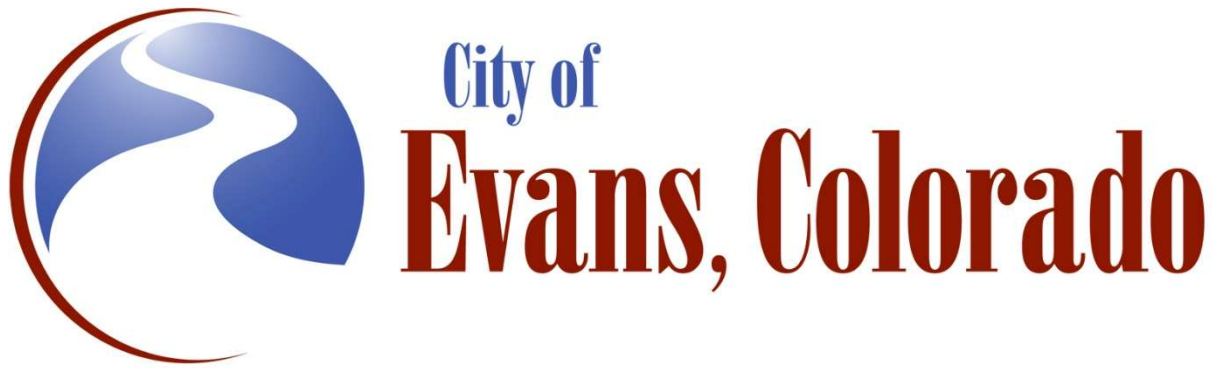




**Contract Documents and Specification for
RFP# FY25-17 49th Street Emergency Culvert Repair**

September 22, 2025

Tentative Schedule

Solicitation Advertised	September 22, 2025
Mandatory Site Visit (weather Permitting)	September 29, 2025
Questions Due	September 30, 2025
Answers Posted	October 3, 2025
Solicitation Close	October 10, 2025
Evaluations	October 17, 2025
Notice of Intent to Award	October 17, 2025
City Council Approval and Award	November 4, 2025
NTP Pre-Construction Activities	November 5, 2025
Pre-Construction Activities Begin (~4 weeks)	November 6, 2025
NTP Construction Activities	December 5, 2025
Final Completion	March 4, 2026

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1.1 REQUEST FOR PROPOSALS

The City of Evans, Colorado will receive qualifications and proposals for the following project:

49th St Emergency Culvert Repair

Project Description: A culvert on 49th St has collapsed. The City currently has 60% designs and is seeking a CONTRACTOR to provide pre-construction services, including but not limited to design/constructability review, to aid with the completion of the designs. The selected CONTRACTOR will then construct the culvert. Due to complex utilities in the area, CONTRACTOR must have experience working with various utilities including high pressure lines. Additionally, the ideal CONTRACTOR will have experience working under time constraints and during winter months.

Pre-Proposal Site Visit: A mandatory pre-proposal meeting will be held on **September 29, 2025 at 0900 hours mountain time** at **3492 49th St, Evans, CO 80620**. Please meet at the City of Evans Wastewater Treatment Facility where general project information will be given and then we will walk to the project site. This meeting is contingent on weather and may be rescheduled. Please RSVP to avowell@evanscolorado.gov to ensure proper notifications. If you do not receive confirmation of your reservation with 1 business day, please call 970-475-2240 to RSVP by phone.

Proposal Submission: Submissions will be received electronically on BidNet (<http://bidnetdirect.com>) until **1700 hours mountain time on October 10, 2025**. Registration for BidNet is free. If you have trouble registering, please reach out to BidNet's customer service. City employees do not have the ability to help troubleshoot problems.

Plans and Contract Documents: Copies of the contract documents may be obtained from the City website or BidNet.

Bid Bond: A certified check or bank draft, payable to the City of Evans, Colorado, a satisfactory Bid Bond executed by the Bidder or an acceptable surety in an amount equal to five percent (5%) of the total Bid shall be submitted with each Bid.

Questions concerning the scope of the solicitation should be emailed to Andy Vowell at: avowell@evanscolorado.gov. Vendors are strongly encouraged to get their questions addressed and answered, as well as clearly understand the City's expectations and procedures.

The City is subject to public information laws, which permit access to most records and documents. Proprietary information in your response must be clearly identified and will be protected to the extent legally permissible. Proposals may not be marked 'Proprietary' in their entirety. Information considered proprietary is limited to material treated as confidential in the normal conduct of business, trade secrets, and discount information. Summary price information may not be designated as proprietary as such information may be carried forward into other public documents. All provisions of any contract resulting from this request for proposal will be public information.

The City reserves the right to reject any or all bids, to waive any informalities in bids, and to accept

the bid that is deemed to be in the best interests of the City of Evans, Colorado.

Andy Vowell
Procurement and Contract Specialist
City of Evans
avowell@evanscolorado.gov
970-475-2240

Published on the City of Evans Website and Rocky Mountain Bid Net on **September 22, 2025**

1.2 INFORMATION FOR PROPOSERS

1.2.1 OWNER

The OWNER of this project is the City of Evans, 1100 37th Street, Evans, Colorado 80620; phone number (970) 475-1113 and fax number (970) 330-3472.

1.2.2 ENGINEER

The ENGINEER is City of Evans, 1100 37th Street, Evans, Colorado 80620. The City Engineer is **Mazedur Hossain**, phone number **(970) 702-8534**. The City of Evans Project Manager is **April Tamburelli** phone number **(970) 381-0287**. For this project, the ENGINEER has contracted with **Kimley-Horn**, to do the design of the improvements.

1.2.3 PROPOSAL SUBMITTAL

Bids will be received by the City of Evans, Colorado (herein called the "CITY"), electronically via BidNet, as noted in the Request for Proposals.

Each Proposal must contain the following to be considered complete. Incomplete proposals will be thrown out and not considered for award. Please order your submission as follows:

- Company Overview and Description (please limit to one page)
- 1.5.1 – Non-Collusion Statement
- 1.5.2 – Bid Proposal
- 1.5.3 – Bid Schedule
- 1.5.4 – Bid Bond
- Narrative description of the key steps, processes, and activities that will ensure successful project completion
 - Please address how you propose to manage:
 - Complex utilities in the project area, including high pressure lines
 - Winter work
 - Accelerated timelines
 - Risk Management
- List of anticipated key personnel that will be working on the project including but not limited to the Project Manager, Superintendent and Foreman along with their qualifications and experience
- Minimum three (3) references from similar projects that include the client's name, contact information, and a brief project overview. Municipal/government funded projects preferred.

All bids must be made on the required bid sheet. All blank spaces for bid prices must be filled in, typewritten, and the bid sheet must be fully completed and executed when submitted. Only one copy of the bid sheet is required. Since the bid schedule is based on 60% design quantities, the final contract award will include a not-to-exceed (NTE) maximum to account for design completion and associated changes. This NTE will be calculated as: $\text{Final NTE} = 60\% \text{ Bid} \times 1.15$ (representing a 15% allowance for typical cost growth from design refinements, change orders, and minor scope adjustments). Any proposed increases within this NTE must be

documented with detailed justifications, such as value engineering reports or owner-approved changes, and will not exceed the NTE maximum without mutual agreement. This structure seeks to ensure cost control while accommodating realistic project evolution.

1.2.4 INFORMALITIES

The CITY may waive any informalities, minor defects, or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. In the event of strikes, wars, acts of God or other good cause as determined by the City Manager, bid openings may be extended for a reasonable time not to exceed thirty calendar days. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the CITY and the bidder.

1.2.5 CONDITIONS OF WORK

Proposers must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule(s) by examination of the site. After proposals 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.

The CITY shall provide to any and all proposers, prior to submission, all information that is pertinent to and delineates and describes the land owned and rights-of-way acquired upon request.

The Contract Documents contain the provisions required for the construction of the project. Information otherwise obtained from an officer, agent or employee of the CITY or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve them from fulfilling any of the conditions of the contract.

1.2.6 BID SECURITY

Each bid must be accompanied by a Bid Bond payable to the City for five (5%) percent of the total amount of the proposal. As soon as the submissions have been evaluated, the CITY will return the bonds of all except the three highest scoring proposals within three days after the evaluation. When the Agreement is executed, the Bid Bonds of the two remaining unsuccessful bidders will be returned. The Bid Bond of the successful bidder will be retained until the Agreement, Payment Bond and Performance Bond have been executed and approved, after which it will be returned.

A Performance Bond and Payment Bond, each in the amount of One Hundred (100%) percent of the Contract Price, with a corporate surety approved by the CITY, will be required for the faithful performance of the contract. These will be required once the design has been finalized and stamped by the Engineer of Record and final quantities are identified.

1.2.7 POWER OF ATTORNEY

Attorneys-in-fact who sign the Bid Bonds or Payment Bonds and Performance Bonds must file with each bond a certificate and effective dated copy of their Power of Attorney.

1.2.8 Tentative Project Schedule

• Advertise Date	September 22, 2025
• Mandatory Site Visit (weather permitting)	September 29, 2025
• Questions Due	September 30, 2025
• Answers Posted	October 3, 2025
• Solicitation Closes	October 10, 2025
• Evaluations	October 17, 2025
• Notice of Intent to Award	October 17, 2025
• City Council Approval and Award	November 4, 2025
• NTP Pre-Construction Activities	November 5, 2025
• Pre-Construction Activities (~4 weeks)	November 6, 2025
• NTP Construction	December 5, 2025
• Final Completion	March 4, 2026

1.3 AWARD OF CONTRACT

The party to whom the contract is awarded will be required to execute and return the Notice of Award and the Agreement and to provide the CITY with Certificates of Insurance within ten (10) calendar days from the date the Notice of Award is delivered to the successful bidder. In case of failure of the bidder to execute the Agreement and to furnish said Certificates, 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. The CITY will be entitled to such other rights as may be granted by law.

The CITY within ten (10) days of receipt of acceptable Certificates of Insurance and Agreement signed by the party to whom the Agreement was awarded, shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the CITY not execute the Agreement within such period, the bidder may, by written notice, withdraw their signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the CITY.

There will be two Notices to Proceed: a pre-construction services Notice to Proceed, and construction Notice to Proceed, as scheduled under 1.2.8, above.

The Notice to Proceed for pre-construction services shall be issued within ten (10) days of the execution of the Agreement by the CITY or as otherwise stated in the Special Conditions. Should there be reasons 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. If the pre-construction Notice to Proceed has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

Once the design is brought up to 100% and has been stamped by the design Engineer of Record, the CONTRACTOR will have ten (10) days to furnish to the CITY an acceptable Performance Bond and Payment Bond. After acceptance of the Performance Bond and Payment Bond, the CITY will have ten (10) days to issue the Notice to Proceed for construction

activities.

The CITY may make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the CITY all such information and data for this purpose as the CITY may request. The CITY reserves the right to reject any proposal if the evidence submitted by, or investigation of, such bidder fails to satisfy the CITY that such bidder is qualified to carry out the obligations of the Agreement and to complete the work contemplated therein. The CITY reserves the right to reject any conditional or qualified bid.

