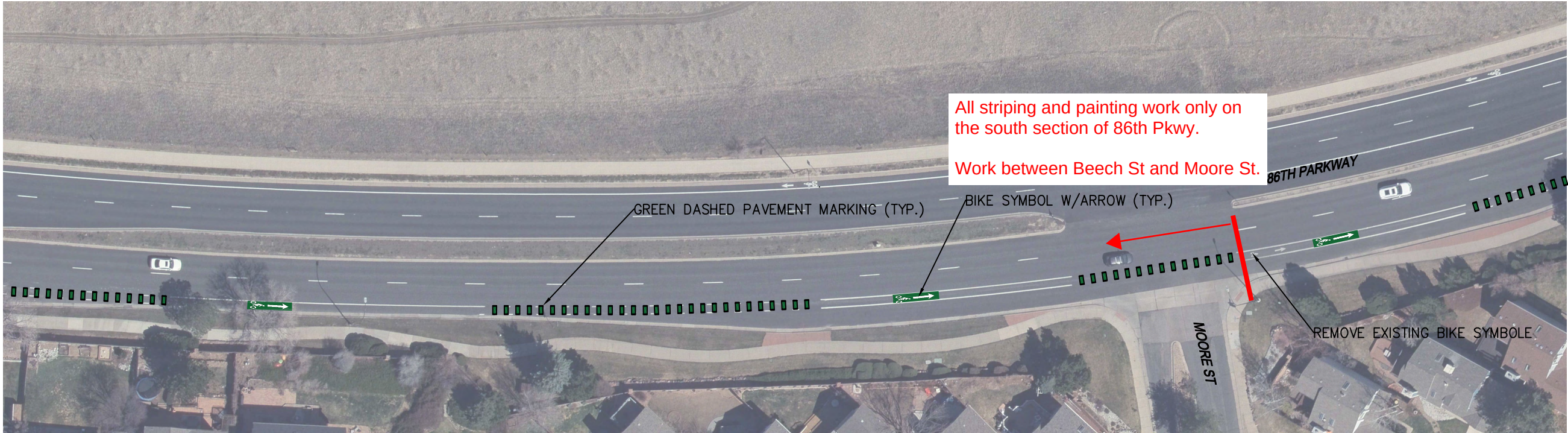


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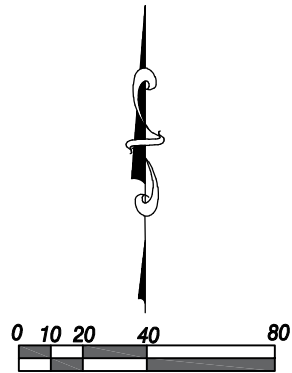
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NOTES:

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Public Works Department	
Engineering Division	
8101 Ralston Road	
Arvada, Colorado 80002	
Phone 720-898-7640	

PROJECT NO.	
86TH PKWAY BIKE LANE IMPROVEMENT	
MOORE ST	

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DESIGN BY	MA

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CITY OF ARVADA

PURCHASING DIVISION
FACSIMILE: 720-898-7098 ▲ TDD: 720-898-7869
PHONE: 720-898-7099

REQUEST FOR BIDS- ADDENDUM No. 1

BID#: 25-ENG-048

Title: **North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)**

CSB Issued: 06/03/2025

Addendum #: **1**

Today's Date: 06/26/2025

Bids Due By: 07/15/2025 **2:00 PM MDT** (EXTENDED)

Questions Deadline: 06/18/2025 **2:00 PM MDT** (NO CHANGE)

Solicitation and all related addenda and communications are available at WWW.BIDNETDIRECT.COM

The following clarifications are provided to be incorporated into the Request for BIDS
All other information shall remain unchanged.

1. Pre-Bid Meeting Agenda
2. Pre-Bid Meeting Attendance Sheet
3. **The Bid DUE Date is being extended to July 15, 2025 at 2:00 PM**
Join Zoom Meeting <https://arvadaco-gov.zoom.us/j/84830735021?pwd=TmOcxk714aCYVM5IX7Kg2pFiu96JqD.1>
Meeting ID: 848 3073 5021 Passcode: 079136
4. Answers to the Questions will be published in Addendum No 2



PRE-BID MEETING AGENDA

North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)

CSB 25-ENG-048

6/12/2025, 10:00 AM MDT - MANDATORY

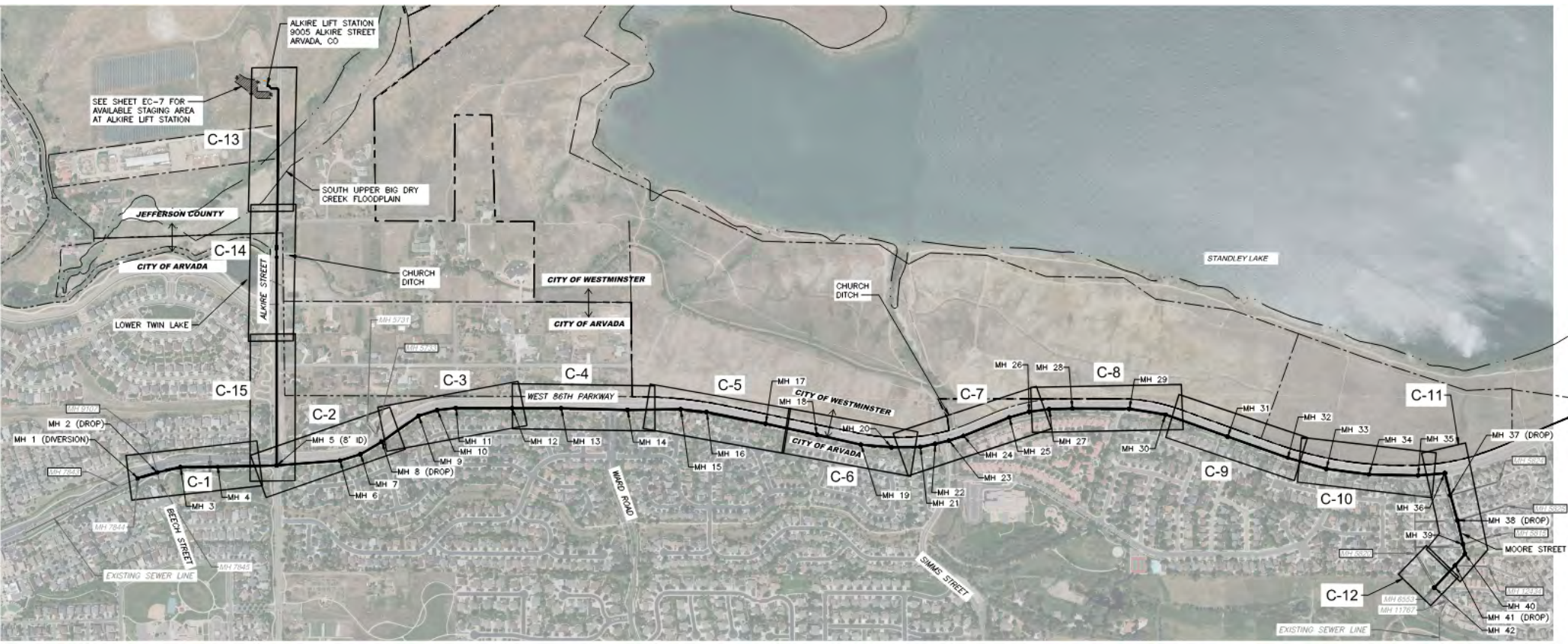
<https://arvadaco-gov.zoom.us/j/83132403482?pwd=LZ9aVoEFHRikB7ovp9Zkc6yJPeJxg4.1>

1. Attendance:
 - a. City of Arvada:
 - i. Matt Amidei
 - ii. Doreen Mazza
 - b. Consultant – CDM Smith:
 - i. Brian Hall
 - ii. Peter Hassinger
 - c. Contractors – See Attendance Sheet
2. Purchasing
 - a. Questions – how to submit and get official answers
 - b. CSB Documents
 - c. Bid Submissions
 - d. Other
3. Project Summary
 - a. Installation of new sanitary sewer gravity pipe and force main
 - i. Approximately 11,000 LF of 24" & 30" gravity pipe & 3,000 LF of 12" force main
 - ii. Gravity to be bid as FRP or PVC per project specs
 - iii. Force main to be C900 pipe per specs
 - iv. Import of select common fill
 - v. Temporary bypass pumping
 - vi. Two ditch crossings
 - vii. Diversion vault
 - viii. Dewatering and pumping
 - ix. Tree protection (arborist)
 - x. Site restoration and survey
 - xi. Striping and painting
 - b. 2023 City Standard Details and Specifications – also includes approved products list
 - c. City Contractor License needed
 - d. Permits via Trakit (see project specs for approximate list)
 - e. Inspections via Trakit

4. Proposal Schedule

- a. ~~Bids due July 1, 2025, at 2:00 pm via BidNet~~
 - i. Include proof of minimum qualifications
- b. Questions must be submitted via BidNet. Last day for questions is June 18, 2025
- c. Addendum will be issued and will include, at a minimum, the sign-in for this meeting and this agenda
- d. Goal is for the selected contractor to be selected in July; City council approval in August; Notice to Proceed shortly after.

5. Project Schedule - Final Completion 300 calendar days after notice to proceed



PRE-BID MEETING ATTENDANCE SHEET

Bid # 25-ENG-048 North Trunk Sewer 86th Parkway, Beech to Moore St

Meeting Date/Time: 06/12/2025 10:00 AM MT

Facilitator: Matt Amidei – Engineering Doreen Mazza Purchasing

Place: VIRTUAL
<https://arvadaco-gov.zoom.us/j/83132403482?pwd=LZ9aVoEFHRikB7ovp9Zkc6yJPeJxg4.1>

Company	Representative Name	Phone	E-Mail
Reynolds Construction			
Harper Brothers Construction			
Thalle Construction	Brad Miller	940-391-2788	txbids@thalle.com
Alpine Civil Construction	Kurt Marshall		
Underground Infrastructure Technologies	Peter Gibala	7205390390	pgibala@harwest.com
BT construction	Patrick Costello	720-830-3027	Patrick.costello@btconstruction.com
United Rentals	Guy Troy		
American West Construction	Cary Neibauer		cneibauer@trustawc.com
T. Lowell Construction	Tim Lowell	303-435-6192	tim2@tlowellconstruction.com
Harper Brother Construction	Michelle Wilson	303-638-0731	michelle.wilson@harperbro.com
Brannan Construction	Ryan Rosel		rrosel@brannan1.com
Miller Pipeline, LLC	Jimmy Stephens	(719) 252-8832	jimmy.stephens@millerpipeline.com

Company	Representative Name	Phone	E-Mail
JHL Constructors	Robb Metz	303.325.6131	rmetz@jhlconstructors.com
SM Hentges	John Klein	612-505-6080	john.klein@smhentges.com
SMH West	John Abbott	720-459-1886	john.abbott@smhwest.com
Garney Construction	Joe Graham		
Timber Wolf Excavating	Louisa Bradshaw	970-294-5804	dan@twolfx.com
Colorado Civil Infrastructure -	Mark LoVecchio	303-475-1110	Mark@co-civil.com
Native Sun Construction	Samuel Jeffs	(719) 413-4681	samuel.jeffs@nscteam.com
JHL Constructors	Hector Garcia	C 720.630.1052	
JHL Constructors	Garrison Beaver	C 720.910.0543	
Iron Women Construction	Kane Turner		
Belair Siteworks	Ben Schamp		



CITY OF ARVADA

PURCHASING DIVISION
FACSIMILE: 720-898-7098 ▲ TDD: 720-898-7869
PHONE: 720-898-7099

REQUEST FOR BIDS- ADDENDUM No. 2

BID#: 25-ENG-048

Title: **North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)**

CSB Issued: 06/03/2025

Addendum #: **2**

Today's Date: 06/30/2025

Bids Due By: 07/15/2025 **2:00 PM MDT (EXTENDED)**

Questions Deadline: 06/18/2025 **2:00 PM MDT (NO CHANGE)**

Solicitation and all related addenda and communications are available at WWW.BIDNETDIRECT.COM

The following clarifications are provided to be incorporated into the Request for BIDS
All other information shall remain unchanged.

1. Pre-Bid Meeting Notes
2. Answers to the Questions
3. REVISED BID SCHEDULE - Use the Excel revised bid schedule included in Addendum No 2
"REVISED – Addendum No 2 Bid Schedule 25-ENG-048 North Trunk Sewer 86th Parkway"



PRE-BID MEETING AGENDA (Meeting Notes)

North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)

CSB 25-ENG-048

6/12/2025, 10:00 AM MDT - MANDATORY

<https://arvadaco-gov.zoom.us/j/83132403482?pwd=LZ9aVoEFHRikB7ovp9Zkc6yJPeJxg4.1>

1. Attendance:

a. City of Arvada:

i. Matt Amidei

ii. ~~Chris McFee~~

1. Was unable to attend

iii. ~~Mary Stahl~~

1. Was unable to attend

iv. Doreen Mazza

b. Consultant – CDM Smith:

i. Brian Hall

ii. Peter Hassinger

c. Contractors – See Attendance Sheet

2. Purchasing

a. Questions – how to submit and get official answers

i. Bidnet will be the source of all communication and notices.

b. CSB Documents

c. Bid Submissions

d. Other

3. Project Summary

a. Installation of new sanitary sewer gravity pipe and force main

i. Approximately 11,000 LF of 24" & 30" gravity pipe & 3,000 LF of 12" force main

ii. Gravity to be bid as FRP or PVC per project specs

1. Chosen gravity pipe must remain the same for entire job. Cannot switch between the two materials.

iii. Force main to be C900 pipe per specs

iv. Import of select common fill

1. For all backfill along gravity and force main. Contractor responsible for hauling/disposal and importing.

v. Temporary bypass pumping

1. Plans provide flow estimates for bypass but contractor is responsible for ensuring adequate sizing.

vi. Two ditch crossings

1. Both Church Ditch. City is currently working to finalize the crossing agreement.
 - vii. Diversion vault
 - viii. Dewatering and pumping
 - ix. Tree protection (arborist)
 1. Along 86th Pkwy. Contractor to hire arborist for all tree trimming needs. Don't expect it to be a large item but could be dependent on the contractors' selected equipment.
 - x. Site restoration and survey
 1. Contractor responsible for all survey needs. Includes collecting asbuilt survey shots in accordance with project specs.
 - xi. Striping and painting
 1. Striping to match existing and include the new markings included in the attached bid documents.
 - b. 2023 City Standard Details and Specifications – also includes approved products list
 - c. City Contractor License needed
 - d. Permits via Trakit (see project specs for approximate list)
 - e. Inspections via Trakit
4. Proposal Schedule
- a. Bids due July 1, 2025, at 2:00 pm via BidNet
 - i. Include proof of minimum qualifications
 - b. Questions must be submitted via BidNet. Last day for questions is June 19, 2025
 - c. Addendum will be issued and will include, at a minimum, the sign-in for this meeting and this agenda
 - d. Goal is for the selected contractor to be selected in July; City council approval in August; Notice to Proceed shortly after.
5. Project Schedule - Final Completion 300 calendar days after notice to proceed

Questions & Answers - 1

Project 25-ENG-048 - North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)
Buying Organization City of Arvada

No	Question/Answer	Question Date
Q1	Question: Approved Products? Will the Cretex Pro Ring be an alternative for concrete grade rings? And will the Madewell External Joint Wrap and DS-5(Epoxy) and ML-72(Mortar) be allowed for use on this project? Answer: A) Refer to City of Arvada approved products list, for list of preapproved items. Alternatives submitted by the contractor will be reviewed by the city, with the selected contractor.	06/03/2025
Q2	Question: Jack & Bore -What is the OD diameter of the joint restraints for the 24" PVC carrier pipe? -Can you clarify if/what engineering is going to be required for this job? (Load Calcs, Settlement Monitoring, tunnel work plan etc.) Is annular grout required? In the auger specs it mentions it, but in the casing, detail says no material will be in the annular space. Answer: A) Refer to Specification 330531.16 and City of Arvada approved products list. B) Refer to the Submittal List for additional information. Examples of delegated design are as follows: - Section 312333 - Trenching and Backfilling (trench excavation and support) - Section 330507.21 - Auger Boring (equipment and construction methods) - Section 312319 - Dewatering (temporary construction dewatering and surface water control) C) City detail takes precedence. The annular space between the casing and carrier pipe shall not be filled with grout. Annular grout not required. Specification 330507.21 Auger Boring will be updated to align with City detail as part of the conformed documents.	06/05/2025
Q3	Question: Warranty/Correction Period Is there a correction period or workmanship warranty required beyond the required manufacturer warranties? If so, what is the time frame? Answer: Yes, the City requires a two (2) year warranty. Please see City of Arvada Standards and Specifications section 200 for more details on the acceptance and warranty procedures.	06/11/2025

No	Question/Answer	Question Date
Q4	Question: Asphalt Surface Restoration Is the quantity calculation on the asphalt surface restoration correct? Plan pages 26-31 scale out to be a 5-foot wide patch. If I use the lineal feet of pipe and back it into the square yards, it equates to a 5 feet wide patch. This leaves a 3-foot wide pipe trench, if going by City of Arvada Detail 900-1 on page CD-3 of the plans. This does not account for the width required to set maintenance holes or for the width required for the jacking and receiving pits. With the size of the pipe being installed and additional width required for trench protective systems, I would think the width should be at least 10 feet, plus wider in the areas mentioned previously. If bid item calculation is correct, is all work outside of the 5-foot limit incidental? Answer: Asphalt quantities in the SOV's have been updated to account for the fact that contractors may not build trenches to minimum widths per City details. For bidding purposes, SOV T-Cut values have been revised as follows: Pipelines - assumes Pipeline OD +48", Maintenance Holes - Diameter plus 72" clearance, Jacking and Receiving pits - based on plan dimensions. If a contractors means and methods require larger jacking or receiving pits, additional costs shall be captured with the bid in Bid Form items 1.07 and 2.09.	06/12/2025
Q5	Question: Street Closure With the Force Main being installed in the South bound lanes of Alkire, and having a limited amount of space outside of the roadway, will the contractor be allowed to completely shut down Alkire to all through traffic during the installation of the Force Main? Answer: Contractor to assume that portions of Alkire Street can be completely shut down for a limited timeframe between stations 1+00 and 17+00. Contractor responsible for meeting the requirements and obtaining approvals of the traffic control plan.	06/16/2025
Q6	Question: Street Closure With the backfill of the Sanitary Sewer line being 100% import, and the limited amount of space for trucks, pipe, and etc., will the contractor be allowed to completely shut down the East bound lanes of 86th Parkway, and setup two-way traffic in the West bound lanes? Answer: Contractor to assume that east bound lanes of 86th avenue can be completely shut down, assuming that shutdown areas are broken up into smaller segments to match existing gaps in the centerline median. Contractor responsible for meeting the requirements and obtaining approvals of the traffic control plan.	06/16/2025
Q7	Question: Bore Launch and Receive Pits On the drawings note 2 on sheet C-1 & note 3 on sheet C-14 call out no trench box shoring for bore launch shafts. Will this same call out apply for the receive shaft? Also, can slide rail shoring be used for the shoring? Answer: Trench boxes are permitted for receiving pits but are prohibited in jacking pits. Slide rail shoring is permitted for shoring.	06/16/2025

No	Question/Answer	Question Date
Q8	Question: List of Questions Here are a few questions that we have developed thus far: 1.Are the East Bound (South) lanes of 86th able to be closed and placing traffic on the West bound (North) lanes with one lane in each direction during the 86th Pkwy portion of the project? 2.Can a portion of East Bound lanes of 86th Parkway be closed to use for overnight storage of equipment during the Moore Street portion of the work? There is insufficient room to store equipment capable of a 25' deep excavation in the neighborhood. 3.Will concrete barricades be required by the Traffic department in any MHT configuration? 4.Can millings be used as a temporary driving surface in 86th during construction? 5.If traffic is supposed to be open each day, where will we be allowed to store equipment? We will have two excavators, a loader, water truck, bedding box and multiple trench boxes that require a large footprint. In order to move this equipment out of the road each day, it would take 2-3 hours per day with a lowboy to move equipment out of the road. Please clarify what will be required. 6.After reviewing the available laydown area, there is insufficient storage space for equipment and materials. PVC and FRP manufactures will require contractors to take the pipe immediately after production. We will also be taking bedding on a daily basis, so there will be a minor amount of bedding on site at all times. It is in the best interest of the City to allow a closure of the East Bound lanes of 86th Pkwy to provide the room for pipe and equipment. Please clarify if there is another space available for staging. 7.Will two Uniformed Traffic Control officers be required for the construction of the forcemain at the intersection of Alkire Street and 86th Pkwy? 8.What is the depth of asphalt on Alkire, 86th Pkwy and Moore Streets? 9.Has the ground water been tested for contamination? If CDPHE requires water treatment, how will the City of Arvada compensate contractors for the additional costs? Answer: A) Refer to response provided in Question #6. B) Yes, a portion of East Bound lanes of 86th parkway can be used for overnight storage. C) Refer to the requirements of Specification 015526 - Traffic Control. D) No. If a roadway is open to traffic, permanent pavement will need to be placed. If that is not possible, the City will consider a temporary cold patch or flash fill. E) Refer to responses provided on questions #5 and #6. F) Refer to responses provided on questions #5 and #6. G) Refer to responses provided on questions #5 and #6. H) Arvada standards state asphalt shall be replaced to 6" depth or existing depth, whichever greater. For bidding purposes, the Contractor shall assume an asphalt replacement depth of 9" in 86th Parkway and 6" for all other streets. As noted in the Measurement and payment specification, contractor will be paid based on actual quantities installed. Measurement and Payment table will be updated with the conformed documents to document this assumption. I) No, the City does not expect the contractor to encounter contaminated water. J) Treatment to meet CDPHE dewatering requirements has not been included. If required, would be as an amendment to the contract.	06/17/2025
Q9	Question: List of Questions Part 2 10.As a clarification, the launch pit for the bore will need to be 40'x12' and the receive pit will have to be 12'x12' to accommodate the boring equipment. 11.The bid documents are vague when comes to how much tree trimming will be required, is the City open to making this a force account item? There is no way for me quantify the need for trimming without centerline survey stakes. 12.Based on the complexity of the project, is the City able to extend the bid date? Answer: A) Understood, additional costs associated with a lager excavation (included but not limited to utility relocation, import/export of fill, pavement restoration) are the responsibility of the contractor and shall be reflected in the costs provided into the bid sheet. B) No. City does not anticipate this item to be a large expense. Contractor to assess the proposed alignment and make their own determination on their ability to protect existing trees. C) Yes, modified due date included in Addendum 1.	06/17/2025

No	Question/Answer	Question Date
Q10	Question: North Trunk Sewer Questions The solicitation states that bidding contractors must provide documentation of public work completed within the last years in the Denver metro area. We are new to this market, and haven't complete work here that would qualify. However, our people have been the Denver Market and have project experience that meets the qualification requirements. If we submit a proposal will our bid be rejected for not meeting the minimum requirements? Answer: Qualifications will be assessed based on company experience. Please reference minimum qualifications in CSB for further information. If you do not meet minimum qualifications your bid will be rejected.	06/17/2025
Q11	Question: Minimum Required Qualifications To be clear all of the 4 qualifications listed on page 254 must be met in order for the bid to be accepted? Answer: Yes, all of the qualifications listed on page 254 must be met for the bid to be accepted.	06/17/2025
Q12	Question: Backfill Material Will the city require all the trench excavation material to meet class 1 specifications? If so, will we have to export all material and bring in class 1 structural fill? Answer: A) No. Class 1 structure backfill is only required for maintenance holes. Pipe trench backfill may be Select Common Fill in accordance with the typical trench detail. Please note that specification 310515 sections 2.1-E and 2.1-F will be revised in the conformed documents to match City of Arvada standards 360.01 and 367.00, respectively. B) All material removed from trench and excavations must be exported. All material used for backfill must be imported.	06/18/2025
Q13	Question: Ground Water Contaminants Is there assumed to be any heavy metals in the ground water that we will have to treat for? Answer: Refer to responses provided on Question 8I	06/18/2025
Q14	Question: Traffic Control Will the contractor be allowed to close two lanes on 86th Parkway and maintain one lane each way for traffic? Answer: Refer to response to Question #6.	06/18/2025
Q15	Question: Boring Pits Is the footprint of the bore pits specified on the plans a limitation or are we allowed to make them larger if necessary? Answer: Refer to response to Question #4.	06/18/2025
Q16	Question: Manhole Liner Detail C on CD-1 has a call out for "Line Interior Surface... Aluminate Cement" does this apply to the Typical Maintenance Hole as well in Detail B? Answer: No, only maintenance holes that are explicitly indicated to be lined on drawings shall be lined. See notes on C-1 to C-3.	06/18/2025

No	Question/Answer	Question Date
Q17	Question: Traffic Control The plans and specifications have conflicting requirements for traffic control. Specification section 015526 states to maintain one 11-foot lane of traffic, in one direction at all times and the plans state Contractor Shall provide two-way traffic control at all open cut road work. Is two-way traffic required at all times on all roads? This seems difficult to achieve on Alkire and Moore Street. Will full closures be allowed at any time? Answer: Refer to responses provided on questions #5 and #6.	06/18/2025
Q18	Question: Trench Cut Limits Trench cut limits are the same throughout the project and do not account for different pipe sizes, trench shoring, or larger excavations for manhole installations, lateral connections, and utility crossings. Can the SOV be modified to reflect this or should the contractor assume the additional cost? Answer: Refer to response to Question #4.	06/18/2025
Q19	Question: T-Cuts in Spec vs City Standards Arvada Standards show a 1' "T-Cut and full depth patch outside the edge of the trench zone and then a 2' "T-Cap" outside of the "T-Cut" limits. The restoration plans and SOV quantities do not reflect this. Should the contractor follow Arvada standards? If so, will the SOV be adjusted or does the contractor need to assume this additional cost? Answer: A) Contractor to follow Arvada standards. B) Refer to response to Question #4.	06/18/2025
Q20	Question: Concrete Flatwork Is all concrete flatwork incidental or can an SOV item be added for areas where concrete restoration is required? Answer: Refer 012200 Measurement and Payment specification, where concrete is included in Items 1.03 - 1.06. These items also include any incidental repairs caused by the Contractor.	06/18/2025
Q21	Question: Ground Water Samples Have any ground water samples been taken and is there any contaminated water? How will the cost for treating contaminated water be handled if discovered? Answer: Refer to responses provided on Question 8I and responses provided in Question 8J	06/18/2025
Q22	Question: Project Duration Given this project is in the street with traffic restrictions and very deep excavations, the 300 calendar day window from NTP seems insufficient to complete the project. Can an additional 200 days be added for material procurement and construction? Answer: Addendum will be updated to reflect 365 calendar days. if excess time is needed, City will address with the selected contractor.	06/18/2025
Q23	Question: Licensing for Procore Is the contractor expected to purchase a license for Procore, or will they be granted access to the City of Arvada's license? Answer: Contractor will be responsible for procuring software platform for the management of this project. Alternatives submitted by the contractor will be reviewed by the city, with the selected contractor.	06/18/2025

No	Question/Answer	Question Date
Q24	Question: Street Cut Fees Will the City of Arvada require any street cut fees within City Limits? Answer: All permit fees from the City of Arvada will be waived. The contractor will be required to be licenced with the City and there is a small fee that the contractor will be responsible for if they are not already licensed. Fee schedule can be found on the City of Arvada website.	06/18/2025
Q25	Question: Native Material Will native material be suitable for backfill or is imported backfill required for the entire project? Answer: No. According to the typical trench detail, Select Common Fill shall be imported.	06/18/2025
Q26	Question: 8" Laterals that connect to the 8" Main in Moore Street Can the City provide a detailed map of all the services that are connected to the 8" laterals that connect to the 8" main in Moore street? Answer: For bidding purposes, Contractor to assume location of sewer services addresses shown and listed in table on Sheets C-11 and C-12. Detailed maps will be shared with the selected contractor if needed.	06/18/2025
Q27	Question: Backfill Requirements The geotechnical Study section 10 states that trench backfill, the on-site inorganic materials may be used. Can the on-site trench excavated material be used for trench backfill or does trench backfill require imported material? Answer: According to the typical trench detail, Select Common Fill shall be imported.	06/18/2025
Q28	Question: Asphalt Thickness Per the geotechnical Study section 7.1 states that asphalt was encountered between 3 and 16 inches thick. For bidding purposes please provide the thickness for asphalt removal and replacement. Answer: Response has been provided on Question #8H.	06/18/2025
Q29	Question: Concrete Thickness Per the geotechnical Study section 7.1 states that under the asphalt a concrete layer was encountered between 6 and 9 inches thick. For bidding purposes please provide the thickness for the concrete to be removed and does the concrete need to be replace? Answer: For bidding assumptions, Contractor to assume that concrete layer for removal is 9 inches thick and will not need to be replaced.	06/18/2025
Q30	Question: Bid Item 1.10 Bid Item 1.10, Backfill with CLSM 590 CY. Is this bid item for the requirements of spec. section 312333.3.12. A, B and C. Or for some other purposes? Answer: Yes, it is for the requirements of spec section 312333.3.12.	06/18/2025

No	Question/Answer	Question Date
Q31	Question: Questions north trunk 1. Will the city be providing material testing or is it the contractors responsibility? 2. Can you please confirm the Quantities for the 24" Sanitary Sewer are correct? 3. When will the Notice to proceed start? Answer: A) Contractor is responsible for material testing prior to construction (e.g. concrete mix design, pipe pressure testing, yield strength, etc.). Construction material testing (e.g. gradation, compaction, concrete testing) provided by Owner's agency. Contractor is expected to schedule all testing activities needed to meet minimum testing requirements outlined in the specifications. B) Yes, note that 24-inch sanitary sewer piping is included in Line Items 1.04, 1.06, 1.07, and 1.08. C) The City anticipates NTP to be issued around the end of September.	06/18/2025
Q32	Question: CLSM Backfill Do all the trenchless launch and receiving pits require CLSM backfill? Answer: Yes, CLSM will be required to backfill all jacking and receiving pits. SOV will be based on plan dimensions, Contractor to include costs to match volume requirements based on jacking and receiving pit sizes to meet the contractors means and methods. Specification 312333 will be updated in the conformed documents to reflect this requirement.	06/18/2025
Q33	Question: Sample Contract Will the proposed Contract, additional General Conditions and Supplementary Conditions be provided for review? Answer: No. This will be provided to the selected contractor.	06/23/2025
Q34	Question: Builders Risk Coverage Who is responsible for builder's risk coverage? Answer: The contractor is responsible for meeting all insurance requirements listed in the CSB.	06/23/2025
Q35	Question: Discrepancy - Sqr Yd or Sqr Ft Page 31, 2.15) DESCRIPTION: Payment will be made at the contract unit price bid per square feet as stated in the proposal for Milling and Resurfacing/Overlay and shall include all labor, materials, etc... 2.15) MEASUREMENT and PAYMENT: Measurement and payment for this item shall be measured in actual square yard over which the milling and subsequent resurfacing/overlay is completed and accepted at the thickness as indicated in the Drawings. "Which is it". Answer: Square Yards, table will be updated to reflect this change in the conformed documents.	06/23/2025
Q36	Question: ProCore Access Will the Contractor be responsible for Obtaining Procore Construction Software or will the Owner Supply Access? Answer: Refer to response to Question #23.	06/23/2025
Q37	Question: Excavated Materials Is there a City Borrow pit to haul excess excavated materials? Answer: No, there is not a City Borrow pit to haul excess excavated materials.	06/23/2025

No	Question/Answer	Question Date
Q38	Question: Excavated Spoils Can we place excavated spoils on the pavement for use in the backfill? "If No does the city have a place to haul and stockpile and bring back for backfill?" Answer: No, excavated spoils can not be placed on the pavement. No, the City does not have a place to haul and stockpile backfill.	06/23/2025
Q39	Question: Jersey Barriers Are we required to use Jersey Barriers/K-rails to block off our work areas? Answer: Refer to requirements provided in Specification 015000 Temporary Facilities and Controls, and 015526 - Traffic Control.	06/23/2025
Q40	Question: Compactions Testing Will the Owner perform compaction testing? Answer: Construction material testing (e.g. gradation, compaction, concrete testing) provided by Owner's agency. Contractor is expected to schedule all testing activities needed to meet minimum testing requirements outlined in the specifications.	06/23/2025
Q41	Question: Construction Water Construction Water for Project will the city be supplying Water & Meter? Answer: Yes, Refer to City of Arvada Standards and Specifications 142.00. Contractor shall coordinate with Utility Billing for the hydrant meter agreement and to pay meter deposit fee. City will cover cost of water used for the project.	06/23/2025
Q42	Question: Jobsite Trailer Is the Contractor to supply jobsite trailer for use by or share with the Owner? Answer: No, the contractor is not required to supply a jobsite trailer for use or share with the Owner.	06/23/2025
Q43	Question: Sign In Sheet Will the sign-in sheet for the mandatory pre-bid be provided by addendum? Answer: Yes, The Attendance Sheet is included in Addendum No 1.	06/23/2025

REVISED - ADDENDUM NO 2 25-ENG-048 BID SCHEDULE



Project: North Trunk Sewer 86th Pkwy, Beech To Moore St (NTL 2/3/Alkire FM)
City Project No. 24-SR-04

CONTRACTOR:

DATE:

BID PREPARED BY:

Item	Description	Units	Qty	Unit Price	Total Price
Gravity Interceptor 86th Parkway Alignment (Sheets C-1 to C-12)					
1.01	Mobilization/Demobilization/Bonds/Schedule/Permits	LS	1		\$ -
1.02	Traffic Control	LS	1		\$ -
1.03	Install 21" Sanitary Sewer - PVC or FRP (shall be same material as 1.04, circle material)	LF	151		\$ -
1.04 (selected)	Install 24" Sanitary Sewer - PVC or FRP (Contractor to circle or highlight selected material)	LF	6,117		\$ -
1.05 (selected)	Install 30" Sanitary Sewer - PVC or FRP (shall be same material as 1.04, circle material)	LF	3,866		\$ -
1.06	Remove 8" Sanitary Sewer and Install 24" Sanitary Sewer - PVC or FRP (shall be same material as 1.04, circle material)	LF	795		\$ -
1.07	36" Bored Steel Casing Pipe	LF	62		\$ -
1.08	36" Open-Cut Steel Casing Pipe	LF	50		\$ -
1.09	Cathodic Protection	LS	1		\$ -
1.10	Backfill with CLSM (Revised in Addendum No 2)	CY	760		\$ -
1.11	Install Diversion Structure	EA	1		\$ -
1.12	Install 96" Sanitary Sewer Maintenance Hole	EA	1		\$ -
1.13	Install 60" Sanitary Sewer Maintenance Hole	EA	34		\$ -
1.14	Remove and Replace 60" Sanitary Sewer Maintenance Hole	EA	6		\$ -
1.15	Pipe abandonment and plug connections	LS	1		\$ -
1.16	Trench Stabilization Material	TON	100		\$ -
1.17	Sanitary Sewer Service Lines - Reconnect Laterals	EA	4		\$ -
1.18	Bypass Pumping	LS	1		\$ -
1.19	Asphalt Surface Restoration (Revised in Addendum No 2)	SY	8,700		\$ -
1.20	Milling and Overlay (Revised in Addendum No 2)	SY	14,200		\$ -
1.21	Pavement Markings	LS	1		\$ -
1.22	Erosion Control	LS	1		\$ -
1.23	Dewatering	LS	1		\$ -
1.24	Concrete Cut-off Wall at Casing	EA	2		\$ -
2.01	Mobilization/Demobilization/Bonds/Schedule/Permits	LS	1		\$ -
2.02	Traffic Control	LS	1		\$ -
2.03	Bypassing and Connection to Existing Alkire LS	LS	1		\$ -
2.04	Install Force Main Clean-out Manhole	EA	1		\$ -
2.05	Install 12" Force Main with Fittings (Unrestrained)	LF	2,322		\$ -
2.06	Install 12" Force Main with Fittings (Restrained)	LF	444		\$ -
2.07	DIP Yard Piping and Fittings	LF	37		\$ -
2.08	Plug Valve and Valve Box	EA	3		\$ -
2.09	24" Bored Steel Casing Pipe	LF	60		\$ -
2.10	Connection to Gravity Main w/14" piping	LS	1		\$ -
2.11	Cathodic Protection	LS	1		\$ -
2.12	Trench Stabilization Material	TON	50		\$ -
2.13	Concrete Cut-off Wall at Casing	EA	2		\$ -
2.14	Asphalt Surface Restoration (Revised in Addendum No 2)	SY	3,800		\$ -
2.15	Milling and Overlay (Revised in Addendum No 2)	SY	5,200		\$ -
2.16	Erosion Control	LS	1		\$ -
2.17	Dewatering	LS	1		\$ -
2.18	Air Valve Vault Assembly	EA	4		\$ -
Allowances (Owner Controlled)					
A-1	Grouting Allowance	LS	1	\$ 50,000.00	\$ 50,000.00
A-2	Minor Contract Revisions	LS	1	\$ 200,000.00	\$ 200,000.00
Bid Summary					
1.01 - 1.23	86th Pkwy Alignment				\$ -
2.01 - 2.19	Alkire St Force Main				\$ -
Allowances	Total allowances				\$ 250,000
All Items				Total Price	\$ 250,000

Total Amount of Bid Written Out:

Exhibit B

AN AGREEMENT BY AND BETWEEN THE CITY OF
ARVADA AND
MILLER PIPELINE, LLC FOR THE NORTH TRUNK
SEWER, 86TH PARKWAY, BEECH TO MOORE STREET
(NTL 2/3/ALKIRE FM) PROJECT, PROJECT NO. 24-SR-04,
IN AN AMOUNT NOT TO EXCEED \$8,593,185.00

BID PROPOSAL

TO: City of Arvada, Colorado (hereinafter called "CITY").

FROM: Miller Pipeline, LLC (hereinafter called "BIDDER"), organized and existing under the laws of the State of Indiana doing business as (a corporation), (a partnership), (an individual).

The Bidder, in compliance with your Advertisement for Bids, hereby proposes to perform all Work in strict accordance with the Contract Documents, for the construction City of Arvada Project No. 24-SR-04, Project Title: North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM) within the time set forth therein, and at the prices stated on the included Bid Schedule as totaled herein.

By submission of this Bid Proposal, each Bidder certifies, and in the case of a joint venture each party thereto certifies as to his/her own organization, that this Bid Proposal has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid Proposal with any other Bidder or with any competitor.

Bidder acknowledges receipt of **Addendum Nos.**

Initials: 1 JS 2 JS

Bidder states that their:

Major Material Suppliers are:

Core & Main
Copeland
Burnco

Material They Will Supply

pipe
precast concrete
aggregates

Major Subcontractors are:

Chacon Paving, Inc.
Global Underground
Work Zone Traffic Control

Work They Will Perform

asphalt
boring
traffic control

CONTRACT TIME AND LIQUIDATED DAMAGES: All work shall be completed, including clean-up, within **300** working days after the date to be specified in the Notice to Proceed. A Notice to Proceed is anticipated to be issued on or about September 5, 2025. The bidder shall agree to pay the owner the sum of \$2,000 for each calendar day that the work exceeds the allotted contract time. Contract time may be adjusted by Change Order.

Total from included Bid Schedule:

TOTAL BID \$ 8,593,185.00

SUBMITTED BY:

Company Name: Miller Pipeline, LLC

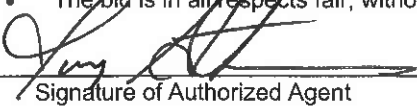
Contact Names: Jimmy Stephens

Address: 421 E. Industrial Blvd Pueblo West, CO 81007

Phone: (719) 252-8832 Email(s): jimmy.stephens@millerpipeline.com

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the Contractor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accept and acknowledge this bid is consistent with the specifications and terms and conditions.
- The bid is in all respects fair, without outside collusion or otherwise illegal action.

By: 
Signature of Authorized Agent

July 15, 2025
Date

35-1959522
FEIN

Jimmy Stephens
Typed/Printed Name of Agent

Construction General Manager
Title of Agent

jimmy.stephens@millerpipeline.com
Agent email

PAYMENT TERMS: The City standard is net thirty (30) days but every effort is made to meet net fifteen (15) days after the approved partial payment date when the contractor is satisfactorily performing the contract. The final 5% of total payment will be paid once the contract is completed satisfactorily, advertisement for final settlement is complete, and the project is accepted by the City. Payment is the date of the check mailing or date of the credit card transaction.

REVISED - ADDENDUM NO 2 25-ENG-048 BID SCHEDULE



Project: North Trunk Sewer 86th Pkwy, Beech To Moore St (NTL 2/3/Alkire FM)
City Project No. 24-SR-04

CONTRACTOR:

Miller Pipeline, LLC

BID PREPARED BY:

Jimmy Stephens

DATE:

7/15/2025

Item	Description	Units	Qty	Unit Price	Total Price
Gravity Interceptor 86th Parkway Alignment (Sheets C-1 to C-12)					
1.01	Mobilization/Demobilization/Bonds/Schedule/Permits	LS	1	\$ 180,000	\$ 180,000
1.02	Traffic Control	LS	1	\$ 290,000	\$ 290,000
1.03	Install 21" Sanitary Sewer PVC or FRP (shall be same material as 1.04, circle material)	LF	151	\$ 263	\$ 39,713
1.04	Install 24" Sanitary Sewer - PVC or FRP (Contractor to circle or highlight selected material)	LF	6,117	\$ 291	\$ 1,780,047
1.05	Install 30" Sanitary Sewer PVC or FRP (shall be same material as 1.04, circle material)	LF	3,866	\$ 350	\$ 1,353,100
1.06	Remove 8" Sanitary Sewer and Install 24" Sanitary Sewer PVC or FRP (shall be same material as 1.04, circle material)	LF	795	\$ 345	\$ 274,275
1.07	36" Bored Steel Casing Pipe	LF	62	\$ 3,600	\$ 223,200
1.08	36" Open-Cut Steel Casing Pipe	LF	50	\$ 1,000	\$ 50,000
1.09	Cathodic Protection	LS	1	\$ 5,800	\$ 5,800
1.10	Backfill with CLSM (Revised in Addendum No 2)	CY	760	\$ 195	\$ 148,200
1.11	Install Diversion Structure	EA	1	\$ 57,000	\$ 57,000
1.12	Install 96" Sanitary Sewer Maintenance Hole	EA	1	\$ 43,000	\$ 43,000
1.13	Install 60" Sanitary Sewer Maintenance Hole	EA	34	\$ 11,300	\$ 384,200
1.14	Remove and Replace 60" Sanitary Sewer Maintenance Hole	EA	6	\$ 21,800	\$ 130,800
1.15	Pipe abandonment and plug connections	LS	1	\$ 10,600	\$ 10,600
1.16	Trench Stabilization Material	TON	100	\$ 100	\$ 10,000
1.17	Sanitary Sewer Service Lines - Reconnect Laterals	EA	4	\$ 5,600	\$ 22,400
1.18	Bypass Pumping	LS	1	\$ 220,000	\$ 220,000
1.19	Asphalt Surface Restoration (Revised in Addendum No 2)	SY	8,700	\$ 89	\$ 774,300
1.20	Milling and Overlay (Revised in Addendum No 2)	SY	14,200	\$ 29	\$ 411,800
1.21	Pavement Markings	LS	1	\$ 75,000	\$ 75,000
1.22	Erosion Control	LS	1	\$ 53,000	\$ 53,000
1.23	Dewatering	LS	1	\$ 25,000	\$ 25,000
1.24	Concrete Cut-off Wall at Casing	EA	2	\$ 2,800	\$ 5,600
2.01	Mobilization/Demobilization/Bonds/Schedule/Permits	LS	1	\$ 30,000	\$ 30,000
2.02	Traffic Control	LS	1	\$ 65,000	\$ 65,000
2.03	Bypassing and Connection to Existing Alkire LS	LS	1	\$ 88,000	\$ 88,000
2.04	Install Force Main Clean-out Manhole	EA	1	\$ 17,500	\$ 17,500
2.05	Install 12" Force Main with Fittings (Unrestrained)	LF	2,322	\$ 200	\$ 464,400
2.06	Install 12" Force Main with Fittings (Restrained)	LF	444	\$ 275	\$ 122,100
2.07	DIP Yard Piping and Fittings	LF	37	\$ 1,250	\$ 46,250
2.08	Plug Valve and Valve Box	EA	3	\$ 24,000	\$ 72,000
2.09	24" Bored Steel Casing Pipe	LF	60	\$ 3,200	\$ 192,000
2.10	Connection to Gravity Main w/14" piping	LS	1	\$ 20,000	\$ 20,000
2.11	Cathodic Protection	LS	1	\$ 3,300	\$ 3,300
2.12	Trench Stabilization Material	TON	50	\$ 100	\$ 5,000
2.13	Concrete Cut-off Wall at Casing	EA	2	\$ 2,800	\$ 5,600
2.14	Asphalt Surface Restoration (Revised in Addendum No 2)	SY	3,800	\$ 89	\$ 338,200
2.15	Milling and Overlay (Revised in Addendum No 2)	SY	5,200	\$ 29	\$ 150,800
2.16	Erosion Control	LS	1	\$ 20,000	\$ 20,000
2.17	Dewatering	LS	1	\$ 40,000	\$ 40,000
2.18	Air Valve Vault Assembly	EA	4	\$ 24,000	\$ 96,000
Allowances (Owner Controlled)					
A-1	Grouting Allowance	LS	1	\$ 50,000.00	\$ 50,000.00
A-2	Minor Contract Revisions	LS	1	\$ 200,000.00	\$ 200,000.00
Bid Summary					
1.01 - 1.23	86th Pkwy Alignment				\$ 6,567,035
2.01 - 2.19	Alkire St Force Main				\$ 1,776,150
Allowances	Total allowances				\$ 250,000
All Items				Total Price	\$ 8,593,185

Total Amount of Bid Written Out:

Eight million five hundred ninety three thousand one hundred eighty five dollars

BID BOND

We, the undersigned Miller Pipeline, LLC as Principal, and Berkley Insurance Company as Surety, are hereby held and firmly bound unto the City of Arvada, Colorado, in the penal sum of Five Percent (5%) of Amount Bid for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

THE CONDITION of this obligation is such that whereas the Principal has submitted to the City of Arvada, Colorado the accompanying Bid Proposal, and hereby made a part hereof to enter into a Contract Agreement for the construction of City of Arvada Project No. 24-SR-04, Project Title: North Trunk Sewer – 86th Pkwy, Beech to Moore St (NTL 2/3/Alkire FM)

WHEREAS, the City, as a condition for receiving said Bid Proposal, requires the Principal to deposit with the City a Bid Proposal Guaranty, equivalent to not less than 5 Percent of the amount of said Bid Proposal.

NOW THEREFORE,

- (A) If said Bid Proposal shall be rejected; or in the alternate,
- (B) If said Bid Proposal shall be accepted and the Principal shall execute and deliver a Contract Agreement (properly completed in accordance with said Bid Proposal) and shall furnish a Performance and Payment Bond upon the forms prescribed by the City for the faithful performance of said Contract; and for the payment of all persons performing labor or furnishing materials in connection therewith; and shall in all other respects perform the agreement created by the acceptance of said Bid Proposal;

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the City may accept such Bid and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, this 1st day of July, 2025 and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

PRINCIPAL

Name: Miller Pipeline, LLC

Address: 421 E. Industrial Blvd., Pueblo West, CO 81007

By: 

Title: V.P.



SURETY

Berkley Insurance Company

475 Steamboat Road, Greenwich, CT 06830

By: 

Title: Kathleen M. Coen, Attorney-in-Fact

Attorney-in-Fact:

(SEAL)



NOTE: Surety Companies executing bonds must be authorized to transact business in the State of Colorado and be acceptable to the City.

**POWER OF ATTORNEY
BERKLEY INSURANCE COMPANY
WILMINGTON, DELAWARE**

KNOW ALL MEN BY THESE PRESENTS, that BERKLEY INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Delaware, having its principal office in Greenwich, CT, has made, constituted and appointed, and does by these presents make, constitute and appoint: *Holly Tallone; Louis J. Bensinger; Kathleen M. Coen; Gary Giulietti; Julia C. Zalesky; Abigail E. Curtiss; Jordan Fisher; Ashley Martin; Dana E. Wium; Kelly Wolff; Ryan W. Duffy; or Gentry Stewart of Lockton Companies, LLC of Conshohocken, PA* its true and lawful Attorney-in-Fact, to sign its name as surety only as delineated below and to execute, seal, acknowledge and deliver any and all bonds and undertakings, with the exception of Financial Guaranty Insurance, providing that no single obligation shall exceed **Fifty Million and 00/100 U.S. Dollars (U.S.\$50,000,000.00)**, to the same extent as if such bonds had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office in their own proper persons.

This Power of Attorney shall be construed and enforced in accordance with, and governed by, the laws of the State of Delaware, without giving effect to the principles of conflicts of laws thereof. This Power of Attorney is granted pursuant to the following resolutions which were duly and validly adopted at a meeting of the Board of Directors of the Company held on January 25, 2010:

RESOLVED, that, with respect to the Surety business written by Berkley Surety, the Chairman of the Board, Chief Executive Officer, President or any Vice President of the Company, in conjunction with the Secretary or any Assistant Secretary are hereby authorized to execute powers of attorney authorizing and qualifying the attorney-in-fact named therein to execute bonds, undertakings, recognizances, or other suretyship obligations on behalf of the Company, and to affix the corporate seal of the Company to powers of attorney executed pursuant hereto; and said officers may remove any such attorney-in-fact and revoke any power of attorney previously granted; and further

RESOLVED, that such power of attorney limits the acts of those named therein to the bonds, undertakings, recognizances, or other suretyship obligations specifically named therein, and they have no authority to bind the Company except in the manner and to the extent therein stated; and further

RESOLVED, that such power of attorney revokes all previous powers issued on behalf of the attorney-in-fact named; and further

RESOLVED, that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any power of attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligation of the Company; and such signature and seal when so used shall have the same force and effect as though manually affixed. The Company may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Company, notwithstanding the fact that they may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, the Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 2nd day of May, 2024.



Attest:

By

Philip S. Welt

Executive Vice President & Secretary

Berkley Insurance Company

By

Jeffrey M. Hafer

Senior Vice President

STATE OF CONNECTICUT)

) ss:

COUNTY OF FAIRFIELD)

Sworn to before me, a Notary Public in the State of Connecticut, this 2nd day of May, 2024, by Philip S. Welt and Jeffrey M. Hafer who are sworn to me to be the Executive Vice President and Secretary, and the Senior Vice President, respectively, of Berkley Insurance Company.

**MARIA C. RUNDBAKEN
NOTARY PUBLIC
CONNECTICUT**

MY COMMISSION EXPIRES 04-30-2029

Notary Public, State of Connecticut

CERTIFICATE

I, the undersigned, Assistant Secretary of BERKLEY INSURANCE COMPANY, DO HEREBY CERTIFY that the foregoing is a true, correct and complete copy of the original Power of Attorney; that said Power of Attorney has not been revoked or rescinded and that the authority of the Attorney-in-Fact set forth therein, who executed the bond or undertaking to which this Power of Attorney is attached, is in full force and effect as of this date.



Given under my hand and seal of the Company, this 1st day of July, 2025

Vincent P. Forte

BERKLEY INSURANCE COMPANY

STATUTORY BALANCE SHEET

DECEMBER 31, 2024

(AMOUNTS IN THOUSANDS)

Admitted Assets

Bonds	\$ 17,442,154
Common & Preferred Stocks	6,072,102
Cash & Short Term Investments	1,285,112
Premiums Receivable	2,832,359
Other Assets	<u>4,382,011</u>

<u>Total Admitted Assets</u>	<u>\$ 32,013,737</u>
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Liabilities & Surplus

Loss & LAE Reserves	\$ 16,228,078
Unearned Premium Reserves	5,059,433
Other Liabilities	<u>1,304,351</u>

<u>Total Liabilities</u>	<u>\$ 22,591,863</u>
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Common Stock	\$ 43,000
Preferred Stock	10
Additional Paid In Capital	3,014,269
Unassigned Surplus	<u>6,364,595</u>

<u>Total Policyholders' Surplus</u>	<u>\$ 9,421,874</u>
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<u>Total Liabilities & Surplus</u>	<u>\$ 32,013,737</u>
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Officers:

President: William Robert Berkley, Jr.
Secretary: Philip Stanley Welt
Treasurer: Richard Mark Baio
Asst. Treasurer: Bertman Adam Braud, Jr.
Asst. Secretary: Michelle Rene Rodemyer
Asst. Treasurer: Ted William Rogers

Directors:

William Robert Berkley
(Executive Chairman)
William Robert Berkley, Jr.
Philip Stanley Welt
Richard Mark Baio
Paul James Hancock
Carol Josephine LaPunzina
James Gerald Shiel

REQUIRED CONTRACTOR SUBMITTAL FORM

SUBMITTAL CHECKLIST:

Bid Proposals shall be submitted in the order listed below with each section clearly identified. **Missing information or required documents may result in submission being deemed non-responsive.**

- ☐ Submit completed Bid Bond, Bid Proposal, Bid Schedule, Required Contractor Submittal, and any other attachments requested.
- ☐ Submit implementation timeline and warranties, if applicable.
- ☐ Attach Contractor's Licensing, if applicable.
- ☒ Insurance – Checking this box accepts that the insurance requirements listed by the City are acceptable.
- ☐ Variations: Checking this box indicates that the contractor has variations to this solicitation. Identify all variations and exceptions to this CSB on a separate sheet/s of paper. 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. For each variation listed, reference the applicable section of the solicitation document, the page number, and the variance. Submittal of a vendor contract is considered excessive in variations and may be cause for determining that the Bid is non-responsive and ineligible for award.

MINIMUM REQUIRED QUALIFICATIONS:

Evidence of these qualifications must be submitted. All qualification projects must have been completed within the past five years and be within the Front Range of Colorado, as defined as Fort Collins to Pueblo.

- ☐ Provide two example projects with demonstrated experience installing pipeline with a ditch crossing.
- ☐ Provide two example projects with demonstrated experience installing large diameter gravity sanitary sewer pipeline (>18-inch diameter and greater).
- ☐ Provide one example project with demonstrated experience installing a sanitary sewer force main.
- ☐ Provide three general references, two for the proposed project manager and one for the proposed site superintendent, and provide resumes for these two team members.

REFERENCES:

- ☐ Check here if Contractor's standard reference sheet is attached, otherwise, use the space below.

Name: City of Pueblo Contact Person: Sonia Mondragon

Address: 1300 S. Queens Pueblo, CO 81001

Telephone No: (719) 553-2890 Email: smondragon@pueblo.us

Describe type of work/service performed or items supplied: sanitary sewer remove & replace projects; ss manhole rehab, outfall sewer extensions

Name: City of Longmont Contact Person: Alexander Doksa
Address: 501 E. First Ave Longmont, CO 80501
Telephone No: (303) 774-3574 Email: alexander.doksa@longmontcolorado.gov
Describe type of work/service performed or items supplied: water main renewal projects

Name: Denver Water Contact Person: Jeff Carpenter
Address: 1600 W 12th Ave Denver, CO 80204
Telephone No: (303) 598-0732 Email: jeff.carpenter@denverwater.org
Describe type of work/service performed or items supplied: lead water service replacements

QUALIFICATION PROJECTS:

☐ Check here if qualifications are attached separately, otherwise, use the spaces below.

Project Name: Frontier St Sewerline Extension Owner: St Vrain Sanitation District
Project Location: Firestone, CO Date Completed: June 3, 2022
Project Description: installation of 5,800 LF of 16" & 20" C900 gravity sewer main, including bored steel casing crossing (160 LF) of ditch
Sizes of Pipe Installed: 16" & 20" Length Installed: 3651 LF & 3225 LF, respectively
Project Manager: Mike Hasenack Superintendent: Clint Eaks

Project Name: Wildhorse Reuse Pipeline - Phase 1 Owner: Pueblo West Metro District
Project Location: Pueblo West, CO Date Completed: Feb 6, 2025
Project Description: installation of gravity water collection system, including 850 LF of force main and aerial crossing of ditch (Pesthouse Gulch)
Sizes of Pipe Installed: 8-18" Length Installed: 8" - 669, 12" - 864, 15" - 7,008, 18" - 9,003
Project Manager: Jimmy Stephens Superintendent: Clint Eaks

QUALIFICATION PROJECTS: (continued)

Project Name: Southern Colorado Clininc Outfall Sewer Owner: City of Pueblo

Project Location: Pueblo, Co Date Completed: July 25, 2025 (est)

Project Description: installation of interceptor main with cuts up to 35' deep

Sizes of Pipe Installed: 21" SDR 35 PVC Length Installed: 6,100

Project Manager: Jimmy Stephens Superintendent: Clint Eaks

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

QUALIFICATION PROJECTS: (continued)

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____

Project Name: _____ Owner: _____

Project Location: _____ Date Completed: _____

Project Description: _____

Sizes of Pipe Installed: _____ Length Installed: _____

Project Manager: _____ Superintendent: _____



REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM
8.A.4.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: R25-081, A Resolution Authorizing An Agreement By and Between the City of Arvada and Mid City Corporation for the 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, in an Amount Not to Exceed \$1,677,411.56

Report in Brief

The attached resolution authorizes the agreement with Mid City Corporation for the 2024 Sanitary Sewer Open Cut Construction Services Reissue, Project No. 24-SR-01, in an amount not to exceed \$1,677,411.56. This project involves the replacement and correction of grade for the existing sanitary sewer lines on W 74th Circle and Jay Ct. and replacing sewer line on Oak St and W 69th Pl.

The Arvada team recommends that the City Council approves R25-081, A Resolution Authorizing An Agreement By and Between the City of Arvada and Mid City Corporation for the 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, in an Amount Not to Exceed \$1,677,411.56.

Financial Impact

CIP Project: 24SR01 – 2024 Sanitary Sewer Open Cut Construction Services Reissue

Financial Impact: \$1,677,411.56

Funding Source: UT Wastewater Bond Project, UT CIP Wastewater, UT Drinking Water Distribution

CIP Account Number: PRJ23098559, PRJ23098541, and PRJ23097004

Background

W 74th Circle and Jay Ct. is a monthly maintenance area that poses a risk of backing up. The sewer will be replaced, and this new line will mitigate backup risks and provide adequate grade for proper flow through the line. Oak St and W 69th Pl. were installed in 1963 with a later slip line rehabilitation. The slip lining is failing and the pipe needs replacement. The sewer line will be replaced with PVC to provide continued service to residents for 50 years or more.

Discussion

	Bidders	Bid Amount	Confirmed to Meet Minimum Qualifications as stated in the CSB
1	Apex Underground	\$ 2,116,945.06	Yes
2	Brannan Sand & Gravel Company	\$ 2,394,899.00	Yes
3	Colorado Civil Infrastructure, Inc	\$ 2,310,518.50	Yes
4	Mid City Corporation	\$ 1,677,411.56	Yes
5	Native Sun Construction	\$ 3,348,165.00	Incomplete Bid Proposal Sheet
6	TWX	\$ 2,539,735.00	Yes

The lowest qualified bidder was Mid City Corporation and they have successfully completed multiple sewer projects in the last 3 years in the Colorado front range area. This work is expected to begin with a notice to proceed after contract execution and

has an estimated construction completion timeframe of March 2026.

This project also provides for the replacement of asbestos-cement water line adjacent to the new sewer alignment in W. 74th Circle and Jay Ct. This water line has reached the end of useful life; replacing the water line as part of one project is the least disruptive for property owners and residents in the vicinity.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

NA

Strategic Alignment

The recommended action aligns with the Infrastructure Work System Services within the City Council Strategic Plan. Specifically, the recommended action is consistent with:

Provides the community with a safe, reliable high quality water supply, drainage system, and wastewater disposal services for full city build-out, as defined in the Comprehensive Plan. This includes maintaining utility rates at the lowest practical levels with accurate billing that supports replacement of aging infrastructure in order to maintain robust utility systems.

Alternative Courses of Action

NA

Recommendation for Action

The Arvada team recommends that the City Council approve R25-081, A Resolution Authorizing An Agreement By and Between the City of Arvada and Mid City Corporation for the 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, in an Amount Not to Exceed \$1,677,411.56.

Suggested Motion:

I move that R25-081, A Resolution Authorizing An Agreement By and Between the City of Arvada and Mid City Corporation for the 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, in an Amount Not to Exceed \$1,677,411.56, be (approved) (rejected).

Prepared by:
Katy Smith, Civil Engineer II

Reviewed by:

Approved by:

Mary Stahl, Senior Civil Engineer	08/22/2025
Claudia Vaughan, City Engineer	08/26/2025
Jacqueline Rhoades, Director of Infrastructure	08/28/2025

SUBJECT: R25-081, A Resolution Authorizing An Agreement By and Between the City of Arvada and Mid City Corporation for the 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, in an Amount Not to Exceed \$1,677,411.56

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Bryan Archer, Chief Financial Officer	08/28/2025
Tammy Hedlund, Legal Specialist	09/02/2025
Megan McCall, Assistant City Attorney II	09/02/2025
Rachel Morris, City Attorney	09/02/2025
Linda Haley, Deputy City Manager	09/02/2025
Don Wick, City Manager	09/05/2025

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R25-081

A RESOLUTION AUTHORIZING AN AGREEMENT BY AND BETWEEN THE CITY OF ARVADA AND MID CITY CORPORATION FOR THE 2024 SANITARY SEWER OPEN CUT PROJECT, PROJECT NO. 24-SR-01, IN AN AMOUNT NOT TO EXCEED \$1,677,411.56

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, an Agreement that is in substantially the same form as that attached hereto.

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

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____

**AN AGREEMENT BY AND BETWEEN THE CITY OF ARVADA AND
MID CITY CORPORATION FOR THE 2024 SANITARY SEWER OPEN CUT
PROJECT, PROJECT NO. 24-SR-01, IN AN AMOUNT NOT TO EXCEED
\$1,677,411.56**

This Agreement is made this _____ day of _____, 2025, by and between the City of Arvada, a home rule municipal corporation (“Arvada” or “City”) and Mid City Corporation, a Wisconsin corporation (“Contractor”). The Parties may be individually referred to as the “**Party**” and jointly referred to as the “**Parties**”.

WITNESSETH:

WHEREAS, Arvada solicited proposals from interested construction professionals for the provision of construction services for sanitary sewer open cut construction at two locations in the City related to its 2024 Sanitary Sewer Open Cut Project, Project No. 24-SR-01, as described in the Contract Documents (the “Project” or the “Work”); and

WHEREAS, based on Contractor’s submissions, Arvada has selected Contractor for the Project; and

WHEREAS, Arvada and Contractor desire to enter into this Agreement regarding the construction of the Project.

NOW, THEREFORE, for and in consideration of the covenants, promises, and payments hereinafter mentioned, the Parties agree as follows:

ARTICLE 1. GENERAL DESCRIPTION OF SERVICES.

- 1.1. **The Services.** Contractor agrees to furnish or arrange for the construction services set forth in the Contract Documents and required for the completion of the Project within the timeframe provided in the Contract Documents. Contractor represents that it is thoroughly familiar with, and understands, the requirements of the Project’s scope and is experienced in the construction of projects of the type and scope contemplated by the Contract Documents. Contractor represents to Arvada that Contractor has all necessary education, skill, knowledge, expertise, and experience required for construction of the Project, and will maintain, at all times during the term of this Agreement, such personnel on its staff to provide the services contemplated hereby within the time periods required hereby. In addition, Contractor represents that it or Arvada-approved subcontractors or subconsultants performing services under this Agreement have all applicable licenses required by the State of Colorado to perform such services and all required insurance coverage as required by this Agreement and by law.
- 1.2. **Cooperation.** The Contractor shall endeavor to develop, implement, and maintain a spirit of cooperation, collegiality, and open communication with Arvada, Arvada’s consultants, and Arvada’s residents so that the goals and objectives of each are clearly understood,

potential problems are resolved promptly, and, upon completion, the Project is deemed a success by all interested parties.

- 1.3. **Preparation/Sufficiency of Site.** Before commencing the Project, the Contractor shall (i) visit and thoroughly inspect the project site and any structure(s) or other man-made features to be modified and become familiar with local conditions under which the Project will be constructed and operated; (ii) familiarize itself with the survey, including the location of all existing buildings, utilities, conditions, streets, equipment, components, and other attributes having or likely to have an impact on the Project; (iii) familiarize itself with Arvada's engineering and design requirements, design objectives, and budget for the Project; (iv) familiarize itself with pertinent Project dates and programming needs, including the Project schedule; (v) review and analyze all Project geotechnical, environmental, and construction materials tests, investigations, and recommendations; (vi) review all specifications; and (vii) gather any other information necessary for a thorough understanding of the Project. Claims by Contractor resulting from Contractor's failure to familiarize itself with the project site or pertinent documents shall be deemed waived.
- 1.4. **Contract Documents.** The Contract Documents shall consist of this Agreement, together with the following documents:
 - 1.4.1. Arvada's solicitation entitled CSB 25-ENG-063 2024 Sanitary Sewer Open Cut Construction Services, including the Advertisement for Bids, all general and special terms and conditions, insurance requirements, special provisions, forms, exhibits, and addenda ("CSB 25-ENG-063"), attached hereto as Exhibit A;
 - 1.4.2. Contractor's Response to Arvada's solicitation CSB 25-ENG-063 including Contractor's Bid Proposal, Bid Schedule, and Bid Bond ("Contractor's Response"), attached hereto as Exhibit B;
 - 1.4.3. Notice of Award;
 - 1.4.4. Performance and Payment Bond;
 - 1.4.5. Notice(s) to Proceed;
 - 1.4.6. Change Orders (if any);
 - 1.4.7. City of Arvada Engineering Code of Standards and Specifications dated October 2, 2023 ("Arvada Engineering Code of Standards and Specifications");
 - 1.4.8. Requests for Information and Responses (if any); and
 - 1.4.9. All supplementary requirements regarding wage rates, E.E.O., affirmative action, and all other Federal, state, or local requirements as outlined in the specifications (if applicable).
- 1.5. **Interpretation of Contract Documents.** In the event of conflicts or discrepancies among the Contract Documents, the documents shall govern in the following order: (1) this Agreement; (2) Arvada's solicitation CSB 25-ENG-063; (3) Arvada Engineering Code of Standards and Specifications; (4) Contractor's Response; (5) Change Orders; (6) Requests for Information and Response. Except as set forth in this section 1.5., in the event of any dispute or differences between the respective documents that constitute the Contract Documents, Contractor shall secure written instructions from Arvada before proceeding with the performance of services affected by such conflicts, omissions, or discrepancies.

ARTICLE 2. ARVADA'S DUTIES, OBLIGATIONS AND RESPONSIBILITIES.

- 2.1. **Project Information.** Contractor acknowledges that Arvada has provided Contractor with information regarding Arvada's requirements for the Project as set forth in the Contract Documents, including project specifications.
- 2.2. **Arvada's Budget.** Arvada has established, and will update, an overall budget for the Project, including amounts allocated for construction, Arvada's other costs, and reasonable contingencies related to these costs as appropriate.
- 2.3. **Arvada's Representative.** Arvada will designate a representative authorized to act on Arvada's behalf with respect to the Project.
- 2.4. **Purpose of Arvada's Review.** Arvada's review, inspection, or approval of any work, testing documents, applications for payment, or other submittals shall be solely for the purpose of determining whether the same are generally consistent with Arvada's standards, policies, and requirements. No review, inspection, or approval by Arvada of such work or documents shall relieve Contractor of its responsibility for the performance of its obligations under this Agreement or the accuracy, adequacy, fitness, suitability, or coordination of its construction services. Approval by any governmental or other regulatory agency or other governing body of any work, testing document, or the Contract Documents shall not relieve Contractor of responsibility for the performance of its obligations under this Agreement. Payment by Arvada pursuant to this Agreement shall not constitute waiver of any of Arvada's rights under this Agreement or at law, and Contractor expressly accepts the risk that defects in its performance, if any, may not be discovered until after payment, including final payment, is made by Arvada. Notwithstanding the foregoing, reasonable notice shall be given by Arvada to the Contractor if Arvada becomes aware of any fault or defect in the Project or non-conformance with the Contract Documents.

ARTICLE 3. CONSTRUCTION SERVICES REQUIREMENTS AND STANDARDS.

- 3.1. **Quality of Construction Services.** Contractor shall be responsible for the quality, completeness, accuracy, and coordination of the Work. Contractor shall provide construction services that meet all industry standards, including all environmental and regulatory requirements. Arvada will provide and be responsible for all material testing and all other testing if needed.
- 3.2. **Arvada's Right to Carry Out the Work.** If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven calendar day period after written notice from Arvada to commence and continue correction of such default or neglect with diligence and promptness, Arvada may after such seven-day period, without prejudice to other remedies Arvada may have, correct such deficiencies. In such a case, an appropriate Change Order shall be issued deducting from payments then or thereafter due to the Contractor the cost of correcting such deficiencies, including compensation for any consultant's additional services and expenses made necessary by

such default, neglect, or failure. If payments then or thereafter due to the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to Arvada within ten calendar days of receipt of an invoice for such amounts from Arvada.

- 3.3. **Legal Standard.** Contractor shall furnish construction services in accordance with industry standards currently practiced by construction professionals on projects similar in size, complexity, and cost to the Project.
- 3.4. **Construction Standards.** Contractor shall perform all services in accordance with requirements of governmental agencies having jurisdiction over the Project, City of Arvada Engineering Code of Standards and Specifications dated October 2, 2023, and the requirements set forth in the other Contract Documents. In addition, the Contractor's work shall comply with all applicable building codes, accessibility laws and regulations, environmental regulations, and other applicable legal requirements in effect at the time of the Work. To the extent Arvada's standards exceed applicable legal requirements, Arvada's standards shall be met unless Contractor obtains a variance from Arvada in writing.
- 3.5. **Permits.** Contractor shall be responsible for obtaining all necessary permits and other governmental approvals necessary for the development of the Project and shall obtain the same at the times necessary to meet the Project schedule. Contractor's responsibility includes providing environmental services and permitting coordination as further described in the Contract Documents.
- 3.6. **Notice of Non-Compliance.** Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Arvada, and shall at once report to Arvada any errors, inconsistencies, or omissions discovered as well as any foreseeable constructability issues arising from the project specifications, site conditions, or both. If the Contractor performs any construction activity and knows or should have known it involves an error, inconsistent, omission, or constructability issue in the Contract Documents without such notice to Arvada, the Contractor shall assume full responsibility for such performance and shall bear the full costs for correction, including reimbursement, for any delay caused to the Project.
- 3.7. **Pre-Construction Meetings.** Contractor agrees to assist in the preparation for and to participate in any pre-construction meetings with Arvada.

ARTICLE 4. CHANGES TO THE WORK.

- 4.1. **Minor Contract Revisions.** Miscellaneous modifications in the Work, ordered by Arvada in the form of a field order, will be considered a minor contract revision. Payment for accepted work performed under this pay item "Minor Contract Revision" will be made in accordance with "Section 2: Special Conditions to the Construction Contract" of Exhibit A and with Arvada Engineering Code of Standards and Specifications.
- 4.2. **Field Orders.** An authorized representative of the Contractor shall acknowledge receipt of field orders by promptly signing all written field orders delivered to the job site. Verbal

field orders given by Arvada will be recorded in writing in the municipal inspector's daily report that is to be signed by the Contractor's authorized representative.

- 4.3. **Field Engineered Changes.** Arvada may modify the construction plans including changing the slope and alignment of flow lines and appurtenances or modifying other improvements as necessary to accommodate construction around existing utilities or other field conditions. No additional compensation shall be made for minor costs and inconveniences incurred while performing field engineering changes as directed by Arvada. No additional compensation shall be made for any down time encountered while Arvada determines what field engineered changes would be appropriate to accommodate construction around existing utilities or other field conditions. Reasonable time must be allowed for Arvada to design field engineered changes. Any additional costs for performing field engineered construction changes to accommodate existing utilities or other field conditions and for also allowing Arvada reasonable time to design field engineered changes as necessary to complete the Work shall be considered a subsidiary obligation of this Agreement.
- 4.4. **Arvada Change Orders.** Arvada may, by written order signed by Arvada, at any time, and without notice to any surety, and subject to all appropriate adjustments, make changes within the general scope of the Contract Documents in any one or more of the following: (a) changes in scope of services; (b) completion date; (c) contract amount; (d) any applicable material modifications; and (e) any other matters that the Parties deem necessary.
- 4.5. **Contractor Requested Change Orders.** The Contractor may request a change in the Work ("Requested Change Order"), including one or more of the following: (a) changes in scope of services; (b) completion date; (c) contract amount; (d) any applicable material modifications; and (e) any other matters that the Parties deem necessary.
- 4.6. **Change Order Contents.** Any Requested Change Order shall include (a) a detailed description of the requested change to the original contract; (b) itemized documentation of any subcontractor costs; (c) the total costs associated with the proposed change; (d) the impact on the Project completion date, if any, associated with the proposed change; and (e) a statement of the contractual basis for the requested change.
- 4.7. **Basis for Change Order Requests.** The following may be considered a valid basis for requesting a Change Order: (a) Contract Document error or omission; (b) Arvada induced enhancement; (c) unforeseeable constructability issue; and (d) unforeseeable geotechnical issue. The following will not be considered a valid basis for requesting a Change Order absent extraordinary circumstances: (a) utility relocation; (b) utility conflicts; (c) foreseeable geotechnical issue; (d) foreseeable constructability issue; and (e) defective construction.
- 4.8. **Written Authorization Required.** The Contractor shall not proceed with any change in the Work without the appropriate written authorization.

ARTICLE 5. SUPERVISION AND CONSTRUCTION PROCEDURES.

- 5.1. **Supervision.** The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under this Agreement, unless Contract Documents give other specific instructions concerning these matters.
- 5.2. **Acts and Omissions of Subcontractors and Agents.** The Contractor shall be responsible to Arvada for acts and omission of the Contractor's employees, subcontractors, and their agents and employees, and other persons performing portions of the Work under a contract with the Contractor.
- 5.3. **Inspection and Subsequent Work.** The Contractor shall be responsible for inspection of portions of Work already performed under this Agreement to determine that such portions are in proper condition to receive subsequent Work.

ARTICLE 6. COMPENSATION.

- 6.1. **Completion of Services.** Contractor will furnish all material, supplies, tools, equipment, labor, and other services necessary for the completion of the Work within Arvada's timeframe and monetary limitations set forth below:
 - 6.1.1. Contractor shall commence the Work required by the Contract Documents within seven calendar days after the date of the Notice to Proceed unless otherwise mutually agreed-upon by the Parties in writing;
 - 6.1.2. Contractor shall complete the Work required by the Contract Documents by March 26, 2026, unless the period for completion is extended otherwise by the Contract Documents; and
 - 6.1.3. Contractor agrees to perform the Work for an amount not to exceed **\$1,677,411.56**.
- 6.2. **Term.** The term of this Agreement shall be from Arvada's execution of this Agreement until the Work is complete and Arvada has accepted it or until March 26, 2026, whichever occurs sooner, unless otherwise agreed to in writing by the Parties, subject to availability of funds, and unless Arvada terminates for convenience in accordance with the Contract Documents. Any required warranty period which exceeds this term shall remain in full force for the duration of the warranty period.
- 6.3. **Additional Services.** While Arvada has listed its major requirements for its solicitation in the Contract Documents, Arvada may, during the term of this Agreement, wish to purchase other related services identified and offered by Contractor, based upon the Bid Schedule amounts contained in Contract Documents. Arvada reserves the right to award these ancillary items to Contractor. This option, if exercised, in no way obligates Arvada to pursue additional services with Contractor.

- 6.4. **Payment for Services.** At least twenty (20) calendar days before the date established for each monthly progress payment, the Contractor shall submit to Arvada an itemized application for payment for construction completed in accordance with the bid schedule set forth in the Contract Documents. Such application shall be supported by such data substantiating the Contractor's right to payment as Arvada may require, such as copies of invoices or requisitions from subcontractors and material suppliers and reflecting retainage. Arvada shall pay NET 30 days for services performed in accordance with the bid schedule and with this Agreement, but in no event shall the total Contract Amount exceed **\$1,677,411.56** absent a properly executed Change Order. Measurement of the work performed and monthly payment shall be made in accordance with requirements of "Section 4: Measurement and Payment" of Exhibit A and any other applicable provision set forth in the Contract Documents unless otherwise specifically provided herein.
- 6.5. **Non-Conforming Materials or Construction.** Where materials installed or the finished product fails to meet minimum requirements of the Contract Documents, the basis of determining final payment to the Contractor shall be determined by the Arvada project manager and in accordance with Arvada Engineering Code of Standards and Specifications.
- 6.6. **Retainage Requirements.** Contractor agrees to submit monthly invoices together with any retainage requirements set forth in the Contract Documents and as prescribed by Colorado state statutes (*see e.g., C.R.S. § 24-91-101 et seq*). Payment from Arvada will be paid NET 30 days. Invoices will accurately reflect actual work completed by Contractor and its subconsultants or subcontractors.

ARTICLE 7. MISCELLANEOUS.

- 7.1. **Waiver.** No provision of this Agreement may be waived except by written agreement of the Parties. A waiver of any provision on one occasion shall not be deemed a waiver of that provision on any subsequent occasion, unless specifically stated in writing. A waiver of any provision shall not affect or alter the remaining provisions of this Agreement.
- 7.2. **Strict Compliance.** No failure of Arvada to insist upon strict compliance by the Contractor with any provision of the Contract Documents shall operate to release, discharge, modify, change, or affect any of the Contractor's obligations.
- 7.3. **Successors and Assigns.** Arvada and Contractor, respectively, bind themselves, their partners, successors, assigns, and legal representatives to the other Party to this Agreement and to the partners, successors, and assigns of such other Parties with respect to all covenants of this Agreement. Contractor shall not assign (whether partially or wholly) this Agreement, whether by operation of law or otherwise, without the written consent of Arvada. If Contractor makes an assignment in accordance with this provision, Contractor shall nevertheless remain legally responsible for all obligations arising under this Agreement, unless otherwise agreed in writing by Arvada.

- 7.4. **Additional Documents.** The Parties agree to execute any additional documents and to take any additional action that is necessary to carry out this Agreement.
- 7.5. **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 paragraph shall be construed to permit the assignment of this Agreement except as otherwise expressly authorized herein. All provisions of this Agreement which contain continuing obligations shall survive its expiration or termination.
- 7.6. **Paragraph Captions.** The paragraph captions in this 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 this Agreement.
- 7.7. **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.
- 7.8. **Notices.** Any notice or notification required or permitted by this Agreement shall be in writing and shall be deemed to have been sufficiently given for all purposes if sent electronically, or by certified mail or registered mail, postage and fees prepaid, addressed to the Party to whom such notice is to be given at the address set forth on the signature page below, or at such other address as has been previously furnished in writing, to the other Party. Such notice or notification shall be deemed to have been given when electronically sent or when deposited in the United States mail.
- 7.9. **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, 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. This Agreement may be executed in counterpart(s), each of which shall be deemed to be an original, and all of which, taken together, shall constitute one instrument.
- 7.10. **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:
- 7.10.1. Colorado labor shall be employed to perform eighty percent (80%) of the work.
- 7.10.2. Any waiver of this requirement must comply with C.R.S. § 8-17-101 *et seq.*, as amended.

- 7.11. **No Third-Party Beneficiaries.** The Parties understand and agree that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to the Parties, and nothing contained in this Agreement shall give or allow any such claim or right of action to any other third party on this Agreement. It is the intention of the Parties that any person other than the Parties receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

IN WITNESS WHEREOF, the Parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement which shall be deemed an original on the date first above written.

CITY OF ARVADA, a Colorado home
rule municipal corporation

Lauren Simpson, Mayor
8101 Ralston Road
Arvada, CO 80002

ATTEST:

City Clerk

APPROVED AS TO FORM:
Rachel A. Morris

By: _____

MID CITY CORPORATION, a Wisconsin
corporation

John Salazar, Program Manager
6863 E. 48th Ave.
Denver, CO 80216
jsalazar@midcitycorp.us

Exhibit A

AN AGREEMENT BY AND BETWEEN THE CITY OF ARVADA AND
MID CITY CORPORATION FOR THE 2024 SANITARY SEWER OPEN
CUT PROJECT, PROJECT NO. 24-SR-01, IN AN AMOUNT NOT TO
EXCEED \$1,677,411.56

CITY OF ARVADA

COMPETITIVE SEALED BID

BID #: 25-ENG-063

Title: 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE

Issue Date: 07/09/2025

Mandatory Pre-bid Meeting: 07/16/2025 2:00 PM MT
VIRTUAL ONLY – Join Zoom Meeting
<https://arvadaco-gov.zoom.us/j/83815532491?pwd=N8UllxBjFiKa7r6EBQVm6FVQlrvqAh.1>
Meeting ID: 838 1553 2491 Passcode: 573436

Questions Deadline: 07/23/2025 2:00 pm MT
Questions must be submitted through BidnetDirect.com. Responses will be posted on Bidnet via addendum.

Bid Due Date: 08/06/2025 2:00 pm MT

Virtual Opening Information Join Zoom Meeting
<https://arvadaco-gov.zoom.us/j/84349312290?pwd=bq4Ye8paF5UK5quAUdEYaV787Gz6ya.1>
Meeting ID: 843 4931 2290 Passcode: 262766

Bid Delivery address: Electronic Submissions must be submitted online at BidNetDirect.com by the above date and time. Late responses will not be considered for award.

Project Delivery Date: March 26, 2026

For additional administrative information not related to the project, contact: Doreen Mazza, dmazza@arvada.org
Contact with the requesting department may result in vendor disqualification.

Documents included in this Request:

Cover Page	page 1
Advertisement for Bids	page 2
General Terms and Conditions	page 3
Special Terms and Conditions for Bidders	page 5
Insurance Requirements	page 7
Project Special Provisions	page 9
Submittal Forms to be completed and returned	
• Bid Bond	page 20
• Bid Proposal	page 21
• Sample Bid Schedule	page 22
• Required Contractor Submittal Form	page 23
Preview of Documents if Awarded	page 24

Attachments

Attachment 1 – 24SR01 - 2024 OPEN CUT SEWER REPLACEMENT -100% BID Plans
Attachment 2 in BidNet – Excel Bid Schedule

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.



ADVERTISEMENT FOR BIDS

Submit bids electronically on Bidnetdirect.com for the construction of City of Arvada, Project No. 24-SR-01

Project Title: 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE

The BID DOCUMENTS, consisting of Advertisement for Bids, General Terms and Conditions, Special Terms and Conditions, Insurance Requirements, Project Special Provisions, Addendum when issued, Bid Bond, Bid Proposal, Bid Schedule, Performance and Payment Bond, Submittal Checklist and References, Sample documents, and the Project Drawings may be examined at the following location: www.bidnetdirect.com

No cost bid documents may be obtained at www.bidnetdirect.com on or after 07/09/2025

ESTIMATED QUANTITIES OF THE MAJOR ITEMS OF WORKARE:

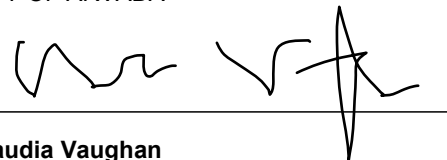
1	LS	Temporary Sanitary Sewer Bypass Pumping
1712	LF	Remove and Replace 8" SDR35 PVC Sewer
883	LF	Remove and Replace 8" C900 PVC Sewer
15	EA	Remove and Replace Sanitary Sewer Maintenance Hole – 4' Diameter, Complete in Place
1100	LF	8" PVC Watermain w/Fittings and Restrained Joints
2	EA	Furnish and Install Fire Hydrant Assembly
3790	SY	2" Depth Milling (full width)
451	TON	2" SX PG 64-22 Top Course
90	TON	HMA Patching (Grading S) (75) PG 64-22
4743	SY	Removal and Replacement of Asphalt Pavement

Miscellaneous items include citizen notification, traffic control, and other appurtenances.

Bidders, subcontractors and suppliers must be familiar with the current City of Arvada Engineering Code of Standards and Specifications, dated October 3, 2023, which will be combined with the Bid Documents to form the Contract Documents for the Project. A copy of the Standards may be obtained from the office of the City Engineer upon a non-refundable payment of \$50.00. Holders will be notified when supplemental revisions and additions are available as they are adopted. The Standards are also available at no cost on the City's web site at <https://www.arvadaco.gov/167/Engineering-Code>. Holders are responsible for keeping current their City of Arvada Engineering Code of Standards and Specifications.

Date: 6/26/2025

CITY OF ARVADA



Claudia Vaughan

City Engineer
8101 Ralston Road
Arvada, Colorado 80002

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. 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.

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 award work to subcontractor(s) in excess of fifty percent of the total contract price without Arvada's prior written approval. 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. 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.*

13. 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.

14. 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.

15. 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.

16. 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.

17. FORCE MAJEURE. Any delays in or failure of performance by any party of 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.

18. 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.

19. 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.

20. 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.

21. 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.

22. 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.

23. ACCESSIBILITY COMPLIANCE.

- 23.1 Arvada is obligated to comply with the Colorado Anti-Discrimination Act (C.R.S. §§24-34-300 *et seq.*) ("CADA"), which requires all digital and online platform and content providers to comply with the minimum *Accessibility Standards for*

Individuals with a Disability, adopted by the Colorado Office of Information Technology ("OIT") under C.R.S §24-85-103(2.5). Contractor has been advised to familiarize itself with CADA.

- 23.2 To the extent the Work or any of Contractor's services provided under the Agreement involves digital, technological components, including but not limited to software, websites, applications, digital documents (the "Material"), all Material shall comply with the OIT's currently adopted minimum *Accessibility Standards for Individuals with a Disability* at all times.
- 23.3 Contractor shall indemnify, save, and hold harmless Arvada, 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 relationship to Contractor's failure to comply with Section (23.2) above.
- 23.4 Upon Arvada's request, Contractor shall certify to Arvada that its service(s) and digital documents are compliant with Section (23.2) above. Arvada may require Contractor's compliance to the OIT's currently adopted minimum standards of accessibility to be determined by a third party selected by Arvada to attest to Contractor's compliance.

SPECIAL TERMS AND CONDITIONS FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS. Bids submitted electronically on the BidnetDirect.com website only become available to the City of Arvada after the bid closes. Bidder shall assume full responsibility for timely upload of bid to the BidnetDirect website. The City reserves the right, where its best interest will be served, to accept or reject any conditional or qualified bid.

2. QUANTITY AND NATURE OF THE WORK. Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the drawings and specifications including Addendum. After Bids have been submitted the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

3. CONTENTS OF BID. Contractors are required to submit Bids with the following conditions:

- 1) Contractors shall make all investigations necessary to inform themselves of the sites affected and the work 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 Bids. A copy of such addenda will be publicly posted with the original CSB 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.

4. BID SECURITY. Each Bid must be accompanied by a PHOTO of the Bid Bond, on the form attached to these contract documents, payable to the City for five (5) percent of the total amount of the Bid. As soon as the bid Prices have been compared, the City will issue intent to award on the Bidnetdirect.com web site. The vendor who is named as the intent to award Contractor must submit the physical Bid Bond within 10 days or the intent to award may be revoked. The Bid Bond of the successful Bidder will be retained until the Payment and Performance Bond has been executed and approved after which it will be returned. A certified check may be used in lieu of a Bid Bond.

5. POWER OF ATTORNEY. Attorneys-in-fact who sign Bid Bonds or Payment and Performance Bonds must file with each bond a certified and effective dated copy of their power of attorney.

6. QUALIFICATION OF BIDDER. The City may make such investigation as it deems necessary to determine the ability of the Bidder to perform the work. The City reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligation of the Contract Agreement and to complete the work contemplated therein. The City reserves the right, before awarding the contract, to require a Contractor to submit evidence of its qualifications including, but not limited to, financial, technical, and other qualifications, as well as past performance with the City, for consideration in making the award in the best interest of the City.

7. AWARD OF CONTRACT. A contract/s shall be awarded to the lowest-priced responsible and most responsive bidder/s whose bid meets the requirements and criteria set forth in the CSB within the limits of funds available and that best serves the City's interest. The City, within seven (7) calendar days of receipt of acceptable Contract Security and the Contract Agreement, signed by the Bidder to whom the Contract was awarded, shall sign the Contract Agreement and return to the Bidder an executed copy of the Contract Agreement. Should the City not execute the Contract Agreement within such period, the Bidder may, by written notice, withdraw their signed Contract Agreement. Such notice of withdrawal shall be effective upon receipt of the written notice by the City.

8. NOTICE OF AWARD AND FAILURE TO ENTER INTO CONTRACT. The party to whom the Contract is to be awarded will be required to execute the Contract Agreement, obtain Certificates of Insurance and a Performance and Payment Bond, as Contract security, within five (5) calendar days from the date the Notice of Award is delivered to the Bidder. The Notice of Award shall be accompanied by the Contract Agreement and the necessary Performance and Payment Bond forms. In case of failure of the bidder to execute the Contract Agreement and provide satisfactory Insurance and Contract Security, the City may at its option, consider the Bidder in default, in which case the Bid Bond accompanying the Proposal shall become the property of the City.

9. CONTRACT DOCUMENTS. The Contract Documents consisting of the Bid Documents, which include the Advertisement for Bids, Information for Bidders, General Terms and Conditions, Special Terms and Conditions, Insurance Requirements, Project Special Provisions, Addendum, Bid Bond, Bid Proposal, Bid Schedule, Vendor Submittal Form, Construction Drawings, Supplemental Specifications and the City of Arvada "Engineering Code of Standards and Specifications for the Design and Construction of Public Improvements", dated October 3, 2023, which include the Measurement and Payment specifications, and the attached Notice of Award form, Contract Agreement form, Performance and Payment Bond form, Notice to Proceed form, and Change Order form, when combined, contain the provisions required for the construction of the Project. Information obtained from an agent or employee of the City or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the contract.

10. TERM OF CONTRACT. This contract shall commence on the date of the purchase order or contract execution and shall remain in effect until such time as the commodities, equipment and/or services acquired in conjunction with this Bid have been accepted by the City's authorized representative. Any required warranty period which exceeds this term shall remain in full force for the duration of the warranty period.

11. PRICING SHALL BE FIXED AND FIRM. The prices offered by the Contractor shall remain fixed and firm for at least 90 ninety days. No changes in the Bid shall be allowed after the date and time of the Bid deadline due to error by the Contractor.

12. CONTRACT SECURITY. A Performance and Payment Bond, on the form attached to these contract documents, in the amount of 100% of the Contract price, with a corporate surety approved by the City, will be required for the faithful performance of the Contract.

13. NOTICE TO PROCEED. The Notice to Proceed shall be issued within seven (7) calendar days of the execution of the Contract Agreement by the City. Should there be reason why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the City and the Contractor. In the event the Notice to Proceed has not been issued within the seven day period or within the period mutually agreed upon the Contractor may terminate the Contract Agreement without further liability on the part of either party.

14. MODIFICATION OR WITHDRAWAL OF BIDS BY CONTRACTOR.

Modifications to Bids- Changes to the Bid after the submission deadline shall be allowed only when the Contractor can show convincing evidence that an unintentional factual mistake was made. Modification requests must be made in writing. Any modification submitted to the City must have the Contractor's name, address, Solicitation Number and title included.

Withdrawal of Bids- If a Bid is withdrawn by Contractor after the Bid Opening, the City may, at its option, suspend the Contractor for a six (6) month period following the withdrawal. Withdrawal of the Bid after the Bid Opening will result in the Contractor forfeiting the provided Bid Bond.

15. REJECTION OF OFFERS BY CITY.

A. The City may reject a Bid, in whole or in part, for reasons including, but not be limited to:

- 1) The Contractor misstates or conceals any material fact in its Bid;
- 2) The Contractor's Bid does not strictly conform to the law or requirements of the Solicitation;
- 3) The Bid expressly requires or implies a conditional award that conflicts with the method of award stipulated in the Special Conditions;
- 4) The Bid does not include documents which are required for submission with the Bid; or
- 5) The Bid 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 Bids submitted by prospective Contractors;
- 2) Re-advertise this Solicitation;
- 3) Postpone or cancel the Solicitation;
- 4) A Bid 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 government 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.

16. 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 Bid, it shall be agreed that the Contractor's Bid fully complies with all conditions identified in this Solicitation.

17. ELECTRONIC PAYMENT METHODS - CITY OF ARVADA SINGLE USE ACCOUNT.

Contractors are encouraged to consider the following method of payment.

Single Use Account: The City incorporates the use of Single User Accounts as an option to seamlessly process payment of larger dollar purchase orders and contracts to vendors/contractors/providers. A secure, one-time payment transaction account processes to pay invoices via the Contractor's merchant bank. Invoice payments have an enhanced speed-of-pay cycle that can significantly benefit cash flow.

18. CONDITIONS OF WORK AND OBLIGATION OF BIDDER. Each Bidder is responsible for independently inspecting the site and for reading and being thoroughly familiar with the Contract Documents and for providing the names of major suppliers and sub-contractors in the space provided on the Bid Proposal form. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve the Bidder from any obligation in respect to their Bid Proposal.

19. CONTRACTOR LICENSE. The Contractor to whom the contract is awarded and any subcontractors employed by the Contractor must have or acquire the appropriate Contractor's license issued by the City of Arvada Engineering Division, including submittal of license bond, necessary insurance certificate, and license fee before initiating any work. The Contractor and any subcontractors will also be required to obtain a no charge Public Improvements Permit from the City of Arvada Engineering Division prior to initiating any and all work on this project.

20. PERFORMANCE MEASUREMENTS FOR SERVICES MORE THAN \$15,000.

The City has incorporated Performance Management into its organizational culture. The City will monitor and report on the following performance measures. These measures will determine, in part, renewals and eligibility for future awards. Measures include: (a) safety as defined by observation and OSHA reportable injuries, (b) quality of contracted work, (c) work completed within required schedule, (d) administration and coordination of estimates, RFIs, ASIs, change orders, pay requests and close out documents, (e) fair and justifiable change orders, (f) responsiveness and follow through on requests.