The CONTRACTOR shall commence work in accordance with the dates inserted in the Notice to Proceed issued by the CITY to the CONTRACTOR and shall complete the work as specified, within the time specified in the contract. In the event no written Notice to Proceed is issued by the CITY, the contract time as specified in the contract shall be counted from the first day of actual work on the project. All work shall be prosecuted in an orderly and diligent manner. The CONTRACTOR shall cooperate with, and conform to, the request of the CITY to expedite particular portions of the work or to suspend or transfer its operations on any portion of the work where such alteration of the CONTRACTOR's operations is deemed advisable by the CITY.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout.

Each bidder is responsible for inspecting the site and informing themselves of the conditions under which the work is to be performed and for reading and being thoroughly familiar with the contract documents. The bidder's inspection shall cover the ground structure, obstacles which may be encountered, location of water tables, and other matters relevant to the work both above and below ground. Where test boring logs, indicating underground conditions, are shown on the drawings, this data is for the bidder's information and to reflect the conditions observed at the time and place of drilling. Neither the CITY nor the ENGINEER shall be held responsible for any variance or deviation from the data shown on the drawings, as encountered during actual construction. The failure or omission of any bidder to do any of the foregoing shall in no way relieve any bidder from any obligation in respect to their bid. The successful bidder will not be allowed any extra compensation in the form of contract price or time by any matter or thing on which he could have fully informed the CITY of prior to the bidding.

The awarded CONTRACTOR shall supply the names and addresses of major material suppliers and subcontractors when requested to do so by the CITY.

The OWNER reserves the right to reject any or all proposals and to pass upon the regularity or waive any irregularities of the bidders and to determine the acceptability of the surety offered.

If Bid Schedules are set forth in the Proposals, the CONTRACTORS must bid on all the Schedules.

Portions of any project may have been termed "Alternates or Contingent" and the OWNER reserves the right to include or remove any or all of these Alternates from the Contract at their sole option or discretion.

1.3.1 CONSIDERATION OF PROPOSALS

After the proposals are opened, they will be compared on qualifications of the proposer and graded on the following criteria:

- Proposed plan addresses all relevant project concerns related to utilities management, winter work, and schedule management
- Qualifications of firm and proposed personnel
- Experience working with High Pressure Utility lines
- 3 References from similar projects, preferably for a municipality or State agency
- Completeness of proposal
- Price (summation of the products of the approximate quantities shown in the bid schedule by the unit bid prices)

The results of such comparisons will be available to the public and will be posted to BidNet alongside the Notice of Intent to Award. In the event of a discrepancy between unit bid prices and extensions, the unit bid price shall govern.

It is the intent of the City to award an Agreement to the Contractor who provides the best value for the City of Evans, Colorado. The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals, if in the judgment of the awarding authority the best interests of the CITY will be promoted thereby.

The City reserves the right to conduct negotiations with Contractors and to accept revisions of Responses. During this negotiation period, the City will not disclose any information derived from Responses submitted, or from discussions with other Contractors. Once an award is made, the Solicitation file and the Responses contained therein are in the public record.

1.3.2 AWARD OF CONTRACT

The award of contract, if it is awarded, will be made within (60) calendar days after the opening of proposals to the bidder whose proposal complies with all the requirements prescribed and provides the best perceived value to the City. The successful bidder will be notified, by letter mailed to the address shown on their proposal, that their bid has been accepted and that they have been awarded the contract.

1.3.3 CANCELLATION OF AWARD

The CITY reserves the right to cancel the award of any contract at any time before the execution of said contract by all parties without any liability against the CITY.

1.3.4 EXECUTION AND APPROVAL OF CONTRACT

The Contract shall be signed by the successful bidder and returned, together with requisite attachments outlined in Section 1.5.7. All documents will be executed in triplicate and shall be submitted to the CITY within (10) calendar days after the date of award. If the signed Contract and Bond is returned by the successful bidder within (10) calendar days after award and if the Contract is not executed by the CITY within (60) days from date of award, the bidder shall have the right to withdraw its bid without penalty. No Contract shall be considered effective until it has been fully executed by all of the parties thereto.

1.3.5 FAILURE TO EXECUTE CONTRACT

Failure to execute the Contract and file acceptable bonds within (10) calendar days after the date of award shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty which shall become the property of the CITY. The CITY may elect to waive forfeiture of the proposal guaranty only if it is determined that the bidder has made a good faith remedial error and that no damages were sustained by the CITY as a result of the failure by the successful bidder to execute the contract and file acceptable bonds within the time prescribed. Award may then be made to the next lowest responsible bidder, or the work may be re-advertised and constructed under contract or otherwise, as the CITY may decide.

1.4 THE CONTRACT: FOLLOWING EXECUTION

1.4.1 MATERIALS

Unless otherwise stipulated, the CONTRACTOR shall provide and pay for all materials, labor, water, tools, equipment, light power, transportation, and other facilities necessary for the execution and completion of the work. The CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials.

1.4.2 PROGRESS SCHEDULE

The CONTRACTOR shall submit, at such times as may reasonably be requested by the ENGINEER, schedules which shall show the order in which he proposes to carry on the work, with dates at which the CONTRACTOR will start the several parts of the work and estimated dates of completion of the several parts. The Special Conditions or Drawings may require that certain phases or parts of the work be completed first or in a certain order. If the CONTRACTOR elects to use PERT or CPM charts, he shall furnish copies of them and all revisions thereto or amendments thereto as the work progresses to the ENGINEER upon request.

1.4.3 ASSIGNMENT OF CONTRACT

No assignment by the CONTRACTOR of this contract or any part thereof or of the funds to be received thereunder by the CONTRACTOR will be recognized unless such assignment has had the written approval of the CITY and the surety has been given due notice of such assignment and has furnished written consent thereto. Such written approval by the CITY shall not relieve the CONTRACTOR of the obligations incurred by them under the terms of this contract. In addition to the usual recitals in assignment contracts, the following language must be set forth:

It is agreed that the funds to be paid to the assignee under this assignment are subject to a prior lien for services rendered or materials supplied for the performance of the work called for in said contract in favor of all persons, firms, or corporations rendering such services or supplying such materials."

1.4.4 SUBLETTING OF CONTRACT

The CONTRACTOR shall as soon as practical after signing the contract, notify the ENGINEER in writing, giving the names and qualifications of all subcontractors proposed for work and shall not employ any that the ENGINEER may within a reasonable time object to. The CONTRACTOR will not be allowed to subcontract more than fifty percent (50%) of the total monetary value of the contract without prior approval of the OWNER. The CONTRACTOR shall notify the ENGINEER of each subcontract he awards, giving:

- A. Name, address, and telephone number of the subcontractor
- B. Branch of work covered
- C. Total price of subcontract
- D. Date of subcontract

Subcontractors, before commencing work, must file with the ENGINEER satisfactory certificates in duplicate showing insurance coverage. Failure of the subcontractor to provide such certificates shall not relieve the CONTRACTOR of its obligation to insure and to hold the CITY harmless. Subcontractors shall also file with the ENGINEER copies of applicable permits and licenses required to do the subcontracted work.

1.4.5 OTHER CONTRACTS

The CITY may award other contracts for additional work, and the CONTRACTOR shall fully cooperate with such other contractors and carefully fit its own work to that provided under the other contracts as may be directed by the ENGINEER. The CONTRACTOR shall not commit or permit any act that will interfere with the performance of work by any other contractor.

1.5 CONTRACT DOCUMENTS

1.5.1 NON-COLLUSION STATEMENT

_____, being first duly sworn, deposes and says that:

- (1) He is the _____ of
(owner, partner, officer, representative or agent)
_____, the
(Company's Name)
bidder that has submitted the attached bid;
- (2) He is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid;
- (3) Such bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other bidder, firm or person to submit a collusive or sham bid in connection with the contract for which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any unlawful agreement any advantage against the City of Evans or any person interested in the proposed contract; and
- (5) The price or prices quoted in the attached bid are fair and proper and are not tainted by a collusion, conspiracy, connivance, or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

Signed: _____

Title: _____

STATE OF COLORADO)
) ss.
COUNTY OF _____)

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public in and for Colorado

My Commission expires: _____

1.5.2 BID PROPOSAL

49th St. Emergency Culvert Repair

Proposal of _____ (hereinafter called bidder, doing business as * _____ organized and existing under the laws of the State of _____, to the City of Evans (hereinafter called CITY).

In compliance with your Advertisement for Bids, bidder hereby proposes to perform all work for the **49th St. Emergency Culvert Repair** in strict accordance with contract documents, within the time set forth therein, and at prices stated below.

By submission of this bid, each bidder certifies, and in cases of a joint bid, each party hereto certifies as to their own organization, that this bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid with any other bidder or with any competitor.

Bidder hereby agrees to commence work under this contract on or before a date specified in the Special Conditions. Bidder further agrees to pay liquidated damages as provided in the Special Conditions.

Bidder acknowledges receipt of the following Addendum:

Bid shall include all applicable taxes and fees.

Bidder agrees to perform all work described in the contract documents in accordance with the attached Bid Schedule.

*** Insert "a Corporation", "a Partnership", or "an Individual" as applicable.**

1.5.3 BID SCHEDULE

**This page left intentionally blank.
Please remove and insert bid schedule table page. Bid schedule Excel sheet included in
additional documents on BidNet.**

1.5.4 BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____, as Principal, and _____, as surety, are hereby held and firmly bound unto the City of Evans 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.

Signed this ____ day of _____, 20____.

The condition of the above obligations is such that whereas the Principal has submitted to the City of Evans a certain bid, attached hereto and hereby made a part hereof, to enter into a contract in writing, for the

49th St. Emergency Culvert Repair

NOW THEREFORE,

- (A) If said bid shall be rejected, or in the alternate,
- (B) If said bid shall be accepted and the Principal shall execute and deliver a contract in the form of contract attached hereto (properly) completed in accordance with said bid and shall furnish a bond for its 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,

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, 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 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 hereunder set their hands and seals, 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

By:_____

1.5.5 NOTICE OF AWARD

TO: _____

PROJECT DESCRIPTION: **49th St. Emergency Culvert Repair**

The CITY, represented by the undersigned, has considered the bid submitted by you for the above-described work in response to its Advertisement for Bids dated **September 19, 2025.**

You are hereby notified that your bid has been accepted for **49th St. Emergency Culvert Repair** in the amount of **\$XXXXXXX.**

You are required by the Information for Bidders to execute the Agreement and furnish the required Contractor's Performance Bond, Payment Bond, and Certificates of Insurance within ten (10) calendar days from the date of this Notice to you. If you fail to execute said Agreement and to furnish said bonds and certificates within ten (10) days from the date of this Notice, said CITY will be entitled to consider all your rights arising out of the CITY's acceptance of your bid as abandoned and as a forfeiture of your Bid Bond. The CITY will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the CITY.

Dated this ____ day of _____, 2025.

The City of Evans

By: _____
Mazedur Hossain, City Engineer

1.5.6 ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged on this, the _____ day of _____, 20____.

By: _____

Title: _____

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (circular 570 as amended) and be authorized to transact business in the State of Colorado.