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.

21. PREPARATION AND SUBMISSION.

Bids will be prepared as follow:

- 1) A blank shall be construed as "No Bid/not offered". Where there is a discrepancy between the unit price and the extension of prices, the unit price shall prevail.
- 2) 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.
- 3) The only authorized version of this Bid is posted on WWW.BIDNETDIRECT.COM. Registration is available to receive email notification of new solicitations, addenda, and communications.

INSURANCE REQUIREMENTS

The following listed insurance requirements shall be carried by the selected Contractor for the entirety 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 \$1,000,000 each accident/disease and \$2,000,000 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 \$, 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 \$1,000,000 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** for 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.

- 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.
- 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 15 calendar days after notice to submit such policies is given to the Contractor by a City representative, the Contractor may be in default of the Award.
- 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.
- The City, through its Risk Manager, reserves the right to require additional insurance coverage and other requirements.

SPECIAL PROVISIONS

City of Arvada Project No. 24-SR-01 Project Title: 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE

Conditions peculiar, but essential, to the successful performance and acceptance of the work on this project are itemized below.

As such, they shall take precedence over the City of Arvada Engineering Code of Standards and Specifications (latest edition).

Section 1

1.01 PROJECT QUALIFICATIONS

Award of this project will be based on the contractor's competitive pricing assuming the contractor has demonstrated their capabilities through relevant project experience.

- a. Project Cost
 - Project cost will be evidenced by the submitted Bid Schedule.
- b. Relevant Project Experience
 - Minimum Qualifications
 - i. Experience with replacing existing 8"-12" sanitary sewer line, sanitary sewer maintenance holes, and 8" water pipeline and valves in the Front Range of Colorado in the past 3 years.
 - ii. Experience working in rehabilitating sanitary sewer line
 - The contractor shall provide three (3) projects, with details and demonstrated experience, that are relevant to the proposed work. The contractor should provide sufficient, recent projects to indicate the competence and ability to do the proposed work.
 - The contractor shall provide the resumes of the proposed project manager, superintendent, and foreman, including references.
 - i. Changes to project personnel during the project, including superintendent, project engineer, and foreman will need to be reviewed and accepted by the City.

END OF SECTION

SECTION 2: SPECIAL CONDITIONS TO THE CONSTRUCTION CONTRACT

2.01 SPECIFICATIONS

Specifications for the project shall be as specified the City's Engineering Code of Standards and Specifications, 2023 Edition, as published on the City website unless modified in this project manual.

2.02 EXISTING CONDITIONS

The bidder represents that they have carefully examined the contract documents and the site where the work is to be performed in accordance with the provisions of the General Conditions, and that they have familiarized themselves with all local conditions and federal, state, and local laws, ordinances, rules, and regulations that may affect the performance of the work. The bidder further represents that they have studied all documents pertaining to the job site, that they have performed such additional surveys and investigations as they deem necessary to assure themselves of their ability to complete the work at this bid price, and that they have correlated the results of all such data with the requirements of the contract documents.

The submittal of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered, including locality, uncertainty of weather and all other contingencies, and as to the character, quality quantities, and scope of work. The plans and specifications for the work show subsurface conditions or otherwise hidden conditions as they might be expected to exist; but it is not intended nor is it to be inferred that showing said conditions constitute a representation that such conditions are accurate or complete.

Where the City or the Engineer or their consultants have made investigations of subsurface conditions in areas where the work is to be performed, such investigations were made only for the purpose of study and design. The conditions indicated by such investigations apply only at the specific location of each boring or excavation at the time the borings or excavations were made. Where such investigations have been made, bidders or Contractors may inspect the records as to such investigations subject to the above limitations. The record of such investigations is not a part of the contract and is provided solely for the convenience of the bidder or Contractor.

No information derived from such inspection of records of investigation or compilation thereof made by the City, the Engineer, or their consultant will in any way relieve the bidder or Contractor from any risk or from properly fulfilling the terms of the contract nor entitle the Contractor to any additional compensation.

2.03 MOBILIZATION

The Contractor shall limit storage equipment and supplies and remain within the limits of disturbance on the Drawings. The Contractor shall supply portable sanitary facilities for the site.

2.04 SURVEYING

Survey shall comply with Section 342 Staking and Grade Control of Engineering Code of Standards and Specifications, 2023 Edition. The Contractor shall obtain surveying services for the staking of the project. The surveyor employed will be a Colorado Registered Licensed Surveyor and have the expertise to perform such services. All costs associated with surveying shall be included in the price of the project.

2.05 SAFETY REQUIREMENTS:

The contractor is responsible for ensuring all safety measures are implemented and maintained including rules and regulations required by the Occupational Health and Safety Administration (OSHA).

2.06 PERMITS REQUIRED:

As a subsidiary obligation of the contract, the Contractor shall obtain all required permits needed for the project including those required by other agencies as outlined in section 144.00 of the City of Arvada Standards and Specifications. Permits include but are not limited to the following:

1. City of Arvada
 - a. CIP Permit
 - b. Site Disturbance Permit
2. CDPHE
 - a. Construction Dewatering Discharge Permit

2.07 CONTRACTOR'S WORK HOURS

Contractor (and Subcontractors) regular working hours consist of up to 10 working hours between 7:00 a.m. and 5:00 p.m., on a regularly scheduled basis, excluding Saturdays, Sundays, and holidays, except as required for nighttime bypass work.

2.08 PROJECT MEETINGS:

Meetings shall be held between the City, Contractor, and other applicable entities at a standard time and place, established during the preconstruction meeting. Meetings are to be typically held on at least a biweekly basis unless otherwise mutually agreed to by all Parties. The City shall require the attendance of Contractor's Superintendent and any other person(s) deemed necessary, including Subcontractors and/or suppliers, at these meetings. The meetings shall be conducted by the Contractor for the following purposes:

- Review the overall progress of the work and the current status of the schedule of work.
- Identification and resolution of problems which are or may be impeding the planned progress of the work.
- Coordination of the efforts of concerned Parties so that the work progresses per the schedule of work.
- Maintenance of lines of communication, including sound working relationships between the City and Contractor, and a mutual understanding of requirements of the Contract Documents.

The Contractor shall be responsible for the preparation and distribution of the meeting agenda, and the written minutes of these meetings to all attendees and other concerned or impacted parties. The Contractor shall be responsible for the preparation and distribution of a three-week lookahead schedule prior to the meeting. The Contractor shall distribute the three-week lookahead schedule a minimum of two (2) business days before the meeting.

- A pre-construction meeting will be scheduled prior to the start of work. Attendance by the contractor's project manager and/or construction superintendent will be required.

2.09 FIELD MODIFICATIONS:

Field modifications shall be documented using one of the following methods:

- Request for Information (RFI): Contractor shall be responsible for submitting proposed field changes in writing to the Project Engineer. Reasonable time must be allowed for the Project Engineer to design field engineered changes. The additional costs for performing field engineered construction changes and allowing the Project Engineer reasonable time to design field engineered changes as necessary to complete the work shall be included in the contractor's unit price bid for pipe and appurtenances. The Project Engineer shall have 7 days to respond to the request. The Contractor's RFI submission should include written and visual representation of the proposed changes (i.e. drawing markup & description).
- Field Order: Field orders given by the Project Engineer will be recorded in writing using the City's Field Order Form and is to be signed by the contractor's authorized representative.

If either a field order or request for information results in the need for a change in cost or schedule, the contractor shall submit a change order for review and approval by the City.

2.10 CHANGE ORDERS:

The project manager shall be notified as soon as practical of a change to the project plan/contract. Official change orders shall be submitted within 5 days of the adjustment from the plan and shall indicate changes to cost and schedule. The City shall reserve the right to approve or reject any submitted change order requests from the contractor. Any change order request that is submitted to the City will require (5) business days to review and provide feedback. If the change order request presented is not justified with proper documentation, it will not be reviewed until adequate documentation has been provided. All change order requests are not to exceed the overall unit cost provided in the bid fees summary sheet.

2.11 NON-CONFORMITY OF MATERIAL OR FINISHED PRODUCT:

Materials not in conformance with contract requirements or these Standards and Specifications shall be considered defective and shall be rejected. Rejected materials shall be removed from the work site, and Contractor shall be required to replace and/or repair materials to meet the Contract Documents.

2.12 MAINTENANCE OF ACCESS TO RESIDENCES AND BUSINESSES

Access to residences and business shall comply with Section 149 Traffic Control, Barricades, and Warning Signs of Engineering Code of Standards and Specifications, 2023 Edition.

2.13 COORDINATION AND NOTIFICATION OF SERVICE DISRUPTION

Coordination and notification of service disruption shall comply with Section 146 Interruption of Services of Engineering Code of Standards and Specifications, 2023 Edition. Residents and businesses shall also be notified when service has been restored.

2.14 COMMUNICATION WITH THE PUBLIC

The City will send out letters to the impacted residences, businesses regarding the construction. The Contractor should plan on continuous communication with residents regarding work schedule for the duration of the project. The Engineer will help facilitate the efforts; however, an adequate communication plan and implementation of that plan is the responsibility of the Contractor.

2.15 COORDINATION WITH CITY STAFF

City Utility Department personnel are familiar with the project and the system, and are a valuable resource for information. However, they have many responsibilities, are not available at all times, and individuals may not have all the information available that is needed to make a field decision. The Contractor will only receive direction in the field from the Inspector and/or the City Project Manager.

2.16 CONNECTIONS TO EXISTING MAINS

It shall be the Contractor's responsibility to verify the location of all existing sanitary and/or water mains, which are to be connected, prior to the start of construction; and also verify the horizontal and vertical locations of all other utilities, sanitary sewers or water mains that may be affected by work. Procedures for connecting to existing mains shall follow those outlined in the City of Arvada's Engineering Code of Standards and Specifications, 2023 Edition.

2.17 LOCATING AND MARKING EXISTING UTILITIES

The Contractor shall have all existing utilities marked prior to construction and verify their location. Existing utility information shown on the Drawings has been confirmed by only limited locate and potholing data and may not reflect the exact position of existing utilities, and may not show all the utility lines present.

The City will mark City-owned utilities, but other utilities will need to be located. Coordinate utility locates through the Utility Notification Center of Colorado, 811.

City-located utilities will be marked only one time. The Contractor shall be responsible for maintaining the locate marks. The Contractor must request the locates of City-owned utilities periodically as the work progresses rather than as a single event. Requests for locates shall not

precede the construction activity in any given area by more than 2 weeks.

Utility potholing for location of existing utilities is required. All potholing must be completed and the information provided to the Project Engineer prior to installing any pipe.

2.18 PROTECTION OF EXISTING UTILITIES

Existing utilities that are not scheduled for replacement, removal or relocation shall be protected to avoid disruption of service. Adequate shoring, bracing and blocking shall be put in place to avoid damage or shifting of the utility lines and trench materials. All repairs required due to the work of the Contractor shall be the responsibility of the Contractor.

2.19 CONSTRUCTION MATERIAL STOCKPILE REQUIREMENTS

Construction stockpiles for earth, bedding materials and pipe materials should be placed in off-street areas where possible, with prior arrangement with property owners and approval by the City. Limited stockpiling in street areas is permitted, but only in small quantities, limited to two days worth of work on any street. Street stockpiling shall be on the same side of the street as the trenching where practical. Contractor shall coordinate and review stockpiling with the City prior to the work.

Excavated material and imported backfill material that is not scheduled to be placed as backfill within two days shall be removed from the street stockpile. Stockpiles shall not block the gutter flowline. Measures to control migration of sediment from stockpiles should be put in place, especially if left overnight or over a weekend or other break in the work.

Manhole riser and cone sections, manhole frames and covers, pipe fittings and valves should not be stored in the street, but should be stored in an off-site area until the day it is to be installed. Asphalt millings shall be stored in offsite areas and kept covered.

Stockpiling of materials within the boundary of the regulatory floodway is prohibited. Stockpiled materials within the boundary of the 100-year floodplain shall be anchored and protected against flooding.

2.20 CONSTRUCTION EQUIPMENT

The City has expressed the need to maintain the condition of the existing pavement and concrete infrastructure outside the project work areas, and along equipment and material haul routes. The use of appropriate construction equipment that is adequate to complete the required work for this project while minimizing pavement and concrete damage outside the defined work areas shall be required. The Contractor shall be held responsible for damages outside the defined work areas created by his activities.

2.21 MATERIALS TESTING:

Materials testing requirements shall be in accordance with the City's Engineering Code of Standards and Specifications section 322.00, Minimum Testing Requirements. The City will contract with a third-party testing company for this work. The Contractor shall be responsible for coordinating material testing when needed. The Contractor shall be responsible for safe access into the work area as well as allowing for the third-party tester to perform any tests or take any samples at the frequencies shown in section 322.00. Any non-conformance or covering of work prior to testing and/or acceptance by the City may result in the City not accepting such work. The Contractor shall be responsible for any additional costs associated with non-conformance and/or covering of work prior to acceptance. The Contractor may request electronic copies of any test reports for the project in writing from the Project Engineer.

2.22 OPERATING EXISTING VALVES AND HYDRANTS

Existing valves and hydrants are to be operated by City Utility Department personnel only. Contractor may operate new valves installed of the line segment they are installed on prior to acceptance by the City. Coordinate with City personnel and the Engineer when operating any new valve adjacent to an existing water line.

2.23 CONSTRUCTION WATER

Use of a fire hydrant to supply construction water will require the Contractor to obtain a hydrant meter. The hydrant meter requires a \$2,000 deposit which is refundable upon return of the meter in acceptable working condition. All construction water will be paid for by the City; however, the contractor shall not use water unnecessarily throughout the duration of the project.

2.24 PROTECTION OF EXISTING LANDSCAPING

Existing landscaping in the vicinity of the work areas shall be protected from damage, including lawns, shrubs and trees. Landscaping that interferes with the work may be removed after discussions with the property owner and approval from the City and must be replaced in a manner satisfactory to the property owner and the Engineer. Damaged landscaping shall be replaced in-kind at the expense of the Contractor.

2.25 END OF WORKDAY SITE CONDITIONS

Pipe trenches shall be backfilled to within a maximum of 5 feet from the end of the pipe at the end of each work day. A solid traffic-duty cover shall be placed over any open trench.

Streets where there is active work and/or stockpiles placed shall be swept daily at the end of the work shift. All backfilled and stabilized trenches shall be checked daily and repaired as required by the Engineer.

Erosion control measures shall be checked for correct placement and good condition, and repaired as needed, at the end of each day.

All loose materials, packaging, waste, trash and similar items shall be cleaned up at the end of the day and placed in proper storage location or receptacles.

END OF SECTION

SECTION 3: SUMMARY OF WORK

3.01 LOCATION

All work to be performed under this Contract is located at the areas shown on the attached drawings and summarized by the areas below.

- A. Within city ROW on W 74th Circle and Jay Ct. (Area A)
- B. Within city ROW on Oak St & W 69th Ave (Area B)

The City reserves the right to remove areas at any time before or during construction.

3.02 PRIORITY LOCATIONS

The City has identified the below areas to be completed first. These areas will be paved through the City's pavement management project in the summer/fall of 2025:

- Priority 1: Area B Oak St. and W 69th Ave to be completed no later than January 16, 2025

The contractor may deviate from the above plan at their discretion assuming all requirements and restrictions are satisfied. The proposed sequencing above is not intended to dictate means and methods for the construction of the project.

The City reserves the right to adjust the priority of each location without change in the contract agreement prices, per subsection 1121.05 Changes in Contract Price of the Arvada Engineering Code of Standards and Specifications.

3.03 DESCRIPTION OF WORK

The work of this Contract consists of furnishing all labor, materials, equipment, and incidentals required and performing all construction, installation, and testing of all improvements, modifications, and additions, as shown on the Drawings and specified in these specifications. The work includes, but is not necessarily limited to:

- New piping and appurtenances
- Excavation, dewatering, and backfilling
- Connections to existing facilities and facilities constructed by others
- Pavement patching, pavement replacement, curb and gutter replacement, ADA ramp/sidewalk replacement
- Other miscellaneous work and cleanup.

The City reserves the right to stop the project before or during construction.

3.04 CONTRACTOR'S USE OF PREMISES

Contractor will not have complete and exclusive use of the premises for construction of the work.

Contractor shall limit the use of the premises for their work and for storage to allow for through traffic and operation of existing facilities during construction. The Contractor shall keep in mind that the Owner will continue to operate the existing facilities throughout construction. Contractor shall coordinate the use of the premises with the Owner. Areas requiring shutdown of the existing facilities shall be coordinated with the Owner 48 business hours prior to taking those facilities out of service.

Contractor shall assume full responsibility for security of all their, and their subcontractor's, materials and equipment stored on the site. Contractor, if directed by the Owner and/or Engineer, shall move any stored items that interfere with the operations of the Owner.

Contractor shall obtain and pay for use of additional storage if needed to perform the work.

3.05 OWNER OCCUPANCY

Owner will occupy premises during performance of the work for their normal operations. Coordinate all operations with the Owner to minimize conflict and to facilitate Owner usage.

END OF SECTION

SECTION 4: MEASUREMENT AND PAYMENT

4.01 REQUIREMENTS INCLUDED

Measurement and payment shall be as specified the City's Engineering Code of Standards and Specifications, latest edition, as published on the City website unless modified in this Section.

Work to be performed under this contract will be paid for on a unit cost or lump sum basis under the appropriate unit cost or lump sum Bid Items shown on the Bid Form. No item of Work shown on the drawings or in the Specifications will be considered for extra compensation due to a claim that it does not fall within the scope of one of the Bid items.

Contractor shall, within 10 days of receipt of Notice to Proceed, submit a complete breakdown of lump sum and unit cost bid items (Schedule of Values) showing value assigned to each part of Work. payment for materials delivered but not fully incorporated in Work will be made only if such materials are listed and assigned a value in Contractor's Schedule of Values.

The work of this Contract consists of furnishing all labor, materials, equipment and incidentals required and performing all construction, installation and testing of all improvements, modifications and additions, all as shown on the Drawings and as specified in these Specifications.

4.02 BID ITEMS

General

1. Mobilization, Demobilization, Permits, Fees, Licenses, Administration

Shall include all labor, materials, equipment, and incidentals required for the Contractor to mobilize. Shall include all costs for Contractor's insurance and bonds, construction permits and fees, job trailers and site administration expenses, utilities including power, telephone, etc. This item shall not exceed more than ten (10) percent of the Base Bid. This item will be paid as defined in the City of Arvada Engineering Code of Standards and Specifications, latest edition, Section 1124.00.

2. Traffic and Pedestrian Control

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1180.00 (Lump Sum).

3. Sediment and Erosion Control

Sediment and Erosion Control plans shall be a submittal to be reviewed and approved by the City. A Site Disturbance Permit will be required if disturbing over 0.5 acres. This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1136.00 (Lump Sum).

4. Utility Locate Potholing

Shall include all labor, materials, equipment, and incidentals required for construction (Lump Sum).

5. Construction Survey

Shall include all labor, materials, equipment, and incidentals required for construction (Lump Sum).

6. Owner Controlled Minor Contract Revisions

Owner controlled allowance to be applied to address minor work required to provide a fully functioning water transmission line.

Area A – W 74th Circle and Jay Ct.

7. Temporary Bypass Pumping Sewer

Shall include all labor, materials, equipment, and incidentals required for construction. This item will be paid as a lump sum.

8. Remove 8" CIPP Sanitary Sewer Pipe

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1141.00 (Linear Feet).

9. Remove Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth < 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of less than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1141.00 (Each).

10. Remove Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth > 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of greater than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1141.00 (Each).

11. Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth < 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of less than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1154.00 (Each).

12. Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth > 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of greater than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1154.00 (Each).

13. 8" SDR35 PVC, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.00 (Linear Feet).

14. 8" C900 PVC, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.00 (Linear Feet).

15. Connect Sanitary Sewer Service

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.02 (Each).

16. 6" Asphalt Removal and Patching, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1171.00 and 1173.00 (Square Yards).

17. Concrete Pan, Sidewalk, & Curb Ramp Remove and Replace, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1151.00 (Square Yards).

Area A - 8" Waterline Replacement

18. Remove Existing Fire Hydrant

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1141.00 (Each).

19. 8" C900 PVC, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.00 (Linear Feet).

20. Fire Hydrant Assembly

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1143.00 (Each).

21. Chlorination and pressure test

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.03 (Lump Sum).

22. Connect to Existing 8" AC Waterline

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.02 (Each).

23. Water Service Tap Reconnection

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.02 (Each).

24. 6" Asphalt Removal and Patching, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1171.00 and 1173.00 (Square Yards).

25. 6" Thick Concrete Sidewalk Removal and Replacement

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1151.00 (Square Yards).

26. 2" Depth Milling (full width)

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1171.00 (Square Yards).

27. 2" SX PG 64-22 Top Course

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1171.00 (Tons).

28. HMA Patching (Grading S) (75) PG 64-22

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1171.00 (Tons).

This includes

Area B – Oak St and W 69th Ave

29. Temporary Bypass Pumping Sewer

Shall include all labor, materials, equipment, and incidentals required for construction. This item will be paid as a lump sum.

30. Remove 8" SLIP Sanitary Sewer Pipe

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1141.00 (Linear Feet).

31. Remove Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth < 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of less than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1141.00 (Each).

32. Remove Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth > 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of more than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1141.00 (Each).

33. Remove Drop Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth > 10 feet), Complete In Place

This item is for 4-foot diameter drop maintenance holes listed in the plans with a depth to invert of more than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1141.00 (Each).

34. Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth < 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of less than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1154.00 (Each).

35. Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth > 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of more than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1154.00 (Each).

36. Drop Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth > 10 feet), Complete In Place

This item is for 4-foot diameter drop maintenance holes listed in the plans with a depth to invert of more than 10-feet and will be measured and

paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1154.00 (Each).

37. Rehabilitate Sanitary Sewer Maintenance Hole - 4-foot Diameter (Depth < 10 feet), Complete In Place

This item is for 4-foot diameter maintenance holes listed in the plans with a depth to invert of less than 10-feet and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1154.00 (Each).

38. Protective Lining of 4' Maintenance Hole

This item is for 4-foot diameter maintenance holes listed in the plans and will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Section 1146.07 (Each).

39. 8" C900 PVC, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.00 (Linear Feet).

40. 8" SDR35 PVC, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.00 (Linear Feet).

41. Connect to Existing Sanitary Sewer Maintenance Hole

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.02 (Each).

42. Connect Sanitary Sewer Service

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1146.02 (Each).

43. 6" Asphalt Removal and Patching, Complete in Place

This item will be measured and paid according to the City of Arvada Engineering Code of Standards and Specifications, Sections 1171.00 and 1173.00 (Square Yards).

END OF SECTION

SECTION 5: CONSTRUCTION SCHEDULES

5.01 CONTRACTOR REQUIREMENTS INCLUDED

The Contractor shall submit the proposed Schedule of Work in accordance with the provisions and time frames stated in this Section and in the Contract. Electronic copies of all Schedules and Schedule updates shall be submitted initially and monthly thereafter.

Contractor shall submit updated Schedule of Work monthly or more frequently when required and acceptable to the Engineer. Progress payment shall not be made unless the Contractor submits the monthly schedule update.

The Contractor shall submit an updated 3 week look ahead schedule weekly for the project team to review upcoming activities.

Contractor's Schedule is to be considered and used as a working tool and will not become a part of Contract or Contract Documents.

5.02 RELATED REQUIREMENTS

- A. Conditions of Contract
- B. Summary of Work

5.03 FORM OF SCHEDULES

The Schedule of Work shall utilize a Critical Path Method (CPM). Contractor shall prepare, maintain, and furnish current detailed progress and schedule charts using the CPM schedule, which shall support the Contract performance dates. Schedule shall identify Work in Contract in sufficient detail to ensure compliance with Contract dates, schedules, and sequences of construction.

CPM schedule shall be maintained throughout life of Contract. Contractor shall designate an authorized representative within its firm who will be responsible for preparation of the CPM network plan and schedule and for monitoring progress of Project.

- A. Schedule submittal: In accordance with the Contract, Contractor shall submit to the Engineer complete CPM schedule. A schedule of estimated monthly progress payments shall be developed by Contractor and submitted with CPM network plan. Contractor shall also submit Schedule of Values and schedule of Shop Drawings and sample submittals.
- B. Acceptance of Contractor's Schedule by Engineer will not relieve Contractor from compliance with all conditions of the Contract. Errors and omissions in accepted Contractor's Schedule will not be cause for future claims by Contractor for extra costs or increased Contract Time.
- C. Schedule is Contractor's schedule, prepared by them and they remain solely responsible for adherence thereto.
- D. Changes to Schedule: Contractor may at any time make changes to its current plan and schedule upon notification to Engineer. Contractor shall submit changes schedule for any of the following reasons:
 - a. When delay in completion of any activity or group of activities indicates an extension of scheduled Project completion including delays which may be involved with change orders, strikes, unusual weather, etc.
 - b. Delays in submittals or deliveries or work stoppage are encountered which make re- planning or rescheduling of Work necessary.
 - c. Schedule does not represent actual prosecution and progress of Project.
- E. Engineer's acceptance of changes to Schedule and all relevant data is contingent upon compliance with all other paragraphs of this Section and any other previous agreements or requirements by Engineer.
- F. Contractor's cost of revisions to Schedule due to any cause shall be responsibility of Contractor.
- G. Adjustment of Contract Completion: Contract Time will be adjusted only by Change Order for causes specified in this Contract. In the event Contractor requests an extension of Contract Time, he shall furnish such justification, CPM data, and supporting evidence as follows for a determination as to whether Contractor is entitled to an extension of Time under provisions of Contract.
- H. Contractor shall submit a brief narrative report as part of monthly update. Narrative report shall include a description of problem areas; current and anticipated delaying factors and their estimated impact on performance of other activities and completion dates; and an explanation of corrective action taken or proposed.
- I. Contractor failure to comply with this Section shall be a material breach of this Contract.

END OF SECTION

SECTION 6: TEMPORARY BYPASS PUMPING

6.01 SEWER MAINS 8" DIAMETER AND SMALLER

When required, a sewer bypass system shall be installed to maintain service and prevent sewage overflows. Bypass operations shall take place between 7am-7pm unless otherwise approved by City Project Engineer. At least 14 days prior to the bypass system being installed, a detailed bypass pumping plan shall be submitted to the City Project Engineer, Inspector, and Wastewater Manager. The plan shall at a minimum include the following:

1. Name of Contractor or individuals conducting the work. They shall have at least 5 years of verifiable experience with bypass pumping.
2. Anticipated flow rate to be bypassed. Typical flows through 8" Sewer Mains are under 400gpm. This can be variable throughout the City and should be verified prior to bypass pumping.
3. The site plan shows the locations where MH is being pumped from and discharged downstream, as well as the location of all hosing/piping.
4. Number, type, capacity, and size of pumps, standby equipment, pipe material, pipe layout, and power requirements, if applicable.
5. Design calculations of the system and selected equipment, including flow, TDH with static head including all friction and minor losses, and pump curves showing operating range of flow and TDH.
6. Any necessary vehicle/pedestrian traffic control plans
7. Spill Prevention and Cleanup Plan
8. Noise control for pumps and generators if operation is to take place outside of normal working hours, 7am-7pm.
9. Identification of underdrain cleanouts for 2 MHs upstream and downstream of the bypass location. Identify and document the location underdrain cleanouts in the MH being pumped from, as well as the two MHs immediately upstream and downstream of the bypass location. If found, raise the underdrains to a minimum height of 24 inches above the crown of the sanitary main. Underdrains shall also be capped until the bypass operation is completed.

The bypass system shall be in place and operational for at least one hour prior to conducting any work on the sewer main. During this time the contractor and City Inspector shall monitor the system to ensure that it is of proper size and no leaks are present. During the duration of the bypass operation, the contractor shall have someone monitoring the bypass system to ensure that it is operating adequately. Redundant piping and pumps shall be kept onsite through the duration of the bypass operation to replace any equipment that may fail. No bypass pumping operations will be allowed if there is precipitation in the weather forecast for the day.

In the event of a sewage spill, violations of any state or federal laws shall be the sole responsibility of the Contractor. Should any liquid or solid matter from the sewer collection system be spilled, discharged, leaked, or otherwise deposited to the open environment as a result of the bypass operations, the Contractor shall be responsible for all cleanup and disinfection of the affected area and all associated costs. The Contractor shall also be responsible for notifying the City and appropriate regulatory agencies and performing all required cleanup operations.

6.02 SEWER MAINS LARGER THAN 8" DIAMETER OR BYPASS OPERATIONS OVER 24 HOURS IN DURATION

When a sewer bypass system is required on a main larger than 8" in diameter or will be in place for over 24 hours, this will need to be coordinated with the City Project Engineer and Wastewater Manager at least 30 days prior to work taking place. The Contractor shall provide the following information to City staff, who will then determine the requirements for the bypass system and bypass pumping plan:

1. Location of MH(s) to be bypassed
2. Dates that bypassing will be required
3. Pipe size of main(s) to be bypasses
4. Anticipated flows through bypass system

END OF SECTION

BID BOND

We, the undersigned _____ as Principal,
and _____ as Surety, are hereby held and firmly bound unto the City of
Arvada, Colorado, in the penal sum of _____ for the
payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

THE CONDITION of this obligation is such that whereas the Principal has submitted to the City of Arvada, Colorado the
accompanying Bid Proposal, and hereby made a part hereof to enter into a Contract Agreement for the construction of City
of Arvada Project No. 24-SR-01 Project Title: 2024 Sanitary Sewer Open Cut Construction Services 24-SR-
01 REISSUE

WHEREAS, the City, as a condition for receiving said Bid Proposal, requires the Principal to deposit with the City a Bid
Proposal Guaranty, equivalent to not less than 5 Percent of the amount of said Bid Proposal.

NOW THEREFORE,

(A) If said Bid Proposal shall be rejected; or in the alternate,

(B) If said Bid Proposal shall be accepted and the Principal shall execute and deliver a Contract Agreement (properly
completed in accordance with said Bid Proposal) and shall furnish a Performance and Payment Bond upon the forms
prescribed by the City for the faithful performance of said Contract; and for the payment of all persons performing labor or
furnishing materials in connection therewith; and shall in all other respects perform the agreement created by the acceptance
of said Bid Proposal;

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and
agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this
obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way
impaired or affected by any extension of the time within which the City may accept such Bid and said Surety does hereby
waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, this ____ day of _____
_____, 20__, and such of them as are corporations have caused their corporate seals to be hereto affixed and these
presents to be signed by their proper officers, the day and year first set forth above.

PRINCIPAL

SURETY

Name: _____

_____.

Address: _____

_____.

By: _____

By: _____.

Title: _____

Title: _____.

Attorney-in-Fact:

(SEAL) _____

NOTE: Surety Companies executing bonds must be authorized to transact business in the State of Colorado and be
acceptable to the City.

BID PROPOSAL

TO: City of Arvada, Colorado (hereinafter called "CITY").

FROM: _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as (a corporation), (a partnership), (an individual).

The Bidder, in compliance with your Advertisement for Bids, hereby proposes to perform all Work in strict accordance with the Contract Documents, for the construction of City of Arvada Project No. 24-SR-01 Project Title: 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE within the time set forth therein, and at the prices stated on the included Bid Schedule as totaled herein.

By submission of this Bid Proposal, each Bidder certifies, and in the case of a joint venture each party thereto certifies as to his/her own organization, that this Bid Proposal has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid Proposal with any other Bidder or with any competitor.

Bidder acknowledges receipt of **Addendum Nos.** _____ Initials: _____

Bidder states that their:

Major Material Suppliers are:

Material They Will Supply

Major Subcontractors are:

Work They Will Perform

CONTRACT TIME AND LIQUIDATED DAMAGES: All work shall be completed, including clean-up, within 146 working days after the date to be specified in the Notice to Proceed. A Notice to Proceed is anticipated to be issued on or about August 22, 2025 bidder shall agree to pay the owner the sum of \$2,000 for each calendar day that the work exceeds the allotted contract time. Contract time may be adjusted by Change Order.

Total from included Bid Schedule:

TOTAL BID \$ _____

SUBMITTED BY:

Company Name: _____

Contact Names: _____

Address: _____

Phone: () _____ Email(s): _____

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the Contractor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accept and acknowledge this bid is consistent with the specifications and terms and conditions.
- The bid 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: The City standard is net thirty (30) days but every effort is made to meet net fifteen (15) days after the approved partial payment date when the contractor is satisfactorily performing the contract. The final 5% of total payment will be paid once the contract is completed satisfactorily, advertisement for final settlement is complete, and the project is accepted by the City. Payment is the date of the check mailing or date of the credit card transaction.

SAMPLE ONLY- PLEASE USE EXCEL FILE
"Bid Schedule 24-ENG-063 2024 Sanitary Sewer Open Cut Construction Services REISSUE"

BID SCHEDULE
25-ENG-063 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE



Contractor:

DATE:

BID PREPARED BY:

ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	COST
General					
1	Mobilization, Demobilization, Permits, Fees, Licenses, Administration	LS	1		\$0.00
2	Traffic and Pedestrian Control	LS	1		\$0.00
3	Sediment and Erosion Control	LS	1		\$0.00
4	Utility Locate Potholing	LS	1		\$0.00
5	Construction Survey	LS	1		\$0.00
6	Owner Controlled Minor Contract Revisions	ALLOW	1		\$0.00
GENERAL COST SUB-TOTAL					\$0.00
Area A (W 74th Circle and Jay Ct.)					
7	Temporary Bypass Pumping Sewer	LS	1		\$0.00
8	Remove 8" CIPP Sanitary Sewer Pipe	LF	994		\$0.00
9	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	3		\$0.00
10	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10')	EA	6		\$0.00
11	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10'), Complete In Place	EA	3		\$0.00
12	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10'), Complete In Place	EA	6		\$0.00
13	8" SDR35 PVC, Complete in Place	LF	905		\$0.00
14	8" C900 PVC, Complete in Place	LF	89		\$0.00
15	Connect Sanitary Sewer Service	EA	20		\$0.00
16	6" Asphalt Removal and Patching, Complete in Place	SY	932		\$0.00
17	Concrete Pan, Sidewalk, & Curb Ramp Remove and Replace, Complete in Place	SY	45		\$0.00
AREA B SEWER COST SUB-TOTAL					\$0.00
Area A 8" AC Waterline Replacement					
18	Remove Existing Fire Hydrant	EA	1		\$0.00
19	8" C900 PVC and fittings, Complete in Place	LF	1,080		\$0.00
20	Fire Hydrant Assembly	EA	2		\$0.00
21	Chlorination and Pressure Test	LS	1		\$0.00
22	Connect to Existing 8" AC Waterline	EA	2		\$0.00
23	Water Service Tap Reconnection	EA	19		\$0.00
24	6" Asphalt Removal and Patching, Complete in Place	SY	931		\$0.00
25	6" Thick Concrete Sidewalk Removal and Replacement	SY	7		\$0.00
26	2" Depth Milling (full width)	SY	3,790		\$0.00
27	2" SX PG 64-22 Top Course	TON	451		\$0.00
28	HMA Patching (Grading S) (75) PG 64-22	TON	22		\$0.00
AREA B WATERLINE COST SUB-TOTAL					\$0.00
Area B (Oak St & W 69th Ave)					
29	Temporary Bypass Pumping Sewer	LS	1		\$0.00
30	Remove 8" SLIP Sanitary Sewer Pipe	LF	1,602		\$0.00
31	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	3		\$0.00
32	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10')	EA	2		\$0.00
33	Remove Drop Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	1		\$0.00
34	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10'), Complete In Place	EA	3		\$0.00
35	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10'), Complete In Place	EA	2		\$0.00
36	Drop Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	1		\$0.00
37	Rehabilitate Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	3		\$0.00
38	Protective Lining of 4' Maintenance Hole	EA	1		\$0.00
39	8" C900 PVC, Complete in Place	LF	794		\$0.00
40	8" SDR35 PVC, Complete in Place	LF	808		\$0.00
41	Connect to Existing Sanitary Sewer Maintenance Hole	EA	2		\$0.00
42	Connect Sanitary Sewer Service	EA	30		\$0.00
43	6" Asphalt Removal and Patching, Complete in Place	SY	1,492		\$0.00
AREA H SEWER COST SUB-TOTAL					\$0.00
TOTAL BASE BID					\$0.00

TOTAL BASE BID WRITTEN:

REQUIRED CONTRACTOR SUBMITTAL FORM

SUBMITTAL CHECKLIST:

Bid Proposals shall be submitted in the order listed below with each section clearly identified. **Missing information or required documents may result in submission being deemed non-responsive.**

- ☐ Submit completed Bid Bond, Bid Proposal, Bid Schedule, Required Contractor Submittal, and any other attachments requested.
- ☐ Submit Evidence of Project Qualifications as listed on page 9, Section 1, 1.01 Project Qualifications in the Special Provisions section.
- ☐ Submit implementation timeline and warranties, if applicable.
- ☐ Attach Contractor's Licensing, if applicable.
- ☐ Insurance – Checking this box accepts that the insurance requirements listed by the City are acceptable.
- ☐ Variations: Checking this box indicates that the contractor has variations to this solicitation. Identify all variations and exceptions to this CSB on a separate sheet/s of paper. 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. For each variation listed, reference the applicable section of the solicitation document, the page number, and the variance. Submittal of a vendor contract is considered excessive in variations and may be cause for determining that the Bid is non-responsive and ineligible for award.

REFERENCES:

- ☐ Check here if Contractor'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: _____

CONTRACT DOCUMENTS

The following pages contain documents used upon contract award. They are included here for reference and are subject to change.

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 City of Arvada, a Colorado municipal corporation, 8101 Ralston Road, Arvada, Colorado 80002, hereinafter called the City, 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 is such that the Principal entered into a certain Contract with the City, dated the _____ day of _____, 20_, a copy of which is hereto attached and made a part hereof, for the performance of City of Arvada 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 City, 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 City from all cost and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the City all outlay and expense which the City 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 City 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.

NOTICE OF AWARD

Date _____

Company _____
Address _____
City, State Zip _____

RE: Project No. _____, _____

Dear Representative of _____:

The City of Arvada, Colorado (hereinafter called "City") has considered the Bid Proposals submitted for referenced work in response to its Advertisement for Bids dated _____ and Information for Bidders.

You are hereby notified that your Bid Proposal has been accepted, for items and prices stated in the Bid Schedule, in the amount of \$ _____.

You are required to execute the Contract, the Insurance Certificates and a Performance and Payment Bond within seven (7) days from the date of this Notice to you.

The Performance and Payment Bond needs to be filled out, returned (one original must be returned to the City), and accompanied by the Power of Attorney from your surety company. Also, please make sure that the insurance certificate is in the minimum amounts set forth in the Contract Documents and the City of Arvada is named as an additional insured for the specific Project Number and Title. An Additional Insured endorsement certificate should also be attached.

If you fail to execute said Contract and furnish the necessary Insurance Certificates and Bond within the time allotted from this date, the City will be entitled to consider all your rights arising out of the City's acceptance of your Bid Proposal as abandoned and as a forfeiture of your Bid Bond. The City will be entitled to such other rights as may be granted bylaw.

You are required to return an acknowledged copy of this Notice of Award and enclosures to the Project Engineer.

CITY OF ARVADA, COLORADO

City Engineer

BIDDER

Company _____

Receipt of above Notice of Award accompanied with a Performance and Payment Bond form and a copy of the Contract is hereby acknowledged.

This _____ day of _____, 20____.

By: _____

Name: _____

Title: _____

NOTICE TO PROCEED

Date

Company
Address
City, State Zip

RE: Project No. _____, _____

Dear Representative of _____:

You are hereby notified to commence work on referenced Project, in accordance with the Contract dated _____
on or before _____, and you are to complete the Work, including cleanup within _____ calendar days thereafter.

The date of completion of all Work is therefore _____.

CITY OF ARVADA, COLORADO

City Engineer

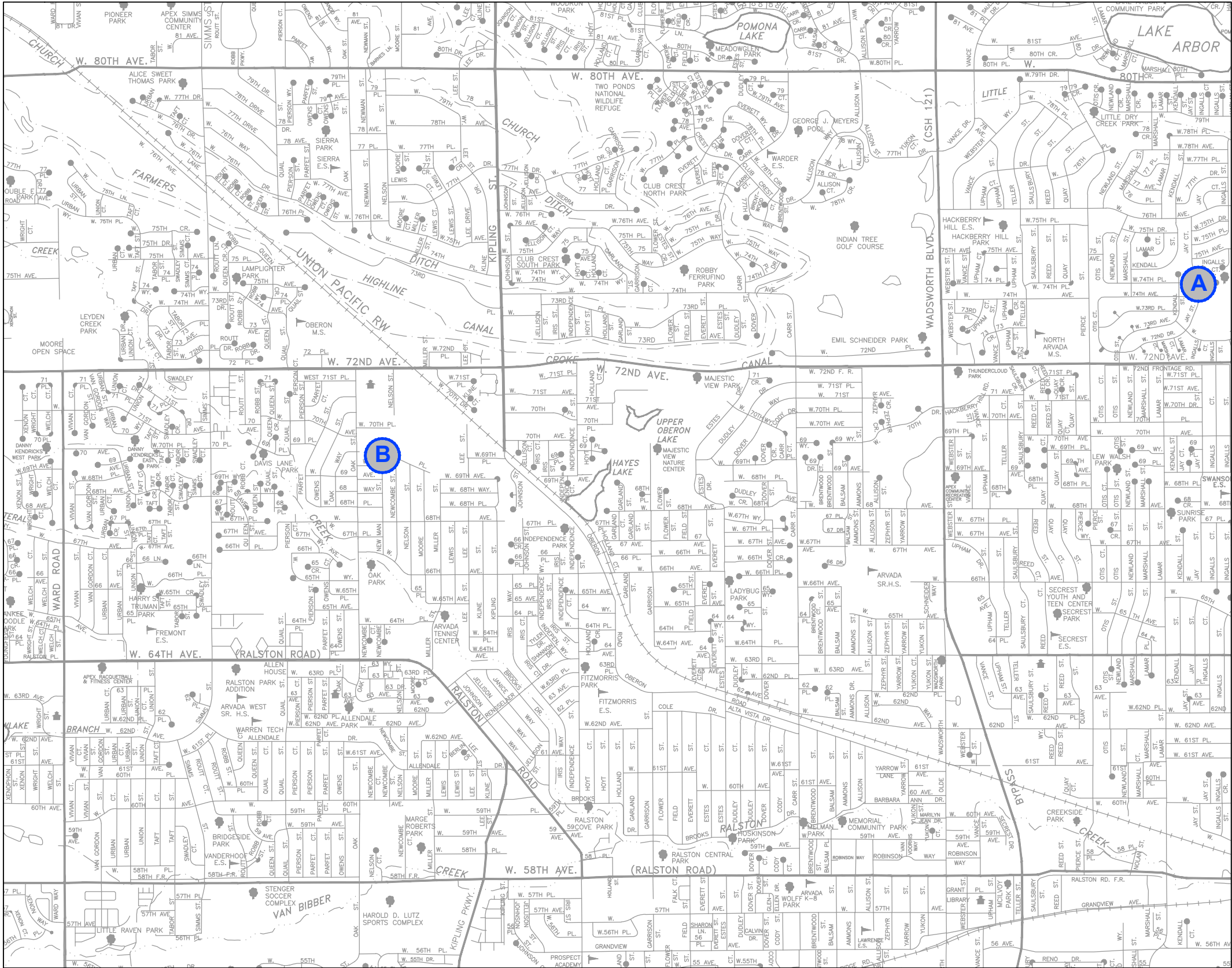
BIDDER

Receipt of this Notice to Proceed is hereby acknowledged this _____ day of _____, 20____.

Company

By: _____

Title: _____

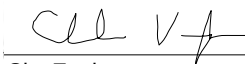


CITY OF
ARVADA

PROJECT 24-SR-01
2024 OPEN CUT SEWER REPLACEMENT

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APPROVED:


City Engineer

6/26/2025
Date

24SR01
Job Number

Review is for general compliance with the City of Arvada "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.

G:\PROJECTS\SEWER\24SR01--Open Cut Sewer Improvements\CAD\100% BID JAY ST & OAK ST\24SR01 - Cover & Notes.dwg , Plot Date: 6/23/2025

LEGEND	
	WATER VALVE
	FIRE HYDRANT
	REDUCER
	PLUG
	BLOW OFF
	WATER METER
	CURB STOP
	PRESSURE REDUCING VALVE ASSEMBLY
	AIR RELEASE & VACUUM VALVE
	WATER MANHOLE
	IRRIGATION SPRINKLER
	IRRIGATION SYSTEM BOX
	SANITARY MANHOLE
	CLEAN OUT
	STORM MANHOLE
	INLET
	TYPE R INLET
	FLARED END SECTION
	IRRIGATION DITCH MANHOLE
	MISCELLANEOUS MANHOLE
	TELEPHONE VAULT
	UTILITY PEDESTAL
	UTILITY PULL BOX
	POWER POLE
	GUY WIRE
	LIGHT POLE
	SIGNAL POLE
	CATHODIC PROTECTION TEST STATION
	MONITER WELL
	TEST HOLE
	STREET SIGN
	MAILBOX
	POST
	SURVEY MONUMENT
	SURVEY CONTROL POINT
	SURVEY MARKER

GENERAL NOTES:

1. THE TYPE, SIZE, LOCATION, AND NUMBER OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THE DRAWINGS UNLESS INDICATED AS TO TYPE OF SUE LEVEL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY SIZE, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING FACILITIES ALONG THE ROUTE OF WORK PRIOR TO CONSTRUCTION AND NOTIFY THE CITY OF ANY DISCREPANCIES. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ANY UTILITIES DURING CONSTRUCTION. FOR INFORMATION CONTACT: UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) – 1-800-922-1987. ANY DAMAGES TO UTILITIES CAUSED BY THE CONTRACTOR OR ANY SUBCONTRACTOR SHALL BE REPAIRED IN A TIMELY MANNER AT NO COST TO THE OWNER.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL CONTRACT DOCUMENTS AS WELL AS THE CURRENT CITY OF ARVADA "ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS".
3. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE LICENSED WITH THE CITY OF ARVADA PRIOR TO START OF CONSTRUCTION AND SHALL OBTAIN REQUIRED PERMITTING FROM THE ENGINEERING COUNTER AT CITY HALL.
4. ALL WORK WILL REQUIRE A CITY OF ARVADA ENGINEERING DIVISION CAPITAL IMPROVEMENT PERMIT PRIOR TO THE START OF CONSTRUCTION. ALL CONTRACTORS MUST OBTAIN A CAPITAL IMPROVEMENT PROJECT PERMIT PRIOR TO COMMENCING ANY CONSTRUCTION WORK.
5. ALL CONTRACTORS AND SUBCONTRACTORS SHALL HAVE A CURRENT PRINTED SET OF APPROVED DRAWINGS SIGNED BY THE CITY ENGINEER OR DESIGNEE AND A COPY OF THE CURRENT CITY OF ARVADA "ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS", ON SITE AT ALL TIMES.
6. THE CITY OF ARVADA MUNICIPAL INSPECTOR SHALL BE NOTIFIED A MINIMUM OF 24 HOURS IN ADVANCE FOR EACH DAY THAT CREWS ARE WORKING BY SCHEDULING INSPECTIONS THROUGH THE CITY'S PERMITTING SYSTEM. FAILURE TO DO SO WILL RESULT IN A STOP WORK ORDER.
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL PROJECT SAFETY INCLUDING, BUT NOT LIMITED TO, TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL, AND SECURITY.
8. CONTRACTOR SHALL OBTAIN A SITE DISTURBANCE PERMIT FROM THE CITY OF ARVADA PRIOR TO CLEARING, GRADING, OR EXCAVATING A SITE OVER 10,000 SQUARE FEET. ESTIMATED AREA OF DISTURBANCE FOR THIS PROJECT SITE WILL BE APPROXIMATELY 100,095 SQUARE FEET (2.29 ACRES).
9. THE 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.
10. ALL CURB RAMPS IMPACTED BY THE PROJECT 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.
11. 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".

GENERAL ABBREVIATIONS:

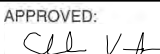
FH – FIRE HYDRANT
D= – DEPTH
SD – STORM DRAIN
TELE-B – TELEPHONE BURIED
TELE-OH – TELEPHONE OVERHEAD
TEMP – TEMPORARY
CONC – CONCRETE
CIPP – CURED IN PLACE PIPE
SS – SANITARY SEWER
T.O.P – TOP OF PIPE
WTR – WATER

12. THE CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION OF TRAFFIC CONTROL PLANS AND ITS SUBMITTAL SHALL BE SUBMITTED TO THE CITY OF ARVADA ENGINEERING DIVISION FOR ACCEPTANCE WITH THE CAPITAL IMPROVEMENTS PERMIT APPLICATION. A CAPITAL IMPROVEMENTS CONSTRUCTION PERMIT WILL NOT BE ISSUED WITHOUT AN APPROVED TRAFFIC CONTROL PLAN FOR TRAFFIC CONTROL ON EXISTING ROADS DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL KEEP TRACK OF ALL CHANGES FROM THE APPROVED CONSTRUCTION DRAWINGS IN THE FORM OF REDLINES ON THE DRAWINGS. THESE REDLINES SHOULD BE MADE AVAILABLE TO THE CITY FOR REVIEW IN THE FIELD UPON REQUEST. REDLINES SHALL ALSO BE SUBMITTED TO THE CITY FOR REVIEW WITH EACH PAY APPLICATION. REDLINES SHALL INCLUDE INFORMATION OF ALL FITTINGS, SERVICES, AND PERTINENT ELEVATIONS.
14. ALL WATERLINE FITTINGS AND VALVES SHALL BE FIELD MARKED IMMEDIATELY AFTER BACKFILLING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN FIELD MARKINGS UNTIL THE CONTRACTORS SURVEY TEAM RECORDS THE LOCATION OF EACH FITTING AND VALVE. IT SHALL BE EXPECTED THAT THE CONTRACTOR PROVIDE THE CITY TEAM WITH THE RECORD OF THE LOCATIONS.
15. PERMANENT SURVEY MONUMENTS, INCLUDING THE REPLACEMENT OF MONUMENTS, RANGE POINTS AND LOT PINS SHALL BE SET IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLES 51 AND 53 OF TITLE 38, COLORADO REVISED STATUTES, AND AS REQUIRED BY THE BYLAWS AND RULES OF PROCEDURE OF THE COLORADO STATE BOARD OF LICENSURE FOR ARCHITECTS, LANDSCAPE ARCHITECTS, PROFESSIONAL ENGINEERS AND PROFESSIONAL LAND SURVEYORS. RANGE POINTS SHALL BE PROTECTED BY THE INSTALLATION OF A SURVEY RANGE BOX PER DETAIL DRAWINGS.
16. THE CONTRACTOR SHALL USE EVERY REASONABLE PRECAUTION TO PREVENT THE DAMAGE OR DESTRUCTION OF ANY AND ALL SURVEY MONUMENTS ADJACENT TO OR ON THE CONSTRUCTION SITE. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL ALIQUOT CORNERS, PROPERTY, NGS, AND ARVADA SURVEY CONTROL MONUMENTATION AS PER SECTION 151.00 OF THE CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS. ANY MONUMENT THAT MAY BE DISTURBED SHALL BE REFERENCED TO A MINIMUM OF TWO POINTS OUTSIDE THE LIMITS OF CONSTRUCTION AND REPLACED BY A COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR. ALL MONUMENTS DISTURBED OR REMOVED BY THE CONTRACTOR, THROUGH NEGLIGENCE OR CARELESSNESS ON THEIR PART OR ON THE PART OF THEIR EMPLOYEES OR SUBCONTRACTORS, SHALL BE RESTORED PER SECTION 151.02 – SURVEY MONUMENTS OF THE CITY OF ARVADA ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS. A MONUMENT RECORD SHALL BE TURNED INTO THE CITY IMMEDIATELY AFTER RESTORATION OF THE MONUMENT.

CONSTRUCTION LEGEND:

		EXISTING WATER MAIN
		ABANDONED WATER MAIN
		SANITARY SEWER MAIN
		STORM DRAIN
		PROPOSED SEWER MAIN
		SEWER SERVICE CONNECTION
		WATER SERVICE CONNECTION
		PROPOSED WATER MAIN

(APPROX. LOCATION, EXTRACTED FROM GIS DATA)

APPROVED:  City Engineer	6/26/2025 Date	24SR01 Job Number
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NO.	1	2	3	4	5
	REVISION				
	DATE				
	BY				
Public Works Department Engineering Division 8101 Ralston Road Arvada, Colorado 80002 Phone 720-898-7640					
 CITY OF ARVADA					
PROJECT NO. 24-SR-01 OPEN CUT SEWER REPLACEMENT GENERAL NOTES					
ENGINEER KS CHECKED BY KB DESIGN BY AS					
SHT GN1					

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STREET NOTES:

1. 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
2. A GEOTECHNICAL INVESTIGATION WAS NOT COMPLETED AS A PART OF THIS PROJECT NOR HAS ANY ADJACENT OR PREVIOUS GEOTECHNICAL INVESTIGATIONS BEEN RELIED UPON BY THE ENGINEER OF RECORD IN COMPLETING THE DESIGN. ANY SUCH INFORMATION PROVIDED MAY NOT NECESSARILY BE RELIED UPON AS IT RELATES TO THE DESIGN THAT HAS BEEN COMPLETED.
3. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING CURB, GUTTER, SIDEWALK, LANDSCAPING, PAVEMENT AND OTHER SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE TO EXISTING IMPROVEMENTS OUTSIDE OF THE LIMITS OF CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR SOLE COST.
4. ALL CONCRETE CURB, GUTTER, SIDEWALK AND OTHER FLATWORK WITHIN THE CITY RIGHT OF WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST CITY OF ARVADA 'ENGINEERING CODE OF STANDARDS AND SPECIFICATIONS'.
5. ALL FLATWORK 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'.
6. WHEN EXCAVATING IN CONCRETE OR ASPHALT AREAS, ALL NATIVE SOILS SHALL BE CONSIDERED NOT SUITABLE FOR TRENCH BACKFILL. NATIVE SOILS SHALL BE HAULED OFFSITE AND REPLACED WITH CDOT CLASS 1 STRUCTURAL FILL MATERIAL .
7. 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.

UTILITIES NOTES:

1. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED PARTIES, CITY OF ARVADA UTILITY AND ENGINEERING DIVISIONS, A MINIMUM OF 48 HOURS PRIOR TO ANY WATER OR SEWER SERVICE INTERRUPTION.
2. ALL UTILITIES CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE NOTES IN THE PLANS AND THE STANDARDS, SPECIFICATIONS, CODES AND ORDNANCES OF THE LOCAL GOVERNING AUTHORITIES. IN CASE OF CONFLICT, THE MORE STRINGENT CODE SHALL TAKE PRECEDENCE.
3. THE CONTRACTOR SHALL NOT OPERATE ANY CITY OF ARVADA VALVES. CONTRACTOR IS TO COORDINATE THE OPERATION OF ALL WATER VALVES, FIRE HYDRANTS, AND OTHER APPURTENANCES WITH THE CITY'S WATER OPERATIONS DIVISION THROUGH THE CITY'S MUNICIPAL INSPECTOR. ALL WATER VALVES ONCE CONNECTED TO THE WATER SYSTEM MUST BE KEPT ACCESSIBLE AT ALL TIMES.
4. UNLESS OTHERWISE NOTED, WATER MAINS SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4 FEET TO TOP OF PIPE.
5. THE CONTRACTOR SHALL SCHEDULE ALL WATERLINE TIE INS AND TESTING WITH THE CITY'S MUNICIPAL INSPECTOR. THE UTILITIES DIVISION WILL NOT SHUT DOWN WATER MAINS FOR TIE-INS AFTER 11:00 A.M. IN ORDER FOR WATER TO BE

TURNED BACK ON BY 3:00 P.M. CONTRACTOR MUST BE WITHIN 60 MINUTES OF CUTTING INTO THE WATER MAIN BASED ON THE JUDDGMENT OF THE CITY'S MUNICIPAL S MUNICIPAL INSPECTOR AND/OR WATER UTILITY DIVISION PERSONNEL BEFORE EXISTING MAINS WILL BE ISOLATED. CONTRACTOR SHALL PROVIDE SUFFICIENT CUTS OR OPENINGS IN EXISTING PIPE TO ALLOW TIMELY DRAINAGE OF WATER FOR TIE-INS WHERE FIRE HYDRANTS OR BLOW OFFS ARE NOT AVAILABLE TO DRAIN THE LINE. SHOULD AN UNINTENDED SERVICE INTERRUPTION OCCUR AS A RESULT OF THE WORK, CONTRACTOR SHALL IMMEDIATELY NOTIFY ALL PARTIES NOT PREVIOUSLY NOTIFIED. THERE SHALL BE NO WATER SHUTDOWNS DISRUPTING WATER SERVICE FOR TIE-INS FRIDAY THRU SUNDAY UNLESS APPROVED BY THE PROJECT ENGINEER AND WATER OPERATIONS DUE TO SPECIAL CIRCUMSTANCES.

6. ALL FILLING, FLUSHING AND TESTING OF WATERLINES ON FRIDAYS REQUIRING WATER OPERATIONS STAFF SHALL BE SCHEDULED TO BE COMPLETED BY 11:00AM. DUE TO ARVADA'S WATER QUALITY LAB AVAILABILITY, BAC-T TESTING WILL BE AVAILABLE MONDAY THRU THURSDAY ONLY.
7. ALL FIRE HYDRANT LATERAL PIPE SHALL BE INSTALLED AS PER THE CURRENT CITY OF ARVADA STANDARDS AND SPECIFICATIONS.
8. ALL METALLIC FITTINGS SHALL BE WRAPPED WITH MINIMUM 8 MIL THICKNESS POLYETHYLENE ENCASEMENT AS PER THE CURRENT CITY OF ARVADA STANDARDS AND SPECIFICATIONS.
9. ALL NEW WATER MAINS SHALL BE INSTALLED WITH TRACER WIRE INSTALLED AS PER THE CURRENT CITY OF ARVADA STANDARDS AND SPECIFICATIONS. COPPER SERVICE LINES ARE EXCLUDED UNLESS OTHERWISE NOTED.
10. ANY NON-COPPER SERVICE LINES ENCOUNTERED DURING CONSTRUCTION SHALL BE REPLACED FROM THE METER TO THE MAIN WITH COPPER AND THE REPLACEMENT SHALL BE REPORTED TO THE CITY'S PROJECT ENGINEER AS PER THE CURRENT CITY OF ARVADA STANDARDS AND SPECIFICATIONS.
11. STORM, SANITARY AND WATER MAINTENANCE HOLE COVERS SHALL SAY "CITY OF ARVADA STORM, WATER OR SANITARY" AS PER THE CURRENT CITY OF ARVADA STANDARDS AND SPECIFICATIONS.
12. BLOW-OFFS, BOTH PERMANENT AND TEMPORARY, SHALL BE AS PER THE CURRENT CITY OF ARVADA STANDARDS AND SPECIFICATIONS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING HORIZONTAL AND VERTICAL LOCATIONS OF ALL CROSSING UTILITIES AND CONNECTION LOCATIONS PRIOR TO CONSTRUCTION.
14. ABANDONMENT OF CITY OF ARVADA UTILITIES SHALL BE PERFORMED AS PER THE CURRENT CITY OF ARVADA STANDARDS AND SPECIFICATIONS
15. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) MIX DESIGNS USED FOR WATER LINE OR SEWER LINE ENCASEMENT SHALL BE PER THE CITY OF ARVADA'S STANDARDS AND SPECIFICATIONS.
16. CONTRACTOR TO NOTIFY ANY AFFECTED IRRIGATION/DITCH COMPANIES IN ACCORDANCE WITH THE APPROVED AGREEMENT PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES IN OR AROUND ANY IRRIGATION EASEMENTS OR IRRIGATION DITCHES.

EROSION CONTROL NOTES:

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 CONTRACTOR 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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).
14. 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 CONTRACTOR 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.
15. 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.

16. 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.
17. 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.
18. 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.
19. 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.

APPROVED:	6/26/2025	24SR01
City Engineer	Date	Job Number
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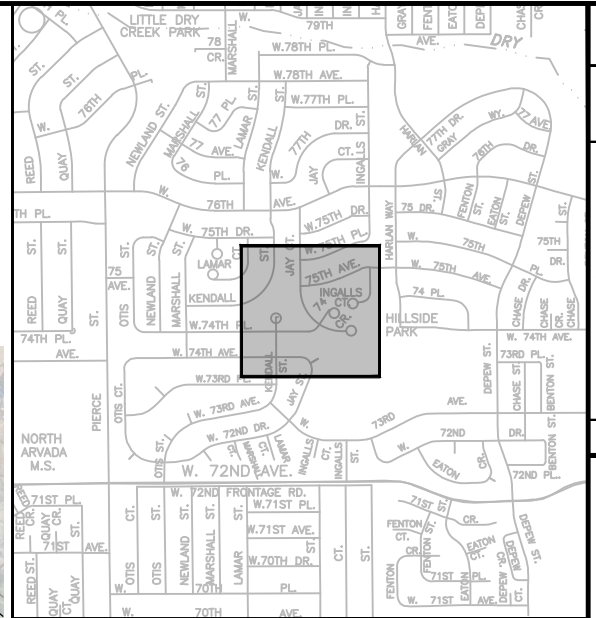
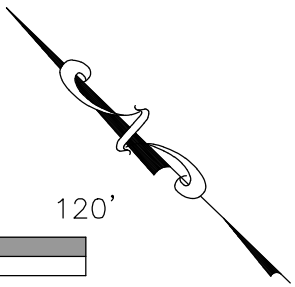
PROJECT NO. 24-WA-01
OPEN CUT SEWER REPLACEMENT
GENERAL NOTES
STREET, UTILITY, & EROSION CONTROL

ENGINEER
KS
CHECKED BY
KB
DESIGN BY
AS

SHT
GN2

Public Works Department
Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640

NO.	REVISION	DATE	BY
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NOTES:

1. STOCK PILES AND STAGING AREAS SHALL BE IDENTIFIED AND ANNOTATED BY THE CONTRACTOR ON ALL EROSION CONTROL PLANS.
2. PORTABLE TOILETS AND WASTE RECEPTACLES WILL BE PLACED AT CONTRACTORS DISCRETION AND ANNOTATED BY THE CONTRACTOR ON ALL EROSION CONTROL PLANS.

- — FLOW ARROWS
- — INLET PROTECTION
- — ROCK SOCKS
- — LIMITS OF DISTURBANCE / CONSTRUCTION

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OPEN CUT SEWER IMPROVEMENTS					
EROSION CONTROL					
W 74TH CIRCLE AND JAY CT					
ENGINEER KS					
CHECKED BY KB					
DESIGN BY AS					
SHT EC-1					

A detailed street map of a portion of Chicago, Illinois, showing the area around W. 72nd Ave. and W. 70th Pl. The map includes street names such as W. 72nd Ave., W. 70th Pl., W. 71st Pl., W. 70th St., W. 69th St., W. 68th St., W. 67th St., W. 66th St., W. 65th St., W. 64th St., W. 63rd St., W. 62nd St., W. 61st St., W. 60th St., W. 59th St., W. 58th St., W. 57th St., W. 56th St., W. 55th St., W. 54th St., W. 53rd St., W. 52nd St., W. 51st St., W. 50th St., W. 49th St., W. 48th St., W. 47th St., W. 46th St., W. 45th St., W. 44th St., W. 43rd St., W. 42nd St., W. 41st St., W. 40th St., W. 39th St., W. 38th St., W. 37th St., W. 36th St., W. 35th St., W. 34th St., W. 33rd St., W. 32nd St., W. 31st St., W. 30th St., W. 29th St., W. 28th St., W. 27th St., W. 26th St., W. 25th St., W. 24th St., W. 23rd St., W. 22nd St., W. 21st St., W. 20th St., W. 19th St., W. 18th St., W. 17th St., W. 16th St., W. 15th St., W. 14th St., W. 13th St., W. 12th St., W. 11th St., W. 10th St., W. 9th St., W. 8th St., W. 7th St., W. 6th St., W. 5th St., W. 4th St., W. 3rd St., W. 2nd St., W. 1st St. The map also shows the locations of several parks, including Oak Park, and the locations of several schools, including the University of Chicago. The map is oriented with North at the top.

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MATCH LINE - SEE SHT EC-3

-
- 0' 30' 60' 120'
- SCALE: 1"=60'

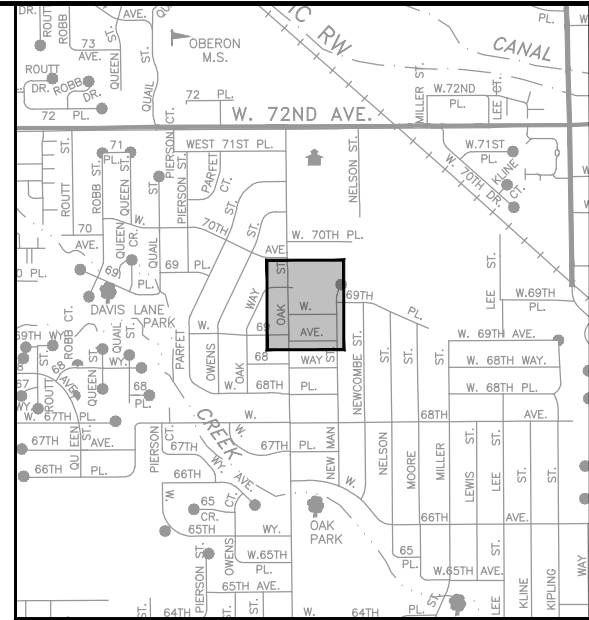
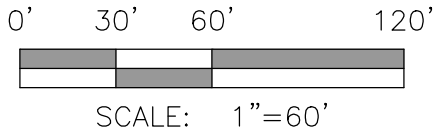
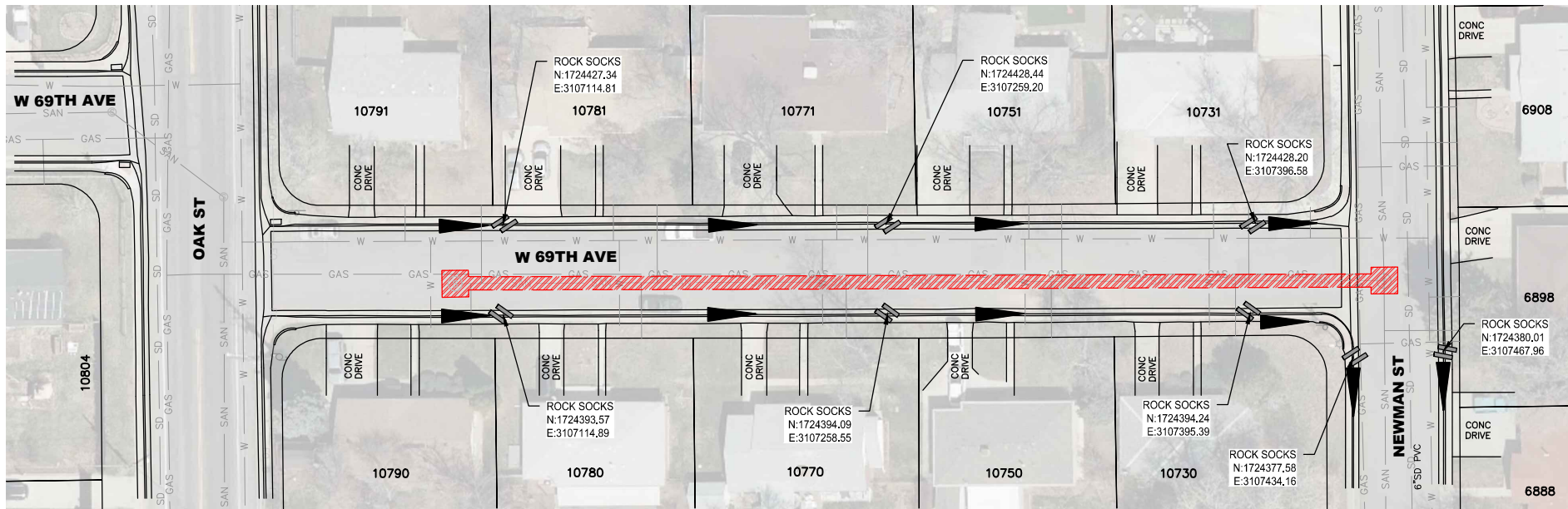
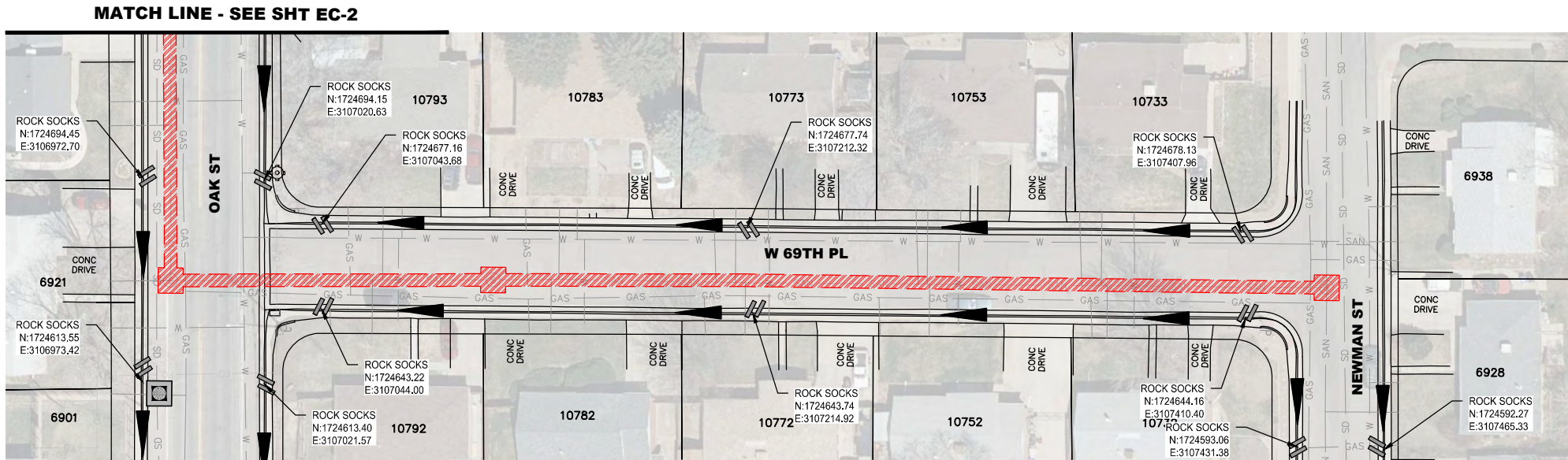


CITY OF
ARVADA

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KEY MAP
SCALE: N.T.S.

NOTES:

1. STOCK PILES AND STAGING AREAS SHALL BE IDENTIFIED AND ANNOTATED BY THE CONTRACTOR ON ALL EROSION CONTROL PLANS.
2. PORTABLE TOILETS AND WASTE RECEPTACLES WILL BE PLACED AT CONTRACTORS DISCRETION AND ANNOTATED BY THE CONTRACTOR ON ALL EROSION CONTROL PLANS.

LEGEND

- FLOW ARROWS
- INLET PROTECTION
- ROCK SOCKS
- LIMITS OF DISTURBANCE /CONSTRUCTION

APPROVED: *CU VJ* 6/26/2025 24SR01
City Engineer Date Job Number

Review is for general compliance with the City of Arvada "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.

NO.	REVISION	DATE	BY
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Public Works Department
Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640

CITY OF ARVADA

PROJECT NO. 24-SR-01
OPEN CUT SEWER IMPROVEMENTS
EROSION CONTROL
OAK ST AND W 69TH AVE

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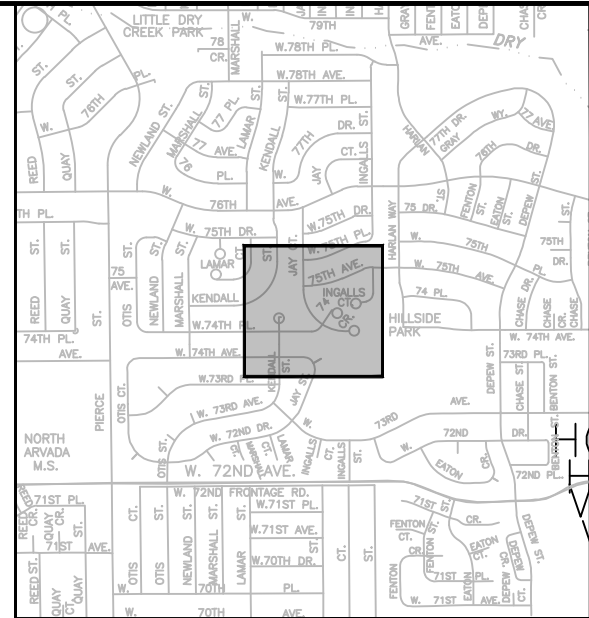
This diagram is a sanitary sewer profile view showing the vertical alignment and structure details of a sewer line. The vertical axis represents elevation in feet, ranging from 5400 to 5430. The horizontal axis represents stationing from 0+00 to 7+00. The profile includes several manholes and pipe segments with varying diameters and slopes.

Key Features and Data:

- Manholes:** Located at stations 0+00, 0+50, 1+00, 1+50, 2+00, 2+50, 3+00, 3+50, 4+00, 4+50, 5+00, 5+50, 6+00, 6+50, and 7+00. Each manhole has an invert elevation and a rim elevation.
- Service Lines:** Solid service lines (SS SERVICE) are shown at various elevations (e.g., 7449, 7442, 7443, 7439, 7432, 7433, 7419, 7413, 7408, 7409, 7403, 7402).
- Water Service Lines:** Dashed lines represent existing water service lines (EXIST. WTR SERVICE LINE).
- Proposed Water Line:** A proposed 8" water line (PROP 8" WTR PVC) is shown at station 3+50.
- Abandoned Water Line:** An abandoned 8" water line (ABAND 8" AC WTR LINE) is shown at station 4+00.
- Gas Service Line:** An existing 1 1/4" gas service line (EXIST 1 1/4" GAS EXIST. WTR SERVICE LINE) is shown at station 5+00.
- Ground Alignment:** The existing ground alignment (EXIST. GND. ALIGNMENT) is shown as a dashed line.
- Pipe Segments:**
 - 108.0' of 8" PVC @ 0.50% (between stations 0+00 and 0+50)
 - 115.0' of 8" PVC @ 0.62% (between stations 0+50 and 1+00)
 - 137.0' of 8" PVC @ 0.50% (between stations 1+00 and 1+50)
 - 77.9' of 8" PVC @ 0.51% (between stations 1+50 and 2+00)
 - 99.5' of 8" PVC @ 0.52% (between stations 2+00 and 2+50)
 - 168.9' of 8" PVC @ 1.00% (between stations 2+50 and 3+00)

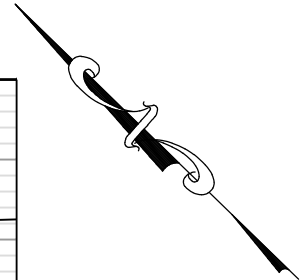
Survey Control Points Colorado Central State Plane NAVD88, Geoid 18 US Ft.				
Point #	Northing	Easting	Elevation	Description
120	728038.270	122158.180	5420.590	CP
125	728161.594	122335.581	5429.848	CP
126	728250.908	122051.834	5419.311	CP
130	727930.830	122442.370	5424.810	CP
135	727945.621	122127.448	5421.386	CP

1. CONSTRUCT NEW WATERLINE BEFORE SANITARY SEWER.
2. 7413 REPLACE APPROXIMATELY 11 LINER FEET OF 7413 JAY COURT TO ENSURE A 2% GRADE OF THE SEWER SERVICE LINE.
3. PAVE ENTIRE DISTURBED ROAD FROM RIGHT OF WAY TO RIGHT OF WAY.
4. COORDINATES WITHIN ARE COLORADO CENTRAL STATE PLANE, GRID, US FEET. ELEVATIONS ARE NAVD88, GEOID 18.
5. ALL LOCATIONS AND DEPTHS OF UTILITIES SHALL BE FIELD VERIFIED.
6. RECONNECT ALL SERVICE LINES TO NEW SANITARY SEWER MAIN.



0' 30' 60' 120'

SCALE: 1"=60'



NO.	REVISION	DATE	BY
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CITY OF
ARVADA

PROJECT NO. 24-SR-01
OPEN CUT SEWER IMPROVEMENTS
SANITARY SEWER PLANS & PROFILES
74TH CIRCLE AND JAY CT

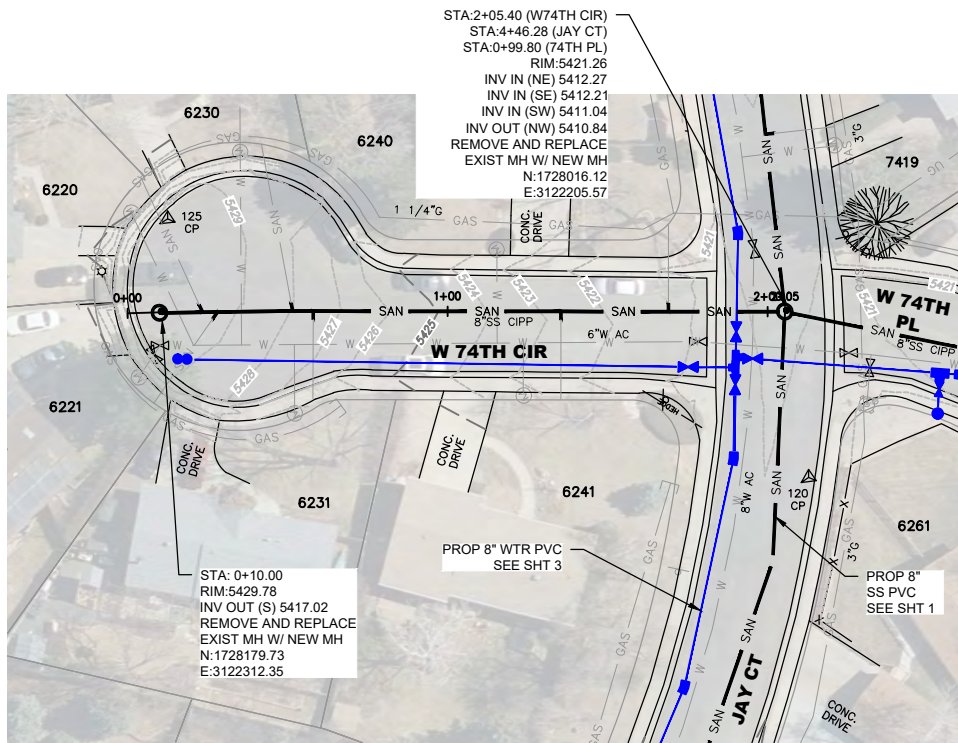
APPROVED:	6/26/2025	24SR01
		
City Engineer	Date	Job Number

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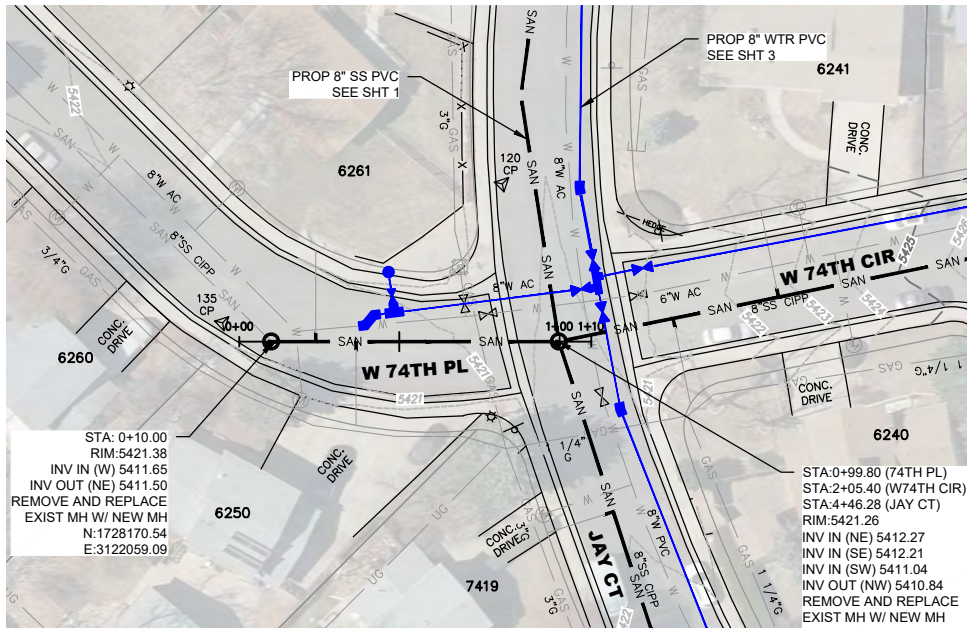
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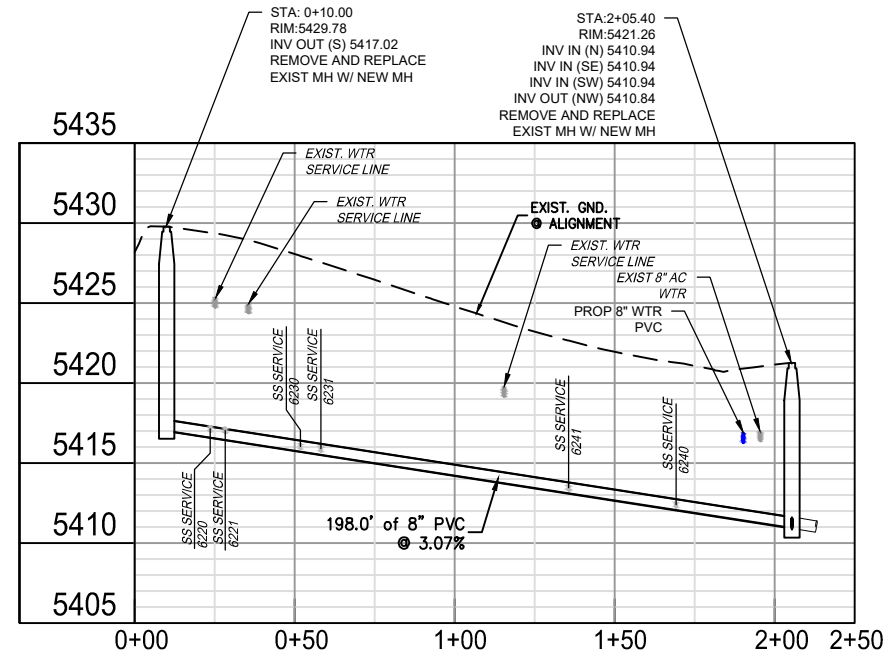
G:\PROJECTS\SEWER\24SR01-Open Cut Sewer Improvements\CAD\Area B\74th And Jay Ct - Open Cut.dwg , Plot Date: 6/25/2025



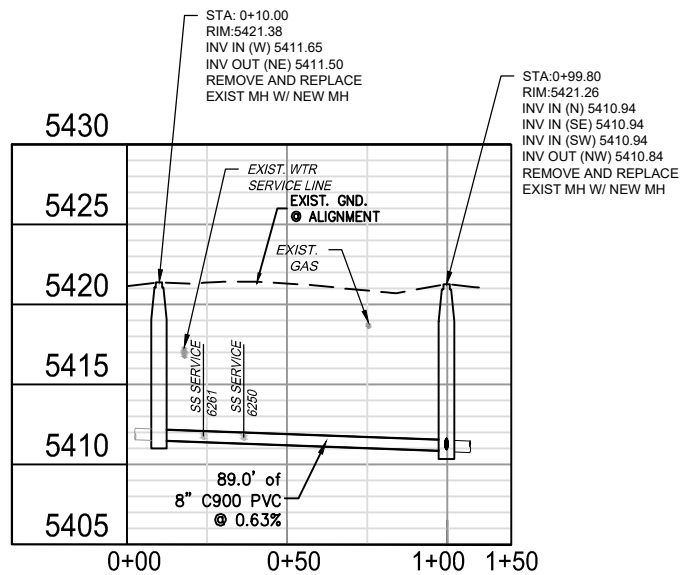
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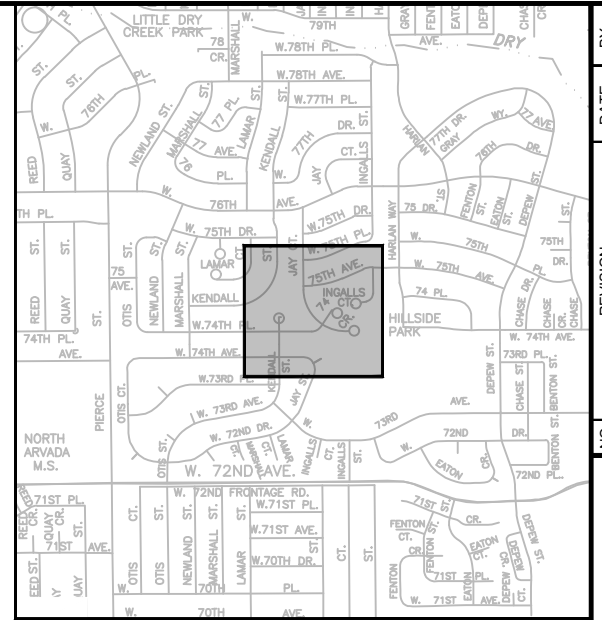
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PROFILE



PROFILE

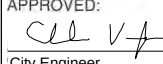


KEY MAP
SCALE: N.T.S.

NOTES:

1. CONSTRUCT NEW WATERLINE BEFORE SANITARY SEWER.
2. PAVE ENTIRE DISTURBED ROAD FROM ROW TO ROW
3. COORDINATES WITHIN ARE COLORADO CENTRAL STATE PLANE, GRID, US FEET. ELEVATIONS ARE NAVD88, GEOID 18.
3. ALL LOCATIONS AND DEPTHS OF UTILITIES SHALL BE FIELD VERIFIED.
4. RECONNECT ALL SERVICE LINES TO NEW SANITARY SEWER MAIN.

Survey Control Points Colorado Central State Plane NAVD88, Geoid 18 US Ft.				
Point #	Northing	Easting	Elevation	Description
120	728038.270	122158.180	5420.590	CP
125	728161.594	122335.581	5429.848	CP
126	728250.908	122051.834	5419.311	CP
130	727930.830	122442.370	5424.810	CP
135	727945.621	122127.448	5421.386	CP

APPROVED:  6/26/2025 24SR01
City Engineer Date Job Number

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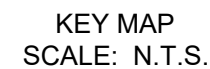
Public Works Department
Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640



PROJECT NO. 24-SR-01
OPEN CUT SEWER IMPROVEMENTS
SANITARY SEWER PLAN & PROFILES
74TH CIRCLE AND JAY CT

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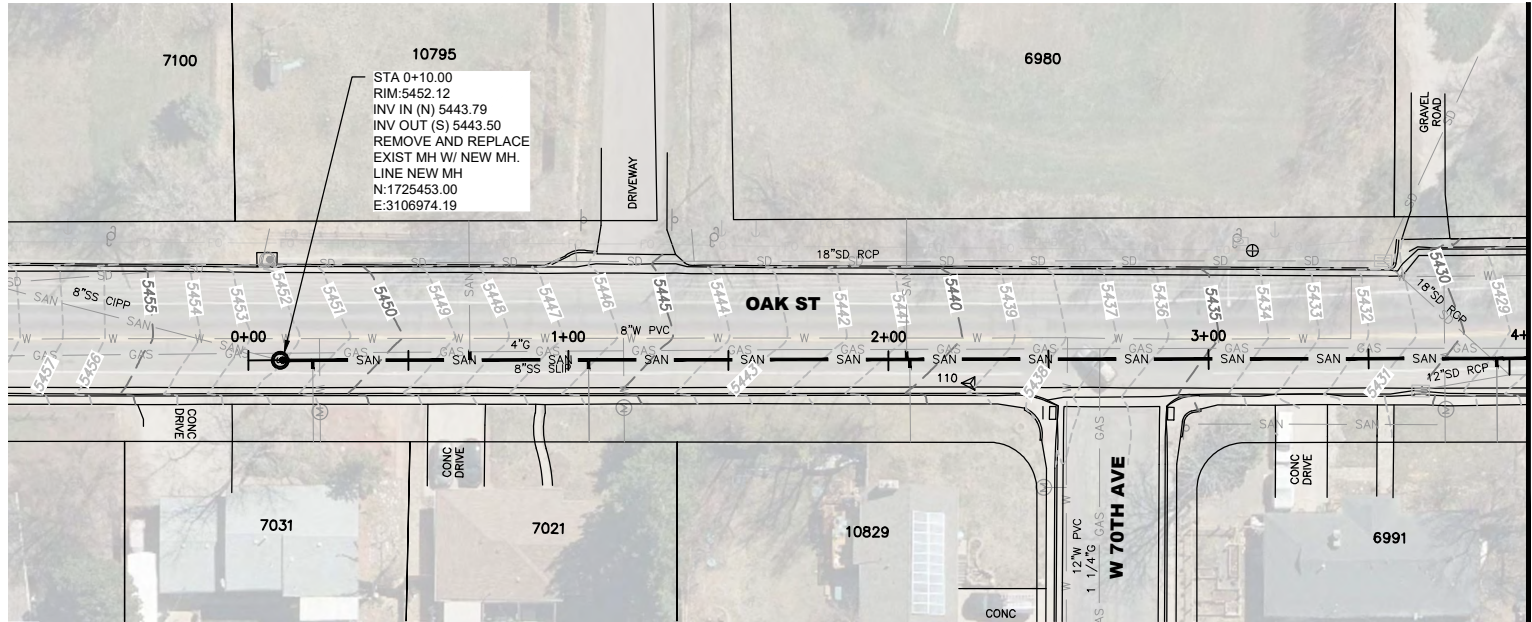
THE INTENT OF THIS DOCUMENT IS TO PROVIDE A FEASIBLE CONSTRUCTION PHASING PLAN THAT SATISFIES TESTING AND FILLING REQUIREMENTS. THIS DOCUMENT IS INFORMATIONAL AND IS NOT INTENDED TO DICTATE MEANS AND METHODS FOR THE CONSTRUCTION OF THE PROJECT. THE CONTRACTOR MAY DEVIATE FROM THE BELOW PLAN; HOWEVER, SHALL BE COORDINATED WITH CITY OF ARVADA WATER OPERATIONS TO ENSURE ALL REQUIREMENTS AND RESTRICTIONS ARE MET.

PROJECT NO. 24-SR-01 WATER MAIN IMPROVEMENTS WATER MAIN PLANS W 74TH CIRCLE AND JAY CT	 CITY OF ARVADA	Public Works Department Engineering Division 8101 Ralston Road Arvada, Colorado 80002 Phone 720-898-7640		NO.	REVISION	DATE	BY
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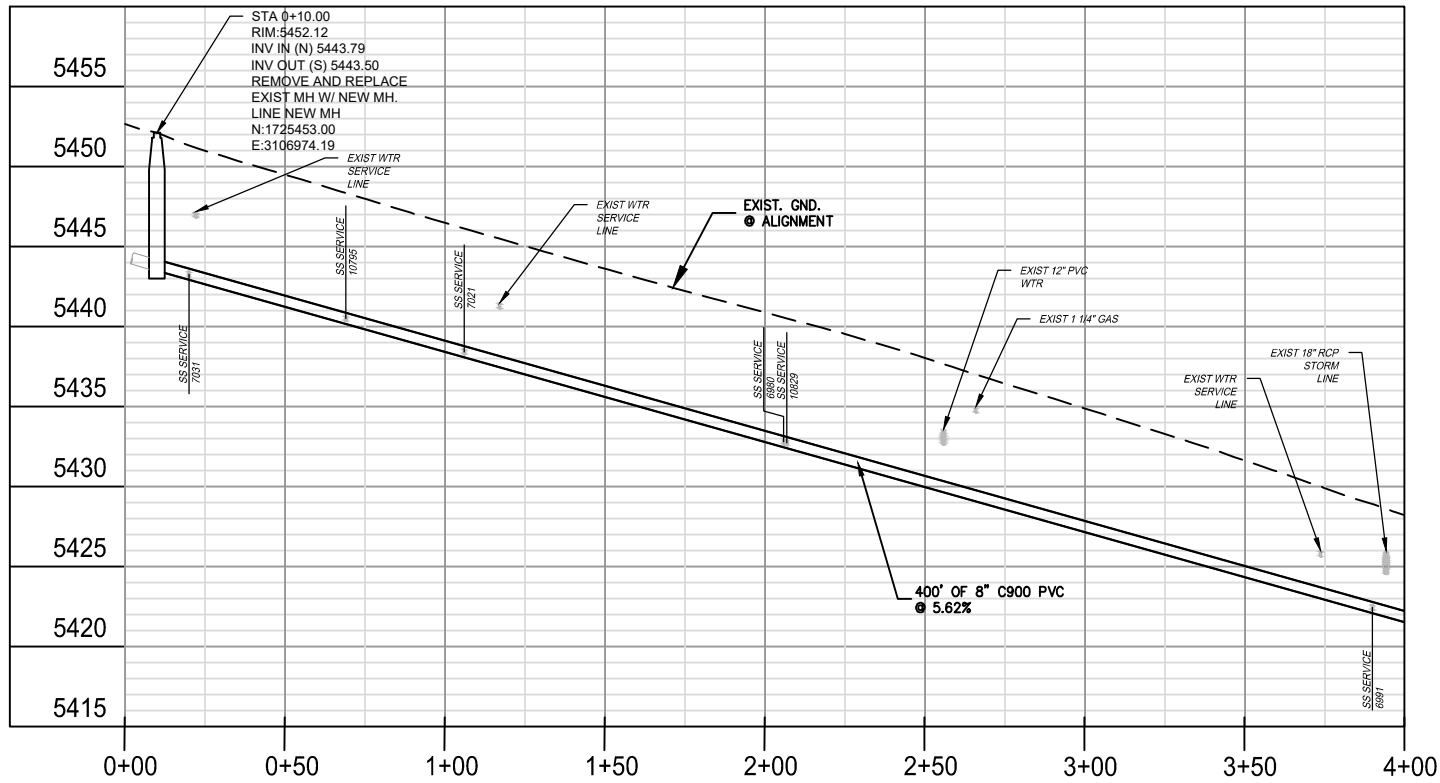
APPROVED:	6/26/2025	24SR01
		
City Engineer	Date	Job Number

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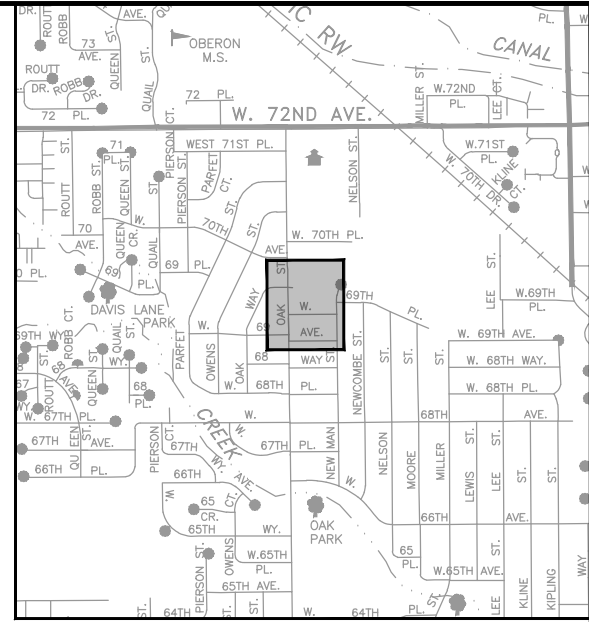
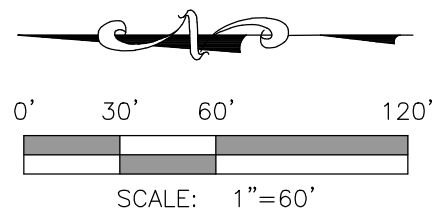
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PLAN



PROFILE



KEY MAP
SCALE: N.T.S.