1.5.7 AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20____, by and between the City of Evans, hereinafter called "CITY", and _____ doing business as _____ hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the phased construction of **49th St. Emergency Culvert Repair**
2. The CONTRACTOR shall furnish all material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.
3. The CONTRACTOR shall commence the work required by the Contract Documents in accordance with the date stated in the Special Conditions and shall complete the work within the time stated in the Special Conditions unless the period for completion is extended otherwise by the Contract Documents.
4. The CONTRACTOR agrees to perform all the work described in the Contract Documents and comply with the terms therein for the sum of **\$XXXXXX.00** for the **49th St. Emergency Culvert Repair.**
5. The term "Contract Documents" means and includes the following:
 - (A) Advertisement for bids
 - (B) Information for Bidders
 - (C) Non-Collusion Statement
 - (D) Bid Proposal
 - (E) Bid Schedule
 - (F) Bid Bond
 - (G) Notice of Award
 - (H) Acceptance of Notice
 - (I) Agreement
 - (J) Payment Bond
 - (K) Performance Bond
 - (L) Certificate of Incorporation
 - (M) Certificates of Insurance
 - (N) Notice to Proceed
 - (O) Special Conditions
 - (P) General Conditions
 - (Q) Technical Provisions
 - (R) Change Order
 - (S) Addendum
 - No. _____, dated _____.
 - No. _____, dated _____.
 - No. _____, dated _____.
 - (T) Notice of Contractor's Settlement
 - (U) Final Receipt and Guarantee
 - (V) Other

6. The CITY will pay the CONTRACTOR in the manner and at such time as set forth in the General Conditions, such amounts required by the Contract Documents.
7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

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

THE CITY OF EVANS

CONTRACTOR

BY: _____
Mark C. Clark, Mayor

BY: _____
NAME: _____
TITLE: _____
ADDRESS: _____

(SEAL)

ATTEST:

NAME: _____
TITLE: _____

APPROVED AS TO FORM:

Evans City Attorney

APPROVED AS TO SUBSTANCE

Evans City Manager

1.5.8 PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

Name of Contractor

Address of Contractor

a _____, hereinafter called Principal, Corporation, Partnership or Individual

Name of Surety

Address of Surety

hereinafter called Surety, are held and firmly bound unto the City of Evans, 1100 37th Street, Evans, Colorado 80620, hereinafter called CITY, in the penal sum of \$ _____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly, severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas 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 construction of:

49th St. Emergency Culvert Repair

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 two-year guarantee 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 costs 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, 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 work to be performed thereunder or the specifications accompanying the same shall in any ways affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the CITY and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed this ____ day of _____, 20____.

ATTEST:

Principal

Principal Secretary

By: _____ (S)

(SEAL)

Witness as to Principal

Address

ATTEST:

Surety Secretary

(SEAL)

Witness as to Surety

By: _____
Attorney-in-Fact

Address

Address

NOTE: Date of bond must not be prior to date of contract. If CONTRACTOR is a partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (circular 570, as amended) and be authorized to transact business in the state where the project is located.

1.5.9 PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

Name of Contractor

Address of Contractor

A _____, hereinafter called Principal, and
Corporation, Partnership or Individual

Name of Surety

Address of Surety

hereinafter called Surety, are held and firmly bound unto the City of Evans, 1100 37th Street, Evans, Colorado 80620 hereinafter called "CITY", in the penal sum of \$ _____ in lawful money of the United States, for the payment of which sum well 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 whereas, 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 construction of:

49th St. Emergency Culvert Repair

NOW, THEREFORE, if the Principal shall, during the entire length of said contract and any extension thereof, 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, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed 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 or to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the 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 _____ (number) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20____.

ATTEST:

Principal

Principal Secretary

By: _____

(SEAL)

Witness as to Principal

Address

ATTEST:

Surety Secretary

(SEAL)

Witness as to Surety

By: _____
Attorney-in-Fact

Address

Address

NOTE: Date of bond must not be prior to date of contract. If CONTRACTOR is a partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds for must appear on the Treasury Department's most current list (circular 570, as amended) and be authorized to transact business in the state where the project is located.

1.5.10 NOTICE TO PROCEED

TO: _____ DATE: XXXXX, 2025

Project: **49th St. Emergency Culvert Repair**

You are hereby notified to commence work in accordance with the Agreement dated **XXXX, 2025**, on or before **XXXXX, 2025**, and you are to complete the work within **Sixty (60)** consecutive working days thereafter. The date of completion of all work is therefore **XXXXX, 2025**.

THE CITY OF EVANS

By: _____
Mazedur Hossain, City Engineer

1.5.11 ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by:

this the _____ day of _____, 20____.

By: _____

Title: _____

1.5.12 CHANGE ORDER Form



CHANGE ORDER REQUEST FORM

Date: _____ Change Order Number: _____

Project: _____

Contractor: _____

Contractor Representative: _____

Original Contract Amount: \$ _____

Original Project Contingency: \$ _____

Current Contract Amount (incl. Change Orders): \$ _____

Project Contingency Remaining (incl. Change Orders): \$ _____

- ☐ This Change Order will have no financial impact.
- ☐ This Change Order will decrease the total project cost.
- ☐ This Change Order will increase the total project cost.
- ☐ This Change Order will require the use of project contingency.
- ☐ This Change Order will require City Council reappropriation.

Amount of this Change Order Request: \$ _____

Number of Additional Working Days Requested: _____

Justification for Change Order Request (please include any supporting documentation as an attachment to this form:

Acknowledgement

This Change Order Request Form has been established in accordance with the adopted Procurement Policy for the City of Evans. Work related to this Change Order Request shall not be completed until all required approvals have been granted and the contractor has received a written Notice to Proceed from the City.

Initiating Party, Contractor: _____

CMS, Contractor: _____

City Project Manager: _____

City Engineer: _____

Department Director: _____

City Manager: _____

City Council (if applicable): _____

1.5.13 NOTICE OF CONTRACTOR'S SETTLEMENT

This is to notify all persons interested that the City of Evans, Colorado will make final payment to **{Contractor's Name}** for work completed on **49th St. Emergency Culvert Repair.**

Said final payment will be made on **{Final Payment Date}**.

Anyone having claims in conjunction with this project may file same with the undersigned no later than **{Wednesday Before Final Payment Date}**.

CITY OF EVANS

By: _____
Mazedur Hossain, City Engineer

Dated: _____
The Greeley Tribune

1.5.14 FINAL RECEIPT AND GUARANTEE

CITY OF EVANS

Date: _____

Received this date of **{Final Payment Date}**, as full and final payment of the cost of improvements provided for in the Contract executed by **{Contractor's Name}** and Payee on or about **{Agreement Date}**, together with all amendments, change orders, and additions thereto, the sum of Dollars (\$**{Final Payment Amount}**), by check, being the remainder of the full amount accrued to the undersigned under the above-mentioned contract, including any and all extra work performed, and any and all materials and incidentals furnished by the undersigned thereunder. For this amount and the additional consideration of One Dollar (\$1.00), the undersigned hereby releases the City of Evans from any claims whatsoever resulting from said contract and all work performed thereunder.

The undersigned, by these presents, certifies that all persons doing work upon or furnishing materials for said improvements under the foregoing contract and all additions thereto have been paid in full. The undersigned further certifies that all work has been completed in a workmanlike manner in conformity with the project's plans and specifications. That should any portion of said work or material(s) prove defective within **two (2) years** from the date of initial acceptance of the entire project by the City of Evans, the undersigned shall replace any such defective material(s) and remedy any such defective work to the satisfaction of the City of Evans, and shall defend and indemnify expenses and charges of every kind which may arise as a result of any such defective material(s) and workmanship during said period.

The Performance and Maintenance Bond for this contract shall remain in effect for the two (2) year period of the guarantee.

49th St. Emergency Culvert Repair

Signature: _____

Name: _____

Title: _____

1.6 INSURANCE REQUIREMENTS

The CONTRACTOR shall secure and maintain such insurance policies as will protect themselves, their subcontractors, and the City of Evans, from claims for bodily injuries, death or property damage, which may arise from operations under this contract whether such operations be by themselves or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:

- (a) Statutory Worker's Compensation
- (b) Commercial General Liability
 - General Aggregate \$ 2,000,000
 - Products/ \$ 2,000,000
 - (Completed Operations Aggregate)
 - Each Occurrence \$ 1,000,000
 - Personal & Advertising Injury \$ 1,000,000
 - Fire Damage \$ 50,000
 - Medical Expense \$ 5,000
- (c) Automobile Liability
 - Bodily Injury and Property Damage/ \$ 1,000,000
 - (Combined Single Limit)
- (d) Builders Risk/Installation Floater Full Replacement Cost
 - Be written on a Builder's Risk "All-Risk" or on Peril
 - or Special Causes of Loss policy form that shall at
 - least include insurance for physical loss and damage
 - to the Work, temporary buildings, false work, and
 - Work in transit and shall insure against at least the
 - following perils: fire, lightning, extended coverage,
 - theft, vandalism and malicious mischief, collapse,
 - debris removal, demolition occasioned by enforcement of laws and regulations,
 - water damage.

Certificates of Insurance must show "City of Evans, its employees and agents" as an Additional Insured.

All policies shall be for not less than the amounts set forth above or as stated in the Special Conditions. Other forms of insurance shall also be provided if called for by the Special Conditions.

Certificates or copies of policy of such insurance shall be filed with the CITY and shall be subject to its approval as to adequacy of protection, within the requirements of the specifications. Said Certificates of Insurance shall contain a 30-day written notice of cancellation in favor of the CITY.

ARTICLE 2.0

GENERAL CONDITIONS

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2.1 DEFINITIONS

- (a) The Contract Documents shall consist of the Advertisement for Bids, Information for Bidders, Non-Collusion Statement, Bid Proposal, Bid Bond, Notice of Award, Agreement, Performance Bond, Payment Bond, Insurance Requirements, Notice to Proceed, Change Order, Notice of Contractor's Settlement, Final Receipt and Guarantee, Drawings, Specifications, and Special and General Conditions, including all modifications thereof incorporated in any of the documents before and after the execution of the Contract.
- (b) The CITY and the CONTRACTOR are those named as such in the Agreement. They are treated through the Contract Document as if each were of singular number and masculine gender.
- (c) Wherever in this Contract the word "ENGINEER" is used, it shall be understood as referring to the City Engineer, acting personally or through any assistants or assigns.
- (d) Any written notice served pursuant to the terms of the Agreement shall be deemed to have been duly served as if delivered in person or by registered mail to the individual, or to a partner, or to an officer of the corporation for whom it is intended, or any authorized representative thereof.
- (e) The term "subcontractor" shall mean anyone, other than the contractor, who furnished at the site, under an agreement with the CONTRACTOR, labor, or labor and materials, or labor and equipment, but shall not include any person who furnished services of a personal nature.
- (f) Work shall mean the furnishing of all labor, materials, equipment, and other incidentals necessary to the successful completion of the Contract and the carrying out of all duties and obligations imposed by the Contract.
- (g) Extra work shall mean such additional labor, materials, equipment, and other incidentals as are required to complete the Contract for the purpose for which it was intended but was shown on the Drawings or called for in the Specifications or is authorized by the CITY in addition to that work called for in the Drawings and Specifications.
- (h) Dispute shall mean lack of agreement between any parties that have any obligations, duties, or responsibilities under the terms of the Contract Drawings or Specifications.
- (i) Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project; and for all other work and operations which must be performed in order to begin work on the various items on the project site.