NOTES:

1. STATION 0+10.00 TO 8+08.82 US PRESSURE PIPE C900 PVC.
2. COORDINATES WITHIN ARE COLORADO CENTRAL STATE PLANE, GRID, US FEET. ELEVATIONS ARE NAVD88, GEOID 18.
4. ALL LOCATIONS AND DEPTHS OF UTILITIES SHALL BE FIELD VERIFIED.
5. RECONNECT ALL SERVICE LINES TO NEW SANITARY SEWER.

Survey Control Points Colorado Central State Plane NAVD88, Geoid 18 US Ft.				
Point #	Northing	Easting	Elevation	Description
100	1725649.36	3106965.25	5466.06	CP-NAIL
110	1725237.11	3106969.35	5439.22	CP-NAIL
120	1724871.71	3106974.24	5418.36	CP-NAIL
130	1724424.08	3107035.01	5410.89	CP-NAIL
140	1724397.54	3107423.34	5407.09	CP-NAIL
150	1724667.33	3107460.34	5417.31	CP-NAIL

APPROVED: *CU VJ* 6/26/2025 24SR01
City Engineer Date Job Number
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Public Works Department
Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640

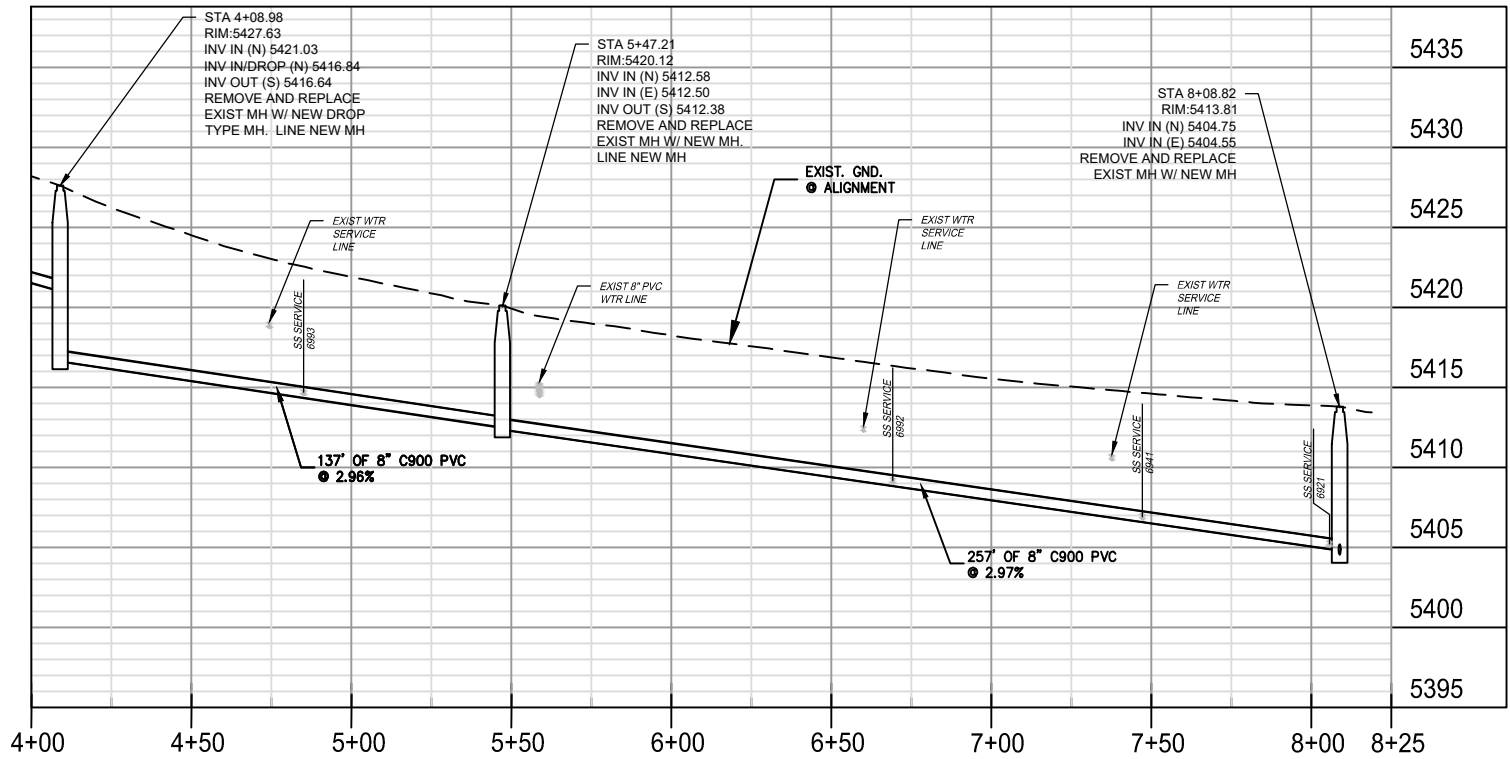
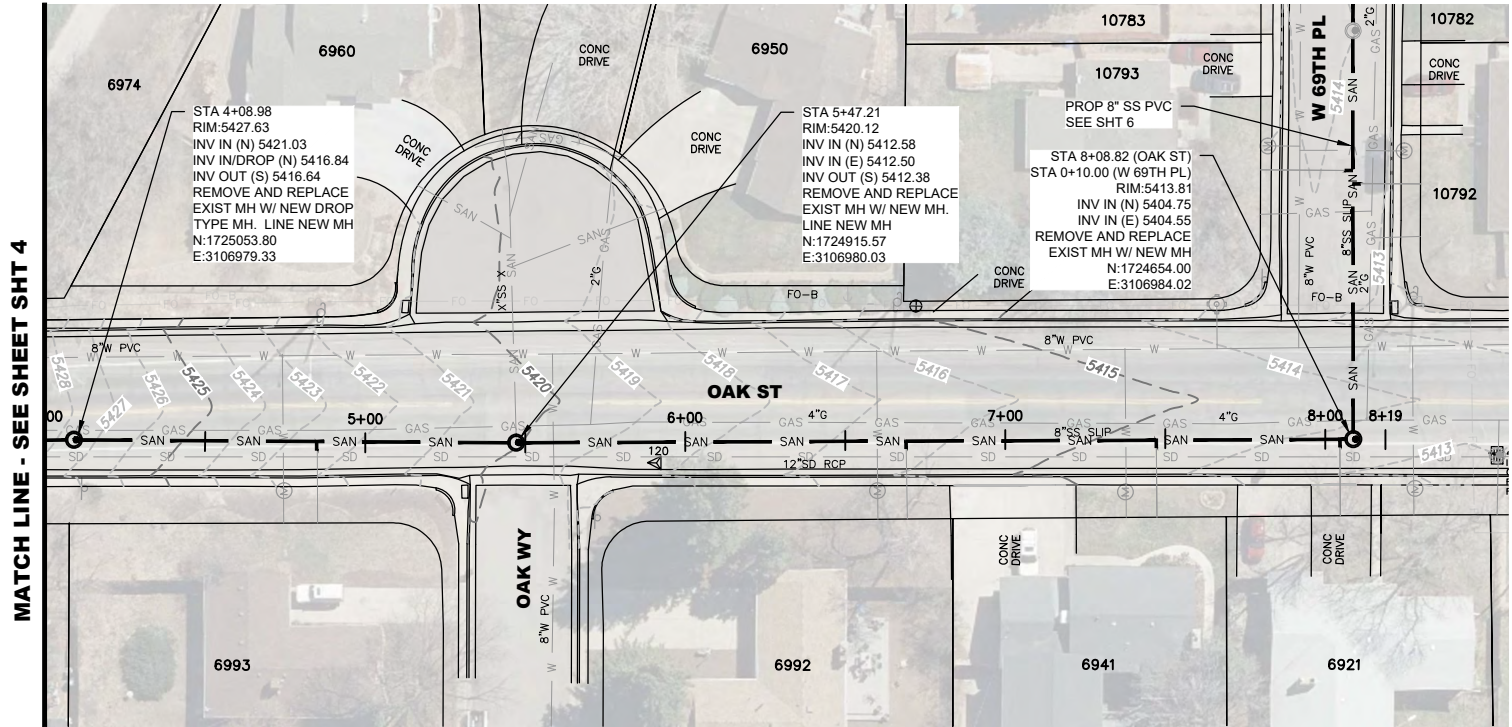
CITY OF
ARVADA

PROJECT NO. 24-SR-01
OPEN CUT SEWER IMPROVEMENT
SANITARY SEWER PLAN & PROFILE
OAK ST AND W 69TH AVE

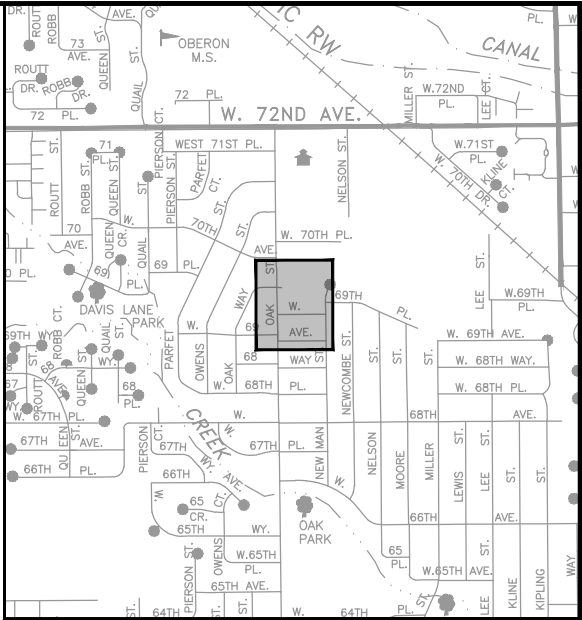
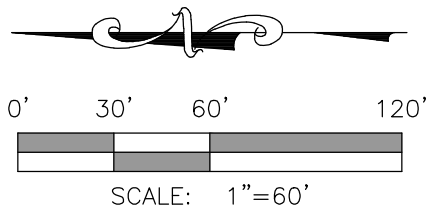
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PROFILE



KEY MAP
SCALE: N.T.S.

NOTES:

1. STATION 0+10.00 TO 8+08.82 USE PRESSURE PIPE C900 PVC.
2. STATION 4+08.98 REMOVE AND REPLACE EXISTING MANHOLE WITH NEW DROP MANHOLE AND LINE DROP MANHOLE AS WELL AS UPSTREAM AND DOWNSTREAM MANHOLES PER CITY SPECIFICATIONS.
3. COORDINATES WITHIN ARE COLORADO CENTRAL STATE PLANE, GRID, US FEET. ELEVATIONS ARE NAVD88, GEOID 18.
4. ALL LOCATIONS AND DEPTHS OF UTILITIES SHALL BE FIELD VERIFIED.
5. RECONNECT ALL SERVICE LINES TO NEW SANITARY SEWER.

Survey Control Points Colorado Central State Plane NAVD88, Geoid 18 US Ft.				
Point #	Northing	Easting	Elevation	Description
100	1725649.36	3106965.25	5466.06	CP-NAIL
110	1725237.11	3106969.35	5439.22	CP-NAIL
120	1724871.71	3106974.24	5418.36	CP-NAIL
130	1724424.08	3107035.01	5410.89	CP-NAIL
140	1724397.54	3107423.34	5407.09	CP-NAIL
150	1724667.33	3107460.34	5417.31	CP-NAIL

APPROVED:	6/26/2025	24SR01
	Date	Job Number
City Engineer		
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REVISION					
DATE					
BY					

Public Works Department
Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640

CITY OF

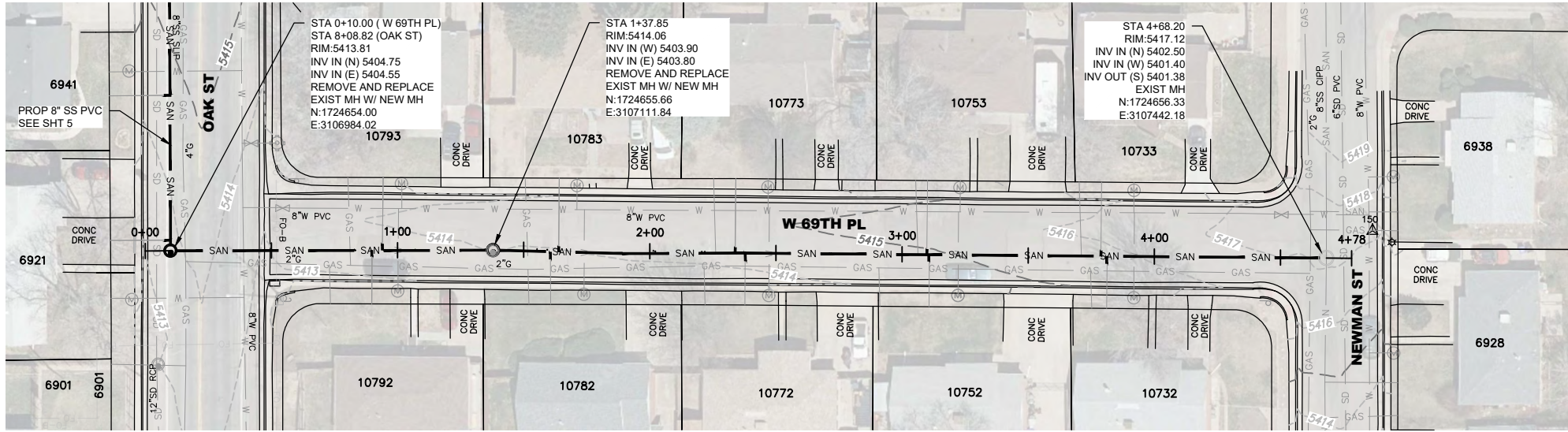
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PROJECT NO. 24-SR-01
OPEN CUT SEWER IMPROVEMENTS
SANITARY SEWER PLAN & PROFILE
OAK ST AND W 69TH AVE

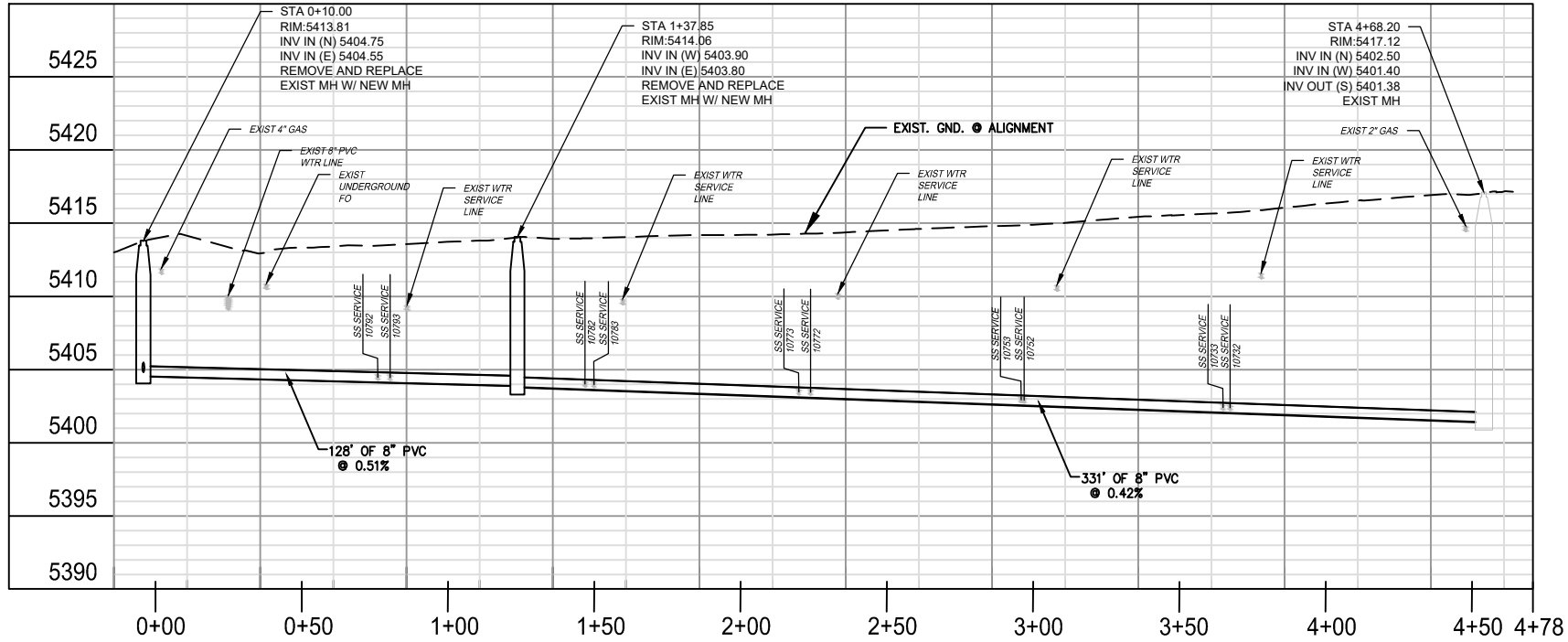
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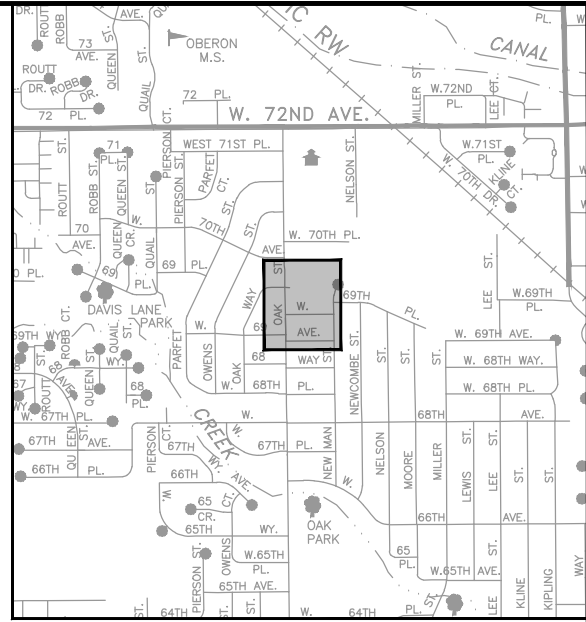
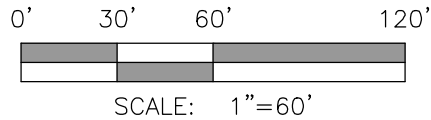
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PLAN



PROFILE



KEY MAP
SCALE: N.T.S.

NOTES:

1. STATION 1+37.85 TO 4+68.20 MINIMUM GRADE OF 0.42% APPROVED BY PROJECT MANAGER.
2. COORDINATES WITHIN ARE COLORADO CENTRAL STATE PLANE, GRID, US FEET. ELEVATIONS ARE NAVD88, GEOID 18.
4. ALL LOCATIONS AND DEPTHS OF UTILITIES SHALL BE FIELD VERIFIED.
5. RECONNECT ALL SERVICE LINES TO NEW SANITARY SEWER.

Survey Control Points Colorado Central State Plane NAVD88, Geoid 18 US Ft.				
Point #	Northing	Easting	Elevation	Description
100	1725649.36	3106965.25	5466.06	CP-NAIL
110	1725237.11	3106969.35	5439.22	CP-NAIL
120	1724871.71	3106974.24	5418.36	CP-NAIL
130	1724424.08	3107035.01	5410.89	CP-NAIL
140	1724397.54	3107423.34	5407.09	CP-NAIL
150	1724667.33	3107460.34	5417.31	CP-NAIL

APPROVED:  6/26/2025 24SR01
City Engineer Date Job Number

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Public Works Department
Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640

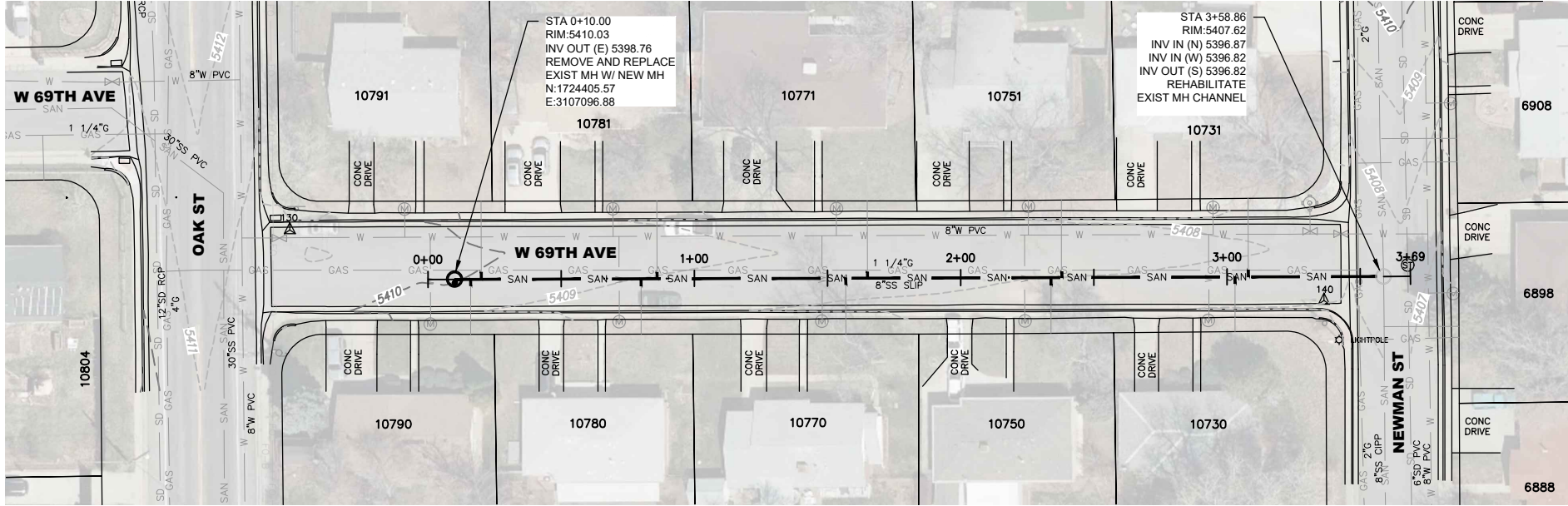


PROJECT NO. 24-SR-01
OPEN CUT SEWER IMPROVEMENTS
SANITARY SEWER PLAN & PROFILE
OAK ST AND W 69TH AVE

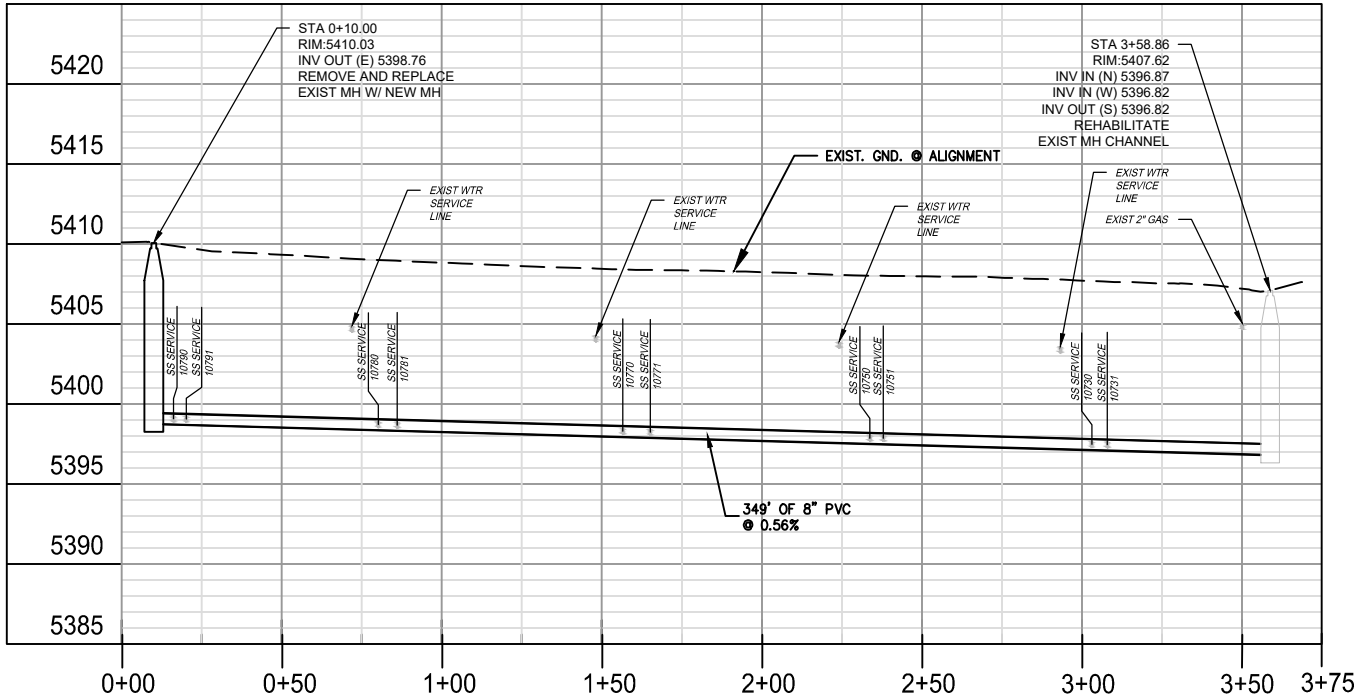
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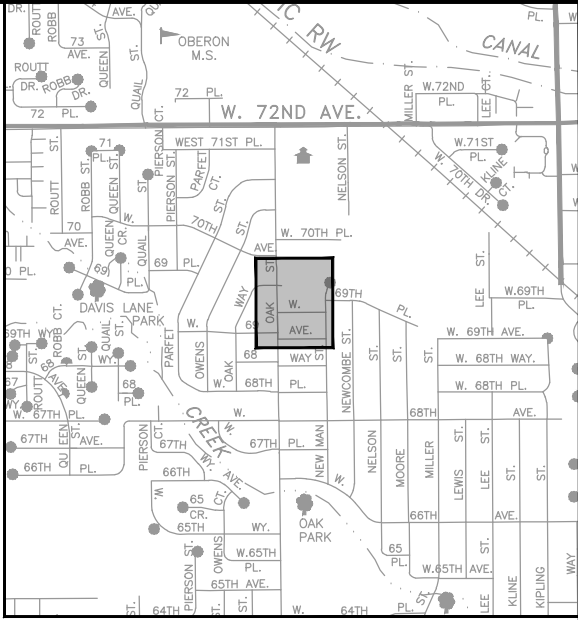
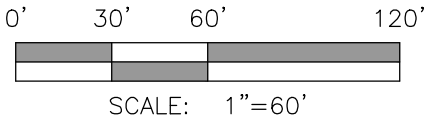
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PLAN



PROFILE



KEY MAP
SCALE: N.T.S.

NOTES:

1. STATION 3+58.86 REHABILITATE EXISTING MANHOLE CHANNEL.
2. COORDINATES WITHIN ARE COLORADO CENTRAL STATE PLANE, GRID, US FEET. ELEVATIONS ARE NAVD88, GEOID 18.
4. ALL LOCATIONS AND DEPTHS OF UTILITIES SHALL BE FIELD VERIFIED.
5. RECONNECT ALL SERVICE LINES TO NEW SANITARY SEWER.

Survey Control Points Colorado Central State Plane NAVD88, Geoid 18 US Ft.				
Point #	Northing	Easting	Elevation	Description
100	1725649.36	3106965.25	5466.06	CP-NAIL
110	1725237.11	3106969.35	5439.22	CP-NAIL
120	1724871.71	3106974.24	5418.36	CP-NAIL
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140	1724397.54	3107423.34	5407.09	CP-NAIL
150	1724667.33	3107460.34	5417.31	CP-NAIL

APPROVED:	6/26/2025	24SR01
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Engineering Division
8101 Ralston Road
Arvada, Colorado 80002
Phone 720-898-7640

CITY OF
ARVADA

PROJECT NO. 24-SR-01
OPEN CUT SEWER IMPROVEMENTS
SANITARY SEWER PLAN & PROFILE
OAK ST AND W 69TH AVE

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CITY OF ARVADA

PURCHASING DIVISION
FACSIMILE: 720-898-7098 ▲ TDD: 720-898-7869
PHONE: 720-898-7099

REQUEST FOR BID - ADDENDUM No. 1

CSB #: 25-ENG-063

Title: Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE

CSB Issued: 07/09/2025

Addendum #: 1

Today's Date: 07/24/2025

BIDS Due By: 08/06/2025 **2:00 PM** MDT (NO CHANGE)

Questions Deadline: 07/23/2025 **2:00 PM** MDT (NO CHANGE)

Solicitation and all related addenda and communications are available at WWW.BIDNETDIRECT.COM

The following clarifications are provided to be incorporated into the Request for BIDS
All other information shall remain unchanged.

1. **Attendance Sheet from Mandatory Pre-Bid Meeting**
2. **No Questions were submitted through Bidnet**
3. **Answers to the questions asked during the pre-bid meeting:**
 - a. **Class 1 backfill in trenches - the top 5 feet? What is the amount to be replaced?**
 - i. The answer to this question can be found in The City of Arvada Engineering Code of Standards and Specifications under Section 521.02 and Section 364.00 which states "For trenches beneath pavements and flatwork, backfill from a minimum of 1 foot below grade to grade shall consist of material meeting the requirements for AASHTO class A-1 or A-2 material."
 - b. **Will fees from permits be waived?**
 - i. Yes, all fees from permits be waived.

PRE-BID MEETING ATTENDANCE SHEET

Bid # 25-ENG-063 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 Reissue

Meeting Date/Time: 07/16/2025 2:00 PM

Facilitator: Project Manager : Katy Smith Purchasing: Doreen Mazza

Place: VIRTUAL

Company	Representative Name	E-Mail
American West Construction	Chantel Lucero	clucero@trustawc.com
Timber Wolf Excavating	Adrian Reyes	dan@twolfx.com
CGRS	John Turner	
Brannan Construction	Ryan Rosel	Rrsoel@brannan1
Duran Excavating	Noah Duran	noahd@duranexcavating.com
Conroy Excavating	Jay Conroy	jay@conroyexcavating.com
Colorado Civil Infrastructure	Mark LoVecchio	mark@co-civil.com
SM Hentges West	John Klein	John.klein@smhentges.com
Sunbelt Rentals	Joe Cerretani	Joe.cerretani@sunbeltrentals.com
Native Sun Construction	Samuel Jeffs	Samuel.jeffs@ncsteam.com
Apex Underground	Leo Sanderson	l.sanderson@apexunderground.com
Miller Pipeline	Kyle Knott	Kyle.knott@millerpipeline.com

Company	Representative Name	E-Mail
West Fork Construction	Vlad Bocharov	vlad@westforkconstruction.com
BT Construction	John Pickle	John.pickle@btconstruction.com
Mid City Corporation	John Salazar	
Colorado Contractors Assoc.	Jim Moody	
SMH West	John Abbott	John.abbott@smhwest.com

Exhibit B

AN AGREEMENT BY AND BETWEEN THE CITY OF ARVADA AND
MID CITY CORPORATION FOR THE 2024 SANITARY SEWER OPEN
CUT PROJECT, PROJECT NO. 24-SR-01, IN AN AMOUNT NOT TO
EXCEED \$1,677,411.56

BID BOND

We, the undersigned MID CITY CORPORATION as Principal,
and THE HANOVER INSURANCE COMPANY as Surety, are hereby held and firmly bound unto the City of
Arvada, Colorado, in the penal sum of Five Percent of Amount Bid (5%) for the
payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

THE CONDITION of this obligation is such that whereas the Principal has submitted to the City of Arvada, Colorado the
accompanying Bid Proposal, and hereby made a part hereof to enter into a Contract Agreement for the construction of City
of Arvada Project No Project No. 24-SR-01 Project Title: 2024 Sanitary Sewer Open Cut Construction Services 24-SR-
01 REISSUE

WHEREAS, the City, as a condition for receiving said Bid Proposal, requires the Principal to deposit with the City a Bid
Proposal Guaranty, equivalent to not less than 5 Percent of the amount of said Bid Proposal.

NOW THEREFORE,

(A) If said Bid Proposal shall be rejected; or in the alternate,

(B) If said Bid Proposal shall be accepted and the Principal shall execute and deliver a Contract Agreement (properly
completed in accordance with said Bid Proposal) and shall furnish a Performance and Payment Bond upon the forms
prescribed by the City for the faithful performance of said Contract; and for the payment of all persons performing labor or
furnishing materials in connection therewith; and shall in all other respects perform the agreement created by the acceptance
of said Bid Proposal;

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and
agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this
obligation as herein stated.

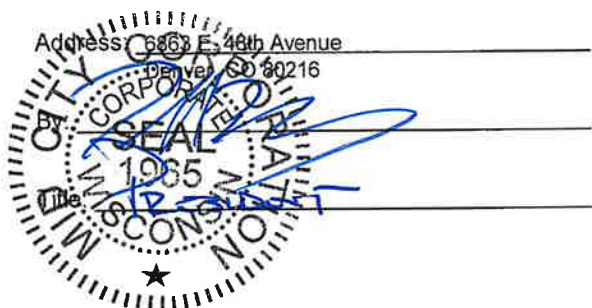
The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way
impaired or affected by any extension of the time within which the City may accept such Bid and said Surety does hereby
waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, this 6th day of August
2025 and such of them as are corporations have caused their corporate seals to be hereto affixed and these
presents to be signed by their proper officers, the day and year first set forth above.

PRINCIPAL

Name: MID CITY CORPORATION

Address: 6863 E. 46th Avenue
Denver, CO 80216



SURETY

THE HANOVER INSURANCE COMPANY

440 Lincoln Street
Worcester, MA 01653

By: [Signature]

Title: Trudy A. Szalewski, Attorney-in-fact



(SEAL)

NOTE: Surety Companies executing bonds must be authorized to transact business in the State of Colorado and be
acceptable to the City.

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

POWER OF ATTORNEY

THIS Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

KNOW ALL PERSONS BY THESE PRESENTS:

That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, (hereinafter individually and collectively the "Company") does hereby constitute and appoint,

Kelly Cody, Roxanne Jensen, Brian Krause, Trudy A. Szalewski and/or Marc Sacia

Of Aon Risk Solutions, Green Bay, WI, each individually, if there be more than one named, as its true and lawful attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, any and all surety bonds, recognizances, undertakings, or other surety obligations. The execution of such surety bonds, recognizances, undertakings or surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company, in their own proper persons. Provided however, that this power of attorney limits the acts of those named herein; and they have no authority to bind the Company except in the manner stated and to the extent of any limitation stated below:

Any such obligations in the United States, not to exceed Fifty Million and No/100 (\$50,000,000) in any single instance

That this power is made and executed pursuant to the authority of the following Resolutions passed by the Board of Directors of said Company, and said Resolutions remain in full force and effect:

RESOLVED: That the President or any Vice President, in conjunction with any Vice President, be and they hereby are authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as it acts, to execute and acknowledge for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons.

RESOLVED: That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or Vice President in conjunction with any Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile. (Adopted October 7, 1981 – The Hanover Insurance Company; Adopted April 14, 1982 – Massachusetts Bay Insurance Company; Adopted September 7, 2001 – Citizens Insurance Company of America and affirmed by each Company on March 24, 2014)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by two Vice Presidents, this 22nd day of April 2025



The Hanover Insurance Company
Massachusetts Bay Insurance Company
Citizens Insurance Company of America


James H. Kawiecki, Vice President

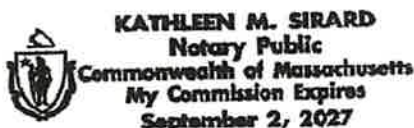
The Hanover Insurance Company
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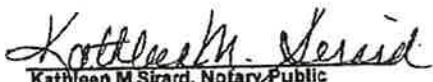

Joellen M. Mendoza, Vice President

STATE OF CONNECTICUT)
COUNTY OF HARTFORD)

) ss.

On this 22nd day of April, 2025 before me came the above named Executive Vice President and Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.




Kathleen M. Sirard, Notary Public
My commission expires, September 2, 2027

I, the undersigned Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 6th day of August 2025

CERTIFIED COPY

The Hanover Insurance Company
Massachusetts Bay Insurance Company
Citizens Insurance Company of America


John Rowedder, Vice President

BID BOND

We, the undersigned MID CITY CORPORATION as Principal,
and THE HANOVER INSURANCE COMPANY as Surety, are hereby held and firmly bound unto the City of
Arvada, Colorado, in the penal sum of Five Percent of Amount Bid (5%) for the
payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

THE CONDITION of this obligation is such that whereas the Principal has submitted to the City of Arvada, Colorado the
accompanying Bid Proposal, and hereby made a part hereof to enter into a Contract Agreement for the construction of City
of Arvada Project No. 24-SR-01 Project Title: 2024 Sanitary Sewer Open Cut Construction Services 24-SR-
01 REISSUE

WHEREAS, the City, as a condition for receiving said Bid Proposal, requires the Principal to deposit with the City a Bid
Proposal Guaranty, equivalent to not less than 5 Percent of the amount of said Bid Proposal.

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prescribed by the City for the faithful performance of said Contract; and for the payment of all persons performing labor or
furnishing materials in connection therewith; and shall in all other respects perform the agreement created by the acceptance
of said Bid Proposal;

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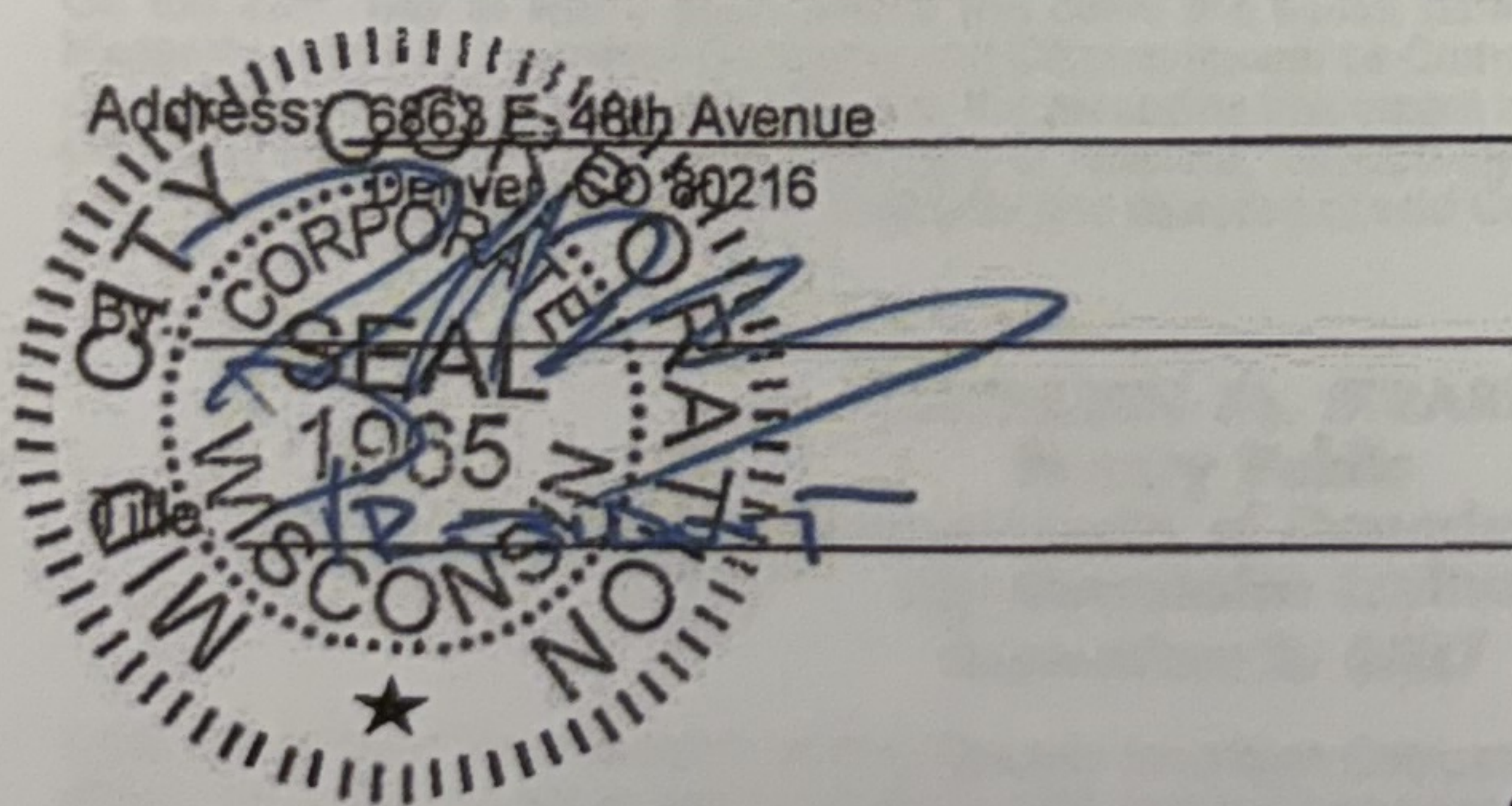
The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way
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waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, this 6th day of August
2025 and such of them as are corporations have caused their corporate seals to be hereto affixed and these
presents to be signed by their proper officers, the day and year first set forth above.

PRINCIPAL

Name: MID CITY CORPORATION

Address: 6863 E. 48th Avenue
Denver, CO 80216



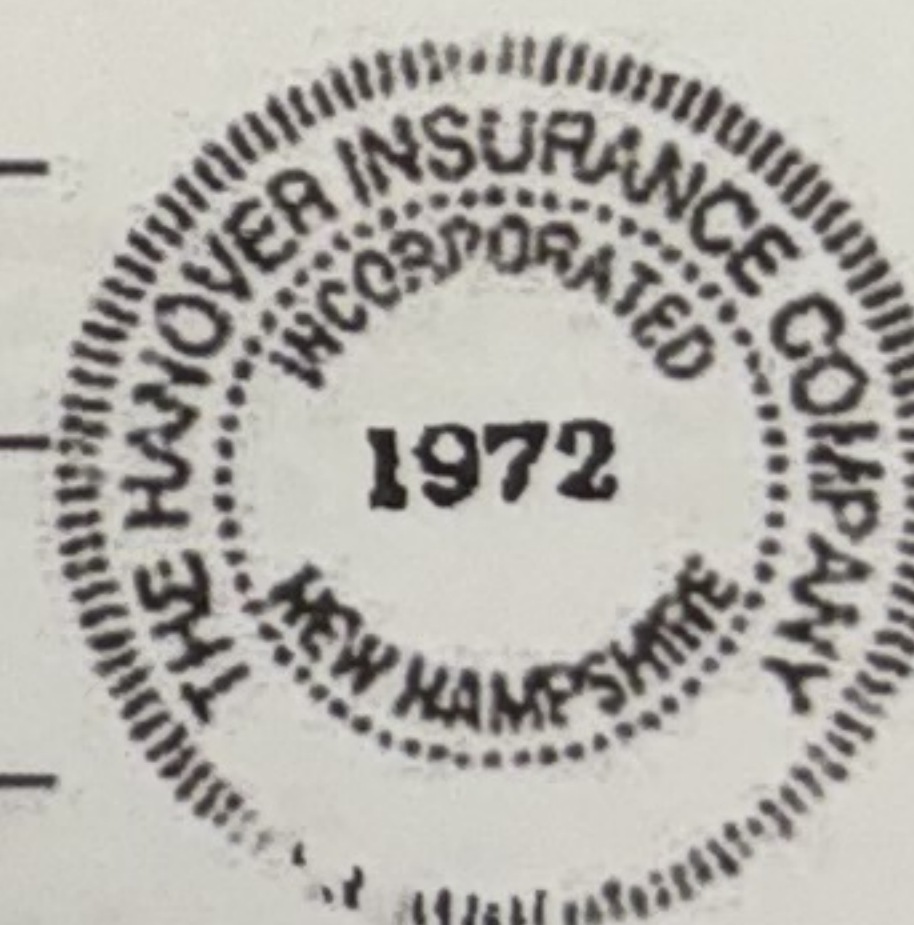
SURETY

THE HANOVER INSURANCE COMPANY

440 Lincoln Street
Worcester, MA 01653

By: [Signature]

Title: Trudy A. Szalewski, Attorney-in-fact



(SEAL)

NOTE: Surety Companies executing bonds must be authorized to transact business in the State of Colorado and be
acceptable to the City.

BID PROPOSAL

TO: City of Arvada, Colorado (hereinafter called "CITY").

FROM: Mid City Corporation (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as (a corporation), (a partnership), (an individual).

The Bidder, in compliance with your Advertisement for Bids, hereby proposes to perform all Work in strict accordance with the Contract Documents, for the construction of City of Arvada Project No. 24-SR-01 Project Title 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE within the time set forth therein, and at the prices stated on the included Bid Schedule as totaled herein.

By submission of this Bid Proposal, each Bidder certifies, and in the case of a joint venture each party thereto certifies as to his/her own organization, that this Bid Proposal has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid Proposal with any other Bidder or with any competitor.

Bidder acknowledges receipt of **Addendum Nos.** 1 Initials: JS

Bidder states that their:

Major Material Suppliers are:

Ferguson
Ground solutions
Copeland

Material They Will Supply

Pipe
Aggregate/Concrete
Precast manholes

Major Subcontractors are:

Martin Marietta
United Rentals
Traffic Control

Work They Will Perform

Asphalt
By Pass pumping
AAA Barricade

CONTRACT TIME AND LIQUIDATED DAMAGES: All work shall be completed, including clean-up, within 146 working days after the date to be specified in the Notice to Proceed. A Notice to Proceed is anticipated to be issued on or about August 22, 2025 bidder shall agree to pay the owner the sum of \$2,000 for each calendar day that the work exceeds the allotted contract time. Contract time may be adjusted by Change Order.

Total from included Bid Schedule:

TOTAL BID \$ 1,677,411.56

SUBMITTED BY:

Company Name: Mid City Corporation

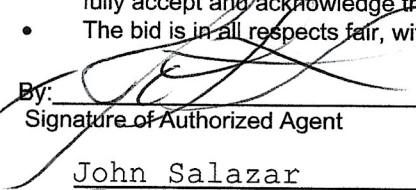
Contact Names: John Salazar

Address: 6863 E 48th Ave, Denver, CO 80216

Phone: (720) 620.8797 Email(s): jsalazar@midcitycorp.us

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the Contractor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accept and acknowledge this bid is consistent with the specifications and terms and conditions.
- The bid is in all respects fair, without outside collusion or otherwise illegal action.

By:  08.06.25 39-1050585
Signature of Authorized Agent Date FEIN
John Salazar Program Manager jsalazar@midcitycorp.us
Typed/Printed Name of Agent Title of Agent Agent email

PAYMENT TERMS: The City standard is net thirty (30) days but every effort is made to meet net fifteen (15) days after the approved partial payment date when the contractor is satisfactorily performing the contract. The final 5% of total payment will be paid once the contract is completed satisfactorily, advertisement for final settlement is complete, and the project is accepted by the City. Payment is the date of the check mailing or date of the credit card transaction.

BID SCHEDULE
25-ENG-063 2024 Sanitary Sewer Open Cut Construction Services 24-SR-01 REISSUE



Contractor:

DATE: 08.06.25

Mid City Corporation

BID PREPARED BY:

John Salazar

ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	COST
General					
1	Mobilization, Demobilization, Permits, Fees, Licenses, Administration	LS	1	\$41,699.50	\$41,699.50
2	Traffic and Pedestrian Control	LS	1	\$147,950.61	\$147,950.61
3	Sediment and Erosion Control	LS	1	\$24,213.18	\$24,213.18
4	Utility Locate Potholing	LS	1	\$7,366.00	\$7,366.00
5	Construction Survey	LS	1	\$18,957.95	\$18,957.95
6	Owner Controlled Minor Contract Revisions	ALLOW	1	\$180,000.00	\$180,000.00
GENERAL COST SUB-TOTAL					\$420,187.25
Area A (W 74th Circle and Jay Ct.)					
7	Temporary Bypass Pumping Sewer	LS	1	\$23,054.83	\$23,054.83
8	Remove 8" CIPP Sanitary Sewer Pipe	LF	994	\$24.93	\$24,779.95
9	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	3	\$796.10	\$2,388.31
10	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10')	EA	6	\$796.10	\$4,776.62
11	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10'), Complete In Place	EA	3	\$8,718.04	\$26,154.13
12	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10'), Complete In Place	EA	6	\$8,658.12	\$51,948.75
13	8" SDR35 PVC, Complete in Place	LF	905	\$83.64	\$75,695.11
14	8" C900 PVC, Complete in Place	LF	89	\$97.90	\$8,712.79
15	Connect Sanitary Sewer Service	EA	20	\$462.61	\$9,252.26
16	6" Asphalt Removal and Patching, Complete in Place	SY	932	\$121.92	\$113,633.33
17	Concrete Pan, Sidewalk, & Curb Ramp Remove and Replace, Complete in Place	SY	45	\$262.34	\$11,805.18
AREA B SEWER COST SUB-TOTAL					\$352,201.26
Area A 8" AC Waterline Replacement					
18	Remove Existing Fire Hydrant	EA	1	\$2,114.93	\$2,114.93
19	8" C900 PVC and fittings, Complete in Place	LF	1,080	\$153.38	\$165,652.84
20	Fire Hydrant Assembly	EA	2	\$11,376.02	\$22,752.05
21	Chlorination and Pressure Test	LS	1	\$5,154.95	\$5,154.95
22	Connect to Existing 8" AC Waterline	EA	2	\$3,948.07	\$7,896.14
23	Water Service Tap Reconnection	EA	19	\$1,624.61	\$30,867.67
24	6" Asphalt Removal and Patching, Complete in Place	SY	931	\$117.48	\$109,377.96
25	6" Thick Concrete Sidewalk Removal and Replacement	SY	7	\$537.95	\$3,765.64
26	2" Depth Milling (full width)	SY	3,790	\$6.99	\$26,509.33
27	2" SX PG 64-22 Top Course	TON	451	\$126.66	\$57,125.77
28	HMA Patching (Grading S) (75) PG 64-22	TON	22	\$390.49	\$8,590.88
AREA B WATERLINE COST SUB-TOTAL					\$439,808.15
Area B (Oak St & W 69th Ave)					
29	Temporary Bypass Pumping Sewer	LS	1	\$23,987.98	\$23,987.98
30	Remove 8" SLIP Sanitary Sewer Pipe	LF	1,602	\$24.93	\$39,937.10
31	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	3	\$1,501.08	\$4,503.24
32	Remove Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10')	EA	2	\$1,501.08	\$3,002.16
33	Remove Drop Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	1	\$3,185.26	\$3,185.26
34	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10'), Complete In Place	EA	3	\$7,128.57	\$21,385.70
35	Sanitary Sewer Maintenance Hole - 4' Diameter (Depth > 10'), Complete In Place	EA	2	\$7,004.35	\$14,008.69
36	Drop Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	1	\$6,769.01	\$6,769.01
37	Rehabilitate Sanitary Sewer Maintenance Hole - 4' Diameter (Depth < 10')	EA	3	\$3,770.99	\$11,312.96
38	Protective Lining of 4' Maintenance Hole	EA	1	\$23,613.68	\$23,613.68
39	8" C900 PVC, Complete in Place	LF	794	\$93.61	\$74,325.42
40	8" SDR35 PVC, Complete in Place	LF	808	\$84.13	\$67,978.45
41	Connect to Existing Sanitary Sewer Maintenance Hole	EA	2	\$4,192.30	\$8,384.60
42	Connect Sanitary Sewer Service	EA	30	\$1,155.80	\$34,674.11
43	6" Asphalt Removal and Patching, Complete in Place	SY	1,492	\$85.89	\$128,146.56
AREA H SEWER COST SUB-TOTAL					\$465,214.90
TOTAL BASE BID					\$1,677,411.56

TOTAL BASE BID WRITTEN:

One million six hundred seventy seven thousand four hundred eleven dollars and fifty six cents

REQUIRED CONTRACTOR SUBMITTAL FORM

SUBMITTAL CHECKLIST:

Bid Proposals shall be submitted in the order listed below with each section clearly identified. **Missing information or required documents may result in submission being deemed non-responsive.**

- ☒ Submit completed Bid Bond, Bid Proposal, Bid Schedule, Required Contractor Submittal, and any other attachments requested.
- ☒ Submit Evidence of Project Qualifications as listed on page 9, Section 1, 1.01 Project Qualifications in the Special Provisions section.
- ☒ Submit implementation timeline and warranties, if applicable.
- ☒ Attach Contractor's Licensing, if applicable. Will acquire after award
- ☒ Insurance – Checking this box accepts that the insurance requirements listed by the City are acceptable.
- ☐ Variations: Checking this box indicates that the contractor has variations to this solicitation. Identify all variations and exceptions to this CSB on a separate sheet/s of paper. 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. For each variation listed, reference the applicable section of the solicitation document, the page number, and the variance. Submittal of a vendor contract is considered excessive in variations and may be cause for determining that the Bid is non-responsive and ineligible for award.

REFERENCES:

- ☐ Check here if Contractor's standard reference sheet is attached, otherwise, use the space below.

Name: The City of Louisville Contact Person: Tyler Trojan

Address: 749 Main St Louisville, CO 80027

Telephone No: 303.335.4611 Email: Ttojan@louisvilleco.gov

Describe type of work/service performed or items supplied: New water main and service tie ins in residential neighborhood

Name: City of Platteville Contact Person: David Brand

Address: 400 Grand Ave, Platteville, CO 80651

Telephone No: 970.785.6415 Email: dbrand@plattevillegov.org

Describe type of work/service performed or items supplied: Remove and replace existing sanitary sewer main, including services, manholes.

Name: Woodmoor Contact Person: Dan LaFontaine

Address: 1845 Woodmoor Drive, Monument, CO 80132

Telephone No: 719.488.2525 Email: danl@woodmoorwater.com

Describe type of work/service performed or items supplied: Replace prv on existing water main.
Remove and replace all asphalt and concrete where vaults were replaced.



Timeline

We anticipate 110 days from NTP to be at substantial completion.

2-Year Warranty Certificate

Project Name: 2024 Sanitary Sewer Open Cut Construction Services

Contractor: Mid City Corporation

Owner: The City of Arvada

Warranty Period: Begins the day punch walk is completed and signed off by the city

Scope of Warranty

Mid City Corporation ("Contractor") hereby warrants to The City of Arvada ("Owner") that all sewer installation, water installation, and asphalt patch back work performed under the above-referenced project has been completed in accordance with the contract documents, applicable codes, and industry standards, and shall be free from defects in materials and workmanship for a period of one (2) year from the date of Substantial Completion or Final Acceptance by the Owner, whichever is later.

Coverage Includes

- This warranty specifically covers the following:
- Sewer Installation: All installed sewer pipelines, service connections, manholes, and appurtenances shall remain structurally sound, watertight, and operate as intended without settlement, leakage, or obstruction.
- Water Installation: All water mains, valves, service lines, meter pits, and related components shall remain leak-free, maintain pressure integrity, and function as designed.
- Asphalt Patch Back: All asphalt pavement placed as patch back over excavations shall remain level, compacted, and free of cracking, settling, or surface failure.

Contractor Responsibilities

If any defects in the above-described work appear within the warranty period, the Contractor shall:

1. Respond promptly upon written notification from the Owner;
2. Repair or replace defective materials or workmanship at no cost to the City;
3. Restore all affected areas, including pavement, landscaping, or other disturbed surfaces, to the same or better condition than prior to repair;
4. Coordinate with the City of Arvada for inspections and approvals before and after repairs.



Exclusions

This warranty does not cover:

- • Damage caused by acts of God, vandalism, accidents, misuse, or negligence not attributable to the Contractor;
- • Work that has been altered or repaired by others without the Contractor's written consent;
- • Normal wear and tear unrelated to construction defects.

Owner Obligations

The Owner shall notify the Contractor in writing of any defects covered under this warranty within a reasonable time after discovery and allow access for inspection and repair.

Contact Information

Contractor Representative: John Salazar

Company: Mid City Corporation

Phone: 720.620.8797

Email: jsalazar@midcitycorp.us

Authorized Signature

Contractor: _____

Name: _____

Title: _____

Date: _____

Relevant Project Experience

Project #1

Project Name: Vazquez Sanitary Sewer Improvements

Project Description: Installation of 737' of SDR 35, (5) services reconnected and (6) new manholes

Owner: Town of Platteville

Contract Amount: \$246,395.24

Phone Number: 970.785.2245

Contract Date: 02.21.2024

Architect/Engineer: Northern Engineering

Phone Number: 970.221.4158

Project #2

Project Name: Emergency Storm Sewer Repair

Project Description: Remove & Replace 72" RCP while diverting irrigation ditch

Owner: City of Wheat Ridge

Contract Amount: \$384,836.16

Phone Number: 303.235.5900

Contract Date: 04.25.2024

Architect/Engineer: Mid City Corporation

Phone Number: 720.620.8797

Project #3

Project Name: Advent Health

Project Description: Installation of new (1020') Sanitary SDR 35, (6) 4' MHs. New water and storm sewer

Owner: Porter Care Adventist Health System

Contract Amount: \$1,643,547.00

Phone Number: 303.778.1955

Contract Date: 09.20.2025

Architect/Engineer: Boulder Associated, Inc.

Phone Number: 303.499.7795

Project #4

Project Name: Well 4 and 7 Pipe Relocation

Project Description: Installation of new 4" C900 water main with open cut and bore method

Owner: Pueblo West Metropolitan District

Contract Amount: \$718,054.66

Phone Number: 719.547.5047

Contract Date: 09.12.2025

Architect/Engineer: JVA, Inc. Phone

Number: 303.565.4952

Project #5

Project Name: 2023 Water Main Replacement Project

Project Description: Water Main and Services Replacement

Owner: The City of Louisville

Contract Amount: \$646,849.29

Phone Number: 303.335.4611

Contract Date: 05.25.20225

Architect/Engineer: The city of Louisville

Phone Number: 303.335.4611



John Salazar

Program Manager

720.620.8797 | jsalazar@midcitycorp.us



Biography

John Salazar is the Program Manager at Mid City Corporation Denver Division, a company specializing in road and civil infrastructure construction. With a career built from the ground up, John brings firsthand experience, strong leadership, and deep industry knowledge to every project he oversees. His journey from entry-level roles to senior management reflects his dedication, resilience, and commitment to excellence in infrastructure development.

Professional Summary

Dynamic and results-driven construction management expert with 14 years of experience leading large-scale infrastructure, earthwork, and utility projects. Adept at delivering complex projects on time and within budget, maintaining safety compliance, and fostering long-term client relationships. Trusted for emergency responsiveness, innovative problem solving, and superior stakeholder coordination.

Core Competencies

- Infrastructure & Utility Construction Management
- Earthwork, Roadways, and Civil Sitework
- Project Budgeting & Estimating
- Safety Compliance (ROCIP Manuals)
- Contractor & Subcontractor Oversight
- Client & Municipality Coordination
- Payment Applications & Cost Tracking

Relevant Experience

Mid City Corporation *Program Manager*

Program Manager responsible for developing program strategies to align with Mid City's vision, leading office operations, managing staff, identifying and mitigate project risks, optimizing project delivery, and ensuring compliance and quality across complex municipal construction projects.

Featured Projects:

- **AACMD Roads** – \$17.3M | Full roadway reconstruction for 5 roads: wet/dry utilities, ADA ramps, HMA/SMA paving, lighting.
- **45th and Tibet** – \$3.07M | Full road package with utilities, grading, ADA compliance, and detailed scope tracking for accurate billing.
- **City of Louisville Emergency Repair** – \$96K | Emergency 48" CMP replacement in active traffic zone within 36 hours.
- **AECOM 48" Transmission Line** – \$960K | 24' deep winter trenching project under tight shutdown window for ECCV.

Construction Management Highlights

- 14 years of progressive experience in the construction industry
- ROCIP Safety Manual development and implementation
- Accurate forecasting, estimating, and budget control
- Known for responsiveness in high-pressure, emergency project environments
- Known for transforming plans into precision-executed projects. Whether it's a full roadway package, an emergency pipe replacement, or complex trenching, I bring the leadership, expertise, and reliability to deliver.



Brian Loyd

Operations Manager / Superintendent

720.717.2912 | bloyd@midcitycorp.us



Biography

Brian has over 30 years experience in the construction industry. Starting as a laborer on weekends and summers working for his father, cleaning up job sites. From using a push broom to clean job sites, laying pipe, foreman running a crew to a super intendent running multiple crews. Brian has a strong background in municipal improvements in small working quarters. Dedicated to safety and quality of work, Brian has enhanced his career to a management position, with strong work ethics and integrity.

Professional Summary

Experienced utility and infrastructure superintendent with a strong background in field supervision, safety, emergency response, and municipal projects. Demonstrates expertise in water, sanitary, and storm systems, excavation and site development, and coordination of equipment and personnel. I am skilled in project planning, oversight, and delivery across a variety of challenging environments.

Core Competencies

- Utility Construction: Water, Sanitary, and Storm Systems
- Emergency Infrastructure Repairs
- Equipment & Material Coordination
- Preconstruction & Client Meetings
- Field Operations Management
- Safety Compliance & Training
- Personnel Scheduling & Supervision

Relevant Experience

- Operations Manager / Superintendent

Mid City Corporation

Lead infrastructure projects across Colorado municipalities, with a focus on maximizing efficiency, minimizing public disruption, and ensuring quality workmanship

Featured Projects:

- AACMD Roads – \$17.3M | Full roadway reconstruction for 5 roads: wet/dry utilities, ADA ramps, HMA/SMA paving, lighting.
- 45th and Tibet – \$3.07M | Full road package with utilities, grading, ADA compliance, and detailed scope tracking for accurate billing.
- City of Louisville Emergency Repair – \$96K | Emergency 48" CMP replacement in active traffic zone within 36 hours.
- AECOM 48" Transmission Line – \$960K | 24' deep winter trenching project under tight shutdown window for ECCV.

Education & Certifications

- A.A. Business Management
- A.A. Accounting
- Traffic Control Supervisor & Technician (Utah State / MUTCD)
- PEC Premier Training
- OSHA & MSHA Certified
- Trench Safety & Soil Classification (Trench Shoring Services)



Cesar Acosta

Utilities Superintendent / Foreman

720-240-1470 | Cacosta@midcitycorp.us



Biography

Cesar Acosta is a seasoned professional with 19 years of hands-on experience in road infrastructure and wet utilities installation, specializing in the construction and maintenance of water, sewer, storm drainage systems and road infrastructure. Throughout his career, Cesar has demonstrated exceptional expertise in pipeline installation, trench safety, utility coordination, road construction and project execution for residential, field work and commercial developments. Known for his strong work ethic, attention to detail, and commitment to safety and quality, he has played a key role in the successful delivery of numerous infrastructure projects. His deep understanding of industry regulations and ability to lead crews effectively make him an asset in the field of heavy civil construction and utility services.

Professional Summary

Highly experienced and safety-focused construction superintendent with over 17 years in the civil construction and utility industry. Demonstrated history of delivering large-scale infrastructure and utility projects ahead of schedule and under budget. Proven leader in field operations, project planning, and safety compliance with strong communication and problem-solving skills.

Core Competencies

- Underground Utilities (Storm, Sewer, Water)
- Field Supervision & Crew Management
- Scheduling, Budgeting & Forecasting
- Safety Compliance (OSHA, HAZWOPER, Confined Space)
- Project Coordination & Quality Control
- Inspection Readiness & Documentation
- Bilingual (English/Spanish)

Relevant Experience

- General Superintendent

Mid City Corporation

Lead the field daily in the construction of multiple road projects. With the focus of safety and production and quality workmanship.

Featured Projects:

- AACMD Roads – \$17.3M | Full roadway reconstruction for 5 roads: wet/dry utilities, ADA ramps, HMA/SMA paving, lighting.
- 45th and Tibet – \$3.07M | Full road package with utilities, grading, ADA compliance, and detailed scope tracking for accurate billing.
- Monarch Blvd PH1 – \$5.5M | Full roadway reconstruction: wet/dry utilities, ADA ramps, HMA/SMA paving, lighting.
- Ridgeway sub division – \$25M | Full road package with wet utilities, grading, ADA, wet/dry utilities, ADA ramps, HMA/SMA paving, lighting

Education

- ITESO – Instituto Tecnológico y de Estudios Superiores de Occidente
bachelor's degree in administration and computers | 1999 – 2005



Brian Andrews

Project Coordinator

720.299.9827 | bandrews@midcitycorp.us

Biography



Brian Andrews is an experienced construction professional with over 16 years in management and 12 years dedicated to residential construction. Over the past year, he has expanded his expertise into civil infrastructure, bringing a strong leadership background and hands-on industry knowledge to every project. Brian holds a degree in Construction Management and graduated with honors, demonstrating his commitment to excellence both in the field and academically.

Professional Summary

Motivated and adaptable Project Coordinator with hands-on experience supporting civil infrastructure projects in the field. Gained in-depth knowledge of confined space entry, trench safety, and project workflows through daily coordination, and rapid on-the-job learning. Proven ability to manage competing priorities, troubleshoot site issues, and contribute to successful project outcomes in fast-paced environments.

Core Competencies

- Project Coordination & Field Oversight – Coordinated daily activities on civil infrastructure projects, ensuring tasks were completed on time and within scope.- Earthwork, Roadways, and Civil Sitework
- Safety Compliance – Trained in Trench Safety and Confined Space Entry; proactively apply safety standards and field protocols to minimize risk.
- Team Collaboration – Acting as a liaison between field teams, subcontractors, and office personnel to ensure project alignment and clear communication.

Relevant Experience

- Project Coordinator

Mid City Corporation

Detail-oriented Project Coordinator with experience managing RFIs, submittals, and permit tracking to support timely project execution and regulatory compliance. Skilled in maintaining clear communication between field teams, engineers, and agencies to keep documentation and approvals on schedule.

Featured Projects:

- ****AACMD Roads**** – \$17.3M | Full roadway reconstruction for 5 roads: wet/dry utilities, ADA ramps, HMA/SMA paving, lighting.
- ****45th and Tibet**** – \$3.07M | Full Road package with utilities, grading, ADA compliance.
- ****48th Avenue E470 to Aerotropolis Pkwy**** - \$35.7M | Full roadway package with utilities, grading, ADA compliance.



REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM
8.A.5.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: R25-082, A Resolution Authorizing an Intergovernmental Agreement Between the City of Arvada and the Church Ditch Water Authority for a License Agreement in an Amount Not to Exceed \$14,000.00

Report in Brief

The City of Arvada has completed a Sanitary Sewer Master Plan that has identified sections of the North Trunk Sewer that will need to be replaced and upsized to meet the City's Level of Service (LoS) standards. The sewer will be replaced within 86th Pkwy from Beech St. to Moore St. This new line will mitigate overflow risks and provide adequate capacity for build-out conditions.

There are two locations along this project alignment where we cross the Church Ditch. This IGA is a crossing agreement between the City of Arvada and the Church Ditch Water Authority, allowing the Arvada team to continue forward with the replacement of the North Trunk Line in Alkire and 86th Pkwy.

The Arvada team recommends that the City Council approve R25-082, A Resolution Authorizing an Intergovernmental Agreement Between the City of Arvada and the Church Ditch Water Authority for a License Agreement in an Amount Not to Exceed \$14,000.00.

Financial Impact

CIP Project: 24-SR-04, North Trunk Sewer, 86th Parkway, Beech to Moore Street (NTL2/3/Alkire FM)

Financial Impact: up to \$14,000

This is a one-time request for a license agreement.

Funding Source: UT Wastewater Bond Projects (42)

Type: CIP

Workday Project: PRJ24098561

Background

The City performed a Sanitary Sewer Master Plan in 2020 through early 2022. The results of this work were presented to the Council in January 2022 with details on projects and a schedule presented in March 2022.

The Sanitary Sewer Master Plan identified 10 segments of the North Trunk Line that have insufficient capacity and do not meet standards under estimated build-out flows, and also under near-term conditions, including this segment in 86th Pkwy from Beech St to Moore St. The Arvada team hired CDM Smith as the design consultant and Miller Pipeline as the contractor. The project is ready to start construction with the Miller Pipeline contract on the September 16 agenda. There are two locations where the new pipeline will cross the Church Ditch which constitutes the need for an IGA between Arvada and the Church Ditch Water Authority for the placement of a sanitary sewer gravity pipeline and a sanitary sewer force main which crosses the Church Ditch.

Discussion

The project, NT2/3/Alkire FM, is required for the City to provide sanitary sewer service for current and build-out conditions.

The IGA is required for the project to move forward.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A

Strategic Alignment

The recommended action aligns with the Infrastructure Work System Services within the City Council Strategic Plan. Specifically, the recommended action is consistent with:

Provides the community with a safe, reliable high quality water supply, drainage system, and wastewater disposal services for full city build-out, as defined in the Comprehensive Plan. This includes maintaining utility rates at the lowest practical levels with accurate billing that supports replacement of aging infrastructure in order to maintain robust utility systems.

Alternative Courses of Action

N/A

Recommendation for Action

The Arvada team recommends that the City Council approve R25-082, A Resolution Authorizing an Intergovernmental Agreement Between the City of Arvada and the Church Ditch Water Authority for a License Agreement in an Amount Not to Exceed \$14,000.00.

Suggested Motion:

I move that R25-082, A Resolution Authorizing an Intergovernmental Agreement Between the City of Arvada and the Church Ditch Water Authority for a License Agreement in an Amount Not to Exceed \$14,000.00, be (approved) (rejected).

Prepared by:
Matthew Amidei, Civil Engineer III

Reviewed by:

Approved by:

Mary Stahl, Senior Civil Engineer	08/22/2025
Claudia Vaughan, City Engineer	08/26/2025
Jacqueline Rhoades, Director of Infrastructure	08/28/2025
Bryan Archer, Chief Financial Officer	08/28/2025
Tammy Hedlund, Legal Specialist	09/02/2025
Megan McCall, Assistant City Attorney II	09/02/2025
Don Wick, City Manager	09/05/2025
Rachel Morris, City Attorney	09/05/2025

SUBJECT: R25-082, A Resolution Authorizing an Intergovernmental Agreement Between the City of Arvada and the Church Ditch Water Authority for a License Agreement in an Amount Not to Exceed \$14,000.00

PAGE: 3
ITEM: 8.A.5.

Linda Haley, Deputy City Manager

09/05/2025

Don Wick, City Manager

09/05/2025

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R25-082

A RESOLUTION AUTHORIZING AN INTERGOVERNMENTAL AGREEMENT
BETWEEN THE CITY OF ARVADA AND THE CHURCH DITCH WATER AUTHORITY
FOR A LICENSE AGREEMENT IN AN AMOUNT NOT TO EXCEED \$14,000.00

BE IT RESOVED 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, an Intergovernmental Agreement, which is in substantially the same form as that attached hereto.

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

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____

CHURCH DITCH WATER AUTHORITY
LICENSE AGREEMENT
(public entity)

THIS LICENSE AGREEMENT (the “Agreement”) is made and entered into this ___ day of _____ 2025, by and between the CHURCH DITCH WATER AUTHORITY, a political subdivision of the State of Colorado (the “AUTHORITY”) and THE CITY OF ARVADA, a Colorado home rule municipal corporation (the “LICENSEE”), each a “Party” and collectively, the “Parties.”

WITNESSETH:

WHEREAS, the AUTHORITY is the operator of that certain irrigation canal commonly known as the Church Ditch in Jefferson County, Colorado (the “Church Ditch”);

WHEREAS, LICENSEE owns fee simple title to certain real property located in Jefferson County, Colorado at the intersection of West 88th Parkway and Simms Street and along Alkire Street between West 87th Parkway and West 88th Avenue that is adjacent to the Church Ditch (the “Property”);

WHEREAS, LICENSEE desires to construct and maintain certain facilities that require the grant of certain access rights from the AUTHORITY to enable the LICENSEE to cross the Church Ditch, as depicted on the drawings attached hereto as **Exhibit A** and incorporated herein by this reference (the “Property Access Crossing”). Exhibit A consists of 2 sheets; and

WHEREAS, the Parties are both public entities subject to restrictions against pledging their faith or credit to any other entity pursuant to Art. XI, Secs. 1 and 2, of the Colorado Constitution, and subject to the protections of the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*;

WHEREAS, the AUTHORITY is willing to grant such access rights in the form of a license subject to certain covenants.

NOW, THEREFORE, in consideration of the foregoing promises and covenants set forth below, the receipt and sufficiency of which are mutually acknowledged, the parties hereto agree as follows:

1. Grant of License. For the sum of One Thousand Five Hundred Dollars (\$1,500.00) paid to the AUTHORITY (the “License Fee”), and other good and valuable consideration, the AUTHORITY hereby grants to LICENSEE a license over, across, under and through the

portions of the Church Ditch as depicted on Exhibit A to accommodate (i) LICENSEE's and its agents' construction and maintenance activities in the Property Access Crossing area and (ii) LICENSEE's and its guests' and agents' vehicular and pedestrian access to and from the Property (collectively, the "License").

2. Term. The License herein granted to LICENSEE is perpetual; however, this License shall terminate if LICENSEE discontinues the use of the facilities described on Exhibit A for a period of two consecutive years, breaches the terms of this Agreement and fails to cure such breach upon sixty (60) days written notice to LICENSEE given by AUTHORITY, or if LICENSEE provides AUTHORITY notice of LICENSEE's specific intent to terminate this License.

3. Performance Deposit. In addition to the License Fee set forth above, LICENSEE shall provide a performance deposit in the amount of Five Thousand Dollars (\$5,000.00) (the "Performance Deposit"), prior to beginning of construction of any crossing over the Church Ditch.

4. Design Review Deposit. LICENSEE shall provide a design review deposit in the amount of Seven Thousand Five Hundred Dollars (\$7,500) to compensate the AUTHORITY for its professional service costs in reviewing LICENSEE's plans and specifications (the "Design Review Deposit"). The AUTHORITY shall document its actual professional service costs in reviewing and approving the License. The AUTHORITY may request additional Design Review Deposit amounts in One Thousand Dollar (\$1,000) increments as needed to reflect its actual professional service costs.

5. Pre-Construction.

a. The LICENSEE shall hold a pre-construction meeting on the job site with the AUTHORITY Manager of Ditch Maintenance (the "Manager") or designee(s) for the Church Ditch crossing or encroachment. The LICENSEE's agent(s), contractor and an official of the appropriate city or county (if construction is within a public right-of-way) shall also attend.

b. No construction of the ditch crossing shall be made without LICENSEE first providing five (5) business days' notice to the AUTHORITY and obtaining the consent and approval thereof of the Manager, which approval shall not be unreasonably withheld or delayed. The LICENSEE and its agent(s) shall provide for inspection of the Church Ditch crossing by the AUTHORITY and said inspection shall be completed within two (2) business days of the request for inspection by the LICENSEE. Failure by the LICENSEE or its agent(s) to provide an opportunity for inspection by the AUTHORITY may result, in the commercially reasonable discretion of the AUTHORITY, in the uncovering, at the sole cost of the LICENSEE, of any such construction so that the inspection can be made.

c. The LICENSEE or its agent(s) shall perform material or soil compaction testing as required by the Church Ditch Design Review Process and Design Criteria for Facilities, dated August 13, 2018 (the "Design Manual"), or as directed by the Manager. A copy of test results shall be provided to the AUTHORITY. Should any portion of the work fail said testing, the LICENSEE shall immediately cause the affected item(s) to be removed, redone, and retested until test results confirm such work is in compliance with the Design Manual.

6. Construction Activity.

a. The effectiveness of the License with respect to construction activities to occur within the Property Access Crossing area is conditioned upon the AUTHORITY'S issuance of a "Notice to Proceed," following the AUTHORITY'S review and approval of the construction plans, specifications, and the construction calendar, such issuance not to be unreasonably withheld or delayed.

b. LICENSEE agrees to pay as liquidated damages, and not as a penalty, the sum of Five Hundred Dollars (\$500.00) for each calendar day delay in which completion time interferes with the ability of the AUTHORITY to convey water (the "Liquidated Damages"). The amount of liquidated damages is based on the determination by the AUTHORITY that the cost for running decreed water in the Church Ditch is a minimum of the amount set forth above, and LICENSEE agrees the amount is reasonable under the circumstances. The AUTHORITY may deduct Liquidated Damages from the Performance Deposit (as defined below).

7. Deficiency. If any failure to comply with construction plans, specifications, requirements of this Agreement, the Design Manual, or in the event that LICENSEE's construction activity in or over the Church Ditch creates a condition rendering the Church Ditch incapable of safely carrying water, or other deficiency, is noted by the AUTHORITY, it shall give LICENSEE written notice of said deficiency.

a. Corrective Action. LICENSEE shall initiate corrective actions within three (3) business days after receipt of the written notice, which corrective actions must be completed to the commercially reasonable satisfaction of AUTHORITY. If after the three (3) business days from receipt of the written notice no corrective action has been initiated, the AUTHORITY may undertake and complete the corrective action on its own. All direct and reasonable costs incurred by the AUTHORITY in making the corrective actions shall be reimbursed by LICENSEE within ten (10) business days from receipt of a billing invoice from the AUTHORITY. If LICENSEE fails to remit timely payment to the AUTHORITY for the AUTHORITY'S corrective actions, the AUTHORITY may deduct from the Performance Deposit all such direct and reasonable costs.

8. Certificate of Completion. Upon completion of the construction work in the Property Access Crossing area, LICENSEE shall contact the AUTHORITY for final inspection and shall furnish the AUTHORITY an "Affidavit of Installation of Ditch Crossing" in substantially the form attached hereto as **Exhibit B** (the "Affidavit"), signed and sealed by a Professional Engineer registered in the State of Colorado. The Affidavit shall state that the project on the Licensed Property was constructed in conformance with approved plans and specifications. Attached to the Affidavit shall be a set of project plans revised to accurately represent the "As-Built" configuration of the project. Upon acceptance of the as-built drawings and Affidavit, the AUTHORITY shall issue the Certificate of Completion. The AUTHORITY shall not be unreasonable in inspecting the construction or the execution of the Certificate of Completion.

9. Construction Warranty. LICENSEE shall require work performed pursuant to this Agreement by any third-party contractor to be under warranty by such contractor for a minimum period of two (2) year following completion and shall cooperate with AUTHORITY during said warranty period to obtain repairs as necessary from such contractors.

10. Release of Deposits. The AUTHORITY shall release any unused portion of the Performance Deposit and the Design Review Deposit not more than thirty (30) days after the issuance of the Certificate of Completion.

11. Scope of AUTHORITY. It is understood that this instrument shall grant to LICENSEE only such rights as the AUTHORITY has the power to grant.

12. Non-Interference with Church Ditch Operations. In exercising the rights granted by this License, LICENSEE shall act in such manner as not to damage the Church Ditch or the embankments and/or the right-of-way thereof and so as not to interfere with or affect the flow of water in Church Ditch and/or laterals therefrom. LICENSEE agrees that it will at all times maintain its licensed facilities and repair all breaks, leaks and damages therein and thereto at its own expense. If, by reason of any break, leak or damage in and to the licensed facilities injury occurs to the properties of the AUTHORITY, then LICENSEE will reimburse the AUTHORITY for all work necessary to repair and replace such property of the AUTHORITY to the same condition as the property was in prior to such break, leak, or damage in and to the said licensed facilities, and will pay any and all monetary damages resulting from such break, leak or damage sustained or incurred by the AUTHORITY or its water users or to any one not a party to this Agreement, including water lost. LICENSEE further agrees that if at any time the LICENSEE or LICENSEE's act or acts causes any washing, settling or other change or damage in the Church Ditch embankments, the roads thereon, or any part of the ditch right-of-way, or any loss of water or of ditch capacity, it will, upon notification from the AUTHORITY, LICENSEE will reimburse the AUTHORITY for all necessary repairs.

13. Alterations. LICENSEE agrees that before any future alteration of said licensed facilities, it will notify the AUTHORITY of the proposed alteration and submit appropriate amendment documentation to the AUTHORITY for such alteration. If in the future, the

AUTHORITY should determine in its commercially reasonable discretion that it is necessary to repair, restore, enlarge, deepen, or otherwise change or relocate said Church Ditch or laterals thereunder or to construct any other canal, ditch, or waterway on the Church Ditch right-of-way or to do any other thing incident to the operation of Church Ditch or laterals, then LICENSEE agrees to allow the AUTHORITY to temporarily remove LICENSEE's licensed facilities and reconstruct the same so as to comply with such plans and specifications the AUTHORITY may prescribe as being necessary to permit the proper maintenance and operation of the ditch, the costs of such relocation and/or reconstruction to be allocated equitably by agreement between the Parties. The right of the AUTHORITY to temporarily remove LICENSEE's licensed facilities is subject to the obligation of the AUTHORITY to first provide such temporary facilities as are necessary to ensure that AUTHORITY'S activities do not interrupt the operation of the LICENSEE's system of pipelines or otherwise create a hazard to public health or safety.

14. Immunity. The Parties understand and agree that both the Parties are relying on and do not waive or intend to waive the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as from time to time amended, or otherwise available by law to the Parties.

15. No Multi-Year Fiscal Commitment. The Parties have budgeted the funds required to perform their obligations under the terms of this Agreement and assume that all expenses they are required to pay will be expended within the current calendar year unless otherwise stated. Financial obligations of the Parties payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. By execution of this Agreement, the Parties do not warrant that funds will be available to fund this Agreement beyond the current fiscal year.

16. Binding Effect. It is mutually understood and agreed that this Agreement and all the terms and conditions hereof shall extend to and be binding upon the parties hereto, their successors, designees and assigns.

17. Board Approval. This Agreement is expressly contingent upon the approval by the Church Ditch Water Authority Board of Directors of all of the terms set forth herein. In the event this Agreement is not approved in its entirety by the Board, neither Party shall be bound to the terms of this Agreement.

18. Effective Date. The Effective Date of this Agreement shall be the date the resolution approving this Agreement is adopted by the Church Ditch Water Authority Board of Directors.

[Signature page follows]

EXECUTED in duplicate the day and year first hereinabove written.

CHURCH DITCH WATER AUTHORITY:

Tamara Moon, President

ATTEST:

Nathan McCoy, General Manager

CITY OF ARVADA:

By: _____
Lauren Simpson, Mayor

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

By: _____

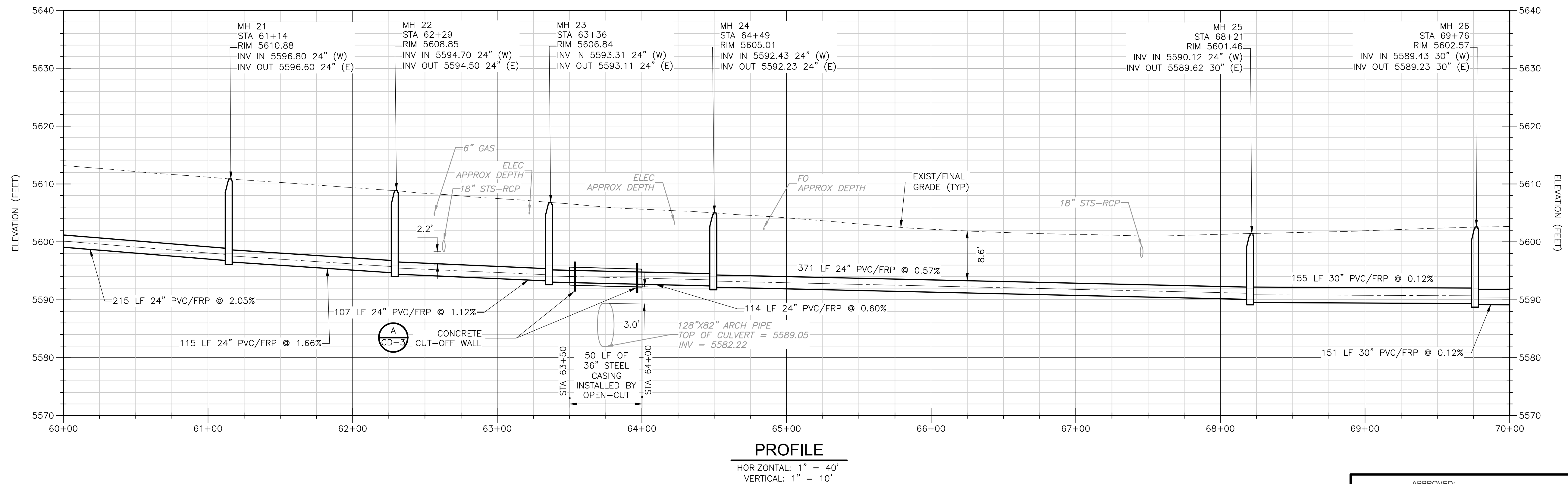
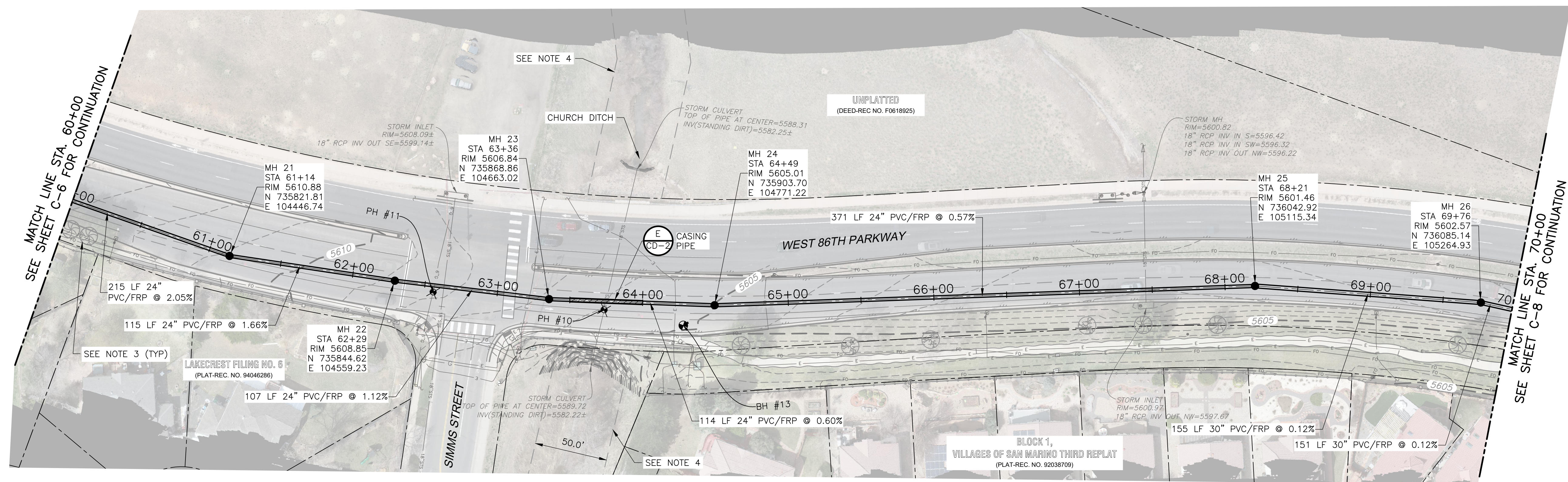
ATTEST:

Arvada City Clerk

EXHIBIT A

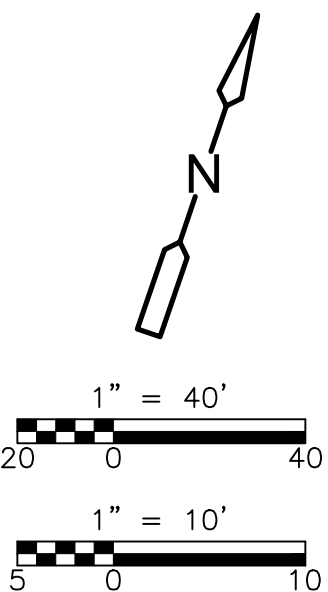
Depiction of Property Access Crossing

[Sheets Attached]



NOTES:

1. CONTRACTOR SHALL VERIFY TOP ELEVATION OF CULVERT AT CHURCH DITCH PRIOR TO CONSTRUCTION.
2. REFER TO SHEET G-3 FOR CHURCH DITCH GENERAL NOTES.
3. CONTRACTOR TO HIRE ARBORIST TO PROTECT TREES DURING CONSTRUCTION WHERE TREE CANOPY OVERHANGS ALIGNMENT.
4. 50-FOOT PRESCRIPTIVE EASEMENT ESTABLISHED BY CHURCH DITCH.
5. INSTALL CATHODIC PROTECTION ON CASING PER DETAILS AND COA SPECIFICATION 420.19. CONTRACTOR SHALL INSTALL TEST STATIONS IN PROTECTED AREA OUTSIDE ROADWAY AND BEHIND SIDEWALK. COORDINATE TEST STATION LOCATION WITH OWNER OR FIELD REPRESENTATIVE.



PROJECT NO. 263334-295058
FILE NAME: C007SSPP.DWG

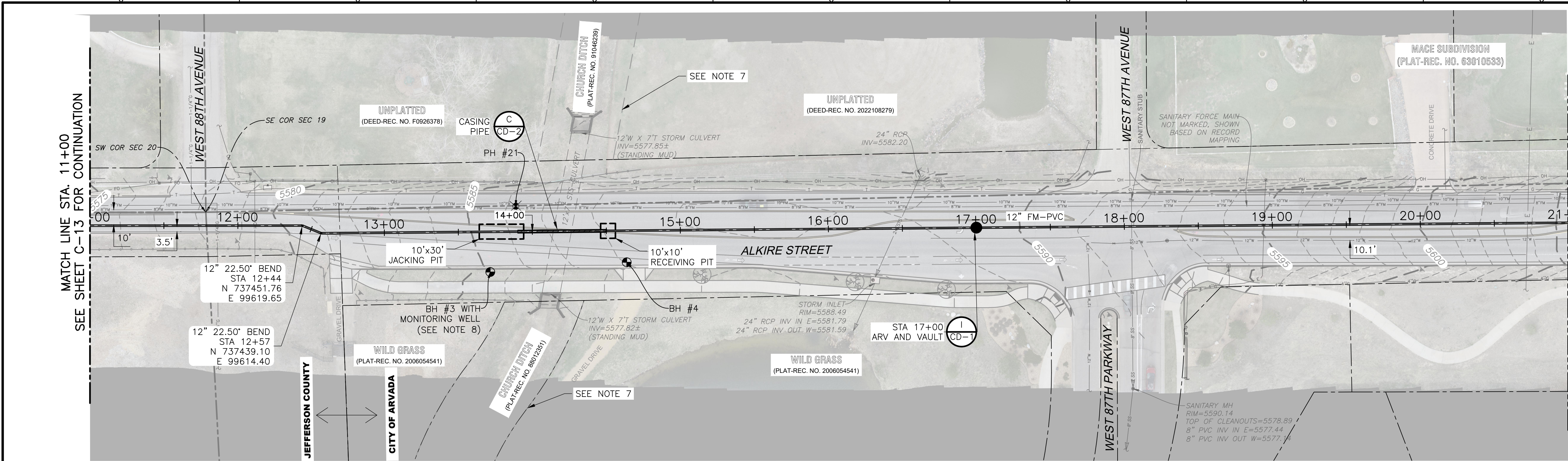
SHEET NO.