2.1.1 ABBREVIATIONS

Wherever the following abbreviations are used in these general conditions, supplemental condition, specifications, standard details or on the drawings, they are to be construed the same as the respective expressions represented.

AASHTO

American Association of State Highway and Transportation
Officials

AAN	American Association of Nurserymen
AB	Aggregate Base
Aban	Abandon
ABC	Aggregate base course
AC	Asphalt cement or concrete
ACB	Asphalt concrete base
ACI	American Concrete Institute
ACP	Asbestos cement pipe
ACPA	American Concrete Pipe Association
ACWS	Asphalt concrete wearing surface
AGC	Associated General Contractors of America, Inc.
Agg	Aggregate
Ahd	Ahead
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APA	American Plywood Association
Approx	Approximate
APWA	American Public Works Association
AR	Aged residue
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
Asph	Asphalt
ASTM	American Society for Testing Materials
Ave	Avenue
AWPA	American Wood Preservers Association
AWSC	American Welding Society Code
AWWA	American Water Works Association
Bbl	Barrel
BC	Beginning of curve
BCR	Beginning of curb return
Beg	Beginning
Bk	Book or Back
Blvd	Boulevard
BM	Bench Mark or Board Measure
Brg	Bearing
BST	Bituminous Surface Treatment
BTB	Bituminous Treated Base
BTU	British Thermal Units
BVC	Beginning of vertical curve
BVCE	Beginning of vertical curve elevation
BVCS	Beginning of vertical curve station
C	Centigrade or Curb
CB	Catch Basin
CBF&C	Catch basin frame & cover
CC or C/C	Center to Center
CCA	Colorado Contractor's Association, Inc.
CDOT	Colorado Department of Transportation

CE	City or County Engineer
Cem	Cement
CF	Curb face
cfs	Cubic Feet per second
CIP	Cast Iron pipe
CIPP	Cast-in-place concrete pipe
CL or C	Centerline
Cm	Centimeter
CMP	Corrugated metal pipe
CO	Clean out
Col	Column
Conc	Concrete
Const	Construct
CP	Concrete pipe(non-reinforced)
CRS	Colorado Revised Statutes
CTB	Cement Treated Base
Cu	Cubic
CY	Cubic Yards
Deg	Degree
DF	Douglas Fir
DG	Decomposed granite
Dia	Diameter
Dim	Dimension
DIP	Ductile Iron Pipe
Div	Division
Dr	Drive
DRCOG	Denver Regional Council of Governments
Drwg	Drawing
Dwy	Driveway
Ea	Each
Ease	Easement
E	East
EC	End of curve
ECR	End of curb return
El or Elv	Elevation
Equa or Eq	Equation
EVC	End of vertical curve
EVCE	End of vertical curve elevation
EVCS	End of vertical curve station
Ex or Exist	Existing
F	Fahrenheit
FB	Field Book
F & C	Frame & cover
FH	Fire hydrant
FL or F	Floor line or flow line
FIEI	Floor Elevation
Fnd	Found
fps	Feet per second

FS	Finished surface
FSS	Federal Specifications and Standards
Ft	Foot or feet
G	Gutter
Ga	Gage
Galv	Galvanized
GL	Ground line
gpm	Gallons per minute
Gr	Grade
H	High or height
HC	House connection
Hdwl	Headwall
Horiz	Horizontal
Hwy	Highway
ID	Improvement District or inside diameter
IE	Invert Elevation
IEEE	Institute of Electrical and Electronic Engineers
In	Inch
Inv	Invert
IP	Iron Pipe
IPS	Iron Pipe Size
Irrig	Irrigation
Jt	Joint
JC	Junction Chamber
Jct	Junction
JS	Junction Structure
L	Length
Lb	Pound
L&T	Lead and tack
LD	Local depression
LF	Linear Feet
LH	Lamp hole
Lin	Linear
Long	Longitudinal
Lt	Left
M	Map or maps
Max	Maximum
Meas	Measured
MH	Manhole
MHF&C	Manhole frame and cover
Min	Minutes or minimum
Misc	Miscellaneous
MLorM	Monument line
Mm	Millimeter
Mon	Monolithic or monument

MTD	Multiple tile duct
MUTCD	Manual of Uniform Traffic Control Devices
N	North
NBS	National Bureau of Standards
NCPI	National Clay Pipe Institute
NE	Northeast
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NP	Non-plastic
NPI	Non pay item
NSC	National Safety Council
NSF	National Sanitation Foundation
NW	Northwest
No	Number
OC	On center
OD	Outside diameter
Oz	Ounces
PC	Point of curvature
PCR	Point of curb return
PCC	Point of compound curve or Portland Cement Concrete
PI	Point of intersection or plastic index
PL	Property line
POC	Point of Curve
POS	Point of Spiral
PP	Power pole
ppm	Parts per million
PRC	Point of reverse curve
Prod	Proposed or property
psi	Pounds per square inch
psf	Pounds per square foot
PTorPOT	Point of Tangent
P&TP	Power and telephone pole
Pvmt	Pavement
Q	Rate of flow
R	Radius
RC	Reinforced concrete
RCP	Reinforced concrete pipe
Rd	Road
Rdwy	Roadway
Reinf	Reinforced, Reinforcing
Ret Wall	Retaining Wall
RGRCP	Rubber Gasket Reinforced Concrete Pipe
rpm	Revolutions Per Minute
Rt	Right
R/W or Row	Right-of-way

S	South or slope
SAE	Society of Automotive Engineers
San	Sanitary
SC	Spiral to Curve
SCCP	Steel cylinder concrete pipe
SD	Storm drain or Sewer District
SDDTC	Storm Drainage Design and Technical Criteria
Sdl	Saddle
Sec	Seconds
Sect	Section
SE	Southeast
SF	Square feet
Sht	Sheet
Spec	Specifications
SPR	Simplified Practice Recommendation
SpMH	Special manhole
Sq Ft Yd	Square Foot, Yard
SS	Sanitary sewer
St	Street
Sta	Station
Std	Standard
Str gr	Structural grade
Struct	Structure or structural
SW	Southwest
SY	Square Yard
T	Tangent Distance
Tel	Telephone
Temp	Temporary
TH	Test hole
TP	Telephone pole
Tr	Tract
Trans	Transition
TS	Traffic signal or Tangent to spiral
TSC	Traffic signal conduit
Typ	Typical
UD & FCD	Urban Drainage and Floor Control District
USDCM	Urban Storm Drainage Criteria Manual
UL	Underwriters Laboratories
USC&GS	United States Coast and Geodetic Survey
USGS	United States Geological Survey
V	Velocity of flow
VC	Vertical curve
VCP	Vitrified clay pipe
Vert	Vertical
W	West or width
WI	Wrought iron

WS	Wearing surface
Wt	Weight
Yd	Yard
'	feet or minutes
"	inches or seconds
o	degrees
%	percent
#	number or pound
@	at
/	per
=	equals

2.1.2 GENERAL DEFINITIONS AND TERMS

Whenever in these specifications or in other contract documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

Addendum: A Supplement to any of the Contract Documents issued, in writing, after advertisement of but prior to the opening of bids for a contract.

Advertisement: The public announcement, as required by law, inviting bids for work to be performed or materials to be furnished.

Agency: The government agency for which the construction is being done, either by permit or contract.

Agreement: The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are made a part thereof as provided therein.

Application for Payment: The form accepted by the ENGINEER which is to be used by CONTRACTOR in requesting progress or final payment and which is to include such supporting documentation as required by the Contract Documents.

Award: The formal action of the governing body in accepting a proposal.

Backfill: Material placed in an excavated space to fill such space. For trenches this space will be the area from 1 foot above the top of the pipe or conduit to the existing or proposed finished grade of pavement.

Base Course: The upper course of the granular base of a pavement or the lower course of an asphalt concrete pavement structure.

Bedding: Is the material placed in the area from the bottom of the trench to 1 foot above the top of the pipe or conduit.

Bid: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder: Any qualified individual, firm, partnership, corporation or combination thereof, acting directly or through a duly authorized representative who legally submits a proposal for the advertised work.

Bond Issue Project: A project financed from bonds issued by the CITY pledging credit or a revenue resource.

Bridge: A structure, including supports, erected over a depression or an obstruction, as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads and having a length measured along the center of roadway of more than 20 feet between undercopings of abutments or extreme ends of openings for multiple boxes.

(Length) The length of a bridge structure is the over-all length measured along the line of survey stationing back to back of backwalls of abutments, if present, otherwise end to end of the bridge floor; but in no case less than the total clear opening of the structure.

(Roadway Width) The clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs or guard timbers or in the case of multiple height of curbs, between the bottom of the lower risers.

Budget Project: A project financed by funds from General Tax levies and shared revenue funds set aside in the annual budget adopted by the Evans City Council.

Building: Any structure built for the support, shelter, or enclosure of persons, animals, chattel or movable property.

Building Code: A regulation adopted by the governing body establishing minimum standards of construction for the protection of the public health, safety, and welfare in terms of measured performance rather than in terms of rigid specifications of materials and methods.

Calendar Day: Every day shown on the calendar.

Change Order: A written order issued by the ENGINEER to the CONTRACTOR to make changes in the work or to perform extra work and setting forth conditions for payment and/or adjustment in time of completion.

City: A municipal corporation, organized and existing under and by virtue of the laws of the State of Colorado.

City Clerk: The duly authorized person who performs the duties of clerk for the Contracting Agency.

Completion Time: The number of calendar days for completion of an act, including authorized time extensions. In case a calendar date of completion is shown in the proposal in lieu of the number of calendar days, the contract shall be completed by that date. The time within which an act is to be done shall be computed by excluding the first and including the last day; and if the last day be Sunday or a legal holiday, that shall be excluded.

Conflicting Utility Line: An existing utility line, shown or not shown on the drawings, is a conflicting line when any part falls within the trench pay widths as listed or within the dimensions, as shown on the drawings, for appurtenant structures.

Construction Project: The erection, installation, remodeling, alteration, of durable facilities upon, under, or over the ground. This shall include, but is not limited to buildings, roadways and utility pipes, lines, poles or other structures.

Contingent Bid Item: This is a minor bid item which is likely, but not certain, to occur during the course of work. If the ENGINEER determines that this work is required, the CONTRACTOR will accomplish the work and payment will be made based on the contingent unit bid price included in the proposal. Since the quantity listed in the

proposal is primarily for bid comparison, the amount of work required by the ENGINEER may vary materially from this.

Contract: The written instrument executed by the CONTRACTOR and the Contracting Agency by which the CONTRACTOR is bound to furnish all labor, equipment, and materials and to perform the work specified, and by which the Contracting Agency is obligated to compensate the CONTRACTOR therefore at the prices set forth therein. The Contract Documents are herewith by reference made a part of the contract as if fully set forth therein.