C-7

ISSUED FOR BID - NOT FOR CONSTRUCTION

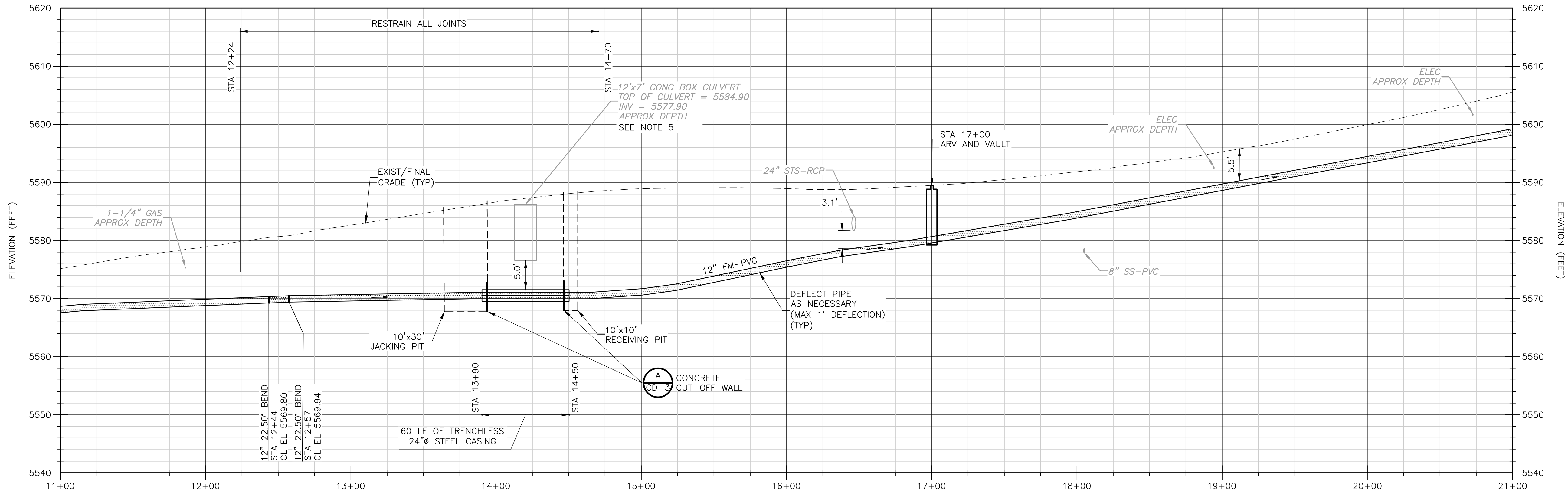
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PLAN

1" = 40'



PROFILE

HORIZONTAL: 1" = 40'
VERTICAL: 1" = 10'

NOTES:

- CONTRACTOR TO VERIFY LOCATION OF 8" AND 10" FORCE MAINS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL OBTAIN SURVEYED COORDINATE INFORMATION OF FORCE MAINS WHILE EXPOSED FOR RECORD DRAWINGS.
- SHAFT LOCATIONS ARE SHOWN FOR PLANNING PURPOSES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE FINAL SIZE AND LOCATION OF SHAFTS WITHIN THE WORK AREA SHOWN TO FACILITATE THEIR MEANS AND METHODS.
- CONTRACTOR TO PROVIDE A MONITORED EXCAVATION SUPPORT SYSTEM DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF COLORADO FOR ALL TRENCHLESS INSTALLATION SEGMENTS. TRENCH BOXES ARE NOT TO BE USED FOR LAUNCHING SHAFTS.
- BASELINE VALUES REPRESENTING A CONTRACTUAL DEFINITION OF WHAT GROUND CONDITIONS ARE ASSUMED TO BE ENCOUNTERED WITH RESPECT TO THE TRENCHLESS SEGMENT ARE PROVIDED IN THE AUGER BORING SPECIFICATION 330507.21.
- CONTRACTOR SHALL VERIFY INVERT OF CULVERT PRIOR TO CONSTRUCTION.
- SEE CHURCH DITCH GENERAL NOTES SHEET G-3.
- 50-FOOT PRESCRIPTIVE EASEMENT ESTABLISHED BY CHURCH DITCH.
- MONITORING WELL INSTALLED FOR CONTRACTOR. CONTRACTOR SHALL ABANDON AND RESTORE UPON COMPLETION OF WORK. GEOTECHNICAL REPORT INCLUDED WITH SPECIFICATION MANUAL FOR BIDDING PURPOSES.
- INSTALL CATHODIC PROTECTION ON CASING PER DETAILS AND COA SPECIFICATION 420.19. CONTRACTOR SHALL INSTALL TEST STATIONS IN PROTECTED AREA OUTSIDE ROADWAY.
- CONTRACTOR TO ACQUIRE ALL PERMITS AND APPROVALS FOR WORKING WITHIN JEFFERSON COUNTY ROW.
- CONTRACTOR TO INCLUDE SURVEYED LOCATIONS OF NEW 12" FORCE MAIN APPURTENANCES AND FITTINGS WITH RECORD DRAWINGS.
- ARV VENT PIPE TO BE ROUTED OUTSIDE OF ROADWAY AND LOCATION COORDINATED WITH OWNER OR FIELD REPRESENTATIVE.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. WEIDER
DRAWN BY: V. GANJI
SHEET CHK'D BY: D. NELSON
CROSS CHK'D BY: B. HALL
APPROVED BY: D. NELSON
DATE: MARCH 2025

CDM Smith
555 17th Street, Suite 500
Denver, CO 80202
Tel: (303) 383-2300

CITY OF ARVADA, COLORADO
NORTH TRUNK SEWER
86TH PKWY, BEECH TO MOORE ST
(NTL 2/3/ALKIRE FM)

ALKIRE STREET
FORCA MIAIN PLAN AND PROFILE
STA 11+00 TO STA 21+00

APPROVED: *CEL V-J*
City Engineer Date 3/12/25 NTL 2/3
Job Number

Review is for general compliance with the City of Arvada "Engineering Code of Standards and Specifications 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 liability for facilities designed by others.



PROJECT NO. 263334-295058
FILE NAME: C014FMPP.DWG

SHEET NO.

C-14

ISSUED FOR BID - NOT FOR CONSTRUCTION

EXHIBIT B

Form of

AFFIDAVIT OF INSTALLATION OF DITCH CROSSING

This is to acknowledge that I, _____, am a Professional Engineer licensed by the State of Colorado (License #_) and that to the best of my knowledge, installation of ditch crossing structures and appurtenances located at _____ and maintained by _____ meets the design criteria given to me by the Church Ditch Water Authority and other applicable codes of practice.

Dated this _____ day of _____, 20__.

By: _____
Professional Engineer

SEAL

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public

My commission expires: _____



REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM
8.B.1.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: R25-083, A Resolution Authorizing an Intergovernmental Agreement Concerning Regional Cold Weather Response for those Experiencing Homelessness (Presenter: Don Wick, City Manager)

Report in Brief

PRESENTER: Don Wick, City Manager

Jefferson County and six of its municipalities—Arvada, Wheat Ridge, Edgewater, Golden, Lakewood, and Westminster—have formed a regional partnership to address homelessness during severe cold weather. Authorized by state law, the Parties have agreed to coordinate sheltering, including options at the Lakewood Navigation Center, JeffCo Family Shelter, motel vouchers, and the MAC in Westminster. This collaboration aims to protect the health, safety, and welfare of their communities by providing a unified cold weather response. Each Party will contribute funding proportionally by population, with Arvada committing \$432,390 for the year.

The Arvada team recommends that the City Council approve R25-083, A Resolution Authorizing an Intergovernmental Agreement Concerning Regional Cold Weather Response for those Experiencing Homelessness.

Financial Impact

Arvada is committing \$432,390 for the year. This cost is for the 2025-2026 cold weather season. The Parties have agreed to discuss the terms and costs prior to any subsequent renewal of the IGA. The cost for this year is part of the 2026 proposed budget. The source of funds is from the General Fund. The account structure is as follows:

100FD General Fund
10016CC Resilient Arvada
10029PG CM Resilient Arvada
50028SC Professional Services

Background

In Spring 2025, the Parties participated in the Spring Forum on Homelessness to discuss and develop a coordinated regional response to homelessness. The Forum focused on building regional strategies, reviewing local efforts, identifying shared challenges and successes, and aligning on collaborative solutions. A key priority was the development of a unified cold weather response for the 2025–2026 season. As a result of these discussions, the City and County managers agreed on a collaborative approach to provide sheltering during severe weather events.

Discussion

The City of Arvada currently does not have a dedicated cold weather sheltering plan in place to address the needs of individuals experiencing homelessness during severe weather events. In the absence of a formal strategy, Arvada faces significant limitations in its ability to provide emergency shelter independently, particularly as demand continues to rise across the region. Participation in a regional cold weather response aligns directly with Arvada's strategic goal of coordinating with neighboring jurisdictions to implement effective, collaborative solutions to homelessness. By joining the intergovernmental agreement, Arvada has the opportunity to leverage shared resources, expand sheltering capacity, and contribute to a unified approach that promotes the health and safety of vulnerable individuals across Jefferson County.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

None.

Strategic Alignment

This IGA directly aligned with Arvada's strategic goal of collaborating and coordinating with regional governments to advance services to individuals experiencing homelessness.

Alternative Courses of Action

1. Approve the Resolution Authorizing an Intergovernmental Agreement Concerning Regional Cold Weather Response for those Experiencing Homelessness.
2. Pursue an independent cold weather sheltering strategy limited to the City of Arvada, thereby opting out of the regional collaborative approach.
3. Take no action, thereby forgoing the establishment of a formal cold weather response and increasing the risk to vulnerable populations during severe weather events.

Recommendation for Action

The Arvada team recommends that the City Council approve R25-083, A Resolution Authorizing an Intergovernmental Agreement Concerning Regional Cold Weather Response for those Experiencing Homelessness.

Suggested Motion:

I move that R25-083, A Resolution Authorizing an Intergovernmental Agreement Concerning Regional Cold Weather Response for those Experiencing Homelessness, be (approved) (rejected).

Prepared by:
Kylie Justus, Assistant City Attorney

Reviewed by:

Approved by:

Bryan Archer, Chief Financial Officer	09/02/2025
Rachel Morris, City Attorney	09/03/2025
Linda Haley, Deputy City Manager	09/03/2025
Don Wick, City Manager	09/05/2025

Enclosure, exhibits & attachments required to support the report

SUBJECT: R25-083, A Resolution Authorizing an Intergovernmental Agreement
Concerning Regional Cold Weather Response for those Experiencing Homelessness
(Presenter: Don Wick, City Manager)

PAGE: 3
ITEM: 8.B.1.

RESOLUTION NO. R 25-083

A RESOLUTION AUTHORIZING AN INTERGOVERNMENTAL AGREEMENT
CONCERNING REGIONAL COLD WEATHER RESPONSE FOR THOSE
EXPERIENCING HOMELESSNESS

WHEREAS, governmental entities are authorized by the provisions of Colo. Const. Art. XIV, §18(2)(a) and C.R.S. §§29-1-201, *et. seq.* to contract with one another to provide any function, service, or facility lawfully authorized to each; and

WHEREAS, Jefferson County, Arvada, Wheat Ridge, Edgewater, Golden, Lakewood, and Westminster (collectively the “Parties”) have partnered to create a solution for sheltering those experiencing homelessness during severe weather for the upcoming cold weather season; and

WHEREAS, the increasing number of individuals experiencing homelessness in Jefferson County continues to be a regional issue that affects the health, safety, and welfare of each of the Parties’ communities; and

WHEREAS, the Parties agree it would be in the best interest of all Parties to coordinate a regional cold weather response for those experiencing homelessness in Jefferson County; and

WHEREAS, the Parties desire to establish the attached intergovernmental agreement to commit to a collaborative, regional approach to addressing cold weather response for those experiencing homelessness in Jefferson County; and

WHEREAS, the establishment of this intergovernmental agreement will serve a public purpose and will promote the health, safety, and general welfare of inhabitants in and around Jefferson County.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA:

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, an Intergovernmental Agreement that is in substantially the same form as that attached hereto.

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

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____

INTERGOVERNMENTAL AGREEMENT CONCERNING REGIONAL COLD WEATHER RESPONSE FOR THOSE EXPERIENCING HOMELESSNESS

1.0 PARTIES. This Intergovernmental Agreement (“IGA”), effective as of _____ (“Effective Date”), is entered into by the following Parties (each, individually, a “Party”):

- 1.1. The County of Jefferson, State of Colorado, a body politic and corporate (the “**County**”)
- 1.2. The City of Arvada, a municipal corporation (“**Arvada**”)
- 1.3. The City of Edgewater, a municipal corporation (“**Edgewater**”)
- 1.4. The City of Golden, a municipal corporation (“**Golden**”)
- 1.5. The City of Lakewood, a municipal corporation (“**Lakewood**”)
- 1.6. The City of Westminster, a municipal corporation (“**Westminster**”); and
- 1.7. The City of Wheat Ridge, a municipal corporation (“**Wheat Ridge**”).

2.0 RECITALS

- 2.1. The Parties are authorized by the provisions of Colo. Const. Art. XIV, §18(2)(a) and C.R.S. §§29-1-201, *et. seq.* to contract with one another to provide any function, service, or facility lawfully authorized to each.
- 2.2. The increasing number of individuals experiencing homelessness in Jefferson County continues to be a regional issue that affects the health, safety, and welfare of each of the Parties’ communities.
- 2.3. The Parties participated in the 2025 Spring Forum on Homelessness to address and plan for a regional homelessness response. The Forum centered on building regional approaches, reviewing local actions, identifying common challenges and successes and aligning potential collaborative solutions, with a specific focus on collaborating on a regional cold weather response for the 2025-2026 cold weather season.
- 2.4. The Parties agree it would be in the best interest of all Parties to coordinate a regional cold weather response for those experiencing homelessness in Jefferson County.
- 2.5. The Parties desire to establish this IGA to commit to a collaborative, regional approach to addressing cold weather response for those experiencing homelessness in Jefferson County.

- 2.6. Establishment of this IGA will serve a public purpose and will promote the health, safety, and general welfare of inhabitants in and around Jefferson County.

3.0 EFFECTIVE DATE AND TERM

- 3.1. This IGA will take effect on October 1, 2025, and remain in effect through September 30, 2026, subject to the Parties' right to terminate under this IGA.
- 3.2. This IGA may be renewed by the Parties annually for no more than five (5) consecutive one-year renewal terms. Renewals shall be automatic unless the IGA is terminated by any Party pursuant to Section 7.1 of this IGA. Each year 60 days prior to commencement of any renewal term, the Parties shall agree upon any changes to the Term Sheet contained in Exhibit A or confirm that Exhibit A remains unchanged. Any agreed-upon changes to Exhibit A shall be deemed an amendment to this IGA.

4.0 RESPONSIBILITIES OF THE PARTIES. The Parties agree to work collaboratively to coordinate a regional approach for a cold weather response for those experiencing homelessness among Jefferson County jurisdictions.

5.0 TERM SHEET. The Parties agree to abide by the terms set forth in the **Term Sheet** attached hereto as **Exhibit A** to carry out the intention of the Parties to strategically address the regional response to 2025-2026 cold weather season for those experiencing homelessness in Jefferson County.

6.0 AMENDMENTS

- 6.1. This IGA may be amended at any time by written agreement signed by the signing authorities of the Parties to this IGA.

7.0 TERMINATION OF IGA

- 7.1. **INDIVIDUAL PARTY TERMINATION.** Any Party may terminate its participation in this IGA by providing 60 days written notice to the other Parties. In the event of such termination, the remaining Parties agree to meet and decide how to proceed without the terminating Party. Upon notice of such termination, the Parties may continue this IGA without the terminating Party or decide to terminate the IGA. The

terminating Party shall ~~return~~ pay their portion of the pro rata pooled funding obligation as of the effective date of the Party's termination. Pro rata for this purpose shall be calculated based on the percentage of the cold weather season that has elapsed as of the effective date of termination.

8.0 GENERAL PROVISIONS

- 8.1. **SEVERABILITY.** If any provision of this IGA or the application thereof to any Party is held invalid, such invalidity shall not affect other provisions or applications of the IGA which can be given effect without the invalid provision or application, and to this end, the provisions of the IGA are declared to be severable.
- 8.2. **ASSIGNMENT.** Except as otherwise stated herein, this IGA shall not be assigned by any Party.
- 8.3. **NO THIRD-PARTY BENEFICIARIES.** Except as otherwise stated herein, this IGA is intended to describe the rights and responsibilities of and between the Parties and is not intended to, and shall not be deemed to, confer rights upon any persons or entities not named as Parties. Nothing contained herein shall be deemed to create a partnership or joint venture between the Parties.
- 8.4. **BINDING EFFECT.** This IGA 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 paragraph shall be construed to permit the assignment of this IGA except as otherwise expressly authorized herein.
- 8.5. **NOTICES.** Any notice or notification required or permitted by the IGA shall be in writing and shall be deemed to have been sufficiently given for all purposes if sent by certified mail or registered mail, postage and fees prepaid, addressed to the party to whom such notice is to be given at the address as has been previously furnished in writing, to the other party or parties. Such notice or notification shall be deemed to have been given when deposited in the United States mail.
- 8.6. **TABOR COMPLIANCE; NO GENERAL OBLIGATION INDEBTEDNESS.** Because this IGA may extend beyond the current fiscal year, all of the Parties understand and intend that the obligation of the Parties for committing monetary funding hereunder constitutes a current expense of the Parties payable exclusively from

the Parties' funds and appropriated each fiscal year and shall not in any way be construed to be a multi-fiscal year debt or other financial obligation within the meaning of Article X, Section 20 of the Colorado Constitution, a general obligation indebtedness of the Parties within the meaning of any provision of Article XI of the Colorado Constitution, or any other constitutional or statutory indebtedness.

- 8.7. **GOVERNING LAW AND VENUE.** This IGA shall be governed by the laws of the State of Colorado. Venue for any action arising under this IGA will be in the appropriate court for Jefferson County, Colorado.
- 8.8. **BINDING AUTHORITY.** The Parties represent and affirm that the signature page hereof accurately states the full legal name of the entity, contains all requisite signature(s) on behalf of the Party, has been properly acknowledged by attestation, notary acknowledgment, or both.
- 8.9. **COUNTERPARTS.** This IGA may be executed in any number of counterparts, each of which shall be deemed to be an original and all such counterparts taken together shall be deemed to constitute one and the same instrument. The Parties acknowledge and agree that the original of this IGA, including the signature page, may be scanned and stored in a computer database or similar device, and that any printout or other output readable by sight, the reproduction of which is shown to accurately reproduce the original of this IGA, may be used for any purpose as if it were the original, including proof of the content of the original writing.
- 8.10. **GOVERNMENTAL IMMUNITY.** No portion of this IGA shall be deemed to constitute a waiver of any immunity, the Parties, or their officers or employees may possess, nor shall any portion of this IGA be deemed to have created a duty of care which did not previously exist with respect to any person not a party to this IGA.

/SIGNATURE PAGES FOLLOW/

COUNTY OF JEFFERSON,
STATE OF COLORADO

By: _____
Joseph M. Kerby, County Manager
jmkerby@jeffco.us

ATTEST:

APPROVED AS TO FORM:

By: _____
Carey Taylor Markel, Deputy County Attorney
cmarkel@jeffco.us

CITY OF ARVADA, a Colorado home rule
municipal corporation

By: _____
Don Wick, City Manager
dwick@arvada.org

ATTEST:

City Clerk

APPROVED AS TO FORM:

By: _____
Kylie Justus, Senior Assistant City Attorney
kjustus@arvada.org

CITY OF GOLDEN, a Colorado municipal
corporation

By: _____
Scott Vargo, City Manager
svargo@cityofgolden.net

ATTEST:

City Clerk

APPROVED AS TO FORM:

By: _____
Sandra Llanes, City Attorney
sllanes@cityofgolden.net

CITY OF LAKEWOOD, a Colorado municipal corporation

By: _____
Kathleen E. Hodgson, City Manager
kathod@lakewood.org

ATTEST:

City Clerk

APPROVED AS TO FORM:

By: _____
Lauren Stanek, Senior Assistant City Attorney
lausta@lakewoodco.org

CITY OF WESTMINSTER, a Colorado municipal corporation

By: _____
Jody Andrews, City Manager
jandrews@westminsterco.gov

ATTEST:

City Clerk

APPROVED AS TO FORM:

By: _____
Matthew Munch, City Attorney
mmunch@westminsterco.gov

CITY OF WHEAT RIDGE, a Colorado municipal
corporation

By: _____
Patrick Goff, City Manager
pgoff@ci.wheatridge.co.us

ATTEST:

City Clerk

APPROVED AS TO FORM:

By: _____
Gerald Dahl, City Attorney
gdahl@mdkrlaw.com

CITY OF EDGEWATER, a Colorado municipal corporation

By: _____
Dan Maples, City Manager
dmaples@edgewater.com

ATTEST:

City Clerk

APPROVED AS TO FORM:

By: _____
Carmen Beery, City Attorney
cbeery@mdkrlaw.com

Exhibit A

IGA 2025-2026 COLD WEATHER TERM SHEET

Term of Agreement: October 1, 2025-September 30, 2026

Service Period: October 1, 2025 – April 30, 2026

- If a severe weather event occurs after April 30 and sheltering is deemed necessary, the Parties agree these Terms continue to apply.

Sheltering Options

The Parties agree to share the costs associated with severe weather sheltering for the 2025-2026 cold weather season, with the following sheltering, staffing, and operational support options:

- Lakewood Navigation Center (\$500,000) This is a cap due to reasonable and standard expectations based on past years' operations.
 - ☐ Serving as 24/7 transitional shelter for up to 103 referred and enrolled guests with the understanding the facility does not provide walk-up or drop-off shelter access during cold weather periods.
- Jeffco Family Shelter (\$300,000)
 - ☐ Serving as 24/7 emergency shelter for families with at least one dependent age 18 or under
- Motel vouchers (\$900,000)
 - ☐ Provision of up to 200 motel vouchers nightly to provide sheltering on nights of severe/extreme cold weather
 - ☐ Activated during severe weather at 32°F or lower with accumulation of precipitation (snow) greater than one inch or with discretion in conditions of concurrent non-accumulating wet precipitation such as rainfall or sleet, or 20°F or lower with or without precipitation. Consideration will be given to wind when determining activation.
- Staffing/Operational support for county motel vouchers (\$150,000)
 - ☐ Needs related to oversight, administration and distribution of motel vouchers issued by Jefferson County
- The MAC in Westminster (\$69,000)
 - ☐ Activated when temperatures are anticipated to be 0°F or sustained wind chill temperatures below 0°F for a minimum duration of six hours as determined based on the City of Westminster's Emergency Shelter Plan managed/operated by the Westminster Fire Department for extreme cold weather events.
- Westminster motel vouchers (\$40,000)

- Activated during severe cold weather at 32°F or lower with a forecast 25% or more chance of precipitation or 20°F or lower with or without precipitation if guests cannot go to a congregant shelter. More rooms are made available when forecast temperatures fall to 10°F or lower.
 - Arvada non-profit (\$100,000)
 - Operational expenses related to severe weather sheltering for up to 45 individuals
 - Activated during severe weather at 32°F or lower with accumulation of precipitation (snow) greater than one inch or 20°F or lower with or without precipitation

Total Sheltering Costs for 2025-2026 Cold Weather Season

The Parties agree that the total sheltering costs for the 2025-2026 Cold Weather Season to be shared on pro rata basis based on population is \$2,059,000. Each party's pro-rata share is set forth in the chart below:

Total Population based						
Jurisdiction	Percent of County	Shared Cost	Direct Payment Offsets	Total into pooled funding	Due 11/1	Due 1/1
Jefferson County (Unincorporated)	35%	\$ 720,650	\$ 150,000	\$ 570,650	\$ 142,662	\$ 427,987
Arvada	21%	\$ 432,390	\$ 100,000	\$ 332,390	\$ 83,097	\$ 249,293
Edgewater	1%	\$ 20,590		\$ 20,590	\$ 5,147	\$ 15,443
Golden	3%	\$ 61,770		\$ 61,770	\$ 15,442	\$ 46,328
Lakewood	27%	\$ 555,930	\$ 500,000	\$ 55,930	\$ 13,982	\$ 41,948
Westminster	8%	\$ 164,720	\$ 109,000	\$ 55,720	\$ 13,930	\$ 41,790
Wheat Ridge	5%	\$ 102,950		\$ 102,950	\$ 25,737	\$ 77,213
	Total	\$ 2,059,000				

Cost Sharing

Lakewood, Westminster, Arvada, and Jefferson County each pay their Direct Payment Offsets, noted in the table above, in alignment with established fiscal processes which are costs those entities contribute towards sheltering operations. These costs would be deducted from the pro rata assessed amount each contribute to the pooled funding. If city-funded sheltering costs are not committed by January 1, 2026, that city's allotted amount will be added to the pooled funding. Wheat Ridge, Edgewater, and Golden each pay their pro rata costs directly into pooled funding. All pro rata payments will be used to fund Jeffco Family Shelter and motel vouchers issued by the County.

County as Fiscal Agent

Jefferson County will serve as the Fiscal Agent with respect to the pooled funding and will establish tracking and reporting processes. The cities will pay their pro rata costs directly to Jefferson County with 25% due on November 1, 2025, and the remaining 75% paid on or by January 15, 2026, as noted in the table above. Lakewood, Westminster, and Arvada will submit monthly reports to the Fiscal Agent outlining agreed upon measures and expenditures for city-led sheltering options. Monthly tracking reports will be provided during monthly City/County Manager meetings. The County as Fiscal Agent will provide the cities with an end of season report in advance of 2027 budget decisions. All expenditures need to be submitted to the Fiscal Agent by June 15, 2026, with the goal of providing a final report by July 1, 2026. These dates do not reflect unforeseen circumstances that may extend the need for severe weather response and with due diligence to achieve final reconciliation in a timely manner. Any expenditures incurred during an event subsequent to April 30, 2026 must be submitted within 30 days of the severe/extreme weather event.

Fiscal Reconciliation Decision-Making

Each Party has identified a representative to carry out the continued implementation of this work and to represent their respective localities in the preparation for the upcoming cold weather season. The following individuals are the appointed decision makers to carry forward this work:

- Don Wick, City Manager, Arvada
- Dan Maples, City Manager, Edgewater
- Scott Vargo, City Manager, Golden
- Joseph Kerby, County Manager, Jefferson County
- Kathleen Hodgson, City Manager, Lakewood
- Jody Andrews, City Manager, Westminster
- Patrick Goff, City Manager, Wheat Ridge
- Kerry Wrenick, Regional Homelessness Coordinator, Jefferson County (non-voting)

With monthly reporting/tracking of expenses and the end of season report, any increases to projected costs will be evaluated on an ongoing and end of season basis during the monthly City/County Manager meetings. During the monthly meetings, the cities and the County will discuss topics such as additional funding, amending services provided, or appropriate responses.

At the end of the season if a credit balance exists, the City/County Managers will determine whether to refund any excess or carry it over to the 2026-2027 cold weather season.

Cold Weather Activation

Jefferson County will activate cold weather response utilizing the following temperature/precipitation thresholds when notified by Jefferson County Public Health of a cold weather health alert or advisory. The thresholds will be 72-hour forecasts of overnight low temperatures of:

- **Health Alert Notification:** (extreme weather) 10°F regardless of wind or precipitation
- **Health Advisory Notification:** (severe weather) 32°F or lower with accumulation of anticipated precipitation (snow) greater than one inch over a 24-hour period or with discretion in conditions of concurrent non-accumulating wet precipitation such as rainfall or sleet, or 20°F or lower with or without precipitation. Consideration will be given to wind when issuing a Health Advisory.

The Parties agree that discretion to enter a Cold Weather Activation (CWA) is the responsibility of the Cold Weather Activation team, based on forecasts from the National Weather Service. Representatives from Jefferson County Public Health, Jefferson County Human Services, Jefferson County Emergency Management (CWA Team), will convene 72 hours in advance of impending weather to prepare for an activation based on forecast. If a forecast indicates weather conditions extending throughout a week, discretion will be used to make activation decisions by 10 a.m. on the third, fifth, and seventh day of the activation, with relevant updates communicated to the public. Any reason for non-activation or suspension will be documented by the non-activation or suspending party and provided to the other Parties. As individuals with ties to the Cities of Arvada and Westminster may physically be located within these respective jurisdictions but outside of Jefferson County, they may be considered eligible to utilize JeffCo Family Shelter for families with children and Jefferson County hotel program for people unable to stay at congregate shelters as part of this agreement.

The parameters for activation of Westminster's The MAC is determined based on the City of Westminster's Emergency Shelter Plan managed/operated by the Westminster Fire Department

for extreme cold weather events. The activation of The MAC remains solely within the purview and under the City of Westminster' Emergency Shelter Plan, which is an annex of the City's Emergency Operations Plan. Activation of the extreme cold weather shelter will take into consideration the Jefferson County CWA and notify them when The MAC activates. Westminster cold weather hotel stays are available during The MAC activating as an extreme weather shelter. They are also available when Adams County Severe Weather Activation Program starts providing additional cold weather hotel rooms when it is forecast to be 10°F or below.

Communication of CWA

To the extent possible, seventy-two hours prior to declaration of a CWA, Jefferson County will notify the Board of County Commissioners, City Managers, partner municipal and county homelessness response teams, that a CWA will be declared. Broader public facing notification will occur no later than twenty-four (24) hours prior to the CWA and may be communicated through push notifications on the County website, the Heading Home website, social media, email networks, or other formats by Jefferson County Communications. No public-facing notifications, including email or social media, shall be shared prior to the official public notification from Jefferson County Public Affairs Team. Extensions of an ongoing CWA will similarly and officially be posted to the public through Jefferson County Communications. Municipalities will maintain responsibility for activation notifications and public awareness sent through their Communications teams.

If severe weather is expected over a weekend or on a Monday holiday, more advanced public notice than 24-hours will be issued when possible.

Outreach

Outreach strategies refer to coordinating direct engagement with people in unsheltered homelessness to equip them with information to make a plan to access available shelter. Outreach will be coordinated upon declaration of a CWA, from the seventy-two (72) hour lead period and through sheltering operations. Two functions support outreach engagements direct to those experiencing homelessness in the field: homeless/housing navigators and Nonprofit partners, Police Departments directly involved in implementing a CWA. Broader public audiences will receive informational push notifications and media alerts through Jefferson County Public Affairs Team.

Homeless Navigation

Jefferson County relies on County/City homeless navigators along with outreach teams from Public Health and Jefferson Center to identify people who are unsheltered. Upon declaration, and throughout the 72-hour lead period and course of a CWA, these teams will work together to intentionally connect people in unsheltered homelessness with the necessary information to create a plan to access shelter during the CWA. These efforts may be supported by the Sheriff's Office, Open Space, local Police Departments, Parks and Recreation, co-responder teams, or others in a first-responder capacity.

CWA Transportation

During CWA, the Parties agree to transport people to/from shelter to the extent possible given that severe weather conditions may limit travel due to poor driving conditions, closures, and safety concerns. Homeless Navigators, and shelter staff, have access to RTD passes that may be provided to persons needing shelter during CWA. Additionally, Jefferson County manages a Lyft Concierge account that can be utilized during CWA when Lyft is operational. Transportation is not guaranteed during CWA. All participating jurisdictions agree to provide transportation supports to impacted guests to the best of their abilities and agree that in some condition's transportation options will not be available. Prenotifications using currently defined communication channels is critical to ensure all unhoused individuals have advanced notice of impending weather changes in order to access sheltering options as early as possible.

Motel Vouchering

During CWA, motel vouchers will be issued to families and singles who meet eligibility criteria. Determinations are based on vulnerability with conditions that limit access to congregate shelter due to health conditions or other qualifying circumstances. Severe weather hotel vouchers can be used to book motel rooms at one of the partnering motels across the county. Motel rooms will be booked on the same day by the issuing agencies.

Additional Contribution by Jefferson County - Evergreen Christian Outreach (EChO) Shelter

For 2025-2026, Jefferson County has proposed (\$200,000) funding for operations of EChO Shelter located in Evergreen, CO. EChO serves as a cold weather shelter every night from

October-April with a capacity of 20 individuals per night. EChO services extend beyond cold weather sheltering to ensure guests receive basic needs and case management.

Extreme Weather Mobile Shelter Operations

Extreme weather mobile shelter operations will be deployed at the discretion of the County Office of Emergency Management (OEM”) through the County’s activation of the Emergency Operations Center through a disaster declaration that activates the County Emergency Management Plan or Emergency Operations Plan and needed annexes. Jefferson County has budgeted \$250,000 in 2025-2026 to operate mobile shelters during events of extreme cold weather (forecasts of 10°F or below for at least 48 hours). This funding amount equates to ten days of extreme cold weather but does not guarantee that such tents will be available for deployment as such deployment is dependent upon the discretion of the County OEM. If it is anticipated that the current budgeted funding level will be exhausted, the Parties agree to convene to determine how to fund any additional extreme weather sheltering needs.

Absent such County declaration, extreme weather mobile sheltering options can be requested by a Party that is operating under a local disaster declaration and has utilized all other available local resources. Such a Party may complete a Resource Request Order through its local OEM to the County OEM. If the County OEM authorizes the request, costs of such deployment shall be assessed to the requesting Party.

Communications Plan for Extreme Weather Mobile Shelter Operations

County OEM will, in accordance with the Emergency Operations -Local Coordination Annex Plan, take the lead in coordinating among the Parties communication of the disaster declaration and activation of the County Emergency Management Plan or Emergency Operations Plan and needed annexes.

Transportation During Extreme Weather Mobile Shelter Operations

County OEM’s activation of the Emergency Operations Center through a disaster declaration will also activate additional transportation resources through the County OEM.



REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM
8.B.2.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: R25-076, A Resolution Authorizing a Contract to Buy and Sell Real Estate by and between the City of Arvada and the Keller Family Limited Partnership, LLLP, for the Purchase of Real Property located at 6809 State Highway 93, Golden, CO 80403 (Presenter: Jacqueline Rhoades, Director of Infrastructure)

Report in Brief

PRESENTER: Jacqueline Rhoades, Director of Infrastructure.

The Arvada Water Treatment Plant ("AWTP") has served the community for decades and is nearing the end of its useful life. To continue delivering high-quality, reliable drinking water, the AWTP is being replaced with a new water treatment plant at a new location that can more effectively meet current and future demand, comply with water quality standards, and improve sustainability and resilience. Through a rigorous iprocess, the 25.25-acre property located at 6809 State Highway 93, Golden, CO 80403 (the "Property"), was identified as the site for the new water treatment plant. The City entered into contract negotiations with the Keller Family Limited Partnership, LLLP (the "Keller's") for the purchase of the Property. Subject to approval by City Council, the City and the Keller's have reached an agreement to purchase the Property for \$5,730,000.00.

The Arvada team recommends that the City Council approve R25-076, A Resolution Authorizing a Contract to Buy and Sell Real Estate by and between the City of Arvada and the Keller Family Limited Partnership, LLLP, for the Purchase of Real Property located at 6809 State Highway 93, Golden, CO 80403.

Financial Impact

The financial impact is a one-time cost of \$5,730,000.00, which is budgeted in account number PRJ23097606.

Background

In Fall 2020, City Council provided strategic direction to complete long range plans for water, wastewater and storm infrastructure by 2023. These plans provide staff with a roadmap to prioritize work that needs to be done in our systems. The City team completed the water plans in 2021 and 2022, and the results are being used to prioritize work for immediate, short-term and longer-term needs. Replacement of the AWTP was identified as a top priority.

The replacement of the AWTP is needed by 2030, when approximately 80% of the plant will be at or beyond the end of its useful life. To continue delivering high-quality, reliable drinking water, the AWTP is being replaced with a new water treatment plant at a new location that can more effectively meet current and future demand, comply with water quality standards, and improve sustainability and resilience.

The City conducted a detailed siting study that evaluated technical feasibility, construction and operational needs, and community input. Key community priorities such as preserving open space, minimizing impacts on residential areas, and ensuring site security and cost-effectiveness were factored into the decision-making process. Through this rigorous process, the Property was identified as the site for the new water treatment plant. The Property is adjacent to existing pipelines used for raw water delivery and the elevation works very well for the hydraulic design of the water system. It is also close to the City's Ralston Water Treatment Plant and has convenient access for operations personnel and deliveries. The Property provides for future flexibility in both capacity and process, as well as future replacement (in 50 to 70 years). It is also located next to Denver Water's existing water treatment plant, which helps minimize community impact. In February 2024, the Arvada team began

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discussions with the Keller's for the purchase of the Property, which is part of a larger parcel of land owned by the Keller's. Recently, the City and the Keller's reached an agreement on the terms and purchase price for the Property. After negotiation, the sale price of \$5,730,000.00 was agreed upon.

Discussion

To continue delivering high-quality, reliable drinking water, the AWTP is being replaced with a new water treatment plant which will be located on the Property.

A new water treatment plant on the Property ensures that the City can effectively meet current and future demand, comply with water quality standards, and improve sustainability and resilience.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A

Strategic Alignment

This project is in line with the following Strategic Result and Strategic Goal:

Physical and Technology Systems

Strategic Goal 2: Identify and prioritize projects for modernizing our physical infrastructure to maintain and elevate service levels.

Strategic Goal 4: Ensure all physical and technology assets support reliable safety response, emergency preparedness, and City and community resilience.

It is also aligned with Infrastructure Work System Services 1 (INF1) by ensuring we continue to provide the community with a safe, resilient, high-quality water supply.

Alternative Courses of Action

1. Approve the purchase of the Property.
2. Not approve the purchase of the Property.

Recommendation for Action

The Arvada team recommends that the City Council approve R25-076, A Resolution Authorizing a Contract to Buy and Sell Real Estate by and between the City of Arvada and the Keller Family Limited Partnership, LLLP, for the Purchase of Real Property located at 6809 State Highway 93, Golden, CO 80403.

Suggested Motion:

I move that R25-076, A Resolution Authorizing a Contract to Buy and Sell Real Estate by and between the City of Arvada and the Keller Family Limited Partnership, LLLP, for the Purchase of Real Property located at 6809 State Highway 93, Golden, CO 80403, be (approved) (rejected).

Prepared by:
Jacqueline Rhoades, Director of Infrastructure

Reviewed by:

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Approved by:

Jessica Morales, Assistant City Attorney	08/20/2025
Bryan Archer, Chief Financial Officer	08/20/2025
Tammy Hedlund, Legal Specialist	08/20/2025
Rachel Morris, City Attorney	08/20/2025
Linda Haley, Deputy City Manager	08/21/2025
Don Wick, City Manager	08/22/2025

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R25-076

A RESOLUTION AUTHORIZING A CONTRACT TO BUY AND SELL REAL ESTATE BY
AND BETWEEN THE CITY OF ARVADA AND THE KELLER FAMILY LIMITED
PARTNERSHIP, LLLP, FOR THE PURCHASE OF REAL PROPERTY LOCATED AT 6809
STATE HIGHWAY 93, GOLDEN, CO 80403

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 Contract to Buy and Sell Real Estate, that is in substantially the same form as that attached hereto, by and between the City of Arvada and the Keller Family Limited Partnership, LLLP, for the Purchase of Real Property located at 6809 State Highway 93, Golden, CO 80403.

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

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____



Marcum Commercial Advisors
12420 W. 54th Dr., Unit 1 Arvada, CO 80002
Scott A. Marcum
Broker/Owner
scott@marcumcommercial.com
Ph: 303-403-1333

The printed portions of this form, except differentiated additions, have been approved by the Colorado Real Estate Commission. (CBS4-8-24) (Mandatory 8-24)

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: 9/5/2025

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 In Severalty.

2.2. No Assignability. This Contract IS NOT assignable by Buyer unless otherwise specified in Additional Provisions.

2.3. Seller. Keller Family Limited Partnership, LLLP (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 Attached Exhibit A - UPDATED 2/18/2025 ALTA Survey and Exhibit B - UPDATED May 28, 2025 Certified Title Commitment for Approximately 25.251 acres in Golden, CO.

known as: 6809 State Highway 93, Golden, CO 80403

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**:

Seller reserves the right to move any and all structures currently existing on the property as identified in Exhibit A - UPDATED 2/18/2025 ALTA Survey, at Seller's cost. Seller shall identify any and all structures Seller will remove, 60 (Sixty) days prior to the Closing date. The timing of Seller's removal of any and all structures will be coordinated with the Buyer, and shall occur up to 180 days after Closing. If Seller removes structures after Closing, Seller will ensure Seller or Seller's Contractors maintain commercial general liability insurance with limits not less than \$1,000,000.00, workman's compensation insurance, and any other insurance necessary to insure against the liability assumed by Seller or its Contractors, and

shall name Buyer as an additional insured. If Seller removes structures after Closing, Seller and its Contractors shall indemnify Buyer against and from all claims arising out of or caused by Seller's removal of the structures. Buyer shall pay for all costs associated with demolition of any and all structures that Seller decides not to move.

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 (e.g., 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:

n/a

Buyer ☐ Will ☒ Will Not assume the debt and obligations on the Encumbered Inclusions subject to Buyer's review under §10.6. (Encumbered Inclusion Documents) and Buyer's receipt of written approval by such lender before Closing. If Buyer does not receive such approval this Contract terminates.

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

Buyer ☐ Will ☒ Will Not assume Seller's debt and obligations under such leases for the Leased Items subject to Buyer's review under §10.6. (Leased Items Documents) and Buyer's receipt of written approval by such lender before Closing. If Buyer does not receive such approval this Contract terminates.

☐ **2.5.5. Solar Power Plan.** If the box is checked, Seller has entered into a solar power purchase agreement, regardless of the name or title, to authorize a third-party to operate and maintain a photovoltaic system on the Property and provide electricity (Solar Power Plan) that will remain in effect after Closing. Buyer ☐ Will ☒ Will Not assume Seller's obligations under such Solar Power Plan subject to Buyer's review under §10.6. (Solar Power Plan) and Buyer's receipt of written approval by the third-party before Closing. If Buyer does not receive such approval this Contract terminates.

2.6. Exclusions. The following items are excluded (Exclusions):

Seller reserves the right to move any and all structures currently existing on the property as identified in Exhibit A - UPDATED 2/18/2025 ALTA Survey, at Seller's cost. Seller shall identify any and all structures Seller will remove, 60 (Sixty) days prior to the Closing date. The timing of Seller's removal of any and all structures will be coordinated with the Buyer, and shall occur up to 180 days after Closing. If Seller removes structures after Closing, Seller will ensure Seller or Seller's Contractors maintain commercial general liability insurance with limits not less than \$1,000,000.00, workman's compensation insurance, and any other insurance necessary to insure against the liability assumed by Seller or its Contractors, and shall name Buyer as an additional insured. If Seller removes structures after Closing, Seller and its Contractors shall indemnify Buyer against and from all claims arising out of or caused by Seller's removal of the structures. Buyer shall pay for all costs associated with demolition of any and all structures that Seller decides not to move.

2.7. Water Rights, Well Rights, Water and Sewer Taps.

☒ **2.7.1. Deeded Water Rights.** The following legally described water rights: To be disclosed by Seller five (5) days following the mutual execution of this Contract ("MEC").

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: To be disclosed by Seller five (5) days following the MEC.

☒ **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 To be disclosed by Seller within 10-days of MEC.

☒ **2.7.4. Water Stock.** The water stock to be transferred at Closing are as follows:
To be disclosed by Seller five (5) days following the MEC.

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:

To be disclosed by Seller five (5) days following the MEC.

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), 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 has 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	<u>7:00 PM MDT</u>
2	§ 4	Alternative Earnest Money Deadline	<u>10 days after MEC</u>
		Title	
3	§ 8	Record Title Deadline (and Tax Certificate)	<u>10 days after MEC</u>
4	§ 8	Record Title Objection Deadline	<u>75 days after MEC</u>
5	§ 8	Off-Record Title Deadline	<u>10 days after MEC</u>
6	§ 8	Off-Record Title Objection Deadline	<u>75 days after MEC</u>
7	§ 8	Title Resolution Deadline	<u>85 days after MEC</u>
8	§ 8	Third Party Right to Purchase/Approve Deadline	<u>n/a</u>
		Owners' Association	
9	§ 7	Association Documents Deadline	<u>n/a</u>
10	§ 7	Association Documents Termination Deadline	<u>n/a</u>
		Seller's Disclosures	
11	§ 10	Seller's Property Disclosure Deadline	<u>21 days after MEC</u>
12	§ 10	Lead-Based Paint Disclosure Deadline (if Residential Addendum attached)	<u>21 days after MEC</u>
		Loan and Credit	
13	§ 5	New Loan Application Deadline	<u>n/a</u>
14	§ 5	New Loan Terms Deadline	<u>n/a</u>
15	§ 5	New Loan Availability Deadline	<u>n/a</u>

175	16	§ 5	Buyer's Credit Information Deadline	<i>n/a</i>
176	17	§ 5	Disapproval of Buyer's Credit Information Deadline	<i>n/a</i>
177	18	§ 5	Existing Loan Deadline	<i>n/a</i>
178	19	§ 5	Existing Loan Termination Deadline	<i>n/a</i>
179	20	§ 5	Loan Transfer Approval Deadline	<i>n/a</i>
180	21	§ 4	Seller or Private Financing Deadline	<i>n/a</i>
181			Appraisal	
182	22	§ 6	Appraisal Deadline	<i>Completed See Section 30</i>
183	23	§ 6	Appraisal Objection Deadline	<i>n/a</i>
184	24	§ 6	Appraisal Resolution Deadline	<i>n/a</i>
185			Survey	
186	25	§ 9	New ILC or New Survey Deadline	<i>Completed See Section 30</i>
187	26	§ 9	New ILC or New Survey Objection Deadline	<i>n/a</i>
188	27	§ 9	New ILC or New Survey Resolution Deadline	<i>n/a</i>
189			Inspection and Due diligence	
190	28	§ 2	Water Rights Examination Deadline	<i>85 days after MEC</i>
191	29	§ 8	Mineral Rights Examination Deadline	<i>85 days after MEC</i>
192	30	§ 10	Inspection Termination Deadline	<i>85 days after MEC</i>
193	31	§ 10	Inspection Objection Deadline	<i>75 days after MEC</i>
194	32	§ 10	Inspection Resolution Deadline	<i>85 days after MEC</i>
195	33	§ 10	Property Insurance Termination Deadline	<i>85 days after MEC</i>
196	34	§ 10	Due Diligence Documents Delivery Deadline	<i>10 days after MEC</i>
197	35	§ 10	Due Diligence Documents Objection Deadline	<i>75 days after MEC</i>
198	36	§ 10	Due Diligence Documents Resolution Deadline	<i>85 days after MEC</i>
199	37	§ 10	Environmental Inspection Termination Deadline	<i>85 days after MEC</i>
200	38	§ 10	ADA Evaluation Termination Deadline	<i>n/a</i>
201	39	§ 10	Conditional Sale Deadline	<i>n/a</i>
202	40	§ 10	Lead-Based Paint Termination Deadline (if Residential Addendum attached)	<i>85 days after MEC</i>
203	41	§ 11	Estoppel Statements Deadline	<i>n/a</i>
204	42	§ 11	Estoppel Statements Termination Deadline	<i>n/a</i>
205			Closing and Possession	
206	43	§ 12	Closing Date	<i>90 days after MEC</i>
207	44	§ 17	Possession Date	<i>Upon Delivery of Deed</i>
208	45	§ 17	Possession Time	<i>Upon Delivery of Deed</i>
209	46	§ 27	Acceptance Deadline Date	<i>9/19/2025</i> Friday
210	47	§ 27	Acceptance Deadline Time	<i>7:00 PM MDT</i>
211	48	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>

Initials _____

49	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
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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	\$ 5,730,000.00	
2	§ 4.3.	Earnest Money		\$ 286,500.00
3	§ 4.5.	New Loan		\$
4	§ 4.6.	Assumption Balance		\$
5	§ 4.7.	Private Financing		\$
6	§ 4.7.	Seller Financing		\$
7	<i>n/a</i>	<i>n/a</i>		\$
8	<i>n/a</i>	<i>n/a</i>		\$
9	§ 4.4.	Cash at Closing		\$ 5,443,500.00
10		Total	\$ 5,730,000.00	\$ 5,730,000.00

4.2. Seller Concession. At Closing, Seller will credit to Buyer \$*n/a* (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 Good Funds, will be payable to and held by First Integrity Title Company (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.