Contract Documents: The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements issued on or after the Effective Date of the Agreement.

Contracting Agency: The legal entity that has contracted for the performance of the work or for whom the work is being performed.

Contractor: The individual, firm, partnership, corporation or combination thereof entering into a contract with the Contracting Agency to perform the advertised work.

Council: The City Council that by law constitutes the Legislative Department of the City organized and existing under and by virtue of the laws of the State of Colorado.

Culvert: Any structure not classified as a bridge, which provides an opening under or adjacent to the roadway.

Days: Unless otherwise designated, days will be understood to mean calendar days.

Emergency: Unforeseen occurrences and combinations of circumstances involving the public welfare or the protection of work already done under the Contract Documents, or which endanger life or property and call for immediate action or remedy.

Engineer: The person, appointed as ENGINEER by the CITY acting directly or through their duly authorized representative.

Equipment: (Construction)-All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and tools and apparatus necessary for the proper construction and acceptable completion of work.

(Installed)-All material or articles used in equipping a facility as furnishings or apparatus to fulfill a functional design.

Extra Work: An item of work not provided for in the contract as awarded but found essential to the satisfactory completion of the contract within its intended scope.

Field Order: A written set of emergency instructions to the CONTRACTOR issued only where the time required for preparation and execution of a formal Change Order would

result in a delay or a stoppage of work, or would allow a hazardous condition to exist.

Fixed Bid Quantity: A payment item to be paid at a unit price, but with a defined quantity amount in the contract. Deviation within +/- 25% to be paid per the contract amount and deviation beyond +/-25% may be re-negotiated by mutual agreement between the City and Contractor in accordance with CDOT Standard Specification (2017) Section 104.02.c.

Flooding: Flooding will consist of the inundation of the entire lift with water, puddled with poles or bars to insure saturation of the entire lift.

Foundation: For buildings or structures, this will be the substructure. For pipe this will be the native material or prepared material on which the pipe rests; normally, this is the bottom grade line of the trench.

Full Depth Pavement: An asphalt concrete pavement structure in which the granular base and sub-base are replaced by equivalent structural thickness of asphalt concrete.

General Conditions: Uniform general specifications adopted as standard specifications by the ENGINEER.

Holiday: Holidays recognized by collective bargaining agreements in the State of Colorado are:

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

Additional holidays recognizable by the State of Colorado Cities and Counties are:

- Martin Luther King's Birthday
- Presidents Day
- Columbus Day
- Veteran's Day
- General Election Day in even-numbered years

When New Year's Day, Independence Day or Christmas Day fall on Sunday, the following Monday shall be considered a holiday.

Additional legal holidays, when designated by the State Governor or President of the United States, will also be recognized by the State, City and/or County.

Improvement District Project: A project financed by assessments against the property included in a special assessment district authorized under, or implemented by, an act of the legislature of the State and/or a procedural ordinance of the City or County.

Inspector: The ENGINEER's authorized representative assigned to make detailed inspections of contract performance.

Jetting: Jetting is the densification of material, using a continuous supply of water,

under pressure, transmitted to the material through a rigid pipe of sufficient length to reach the bottom of the lift being densified. In all cases, the entire lift will be completely saturated working from the top to the bottom.

Laboratory: The established materials testing laboratory of the Contracting Agency's Engineering Department, or other laboratories acceptable to and/or authorized by the ENGINEER to test materials and work involved in the Contract.

Liquidated Damages: A daily charge made against the CONTRACTOR for each working day, including free time, that any work shall remain uncompleted after elapse of Contract time.

Major Item: Any item of work and/or materials having an original contract value that exceeds ten percent of the amount of the original contract.

Materials: Any substance specified in the project, equipment and other material used or consumed in the performance of the work.

Median: The portion of a divided highway separating the roadways used by traffic going in opposite directions.

Method of Measurement: The manner in which a "Pay Item" is measured to conform to the "Pay Unit."

Non-Pay Item: An item of work for which no separate payment will be made under the proposal, but which must be included as an incidental cost for payment on an associated pay item included in the proposal.

Notice of Award: A letter from the CITY advising the CONTRACTOR that he is the successful Bidder and the Evans City Council has accepted their proposal.

Notice to Bidders: The standard forms inviting proposals or bids.

Notice to Proceed: A directive issued by the Engineer, authorizing the CONTRACTOR to start the work or improvements required in the Contract.

Obligee: One to whom another is obligated. For bonding purposes, the OWNER is the obligee.

Open Trench: The excavated area shall be considered as open trench until all the aggregate base course for pavement replacement has been placed and compacted or, if outside of a pavement area, until the excavated area is brought to finish grade or natural grade.

Owner: City of Evans, State of Colorado, acting through its legally constituted officials, officers or employees.

Pavement: Any surface of streets, alleys, sidewalks, courts, driveways, etc., consisting of mineral aggregate bound into a rigid or semi-rigid mass by a suitable binder such as, but not limited to, Portland cement or asphalt cement.

Pavement Structure: The combination of sub-base, base course, and surface course placed on a sub-grade to support the traffic load and distribute it to the roadbed.

Pay Item: A detail of work for which individual payments are to be made under the Contract, as specified in the proposal.

Payment Bond: The security provided by the CONTRACTOR solely for the protection of claimants, supplying labor and materials to the CONTRACTOR or its Subcontractors.

Performance Bond: The security by the CONTRACTOR solely for the protection of the Contracting Agency and conditioned upon the faithful performance of the contract in accordance with the contract documents, drawings, specifications and conditions thereof.

Permit: The license to do construction in public rights-of-way and/or easements; issued by an Agency to a CONTRACTOR working for another party.

Plans: All approved drawings or reproductions thereof pertaining to the work and details therefor, which are made a part of the Project Manual and Contract Documents.

Plant: The Contractors' and/or subcontractors' facilities, including but not limited to small tools and mobile equipment, located on and/or offsite, necessary for preparation of materials and prosecution of work for the project.

Principal: The individual, firm or corporation primarily liable on an obligation, as distinguished from a surety.

Profile Grade: The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of such trace according to the context.

Project: A specific coordinated construction or similar undertaking identified by a single project number and bid and awarded as one contract. On occasion two or more projects may be bid and awarded as a single contract.

Project Manual: All the integral documents of the contract including but not limited to, Contract Documents, General Conditions, Supplemental Conditions, Specifications and drawings.

Project Supplemental Conditions: See definition for Supplemental Conditions.

Proposal: The offer of a bidder on the prescribed form, to perform the work and to furnish the labor and materials at the prices quoted.

Proposal Form: The approved form on which the Contracting Agency requires bids to be prepared and submitted for the work.

Proposal Guarantee: The security furnished with a bid to guarantee that the bidder will enter into the contract if their bid is accepted.

Proposal Pamphlet: The book or pamphlet pertaining to a specific project, containing

proposal forms, special provisions and other information necessary for and pertinent to the preparation of the proposal or bid.

Referred Documents: On all work authorized by the Contracting Agency, any referenced documents in the specification, i.e., Bulletins, Standards, Rules, Methods of Analysis or test. Codes and Specifications of other Agencies, Engineering Societies or Industrial Associations, refer to the Latest Edition thereof, including Amendments, which are in effect and published at the time of Advertising for Bids or the issuing of a permit for the work, unless otherwise stated.

Resident Project Representative: The authorized representative of ENGINEER who may be assigned to the site or any part thereof. Also called the Inspector.

Reasonably Close Conformity: Compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working tolerances are specified, reasonably close conformity means compliance with such working tolerances.

Right-of-Way: A general term denoting, land, property or interest therein, usually in a strip, acquired for or devoted to a street, highway, or other public improvement.

Road: A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

Roadside: A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

Roadside Development: Those items necessary to the complete roadway that provide for the preservation of landscape materials and features; the rehabilitation and protection against erosion of all areas disturbed by construction through seeding, sodding, mulching and the placing of other ground covers; such suitable planting and other improvements as may increase the effectiveness and enhance the appearance of the roadway.

Roadway: The portion of the right-of-way intended primarily for vehicular traffic and including all appurtenant structures and other features necessary for proper drainage and protection. Where curbs exist, it is that portion of roadway between the faces of the curbs.

Salvageable Material: Material that can be saved or salvaged. Unless designated or directed by the ENGINEER or shown on the drawings, all salvageable material shall remain the property of the CONTRACTOR.

Sewers: Conduits and related appurtenances employed to collect and carry off water and waste matter to a suitable point of final discharge.

Shop Drawings: Drawings or reproduction of drawings, detailing; fabrication and erection of structural elements, falsework and forming for structures, fabrication of reinforcing steel, installed equipment and installation of systems, or any other supplementary drawings or similar data, which the CONTRACTOR is required to submit

for approval.

Shoulder: The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

Sidewalk: That portion of the roadway primarily constructed for the use of pedestrians.

Supplemental Conditions: The special conditions, requirements, additions, and/or revisions to the General Conditions and Standard Specifications, applicable to the work, to cover conditions or requirements peculiar to the project under consideration. Supplemental Conditions fall within one of the two following categories and take precedence over the General Conditions.

(a) Project Special Conditions. Special Conditions peculiar to the project and not otherwise thoroughly nor appropriately set forth in the general conditions or standard specifications or drawings.

(b) Standard Special Conditions. Special directions or requirements not otherwise thoroughly or appropriately set forth in the standard specifications, and which are peculiar to a selected group of projects or which are intended for temporary use.

Specifications: The descriptions, directions, provisions, and requirement for performing the work as contained in the Contract Documents.

State: The State of Colorado.

Standard Details: Uniform detail drawings of structures or devices adopted as Standard Details by the ENGINEER.

Standard: Uniform general specifications adopted as Standard Specifications by the ENGINEER.

Storm Drain: Any conduit and appurtenance intended for the reception and transfer of stormwater.

Street: Streets, avenues, alleys, highways, crossings, lanes, intersections, courts, places, and grounds now open or dedicated or hereafter opened or dedicated to public use and public ways.

Structures: Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, sewers, service pipes, underdrains, foundation drains, fences, swimming pools, and other features which may be encountered in the work and not otherwise classed herein.

Sub-base: The lower course of the base of a roadway, immediately above the sub-grade.

Subcontractors: Those having direct contracts with the CONTRACTOR and those who furnish material worked into a special design according to the Drawings and

Specifications for the work, but not those who merely furnish material not so worked.

Sub-grade: The supporting structures on which the pavement and its special undercourses rest.

Substantial Completion: The work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER and OWNER as evidenced by a letter of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it was intended. The terms "substantially complete" and "substantially completed" as applied to any work refer to Substantial Completion thereof. The work must meet the following criteria for Substantial Completion to apply:

- A. At least 90% of all pay items have been completed and are eligible for payment.
- B. The facilities constructed by CONTRACTOR are ready for use.
- C. All traffic features have been completed.
- D. A list of incomplete work items has been issued by the OWNER or ENGINEER to the CONTRACTOR and the CONTRACTOR has accepted and acknowledges the list.

Substructure: All of that part of the structure or building below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames, together with the backwalls, wingwalls, and wing protection railings.

Superintendent: The Contractor's authorized representative in responsible charge of the work.

Superstructure: The entire structure or building except the substructure.

Supplemental Specifications: Additions and revisions to the Standard Specifications that are adopted subsequent to issuance of the printed Project Manual.

Surety: The individual, firm or corporation, bound with and for the CONTRACTOR for the acceptable performance, execution, and completion of the work, and for the satisfaction of all obligations incurred.

Surface Course: The finish or wearing course of an asphalt concrete pavement structure.

Title or Headings: The titles or headings or the sections and subsections herein are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.

Township, City, Town or District: A subdivision of the COUNTY used to designate or identify the location of the proposed work.

Traveled Way: The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Utility: Pipelines, conduits, ducts, transmission lines, overhead or underground wires, railroads, storm drains, sanitary sewers, irrigation facilities, street lighting traffic signals, and fire alarm systems, and appurtenances of public utilities and those of private industry, businesses or individuals solely for their own use or use of their customers which are operated or maintained in, on, under, over or across public right-of-way or public or private easement.

Waterworks (Water Supply System): The reservoirs, pipe lines, wells, pumping equipment, purification works, mains, service pipes, and all related appliances and appurtenances utilized in the procurement, transportation and delivery of an adequate, safe, and palatable water supply for the Contracting Agency.

Work: Any or all of the improvements mentioned and authorized to be made, and the construction, demolition, reconstruction, and repair of all or any portion of such improvements, and all labor, services, incidental expenses, and material necessary or incidental thereto.

Working Day: A calendar day, exclusive of Saturdays, Sundays and Contracting Agency recognized legal holidays, on which weather and other conditions not under the control of the CONTRACTOR will permit construction operations to proceed for the major part of the day with the normal working force engaged in performing the controlling item or items of work which would be in progress at that time.

2.2 GENERAL CONTRACT REQUIREMENTS

2.2.1 FAMILIARITY WITH WORK

The CITY has endeavored to ascertain all pertinent information regarding site conditions, and subsurface conditions, and has, to the best of their ability, furnished all such information to the CONTRACTOR. Such information is given, however, as being the best factual information available to the CITY, but is advisory only. The CONTRACTOR, by careful examination, shall satisfy itself as to the nature and location of the work, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters that can in any way affect the work under this Contract.

Bidder shall examine the site of the proposed work and all documents pertaining to the work. It is mutually agreed that the submission of a proposal shall be considered prima facie evidence that the bidder has made such examination and is familiar with the character, quality and quantity of the work to be performed and material to be furnished.

Logs of test hole, ground water levels, and any accompanying soil reports as furnished by the Contracting Agency are furnished for general information only. The field condition so set forth shall not constitute a representation or warranty, expressed or implied, that such conditions are existent. Bidders shall make their own investigations and form their own estimates of the site conditions. After the submission of the proposal, no complaint or claim that there was any misunderstanding as to the quantities, conditions or nature of the work will be entertained.

2.2.2 CHANGED CONDITIONS

The CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of any emergency, notify the CITY in writing of: (1) Subsurface or latent physical conditions at the site differing materially from those indicated in this Contract; or (2), previously unknown physical or other conditions at the site, of an unusual nature, not generally recognized as inherent in work of the character provided for in this Contract. The ENGINEER shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or the time required for, performance of this Contract, an equitable adjustment shall be made, and the Contract modified in writing accordingly. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless he has given notice as above required, provided that the ENGINEER may, if he determines the facts so justify, consider and adjust any such claims assessed before the date of final settlement of the Contract. If the parties fail to agree upon the adjustment to be made, the dispute shall be determined as provided in Paragraph 2.2.33 hereof.

2.2.3 ORDER OF COMPLETION

The CONTRACTOR shall submit, at such times as may reasonably be requested by the ENGINEER, schedules which shall show the order in which the CONTRACTOR proposes to carry on the work, with dates at which the CONTRACTOR will start the several parts. The special provisions or plans may require that certain phases or parts of the work be completed first or in a certain order. If the CONTRACTOR elects to use PERT or CPM charts, he shall furnish copies of them to the ENGINEER upon request.

2.2.4 DESIGN AND INSTRUCTIONS

It is agreed that the CITY will be responsible for the adequacy of design and Specifications. The CITY, through the ENGINEER, shall furnish Specifications, which adequately represent the requirements of the work to be performed under the Contract. All such instructions shall be consistent with the Contract Documents and shall be true developments thereof. Specifications that adequately represent the work to be done shall be furnished prior to the time of entering into the Contract. The ENGINEER may, during the life of the Contract, and in accordance with Paragraph 2.2.15, issue additional instructions, by means of drawings or other media, necessary to illustrate changes in the work.

2.2.5 SURVEYS

The CITY has provided a suitable number of benchmarks adjacent to the work. From the information provided by the CITY, the CONTRACTOR shall develop and make all detail surveys needed for construction, such as slope stakes, batter boards, stakes for pile locations, and other working points, lines, and elevations. The CONTRACTOR shall be responsible for any mistakes made in its detailed surveys.

The CONTRACTOR shall carefully preserve benchmarks, reference points and stakes, and in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their necessary loss or disturbance.

2.2.6 CLAIMS

If the CONTRACTOR claims that any instructions by drawings or otherwise, issued after the date of the Contract, involve extra cost under the Contract, he shall give the ENGINEER written notice thereof within ten (10) days, after the receipt of such instruction, and in any event before proceeding to execute the work, except emergency endangering life or property, and the procedure shall than be as provided for changes in the work. No such claim shall be valid unless so made.

2.2.7 EXECUTION AND CORRELATION OF DOCUMENTS

The Agreement shall be signed in duplicate by the CITY and the CONTRACTOR.

The Contract Documents are complimentary and what is called for by anyone shall be as binding as if called for by all. In case of conflict between Drawings and Specifications, the Specifications shall govern. Special Specifications shall govern over Standard Specifications. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

2.2.8 MATERIALS AND APPLIANCES

Unless otherwise stipulated, the CONTRACTOR shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of work. The CONTRACTOR shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

2.2.9 EMPLOYEES

The CONTRACTOR shall, at all times, enforce strict discipline and good order among its employees, and shall seek to avoid employing, for the Contract, any unfit person or anyone not skilled in the work assigned to them.

Adequate sanitary facilities shall be provided by the CONTRACTOR.

Employees of the CONTRACTOR and/or any subcontractor working on the project shall not be considered as employees of the City of Evans, nor shall they be entitled to any of the benefits provided to City of Evans employees.

2.2.10 ROYALTIES AND PATENTS

The CONTRACTOR shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement for any patent rights and save the CITY harmless from loss on accounts thereof, except that the CITY shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, unless the CITY has notified the CONTRACTOR prior to the signing of the Contract that the particular process, design, or product is patented or is believed to be patented.

2.2.11 PERMITS, LICENSES AND REGULATIONS

Permits and licenses of a temporary nature, necessary for the prosecution of the work, shall be secured and paid for by the CONTRACTOR. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the CITY, unless otherwise specified.

The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the CONTRACTOR observes that the Specifications are at variance therewith, he shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted in the Contract for changes in the work.

2.2.12 INSPECTION OF WORK

All materials and equipment used in the construction of the project shall be subject to adequate testing in accordance with generally accepted standards as required by the Contract Documents.

The CITY shall provide sufficient competent personnel, working under qualified supervision for the inspection of the work, while such work is in progress, to ascertain that the completed work will comply in all respects with the standards and requirements set forth in the Specifications. The inspection of the Contract will be as it relates to the compliance with the Specifications, quality of workmanship, and material. Notwithstanding such inspection, the CONTRACTOR will be held responsible for the acceptability of the work.

The ENGINEER and its representatives shall, at all times, have access to work whenever it is in preparation or progress, and the CONTRACTOR shall provide proper facilities for such access and for inspection.

If the Specifications, the ENGINEER's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the CONTRACTOR shall give the ENGINEER timely notice to its readiness for inspection, and if the inspection is by an authority other than the ENGINEER, a date shall be fixed for such an inspection. Inspections by the ENGINEER shall be promptly made, and where applicable, at the source of supply. Any work required by the ENGINEER to be uncovered for examination shall be properly restored at the CONTRACTOR's expense unless the ENGINEER has unreasonably delayed inspection.

Re-examination of any work may be ordered by the ENGINEER, and if so ordered, the work must be uncovered by the CONTRACTOR. If such work is found to be in accordance with the Contract Documents, the CITY shall pay the cost of re-examination. If such work is not in accordance with the Contract Document, the CONTRACTOR shall pay such cost.

2.2.13 SUPERINTENDENTS

The CONTRACTOR shall keep on its work at all times during its progress, competent superintendents and/or responsible assistants. The superintendent shall represent the CONTRACTOR and all directions given to them shall immediately be confirmed in writing to the CONTRACTOR. Superintendent shall be named in writing by CONTRACTOR at the beginning of the work.

2.2.14 PRECONTRACT EXAMINATION AND DISCOVERY OF DISCREPANCIES DURING WORK

Before submitting their proposal, the CONTRACTOR will examine all construction plans and the entire and complete specifications. The CONTRACTOR will become well and fully informed as to the materials and the character of the work required, the relationship of all the particular parts of the work, and he will visit and inspect the site, observing and examining the conditions existing.

After the execution of the Contract, no consideration will be granted for any misunderstanding of the materials to be furnished or the work to be done, it being mutually understood that the tender of the proposal carried with it an agreement to this end and all other conditions mentioned in the Contract and the Specifications, and implied a full and complete understanding of them and all construction plans, drawings, notes, indications, and requirements.

Should anything be omitted from the construction plans or specifications necessary to the proper completion of the work herein described, it shall be the duty of the CONTRACTOR to so notify the CITY before signing the Contract, and in the event of failure of the CONTRACTOR to give such notice, they shall make good any damage or defect in its work caused thereby without extra charge. No allowance will be made for lack of full knowledge of all conditions, except such underground conditions as are determined after commencement of the work and were unknown to the CONTRACTOR.

If the CONTRACTOR, in the course of the work, finds any discrepancy between the Specifications and the physical conditions of the locality, or any errors or omissions in the layout as given by survey points and instruction, he shall immediately inform the ENGINEER, in writing, and the ENGINEER shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the CONTRACTOR's risk, except in the event of an emergency.

2.2.15 CHANGES IN THE WORK

At any time by written order, the CITY may make changes in the Specifications or scheduling of the Contract within the general scope. All such work shall be executed under the time constraints of the original contract except that any claim for extension of time caused thereby shall be allowed and adjusted at the time of ordering such change or at such time as it can be ascertained.

In giving instruction, the ENGINEER shall have authority to make minor changes in the work not involving extra cost, and not inconsistent with the purpose of the work. Except in an emergency endangering life and property, no claim for an addition to the contract sum shall be valid unless

the additional work was so ordered by the ENGINEER.

The CONTRACTOR shall proceed with the work as changed and the value of any such work or change shall be determined as provided for in the Agreement herein.