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. (Omitted as inapplicable)

5.4. Existing Loan Review. (Omitted as inapplicable)

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, 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.;~~

408 7.3.2. Minutes of: (1) the annual owners' or members' meeting and (2) any executive boards' or
409 managers' meetings; such minutes include those provided under the most current annual disclosure required
410 under § 38-33.3-209.4, C.R.S. (Annual Disclosure) and minutes of meetings, if any, subsequent to the
411 minutes disclosed in the Annual Disclosure. If none of the preceding minutes exist, then the most recent
412 minutes, if any (§§ 7.3.1. and 7.3.2., collectively, Governing Documents); and

414 7.3.3. List of all Association insurance policies as provided in the Association's last Annual
415 Disclosure, including, but not limited to, property, general liability, association director and officer professional
416 liability and fidelity policies. The list must include the company names, policy limits, policy deductibles,
417 additional named insureds and expiration dates of the policies listed (Association Insurance Documents);

418 7.3.4. A list by unit type of the Association's assessments, including both regular and special
419 assessments as disclosed in the Association's last Annual Disclosure;

420 7.3.5. The Association's most recent financial documents which consist of: (1) the Association's
421 operating budget for the current fiscal year, (2) the Association's most recent annual financial statements,
422 including any amounts held in reserve for the fiscal year immediately preceding the Association's last Annual
423 Disclosure, (3) the results of the Association's most recent available financial audit or review, (4) list of the
424 fees and charges (regardless of name or title of such fees or charges) that the Association's community
425 association manager or Association will charge in connection with the Closing including, but not limited to,
426 any fee incident to the issuance of the Association's statement of assessments (Status Letter), any rush or
427 update fee charged for the Status Letter, any record change fee or ownership record transfer fees (Record
428 Change Fee), fees to access documents, (5) list of all assessments required to be paid in advance, reserves
429 or working capital due at Closing and (6) reserve study, if any (§§ 7.3.4. and 7.3.5., collectively, Financial
430 Documents);

432 7.3.6. Any written notice from the Association to Seller of a "construction defect action" under §
433 38-33.3-303.5, C.R.S. within the past six months and the result of whether the Association approved or
434 disapproved such action (Construction Defect Documents). Nothing in this Section limits the Seller's
435 obligation to disclose adverse material facts as required under § 10.2. (Disclosure of Adverse Material Facts;
436 Subsequent Disclosure; Present Condition) including any problems or defects in the common elements or
437 limited common elements of the Association property.

439 7.4. Conditional on Buyer's Review. Buyer has the right to review the Association Documents.
440 Buyer has the Right to Terminate under § 24.1., on or before **Association Documents Termination**
441 **Deadline**, based on any unsatisfactory provision in any of the Association Documents, in Buyer's sole
442 subjective discretion. Should Buyer receive the Association Documents after **Association Documents**
443 **Deadline**, Buyer, at Buyer's option, has the Right to Terminate under § 24.1. by Buyer's Notice to Terminate
444 received by Seller on or before ten days after Buyer's receipt of the Association Documents. If Buyer does
445 not receive the Association Documents, or if Buyer's Notice to Terminate would otherwise be required to be
446 received by Seller after **Closing Date**, Buyer's Notice to Terminate must be received by Seller on or before
447 Closing. If Seller does not receive Buyer's Notice to Terminate within such time, Buyer accepts the provisions
448 of the Association Documents as satisfactory and Buyer waives any Right to Terminate under this provision,
449 notwithstanding the provisions of § 8.6. (Third Party Right to Purchase/Approve).

452 8. TITLE INSURANCE, RECORD TITLE AND OFF-RECORD TITLE.

453 8.1. Evidence of Record Title.

454 ☐ 8.1.1. **Seller Selects Title Insurance Company.** If this box is checked, Seller will select the
455 title insurance company to furnish the owner's title insurance policy at Seller's expense. On or before **Record**
456 **Title Deadline**, Seller must furnish to Buyer, a current commitment for an owner's title insurance policy (Title
457 Commitment), in an amount equal to the Purchase Price, or if this box is checked, ☐ an **Abstract of Title**
458 certified to a current date. Seller will cause the title insurance policy to be issued and delivered to Buyer as
459 soon as practicable at or after Closing.

461 ☒ 8.1.2. **Buyer Selects Title Insurance Company.** If this box is checked, Buyer will select the
462 title insurance company to furnish the owner's title insurance policy at Buyer's expense. On or before **Record**
463 **Title Deadline**, Buyer must furnish to Seller, a current commitment for owner's title insurance policy (Title
464 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** n/a.

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 and Metropolitan 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. The official website for the Metropolitan District, if any, is:~~ n/a.

8.5. Tax Certificate. A tax certificate paid for by ☐ Seller ☒ Buyer, for the Property listing any special taxing or metropolitan districts that affect the Property (Tax Certificate) must be delivered to Buyer on or before **Record Title Deadline**. If the content of the Tax Certificate 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 content of the Tax Certificate 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. (Tax Certificate) 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 has 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 [See Section 30](#); 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:
[See Section 30](#)

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 [Marcum Commercial Advisors](#) 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.

641 **9.3. New ILC or New Survey Objection.** Buyer has the right to review and object based on the New
642 ILC or New Survey. If the New ILC or New Survey is not timely received by Buyer or is unsatisfactory to
643 Buyer, in Buyer's sole subjective discretion, Buyer may, on or before **New ILC or New Survey Objection**
644 **Deadline**, notwithstanding § 8.3. or § 13:

645 **9.3.1. Notice to Terminate.** Notify Seller in writing, pursuant to § 24.1, that this Contract is
646 terminated; or

647 **9.3.2. New ILC or New Survey Objection.** Deliver to Seller a written description of any matter
648 that was to be shown or is shown in the New ILC or New Survey that is unsatisfactory and that Buyer
649 requires Seller to correct.

650 **9.3.3. New ILC or New Survey Resolution.** If a **New ILC or New Survey Objection** is received
651 by Seller, on or before **New ILC or New Survey Objection Deadline** and if Buyer and Seller have not
652 agreed in writing to a settlement thereof on or before **New ILC or New Survey Resolution Deadline**, this
653 Contract will terminate on expiration of the **New ILC or New Survey Resolution Deadline**, unless Seller
654 receives Buyer's written withdrawal of the New ILC or New Survey Objection before such termination (i.e., on
655 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.

662 **10.1. Seller's Property Disclosure.** On or before **Seller's Property Disclosure Deadline**, Seller
663 agrees to deliver to Buyer the most current version of the applicable Colorado Real Estate Commission's
664 Seller's Property Disclosure form completed by Seller to Seller's actual knowledge and current as of the date
665 of this Contract.

666 **10.2. Disclosure of Adverse Material Facts; Subsequent Disclosure; Present Condition.** Seller
667 must disclose to Buyer any adverse material facts actually known by Seller as of the date of this Contract.
668 Seller agrees that disclosure of adverse material facts will be in writing. In the event Seller discovers an
669 adverse material fact after the date of this Contract, Seller must timely disclose such adverse fact to Buyer.
670 Buyer has the Right to Terminate based on the Seller's new disclosure on the earlier of Closing or five days
671 after Buyer's receipt of the new disclosure. Except as otherwise provided in this Contract, Buyer
672 acknowledges that Seller is conveying the Property and Inclusions to Buyer in an "As Is" condition, "Where
673 Is" and "With All Faults."

674 **10.3. Inspection.** Unless otherwise provided in this Contract, Buyer, acting in good faith, has the right
675 to have inspections (by one or more third parties, personally or both) of the Property, Leased Items, and
676 Inclusions (Inspection), at Buyer's expense. If (1) the physical condition of the Property, including, but not
677 limited to, the roof, walls, structural integrity of the Property, the electrical, plumbing, HVAC and other
678 mechanical systems of the Property, (2) the physical condition of the Inclusions and Leased Items, (3) service
679 to the Property (including utilities and communication services), systems and components of the Property
680 (e.g., heating and plumbing), (4) any proposed or existing transportation project, road, street or highway, or
681 (5) any other activity, odor or noise (whether on or off the Property) and its effect or expected effect on the
682 Property or its occupants is unsatisfactory, in Buyer's sole subjective discretion, Buyer may:

683 **10.3.1. Inspection Termination.** On or before the **Inspection Termination Deadline**, notify
684 Seller in writing, pursuant to § 24.1., that this Contract is terminated due to any unsatisfactory condition,
685 provided the Buyer did not previously deliver an Inspection Objection. Buyer's Right to Terminate under this
686 provision expires upon delivery of an Inspection Objection to Seller pursuant to § 10.3.2.; or

687 **10.3.2. Inspection Objection.** On or before the **Inspection Objection Deadline**, deliver to
688 Seller a written description of any unsatisfactory condition that Buyer requires Seller to correct.

689 **10.3.3. Inspection Resolution.** If an Inspection Objection is received by Seller, on or before
690 **Inspection Objection Deadline** and if Buyer and Seller have not agreed in writing to a settlement thereof on
691 or before **Inspection Resolution Deadline**, this Contract will terminate on **Inspection Resolution Deadline**
692 unless Seller receives Buyer's written withdrawal of the Inspection Objection before such termination (i.e., on
693 or before expiration of **Inspection Resolution Deadline**).

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):

Prior to closing, Seller will relocate, transfer, and/or terminate any active verbal or written lease agreements specifically associated with this property including agreements specific to any structure on the property. Seller will be responsible for any necessary eviction process and/or proceedings. Seller will not enter into any new leases affecting the Property without the prior written consent of Buyer.

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**.

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**.

10.6.1.4. Solar Power Plan. Copy of any Solar Power Plan not included in Leased Items (regardless of its name or title).

10.6.1.5. Septic Use Permit. If required by the local health department or other applicable government entity, on or before the local health department's applicable deadline, Seller must pay for and furnish to Buyer a Septic Use Permit.

10.6.1.6. Other Documents. If the respective box is checked, Seller agrees to additionally deliver copies of the following:

☐ **10.6.1.6.1.** All contracts relating to the operation, maintenance and management of the Property;

☐ **10.6.1.6.2.** Property tax bills for the last n/a years;

☐ **10.6.1.6.3.** 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;

☒ **10.6.1.6.4.** A list of all Inclusions to be conveyed to Buyer;

☐ **10.6.1.6.5.** Operating statements for the past n/a years;
☐ **10.6.1.6.6.** A rent roll accurate and correct to the date of this Contract;
☐ **10.6.1.6.7.** 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;

☒ **10.6.1.6.8.** All insurance policies pertaining to the Property and copies of any claims which have been made for the past 3 years;

☒ **10.6.1.6.9.** Soils reports, surveys and engineering reports or data pertaining to the Property (if not delivered earlier under § 8.3.);

☒ **10.6.1.6.10.** 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;

☐ **10.6.1.6.11.** Any *Americans with Disabilities Act* reports, studies or surveys concerning the compliance of the Property with said Act;

☒ **10.6.1.6.12.** 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

☒ **10.6.1.6.13.** Other:

Any of the documents required in this Section 10.6 will only be provided to the Buyer if readily accessible or in the possession of the Seller.

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**).

10.6.2.4. Automatic Due Diligence Extension. If a Due Diligence Document is not delivered on or before the Due Diligence Documents Deadline, Buyer has until the earlier of Closing or ten days after receipt by Buyer to review and object to such Due Diligence Document. If Buyer's right to review and object to such Due Diligence Document is extended due to such Due Diligence Document not being delivered on or before the Due Diligence Documents Deadline, the Due Diligence Document Resolution Deadline will also be extended to the earlier of Closing or fifteen days after Buyer's receipt of such Due Diligence Document.

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. Buyer has the right to obtain environmental inspections of the Property including a Phase I Environmental Site Assessment. ☐ Seller ☒ Buyer will order or provide a current Phase I Environmental Site Assessment (compliant with the most current version of the applicable ASTM E1527 standard practices for Environmental Site Assessments) and/or See Section 30, at the expense of ☐ Seller ☒ Buyer (Environmental Inspection).

If the Phase I Environmental Site Assessment recommends a Phase II Environmental Site Assessment, the **Environmental Inspection Termination Deadline** will be extended by n/a days (Extended Environmental Inspection Termination Deadline) and if such Extended Environmental Inspection Termination 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 Termination Deadline, based on any unsatisfactory results of Environmental Inspection, in Buyer's sole subjective discretion.

10.6.5. Due Diligence – ADA. ~~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.~~

~~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;

875 11.1.4. ~~The amount of monthly (or other applicable period) rental paid to Seller;~~
876 11.1.5. ~~That there is no default under the terms of said Lease by landlord or occupant; and~~
877 11.1.6. ~~That the Lease to which the Estoppel Statement is attached is a true, correct and~~
878 ~~complete copy of the Lease demising the premises it describes.~~

879 11.2. **Seller Estoppel Statement.** ~~In the event Seller does not receive from all tenants of the Property~~
880 ~~a completed signed Estoppel Statement, Seller agrees to complete and execute an Estoppel Statement~~
881 ~~setting forth the information and documents required in §11.1. above and deliver the same to Buyer on or~~
882 ~~before **Estoppel Statements Deadline.**~~

883 11.3. **Estoppel Statements Termination.** ~~Buyer has the Right to Terminate under § 24.1., on or~~
884 ~~before **Estoppel Statements Termination Deadline,** based on any unsatisfactory Estoppel Statement, in~~
885 ~~Buyer's sole subjective discretion, or if Seller fails to deliver the Estoppel Statements on or before **Estoppel**~~
886 ~~**Statements Deadline.** Buyer also has the unilateral right to waive any unsatisfactory Estoppel Statement.~~

CLOSING PROVISIONS

12. CLOSING DOCUMENTS, INSTRUCTIONS AND CLOSING.

894 12.1. **Closing Documents and Closing Information.** Seller and Buyer will cooperate with the
895 Closing Company to enable the Closing Company to prepare and deliver documents required for Closing to
896 Buyer and Seller and their designees. If Buyer is obtaining a loan to purchase the Property, Buyer
897 acknowledges Buyer's lender is required to provide the Closing Company, in a timely manner, all required
898 loan documents and financial information concerning Buyer's loan. Buyer and Seller will furnish any
899 additional information and documents required by Closing Company that will be necessary to complete this
900 transaction. Buyer and Seller will sign and complete all customary or reasonably required documents at or
901 before Closing.

902 12.2. **Closing Instructions.** Colorado Real Estate Commission's Closing Instructions ☐ **Are**
903 ☒ **Are Not** executed with this Contract.

904 12.3. **Closing.** Delivery of deed from Seller to Buyer will be at closing (Closing). Closing will be on the
905 date specified as the **Closing Date** or by mutual agreement at an earlier date. At Closing, Seller must
906 provide Buyer with the ability to access the Property. The hour and place of Closing will be as designated by
907 **Buyer & Seller separately.**

908 12.4. **Disclosure of Settlement Costs.** Buyer and Seller acknowledge that costs, quality and extent
909 of service vary between different settlement service providers (e.g., attorneys, lenders, inspectors and title
910 companies).

911 12.5. **Assignment of Leases.** Seller must assign to Buyer all Leases at Closing that will continue
912 after Closing and Buyer must assume Seller's obligations under such Leases. Further, Seller must transfer to
913 Buyer all Leased Items and assign to Buyer such leases for the Leased Items accepted by Buyer pursuant to
914 § 2.5.4. (Leased Items).

915 13. **TRANSFER OF TITLE.** Subject to Buyer's compliance with the terms and provisions of this Contract,
916 including the tender of any payment due at Closing, Seller must execute and deliver the following good and
917 sufficient deed to Buyer, at Closing: ☒ special warranty deed ☐ general warranty deed
918 ☐ bargain and sale deed ☐ quit claim deed ☐ personal representative's deed ☐ n/a deed. Seller, provided
919 another deed is not selected, must execute and deliver a good and sufficient special warranty deed to Buyer,
920 at Closing.

921 Unless otherwise specified in § 30 (Additional Provisions), if title will be conveyed using a special
922 warranty deed or a general warranty deed, title will be conveyed "subject to statutory exceptions" as defined
923 in §38-30-113(5)(a), C.R.S.

924 14. **PAYMENT OF LIENS AND ENCUMBRANCES.** Unless agreed to by Buyer in writing, any amounts
925 owed on any liens or encumbrances securing a monetary sum against the Property and Inclusions, including
926 any governmental liens for special improvements installed as of the date of Buyer's signature hereon,
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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 Seller.~~

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. Reserves or Working Capital. ~~Unless agreed to otherwise, all reserves or working capital due (or other similar cost not addressed in § 16.2. (Association Assessments)) 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 District/Municipality ☐ Water Stock

☐ 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. All Association Assessments accrued before Closing must be paid by Seller and all Association Assessments accrued after Closing must be paid by Buyer. 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. 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 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

n/a

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 \$ 1000.00 per day (or any part of a day notwithstanding § 3.3., Day) from **Possession Date** and **Possession Time** until possession is delivered. Additionally, Buyer may pursue a claim against Seller for any of Buyer's actual additional damages incurred by Buyer in excess of such amount.

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 and Inclusions 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. 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 interpleaded 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. Any Notice to Terminate delivered after the applicable deadline specified in the Contract is ineffective and does not terminate this Contract.

24.2. Effect of Termination. In the event this Contract is terminated, all Earnest Money received hereunder must be timely returned to Buyer and the parties are then 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 **email address of recipient**.

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.**

29. BUYER'S BROKERAGE FIRM COMPENSATION. Buyer's brokerage firm's compensation will be paid, at Closing, as follows:

☐ 29.1. n/a% of the Purchase Price or \$n/a by Seller. Buyer's brokerage firm is an intended third-party beneficiary under this provision only. The amount paid by Seller under this provision is in addition to any other amounts Seller is paying on behalf of Buyer elsewhere in this Contract.

☒ 29.2. 3% of the Purchase Price or \$n/a by Buyer pursuant to a separate agreement between Buyer and Buyer's brokerage firm. This amount may be modified between Buyer and Buyer's brokerage firm outside of this Contract.

☐ 29.3. n/a% of the Purchase Price or \$n/a by a separate agreement between Buyer's brokerage firm and Seller's brokerage firm.

ADDITIONAL PROVISIONS AND ATTACHMENTS

30. ADDITIONAL PROVISIONS. (The following additional provisions have not been approved by the Colorado Real Estate Commission.)

Statements made herein have been created, reviewed, and approved by Jessica Morales, Deputy City Attorney for the City of Arvada, a Colorado licensed attorney.

RE: Section 6.4. Cost of Appraisal; Buyer and Seller have already completed their respective Appraisals.

RE: Section 8.1.2. Buyer Selects Title Insurance Company; Buyer has already completed UPDATED May 28, 2025 Certified Title Commitment for Approximately 25.251 acres.

RE: Section 8.1.4 & 8.1.5. Buyer has already completed UPDATED May 28, 2025 Certified Title Commitment for Approximately 25.251 acres, however, the Title Company may be required to provide an Updated title commitment as of the date of this mutually executed contract. In addition, the Title company may be required to provide updated title commitment throughout the contract process and up to closing.

RE: Section 9. NEW ILC, NEW SURVEY; Buyer has already completed Exhibit A - UPDATED 2/18/2025 ALTA Survey.

RE: 10.6.1.6.10. Buyer has an existing Phase I Environmental Site Assessment Report for the Property, provided by Corn & Associates Environmental, Project Number: COA-001, dated December 2, 2024, which report does not recommend a Phase II Environmental Site Assessment. Should Buyer elect to obtain further inspection reports for the Property, it shall do so at Buyer's expense.

RE: Section 13. TRANSFER OF TITLE; The Special Warranty Deed shall not include any Deed Restrictions.

30.1 - RE: Section 4.3. Earnest Money; Within 10 business days of mutual execution of the Contract, Buyer shall deposit 5% of the Purchase Price ("Earnest Money") in an account to be established by the selected title company. One-half of the Earnest Money shall be non-refundable to Buyer (but applicable to the Purchase Price) 60 (Sixty) days after mutual execution of the Contract, except in the event of a Seller default or Seller termination of the Contract pursuant to its terms before such date.

30.2 - NO INDEMNIFICATION BY ARVADA. City of Arvada is prohibited under Article XI, Section 1 of the Colorado Constitution from indemnifying anyone. Despite any provision in any contract document to the contrary, City of Arvada does not indemnify Seller or anyone else under the Agreement.

30.3 - Seller and Buyer have both been informed by Jefferson County that going through Jefferson County's subdivision process is not necessary for the purchase of this property.

because Buyer intends to annex the property into the City of Arvada. To the extent, compliance with additional Jefferson County's Planning and Zoning requirements becomes necessary, Buyer and Seller agree to work together and cooperate in good faith to achieve compliance of such requirements.

30.4 - Access to Property by Buyer, prior to closing, for Inspections: Upon mutual execution of the Contract, and prior to entering the Property, Buyer's consultants, contractors and subcontractors shall provide to Seller of a certificate of insurance evidencing insurance coverage and with Seller shown as an additional named insured, for Commercial General Liability with not less than \$1,000,000 single limit coverage. The Buyer and its consultants, engineers, architect, surveyors, general contractor and other representatives shall be permitted to enter upon the Property for the purpose of non-invasive physical inspections reasonably related to the intended the use and development of the Property. Such parties shall coordinate days and time of such access with Seller and shall make such request at least one week prior to requesting entry onto the Property. The inspections shall include, but not be limited to, tests and surveys (i.e., soil, geotechnical and environmental) reasonably necessary to determine the suitability of the Property for the intended use. Buyer recognizes that most, if not all of such inspections have already occurred. Buyer shall not perform any invasive testing without Seller's consent, which consent shall not be unreasonably withheld, conditioned, or delayed, but which may be conditioned on Buyer's execution of a license agreement prepared by Seller's counsel. Seller may continue to use the Property during the Inspection Period up to Closing. With regard to the structures, also see Exhibit A - UPDATED 2/18/2025 ALTA Survey, "Existing Structures on the Property".

30.5 - Right of First Offer: In the event Buyer desires to sell the Property, or any portion thereof, Seller shall have an ongoing right of first offer to purchase the Property from Buyer. If Seller rejects an offer from Buyer, Buyer may proceed with taking the Property to market for at least 100% of the offer at which the Property was offered to Seller and on the same terms and conditions offered to Seller. If Buyer does not consummate such a transaction within one year or Buyer looks to accept an offer for less than 100% of the offer provided to Seller, Buyer must provide Seller with the chance to re-offer on the Property prior to proceeding with such transaction. The provisions of 30.5 shall survive the Closing of this Contract and a Memorandum of Rights, consistent with the language of 30.5, shall be recorded following the Closing.

30.6 - Post -Closing Access to the Property: Buyer shall have access to the Property following Closing across Seller's remaining property over a roadway created pursuant to an existing Non-Exclusive Permanent Easement Agreement (the "Easement Area"). Buyer and Seller will enter into a separate easement agreement granting Buyer non-exclusive use of the Easement Area for Buyer's access to the Property post-Closing.

30.7 - Buyer and Seller mutually agree that the Standard Colorado Residential Addendum to the Contract to Buy and Sell Real Estate is not necessary because the Seller may decide to move the building per Section 2.5.1 Inclusions and/or Section 2.6 Exclusions. In either case, the Buyer DOES NOT intend to occupy any residences on the property and also intends to demolish any remaining structures per Section(s) 2.5.1 and 2.6.

30.8 - Use of Property by Seller Post-Closing. Seller owns several horses, currently kept on the Property, which need to be relocated. Seller requires sufficient time to find a new location to keep the horses. Until the horses are relocated, Seller requires use of the barn, tack room, horse stalls, and arena, as identified in Exhibit A - UPDATED 2/18/2025 ALTA Survey. As

such, Buyer and Seller will enter into a Post-Closing Occupancy Agreement setting forth the terms and conditions of Seller's use of the property Post-Closing for the sole purpose of maintaining the horses until they are relocated. Seller shall relocate/remove the horses from the Property no later than June 1, 2026. At a minimum, the Post-Closing Occupancy Agreement will require that Seller maintain commercial general liability insurance with limits not less than \$1,000,000.00, workman's compensation insurance, and any other insurance necessary to insure against the liability assumed by Seller, its employees, contractors, agents and assignees, and shall name Buyer as an additional insured. Seller shall indemnify Buyer against and from all claims arising out of or caused by Seller's use of the Property for the horses. Buyer will not be responsible for the horses or for maintaining the barn, tack room, horse stalls, or arena.

30.9 - RE: Section 21 LEGAL FEES, COST AND EXPENSES - Anything to the contrary herein notwithstanding, in the event of any arbitration or litigation relating to this Contract, each Party will be responsible for their own costs and expenses, including attorney fees, legal fees and expenses.

30.10 – RE: Section 10.6.1.5. Septic use permit – Buyer will allow Seller sufficient time to secure a septic use permit, but no later than 10 days prior to closing.

30.11 – RE: Section 18.1. Causes of Loss, Insurance – This section will not apply to existing buildings, structures, or the contents of those buildings and structures, as identified in Exhibit A – Updated 2/18/2025 ALTA Survey.

30.12 - RE: Section 8.5. As part of the Title Commitment, the Tax Certificate provided by First Integrity Title Company will be for the entire 276 acre Parcel - Schedule number: 300195746, however, Buyer and Seller agree that the associated Property Tax liability for this transaction and going forward shall only be for the designated 25.251 acre parcel that the Buyer is Purchasing.

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, BUYER ACKNOWLEDGES AND AGREES THAT SELLER HAS NOT MADE, DOES NOT MAKE AND SPECIFICALLY NEGATES AND DISCLAIMS ANY REPRESENTATIONS, WARRANTIES, PROMISES, COVENANTS, AGREEMENTS OR GUARANTIES OF ANY KIND OR CHARACTER WHATSOEVER, WHETHER EXPRESS OR IMPLIED, ORAL OR WRITTEN, PAST, PRESENT OR FUTURE, OF, AS TO, CONCERNING OR WITH RESPECT TO (A) THE VALUE, NATURE, QUALITY OR CONDITION OF THE PROPERTY, INCLUDING, WITHOUT LIMITATION, THE WATER, SOIL AND GEOLOGY, (B) THE INCOME TO BE DERIVED FROM THE PROPERTY, (C) THE SUITABILITY OF THE PROPERTY FOR ANY AND ALL ACTIVITIES AND USES WHICH BUYER MAY CONDUCT THEREON, (D) THE COMPLIANCE OF OR BY THE PROPERTY OR ITS OPERATION WITH ANY LAWS, RULES, ORDINANCES OR REGULATIONS OF ANY APPLICABLE GOVERNMENTAL AUTHORITY OR BODY, (E) THE HABITABILITY, MERCHANTABILITY, MARKETABILITY, PROFITABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PROPERTY, (F) THE MANNER OR QUALITY OF THE CONSTRUCTION OR MATERIALS, IF ANY, INCORPORATED INTO THE PROPERTY, (G) THE MANNER, QUALITY, STATE OF REPAIR OR LACK OF REPAIR OF THE PROPERTY, OR (H) COMPLIANCE WITH ANY ENVIRONMENTAL PROTECTION, POLLUTION OR LAND USE LAWS, RULES, REGULATIONS, ORDERS OR REQUIREMENTS, INCLUDING THE EXISTENCE IN OR ON THE PROPERTY OF HAZARDOUS MATERIALS OR (I) ANY OTHER MATTER WITH RESPECT TO THE PROPERTY; AND EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, BUYER HEREBY WAIVES ANY RIGHT TO MAKE ANY CLAIM BASED ON ANY OF THE FOREGOING,

INCLUDING, WITHOUT LIMITATION, ANY RIGHT TO MAKE ANY CLAIM AGAINST SELLER
BASED ON THE VIOLATION OF ANY ENVIRONMENTAL LAWS. ADDITIONALLY, NO PERSON
ACTING ON BEHALF OF SELLER IS AUTHORIZED TO MAKE, AND BY EXECUTION HEREOF,
BUYER ACKNOWLEDGES THAT NO PERSON HAS MADE, ANY REPRESENTATION,
AGREEMENT, STATEMENT, WARRANTY, GUARANTY OR PROMISE REGARDING THE
PROPERTY OR THE TRANSACTION CONTEMPLATED HEREIN; AND NO SUCH
REPRESENTATION, WARRANTY, AGREEMENT, GUARANTY, STATEMENT OR PROMISE IF
ANY, MADE BY ANY PERSON ACTING ON BEHALF OF SELLER SHALL BE VALID OR
BINDING UPON SELLER UNLESS EXPRESSLY SET FORTH HEREIN. BUYER FURTHER
ACKNOWLEDGES AND AGREES THAT HAVING BEEN GIVEN THE OPPORTUNITY TO
INSPECT THE PROPERTY, BUYER IS RELYING SOLELY ON ITS OWN INVESTIGATION OF
THE PROPERTY AND NOT ON ANY INFORMATION PROVIDED OR TO BE PROVIDED BY
SELLER EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, AND AGREES TO
ACCEPT THE PROPERTY AT THE CLOSING AND WAIVE ALL OBJECTIONS OR CLAIMS
AGAINST SELLER (INCLUDING, BUT NOT LIMITED TO, ANY RIGHT OR CLAIM OF
CONTRIBUTION) ARISING FROM OR RELATED TO THE PROPERTY OR TO ANY
HAZARDOUS MATERIALS ON THE PROPERTY EXCEPT AS EXPRESSLY SET FORTH IN THIS
AGREEMENT. BUYER FURTHER ACKNOWLEDGES AND AGREES THAT ANY INFORMATION
PROVIDED OR TO BE PROVIDED WITH RESPECT TO THE PROPERTY WAS OBTAINED
FROM A VARIETY OF SOURCES AND THAT SELLER HAS NOT MADE ANY INDEPENDENT
INVESTIGATION OR VERIFICATION OF SUCH INFORMATION AND MAKES NO
REPRESENTATIONS AS TO THE ACCURACY, TRUTHFULNESS OR COMPLETENESS OF
SUCH INFORMATION EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT. SELLER IS
NOT LIABLE OR BOUND IN ANY MANNER BY ANY VERBAL OR WRITTEN STATEMENT,
REPRESENTATION OR INFORMATION PERTAINING TO THE PROPERTY, OR THE
OPERATION THEREOF, FURNISHED BY ANY REAL ESTATE BROKER, CONTRACTOR,
AGENT, EMPLOYEE, SERVANT OR OTHER PERSON. EXCEPT AS EXPRESSLY SET FORTH
IN THIS AGREEMENT, BUYER FURTHER ACKNOWLEDGES AND AGREES THAT TO THE
MAXIMUM EXTENT PERMITTED BY LAW, THE SALE OF THE PROPERTY AS PROVIDED FOR
HEREIN IS MADE ON AN "AS IS" CONDITION AND BASIS WITH ALL FAULTS. IT IS
UNDERSTOOD AND AGREED THAT THE PURCHASE PRICE HAS BEEN ADJUSTED BY
PRIOR NEGOTIATION TO REFLECT THAT ALL OF THE PROPERTY IS SOLD BY SELLER AND
PURCHASED BY BUYER SUBJECT TO THE FOREGOING. THE PROVISIONS OF THIS
SUBSECTION SHALL SURVIVE THE CLOSING OR ANY TERMINATION HEREOF.

31. OTHER DOCUMENTS.

31.1. Documents Part of Contract. The following documents are a part of this Contract:
Attached Exhibit A - UPDATED 2/18/2025 ALTA Survey and Exhibit B - UPDATED May 28, 2025
Certified Title Commitment for Approximately 25.251 acres in Golden, CO.

31.2. 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: Lauren Simpson, Mayor

Date: _____
Buyer: **City of Arvada**
By: Attest/ Witness, City Clerk

Date: _____
Buyer: **City of Arvada**
By: Approved As to Form For Rachel Morris, City Attorney

[NOTE: If this offer is being countered or rejected, do not sign this document.]

Date: _____
Seller: **Keller Family Limited Partnership, LLLP**
By: Jeffrey W. Keller, Manager of Keller Farm Property, LLC, General Partner of
Keller Family Limited Partnership, LLLP

Date: _____
Seller: **Keller Family Limited Partnership, LLLP**
By: Approved As to Form By M.L. Richardson, Director of Strategy and Sustainable
Development

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 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

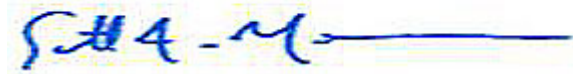
with Seller.

Brokerage Firm's compensation or commission is to be paid as specified in §29 above.

This Broker's Acknowledgments 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: **Marcum Commercial Advisors**

Brokerage Firm's License #: **100041681**



Date: **9/5/2025**

Broker's Name: **Scott A. Marcum**

Broker's License #: **100012652**

Address: **12420 W. 54th Dr., Unit 1 Arvada, CO 80002**

Phone No.: **303-403-1333**

Fax No.:

Email Address: **scott@marcumcommercial.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 Acknowledgments and Compensation Disclosure is for disclosure purposes only and does NOT create any claim for compensation. Any agreement to pay compensation must be entered into separately and apart from this provision.

Brokerage Firm's Name: **Marcum Commercial Advisors**

Brokerage Firm's License #: **100041681**

1575 Broker:

1576

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Date: **9/5/2025**

1580 Broker's License #: **100012652**

1581

1582 Address: **12420 W. 54th Dr., Unit Arvada, CO 80002**

1583 Phone No.: **303.403.1333**

1584

1585 Fax No.:

1586 Email Address: **scott@marcumcommercial.com**

1587

1588

1589 **CBS4-8-24. CONTRACT TO BUY AND SELL REAL ESTATE (LAND)**

1590

1591

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Initials _____



REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM
8.B.3.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

SUBJECT: R25-077, A Resolution Authorizing an Employment Agreement Between the City of Arvada and Aly Harmon Appointing Her as a Municipal Court Relief Judge for 2025 (Presenter: Kathryn Kurtz, Presiding Judge)

Report in Brief

PRESENTER: Presiding Municipal Court Judge Katie Kurtz

Arvada City Code Section (ACC) 58-74 provides for the City Council to appoint relief municipal court judges to substitute for the presiding judge as needed. ACC Section 58-79 further provides that relief judges will be appointed pursuant to the terms of an annual employment agreement. This resolution authorizes the appointment of Aly Harmon under the terms of the attached employment agreement.

The Arvada team recommends that the City Council approve R25-077, A Resolution for An Employment Agreement Between the City of Arvada and Aly Harmon Appointing Her as a Municipal Court Relief Judge for 2025.

Financial Impact

This resolution has no new fiscal impact. Relief judges are funded by existing municipal court accounts.

Background

Relief judges substitute for the presiding judge as necessary. Each relief judge serves under the terms of an employment agreement in accordance with ACC 58-79.

Discussion

Relief judges allow the presiding judge to attend to other duties as required, while maintaining an appropriate flow of cases through the municipal court docket.

Public Contact

Posting of the City Council agenda.

Commission Recommendation

N/A

Strategic Alignment

The City Council's appointment of relief judges aligns with the Safe Community Priority Area of the City Council Strategic Plan goals by ensuring an efficient flow of cases through the municipal court system.

Alternative Courses of Action

SUBJECT: R25-077, A Resolution Authorizing an Employment Agreement Between the City of Arvada and Aly Harmon Appointing Her as a Municipal Court Relief Judge for 2025 (Presenter: Kathryn Kurtz, Presiding Judge)

PAGE: 2
ITEM: 8.B.3.

N/A

Recommendation for Action

The Arvada team recommends that the City Council approve City Council approve R25-077, A Resolution Authorizing an Employment Agreement Between the City of Arvada and Aly Harmon Appointing Her as a Municipal Court Relief Judge for 2025.

Suggested Motion:

I move that City Council approve R25-077, A Resolution Authorizing an Employment Agreement Between the City of Arvada and Aly Harmon Appointing Her as a Municipal Court Relief Judge for 2025, be (approved) (rejected).

Prepared by:
Chris Koch, CCO Admin

Reviewed by:

Approved by:

Padraic Emerine, Assistant City Attorney I	08/27/2025
Kathryn Kurtz, Municipal Judge	08/27/2025
Rachel Morris, City Attorney	08/27/2025
Don Wick, City Manager	08/29/2025

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R25-077

A RESOLUTION AUTHORIZING AN EMPLOYMENT AGREEMENT BETWEEN THE CITY OF ARVADA AND ALY HARMON APPOINTING HER AS A MUNICIPAL COURT RELIEF JUDGE FOR 2025

WHEREAS, under Section 58-74 of the Arvada City Code, the City Council may appoint relief judges to substitute for the presiding judge; and

WHEREAS, under Section 58-79 of the Arvada City Code, each such Relief Municipal Court Judge shall be appointed by City Council pursuant to an annual employment agreement; and

WHEREAS, the City Council wishes to appoint Aly Harmon as a relief judge for the municipal court, and Aly Harmon has agreed to serve as a relief judge.

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

Section 1. The Mayor or the Mayor Pro Tem is authorized to sign and the City Clerk to attest, in form approved by the City Attorney, an Employment Agreement between the City of Arvada and Aly Harmon Appointing Her as a Municipal Court Relief Judge for 2025. The Agreement is in substantially the same form as that attached hereto.

Section 2. This resolution shall in no way restrict the authority of the City Council to terminate this employment agreement or prohibit Aly Harmon from voluntarily resigning at any time.

Section 3. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 16th day of September, 2025.

Lauren Simpson, Mayor

ATTEST:

City Clerk

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

By: _____

**AN EMPLOYMENT AGREEMENT BETWEEN THE CITY OF ARVADA AND
ALY HARMON APPOINTING HER AS A
MUNICIPAL COURT RELIEF JUDGE FOR 2025**

THIS AGREEMENT is made and entered into this ____ day of _____, 2025, between the City of Arvada, Colorado, a municipal corporation ("City"), and Aly Harmon, Colorado Attorney Registration #52016 ("Contract Employee"), both of whom understand as follows:

WHEREAS, The City has appointed Kathryn Kurtz as presiding municipal judge of the City of Arvada, as provided in Section 8.2 of the Arvada Home Rule Charter and Section 58-72 of the Arvada City Code for the City of Arvada; and

WHEREAS, under Section 58-74 of the Arvada City Code, the city council may appoint relief judges to substitute for the presiding judge from time to time; and

WHEREAS, the city council wishes to appoint Aly Harmon as a municipal court relief judge, and Aly Harmon wishes to serve in that capacity.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the parties agree as follows:

1.0 DUTIES. The city council appoints, and Contract Employee accepts appointment, as a municipal court relief judge for the City of Arvada. The city council authorizes the Contract Employee to perform and the Contract Employee agrees to perform the functions and duties specified in Section 8.2 of the Home Rule Charter of the City of Arvada; C.R.S. § 13-10-101, *et seq.*, as amended; and in Chapter 58 of the Arvada City Code, as amended, and to perform such other legal and proper duties and functions as the city council shall from time to time assign.

2.0 TERM.

2.1 The term of this Agreement shall commence upon its full execution by City and Contract Employee, and shall end when this Agreement is either not renewed by action of the City Council prior to the last calendar day of 2025, or when Contract Employee is terminated or resigns, whichever occurs first.

2.2 Nothing in this Agreement shall prevent, limit, or otherwise interfere with the right of the City Council to terminate the services of the Contract Employee at any time.

3.0 COMPENSATION. The City agrees to pay Contract Employee for services rendered as a municipal court relief judge at a rate of \$100.00 per hour worked, to be paid at the same time as are other employees of the City. Contract Employee shall be paid a minimum of two hours for presiding over any video advisement session, regardless of such session's actual duration. Contract Employee shall not receive any benefits in addition to this monetary sum.

4.0 COLORADO CODE OF JUDICIAL CONDUCT. Contract Employee shall comply with the Colorado Code of Judicial Conduct. In addition, and in order to maintain the integrity and independence of the judiciary in Arvada, Contract Employee shall refrain from engaging in any political activity except on behalf of measures to improve the law, the legal system, the administration of justice, registering to vote, or voting. All other local or municipal political activity is expressly prohibited. City council may impose discipline on Contract Employee for conduct city council deems in violation of the Code of Judicial Conduct, or otherwise as city council sees fit.

5.0 HOURS OF WORK. The hours of work are generally between 8:00 a.m. through 5:00 p.m. Monday through Friday (lunch hours excepted) on an as-needed basis, and as agreed upon by the Contract Employee and the municipal court administrator or designee thereof. Both parties acknowledge that on days with a light docket, Contract Employee may not be required to work a full day. Both parties acknowledge that occasional after hours work may be required.

6.0 EVALUATION OF JOB PERFORMANCE. The city council may evaluate Contract Employee at any time.

7.0 GENERAL PROVISIONS.

- 7.0** The parties agree, except as specifically provided herein, that Contract Employee is not an employee of the City of Arvada, and nothing herein shall be deemed to have vested such status upon Contract Employee.
- 7.1** Contract Employee is not entitled to unemployment insurance benefits unless unemployment compensation coverage is provided by Contract Employee.
- 7.2** This Agreement contains the complete understanding of the parties hereto and may not be amended, supplemented, or varied except by instrument in writing, and may not be assigned or transferred without the written consent of city council.
- 7.3** This Agreement, upon execution, shall be binding upon the parties, their heirs, successors, and assigns, as the case may be.
- 7.4** If any provision or any portion thereof, contained in this Agreement is held to be unconstitutional, invalid, or unenforceable, the remainder of this Agreement, or portion thereof, shall be deemed severable, shall not be affected, and shall remain in full force and effect.
- 7.5** Nothing herein shall be deemed a promise of continued appointment, or to have created a right in or to such future appointment.

IN WITNESS WHEREOF, the City of Arvada, Colorado, has caused this Agreement to be signed and executed on its behalf by its Mayor, and duly attested by its City Clerk, and the Contract Employee has signed and executed this Agreement as of the date set forth above.

CITY OF ARVADA, a Colorado home
rule municipal corporation

Lauren Simpson, Mayor
8101 Ralston Road
Arvada, CO 80002

ATTEST:

City Clerk

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

By: _____

CONTRACT EMPLOYEE

Aly Harmon
Attorney Registration No. 52016
8507 W. 75th Way
Arvada, CO 80005



REPORT FROM CITY COUNCIL

AGENDA ITEM
12.A.

DATE: September 16, 2025

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

Lauren Simpson	Arvada City Attorney Committee Arvada Municipal Court/Judicial Committee Arvada Urban Renewal Authority Arvada Visitors Center Committee *Metro Mayors' Caucus Urban Drainage and Flood Control District West Connect Coalition E-470 Authority (Alternate)
Randy Moorman	Arvada Audit Committee Arvada Center for the Arts and Humanities Arvada Sustainability Committee CML Policy Committee Jefferson Parkway Public Highway Authority Northwest Parkway Authority (Alternate)
Shawna Ambrose	Adams County Regional Economic Partnership (ACREP) Arvada Audit Committee Bond Oversight Committee CML Policy Committee Housing Advisory Committee Jefferson County R-1 Schools Coordinating Committee Arvada Visitors Center Committee (Alternate) Olde Town Business Improvement (BID) (Alternate)

Sharon Davis	Apex Coordinating Committee Arvada Municipal Court/Judicial Committee Denver Regional Council of Governments (DRCOG) Jefferson County Community Corrections Board Jefferson Economic Development Council (JDEC) Jeffco Transportation Action & Advisory Group (JEFFTAAG) E-470 Authority (Alternate)
Bob Fifer	Arvada City Attorney Committee Arvada Fire Protection District Coordinating Committee Arvada Transportation Committee Jefferson Parkway Public Highway Authority Smart City Advisory Committee Northwest Parkway Authority (Alternate)
John Marriott	Arvada Economic Development Association Board Bond Oversight Committee Olde Town Business Improvement (BID)
Brad Rupert	Arvada Chamber of Commerce Government Affairs Committee Arvada Fire Protection District Coordinating Committee Jefferson County R-1 Schools Coordinating Committee Smart City Advisory Committee Adams County Regional Economic Partnership (ACREP) (Alternate) Denver Regional Council of Governments (DRCOG) (Alternate) Jeffco Transportation Action & Advisory Group (JEFFTAAG) (Alternate) Jefferson County Community Corrections Board (Alternate) West Connect Coalition (Alternate)

*asterisked committees are not appointed by Council



REPORT TO CITY COUNCIL

AGENDA ITEM
13.A.

TO: THE HONORABLE CITY COUNCIL

DATE: September 16, 2025

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 Don Wick, 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	08/26/2025
Linda Haley, Deputy City Manager	08/26/2025
Don Wick, City Manager	08/26/2025

Enclosure, exhibits & attachments required to support the report

2025 CITY COUNCIL WORKSHOPS, STUDY SESSIONS, PRESENTATIONS AND RETREATS (TENTATIVE)

WORKSHOPS	Date	Lead
Certified Local Government (CLG) Discussion and Consideration (Tentative)	Sept 23	CED
Budget Workshop	Oct 14	Fin
Waste Diversion Action Plan	Oct 28	INFRA
Comp Plan Update	Dec 9	CED
Infrastructure Annual Report (Tentative)	Dec 9	INFRA
2026		
Climate Action Plan The City team and consultants will be providing an update on the draft Climate Action and Sustainability Plan. We will be seeking input from the Council on direction and priorities to include in the final plan we intend to bring forward for adoption in January.	Jan 27	INFRA
	Feb 10	
	Feb 24	
	Mar 10	
Annual Update for City Attorney's Office	Apr 14	CAO
Annual Update for Municipal Court	Apr 14	MC
End of Year City Council Strategic Plan Update	TBD	CMO
Building Code Update	TBD	CED
Sidewalk Assistance (formerly 50/50 program)	TBD	INFRA
Parks Master Plan	TBD	VCN
Storm Water (After the Election)	TBD	INFRA
ADA Transition Plan Updates	TBD	INFRA
Pavement Program	TBD	INFRA
PRESENTATIONS		
STUDY SESSIONS		
Legislative Update: Accessory Dwelling Unit (ADU)	Sept 9	CED
City Expenditures, BID and Chamber funding	TBD	Finance
Waste Diversion Plan	TBD	INFRA
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		