The CITY may at any time, as the need arises, order changes within the scope of the work without invalidating the Agreement. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the work, the CONTRACTOR shall perform the same at the unit prices or lump sum indicated in the bid. Changes may occur to a maximum of twenty-five percent (25%) of the contract price. After exceeding twenty-five percent (25%), the applicable unit price or lump sum may be negotiable, and an equitable adjustment shall be authorized by change order.

2.2.16 EXTENSION OF TIME

- A. Extension of time stipulated in the Contract for completion of the work will be made when changes in the work occur, as provided in Paragraph 2.2.15; when the work is suspended as provided in Paragraph 2.2.17; and when the work of the CONTRACTOR is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the CONTRACTOR, their subcontractors or suppliers, and which were not the result of their fault or negligence.

Extension of time for completion shall also be allowed for any delays in the progress of the work that in the opinion of the ENGINEER entitles the CONTRACTOR to an extension of time.

- B. The CONTRACTOR shall notify the ENGINEER promptly of any occurrence or condition which in the CONTRACTOR's opinion entitles them to an extension of time. Such notice shall be in writing and shall be submitted in ample time to permit full investigation and evaluation of the CONTRACTOR's claim. Failure to provide such notice shall constitute a waiver by the CONTRACTOR of any claim.

2.2.17 SUSPENSION OF WORK

The CITY may at any time suspend the work, or any part thereof, by giving three (3) days' notice to the CONTRACTOR in writing.

2.2.18 THE CITY'S RIGHT TO TERMINATE CONTRACT

If the CONTRACTOR should be adjudged bankrupt, or if they should make a general assignment for the benefit of their creditors, or if a receiver should be appointed as a result of their insolvency, or if he should persistently or repeatedly refuse or should fail, except for cases in which extensions of time are provided, to supply enough properly-skilled workmen or materials, or if he should fail to make payments to subcontractors or for materials or labor so as to affect the progress of the work or persistently be guilty of a substantial violation of the Contract, then the CITY, upon written notice from the ENGINEER that sufficient cause exists to justify such action and without prejudice to any other right or remedy, and after giving the CONTRACTOR and its Surety seven (7) days' written notice, terminate the employment of the CONTRACTOR and take possession of the premises and of all materials, tools, equipment and other facilities installed on the work and paid for by the CITY, and finish the work by whatever method the ENGINEER may be deem expedient. In such case, the CONTRACTOR shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the CONTRACTOR. If such expense shall exceed such unpaid balance, the CONTRACTOR shall pay the difference to the CITY. The expense incurred by the CITY as herein provided, and the damage incurred through the CONTRACTOR's default, shall be certified by the ENGINEER.

Where the Contract has been terminated by the CITY, said termination shall not affect or terminate any of the rights of the CITY then existing or which may thereafter accrue because of such default as against the CONTRACTOR or their Surety. Any retention or payment of moneys by the CITY due to the CONTRACTOR under the terms of the Contract, shall not release the CONTRACTOR or their Surety from liability for the CONTRACTOR's default.

2.2.19 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the work should be stopped under an order of any court, or other public authority, for a period of more than three (3) months, through no act or fault of the CONTRACTOR, the CITY will pay an amount not to exceed 50% of an undisputed sum within forty-five (45) days of its maturity and presentation, then the CONTRACTOR may, upon seven (7) days' written notice to the ENGINEER, stop work or terminate this Contract and recover from the CITY payment for all work executed, plus any loss sustained upon any plant or materials, plus reasonable profit and damages.

2.2.20 CANCELLATION OF CONTRACT

Failure of the CONTRACTOR to comply with any of the requirements of the Contract and the Specifications may be considered as evidence of the inability on the part of the CONTRACTOR to maintain the quality and service standards deemed necessary and shall be sufficient cause for the cancellation of the Agreement and the initiating of legal action against the Performance Bond of the CONTRACTOR.

2.2.21 CORRECTION OF WORK BEFORE FINAL PAYMENT

The CONTRACTOR shall promptly remove from the premises all materials and work condemned by the ENGINEER as failing to meet contract requirements, whether incorporated in the work or not, and the CONTRACTOR shall promptly replace and re-execute its own work in accordance with the Contract and without expense to the CITY and shall bear the expense of making good all work of other CONTRACTORS destroyed or damaged by such removal or replacement.

All removal and replacement work shall be done at the CONTRACTOR's expense. If the CONTRACTOR does not take action to remove such condemned work and materials within ten (10) days after written notice, the CITY may remove them and store the material at the expense of the CONTRACTOR. If the CONTRACTOR does not pay the expense of such removal and storage within ten (10) days' time thereafter, the CITY may, upon ten (10) days' written notice, sell such materials at auction or at private sale and shall pay the CONTRACTOR any net proceeds thereof, after deducting all costs and expenses that should have been borne by the CONTRACTOR.

2.2.22 REMOVAL OF EQUIPMENT

In the case of termination of this Contract before completion for whatever cause, the CONTRACTOR, if notified to do so by the CITY, shall promptly remove any part or all of its equipment and supplies from the property of the CITY, failing which, the CITY shall have the right to exercise control over and to remove such equipment and supplies at the expense of, and without recourse, by the CONTRACTOR.

2.2.23 RESPONSIBILITY FOR WORK

The CONTRACTOR assumes full responsibility for the work. Until final acceptance, the CONTRACTOR shall be responsible for damage to or destruction of the work, except for any part covered by partial acceptance as set forth in Paragraph 2.2.24 and except such damage or destruction that is caused by the negligent or willful acts of the CITY.

2.2.24 PARTIAL COMPLETION AND ACCEPTANCE

If at any time prior to the issuance of the final certificate, referred to in Paragraph 2.2.34 hereinafter, any portion of the permanent construction has been satisfactorily completed to the ENGINEER's satisfaction, and if the ENGINEER determines that such portion of the permanent construction is not required for the operations of the CONTRACTOR, but is needed by the CITY, the ENGINEER shall issue to the CONTRACTOR a Certificate of Partial Completion, and thereupon or at any time thereafter, the CITY may take over and use the portion of the permanent construction described in such certificate.

The issuance of a Certificate of Partial Completion shall not be construed to constitute an extension of the CONTRACTOR's time to complete the portion of the permanent construction to which it relates, if he fails to complete it in accordance with the terms of this Contract. The issuance of such a certificate shall not operate to release the CONTRACTOR or their Sureties from any obligations under this Contract or the Performance Bond.

If such prior use increases the cost of or delays the work, the CONTRACTOR shall be entitled to extra compensation, or extension of time, or both, as the ENGINEER may determine, unless otherwise provided.

2.2.25 PAYMENT WITHHELD PRIOR TO FINAL ACCEPTANCE OF WORK

As a result of subsequently discovered evidence, the CITY may withhold or nullify the whole or part of any certificate of payment to such extent as may be necessary to protect itself from loss occasioned by:

- A. Defective work not remedied by the CONTRACTOR
- B. Claims filed or reasonable evidence indicating probable filing of claims by other parties against the CONTRACTOR for work done on the project

- C. Failure of the CONTRACTOR to make payments properly to subcontractors or for material or labor
- D. Damage by the CONTRACTOR to subcontractors or to another contractor

When the above grounds are removed, or the CONTRACTOR provides Surety Bond satisfactory to the CITY that will protect the CITY in the amount withheld, payment shall be made for amounts withheld because of them. No moneys may be withheld under (b) and (c) if a Payment Bond is included in the Contract.

2.2.26 CONTRACTOR'S INSURANCE AND INDEMNIFICATION

The CONTRACTOR shall secure and maintain such insurance policies as will protect itself, its subcontractors, and City of Evans, its employees and agents, from claims for bodily injuries, death, or property damage, which may arise from operations under this Contract, whether such operations be by itself or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required and must be evidenced by Certificates of Insurance:

- A. Statutory Workers' Compensation
- B. Commercial General Liability

General Aggregate	\$2,000,000
Products/	\$2,000,000
(Completed Operations Aggregate)	
Each Occurrence	\$1,000,000
Personal & Advertising Injury	\$1,000,000
Fire Damage	\$ 50,000
Medical Expense	\$ 5,000
- C. Automobile Liability

Bodily Injury and Property Damage	\$ 1,000,000
(Combined Single Limit)	
- D. Builders Risk/Installation Floater Full Replacement Cost

Be written on a Builder's Risk "All-Risk" or on Peril or Special Causes of Loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, false work, and Work in transit and shall insure against at least the following perils: fire, lightning, extended coverage, theft, vandalism and malicious mischief, collapse, debris removal, demolition occasioned by enforcement of laws and regulations, water damage.

Certificates of Insurance must show "City of Evans, its employees and agents" as an Additional Insured.

All policies shall be for not less than the amount set forth above or as stated in the Special Conditions. Other forms of insurance shall also be provided if called for by the Special

Conditions.

All Certificates of Insurance must be filed with the ENGINEER along with the Performance and Payment Bonds and shall be subject to their approval as to adequacy of protection, within the requirements as stated herein. Said Certificates of Insurance shall contain a thirty (30) days' written notice of cancellation in favor of the CITY.

The CITY cannot and by this Agreement does not agree to indemnify, hold harmless, exonerate or assume the defense of the CONTRACTOR or any other person or entity whatsoever, for any purpose whatsoever. To the extent allowable under C.R.S. Section 13-50.5-102(8), the CONTRACTOR shall defend, indemnify and hold harmless the CITY, its mayor and City council, officials, officers, directors, agents and employees from any and all claims, demands, suits, actions or proceedings of any kind or nature whatsoever, including worker's compensation claims, to the extent resulting from the fault of, or negligent services rendered by the CONTRACTOR, its employees, agents or subconsultants, or others for whom the CONTRACTOR is legally liable, under this Agreement; provided, however, that the CONTRACTOR need not indemnify or save harmless the CITY, its mayor and City council, its officers, agents and employees from damages resulting from the sole negligence of the City's mayor and City council, officials, officers, directors, agents and employees."

All insurance and bonding companies providing coverage or surety under this contract shall have a Best Insurance Rating of "A" or better.

2.2.27 SURETY BONDS

The CITY shall have the right, prior to the signing of the Contract, to require the CONTRACTOR to furnish Payment and Performance Bonds in such form as the CITY may prescribe in the bidding documents and executed by one or more financially responsible Sureties licensed to do business in the State of Colorado. The premiums for said Bonds shall be paid by the CONTRACTOR. Such Bonds shall cover the entire Contract amount, regardless of changes therein, shall remain in full effect for a period of one year from the date of issuance of a Certificate of Completion, and shall be filed with the ENGINEER prior to the commencement of any work on the project.

2.2.28 CONTRACTOR'S INSURANCE

The CONTRACTOR shall secure and maintain insurance to one hundred percent (100%) of the insurable value of the entire work in the Contract and any structures attached or adjacent thereto against fire, earthquake, flood, and other perils as he may deem necessary and shall name the CITY and subcontractors as Additional Insured.

All insurance and bonding companies providing coverage or surety under this contract shall have a Best Insurance rating of "A" or better.

2.2.29 ASSIGNMENT

Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other and its Surety, nor shall the CONTRACTOR assign any moneys due or to become due to them hereunder, except to a bank or financial institution acceptable to the CITY.

2.2.30 RIGHTS OF VARIOUS INTERESTS

Wherever work being done by the CITY's forces, utility companies, or by other CONTRACTOR's forces is contiguous to work covered by this Contract, the respective rights of the various interest invoiced shall be established by the ENGINEER, to secure the completion of the various portions of the work in general harmony.

- A. Before issuance of final payment, the CONTRACTOR, if required in the Special Conditions, shall certify in writing to the ENGINEER that all payrolls, material bills, and other indebtedness connected with the work, have been paid or otherwise satisfied. If the Contract does not include a payment Bond the CONTRACTOR may submit, in lieu of certification of payment, a Surety Bond in the amount of the disputed indebtedness or liens, guaranteeing payment of all such disputed amounts, including all related costs and interest in connection with said disputed indebtedness or liens, which the CITY may be compelled to pay upon adjudication.
- B. The making and acceptance of the final payment shall constitute a waiver of all claims by the CITY, other than those arising from unsettled liens, from faulty work appearing within the guarantee period, provided in the Special Conditions, from the requirements of the Drawings and Specifications, or from manufacturer's guarantees. It shall also constitute a waiver of all claims by the CONTRACTOR, except those previously made and still unsettled.
- C. If after the work has been substantially completed, full completion thereof is materially delayed through no fault of the CONTRACTOR, and the ENGINEER so certifies, the CITY shall, upon certificate of the ENGINEER, and without terminating the Contract, make payment of the balance due for that portion of the work fully and completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.
- D. If the CITY fails to make payment as herein provided, there shall be added to each payment daily interest at the rate of six percent (6%) per annum commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the CONTRACTOR.

2.2.31 ENGINEER'S STATUS

The ENGINEER shall perform technical inspection of the work. He has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract. He shall also have authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

2.2.32 ENGINEER'S DECISIONS

The ENGINEER shall, within a reasonable time after their presentation to them, make decisions in writing on all claims of the CONTRACTOR and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

2.2.33 ARBITRATION

Any controversy or claim arising out of or relating to this Contract, or the breach thereof, which cannot be resolved by mutual agreement, shall be settled by arbitration in accordance with the Rules of the American Arbitration Association, and judgment upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

2.2.34 ACCEPTANCE AND FINAL PAYMENT

Upon receipt of written notice that the work is substantially complete or ready for final inspection and acceptance, the ENGINEER will promptly make such inspection and when he finds the work acceptable under the Contract and the Contract fully performed or substantially completed, they shall promptly issue a certificate, over their own signature, stating that the work required by this Contract has been substantially completed and is accepted by them under the terms and conditions thereof, and the entire balance found to be due the CONTRACTOR, including the retained percentage, unless a retention based on the ENGINEER's estimate of the fair value of the claims against the CONTRACTOR and the cost of completing the uncompleted or unsatisfactory items of work with specified amounts for each incomplete or defective item of work, is due and payable. No final payment shall be made by the CITY unless and until the CONTRACTOR has certified in writing to the ENGINEER that all payroll, material bills, and other indebtedness connected with the work have been paid or otherwise satisfied.

The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the project to bind the subcontractors to the CONTRACTOR by the terms of the Contract Documents, and to give the CONTRACTOR the same power as regard to terminating any subcontract that the CITY may exercise over the CONTRACTOR under any provision of the Contract Documents.

Nothing contained in this Agreement shall create any contractual relationship between any subcontractor and the CITY.

Subcontracts, or transfer of Contract, shall not release the CONTRACTOR of its liability under the Contract and Bonds.

2.2.35 LIQUIDATED DAMAGES

The CONTRACTOR agrees that he can and will complete the project within the prescribed time limit as stated in Article 1.5.9 (Notice to Proceed) and within the time as may be extended. In the event the CONTRACTOR fails to complete the work within the allotted time limit, the following liquidated damages will be applied:

From More Than	Original Contract Amount to And Including	Daily Charge
\$ 0	\$ 25,000	\$ 85
25,000	50,000	140
50,000	100,000	205
100,000	500,000	280
500,000	1,000,000	420
1,000,000	2,000,000	560
2,000,000	4,000,000	840
4,000,000	8,000,000	1,120

8,000,000

10,000,000

1,400

These rates will be assessed per calendar day for each day which the CONTRACTOR fails to finish the work in excess of the time period allotted. The parties agree that the liquidated damages, as stated herein, are not a penalty and are reasonable, given the expected harm from a delay in completion, the difficulty of proving actual loss, and the inadequacy of any other remedy.

2.2.36 ADVANCE NOTICE

It shall be the responsibility of the CONTRACTOR to notify the ENGINEER or inspector sufficiently in advance of its operations to enable the ENGINEER or inspector to set the required control stakes and marks.

In order to assure proper availability of construction supervision or other personnel from the ENGINEER's staff, the following notices will be required as minimums:

- A. One (1) week notice for major additions or modifications to construction staking.
- B. Two (2) working days' notice for all staking except for emergencies.
- C. Two (2) days' written notice shall be delivered to the ENGINEER or inspector prior to any work done on Saturday, Sunday, nights, and legal holidays.

The failure of the CONTRACTOR to provide minimum notices will not be considered for time extensions or extra compensations.

2.2.37 WORK DONE WITHOUT LINES OR GRADES

Any work done without having been properly located and established as determined by the Engineer may be ordered removed and replaced at the CONTRACTOR's expense.

2.2.38 TAXES

Except as may be otherwise provided in this Contract, the contract price is to include all applicable taxes, but does not include any tax from which the CITY and the Contractor are exempt. Upon request by the CONTRACTOR, the CITY shall furnish a tax exemption certificate or similar evidence of exemption with respect to any such tax not included in the contract price, pursuant to this provision.

2.3 LEGAL RELATIONS & RESPONSIBILITIES TO PUBLIC

2.3.1 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Laws and Regulations: The CONTRACTOR shall keep itself fully informed of all city and county ordinances and regulations, and state and federal laws which in any manner affect the work herein specified. He shall, at all times, observe and comply with said ordinances, regulations, or laws, caused by the negligent actions of the CONTRACTOR, its agent, or employees.

2.3.2 PROJECT SAFETY

The CONTRACTOR is solely responsible for and shall take reasonable precautions in the performance of the work under this Contract to protect all persons from hazards to life and property. The CONTRACTOR shall comply with all health, safety and fire protection regulations and requirements.

2.3.3 PROTECTION OF THE PUBLIC AND OF WORK AND PROPERTY

The CONTRACTOR shall provide and maintain all necessary watchmen, barricades, warning lights, and signs in accordance with the Manual of Uniform Traffic Control Devices and take all reasonable precautions for the protection and safety of the public. He shall continuously maintain reasonable protection of all work from damage, and shall take all reasonable precautions to protect the CITY's property from injury or loss arising in connection with this Contract. Streets and highways shall be kept free of dirt and litter from CONTRACTOR's handling operations. The CONTRACTOR shall take reasonable precautions to protect private property adjacent to the project from such nuisances as dust and dirt, rock, and excessive noise. They shall make good any damage, injury or loss to their work and to the property owner resulting from lack of reasonable protective precautions, except such as may be due to errors in the Contract Documents or caused by agents of adjacent private and public property, as provided by law and the Contract Documents.

2.3.4 EQUAL OPPORTUNITY

During the performance of this contract, the contractor agrees as follows:

- A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
- C. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- D. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

- E. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- G. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States."

2.4 MATERIALS & WORKMANSHIP

2.4.1 GUARANTEES

The CONTRACTOR shall guarantee its work against defective materials or workmanship for a period of two (2) years from the date of initial acceptance.

Contractor warrants and guarantees to the CITY that all equipment and materials furnished under this Contract are free from all defects in workmanship and materials.

Contractor shall remove from the project area all work or materials rejected by the CITY or its inspector for failure to comply with the Contract Documents, whether incorporated in the construction or not. The CONTRACTOR shall promptly replace the materials or re-execute the work in accordance the Contract Documents and without expense to the CITY which are or become defective due to such defects within two (2) years after the date of receipt by the CITY. The CONTRACTOR shall also bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

2.4.2 WARRANTIES

The CONTRACTOR shall guarantee its work against defective materials and workmanship for a period of two (2) years from the date of initial acceptance.

2.5 MEASUREMENT & PAYMENT

2.5.1 PAYMENT

Partial payment under the Contract shall be made at the request of the CONTRACTOR once each month, based upon partial estimates to be furnished by the CONTRACTOR and approved by the CONTRACTOR once each month, based upon partial estimates to be furnished by the CONTRACTOR and approved by the ENGINEER or inspector. In making such partial payment, there shall be retained five percent (5%) of the estimated amounts until final completion and acceptance of all work covered by the Contract.

In preparing estimates for partial payments, the material delivered on the site and preparatory work done may be taken into consideration.

Payments for work under subcontracts of the CONTRACTOR shall be subject to the above conditions applying to the contract after the work under a subcontract has been fifty percent (50%) completed. In preparing estimates for partial payments, the material delivered on the site and preparatory work done may be taken into consideration.

Should the CONTRACTOR fail to proceed properly and in accordance with the Guarantee, the CITY may have such work performed at the expense of the CONTRACTOR.

2.5.2 PAY QUANTITIES

The CONTRACTOR shall be paid on a unit price basis as indicated by the proposal for the actual quantities installed.

2.6 SCOPE OF WORK

2.6.1 CHANGES IN THE WORK

At any time by written order, the CITY may make changes in the Drawings and Specifications or scheduling of the Contract within the general scope. All such work shall be executed under the time constraints of the original Contract, except that any claim for extension of time caused thereby shall be allowed and adjusted at the time of ordering such change or at such time as it can be ascertained.

- A. Unit prices previously approved,
- B. An agreed lump sum,
- C. The actual cost of labor, direct overhead, materials, supplies, equipment and other services necessary to complete the work. In addition, there shall be added on an amount to be agreed upon, but not to exceed fifteen percent (15%) of the actual cost of the work, to cover the cost of general overhead and profit.

2.6.2 SUBLETTING OF CONTRACT

The CONTRACTOR shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract, or of their rights, title, or interest therein, without written consent of the CITY. The CONTRACTOR may utilize the services of specialty subcontractors on those parts of the project which, under normal contraction practices, are performed by specialty subcontractors.

The CONTRACTOR shall not award work to subcontractors in excess of fifty percent (50%) of the contract price without prior written approval of the CITY.

The CONTRACTOR shall be as fully responsible to the CITY for the acts and omissions of their subcontractors and of persons directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by them.

2.6.3 SEPARATE CONTRACTS

The CITY reserves the right to let other contracts in connection with this project. The CONTRACTOR shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate its work with theirs. If the proper execution or results of any part of the CONTRACTOR's work depends upon the work of any other contractor, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such work that render it unsuitable for such proper execution and results.

2.6.4 SUBCONTRACTS

The CONTRACTOR shall, as soon as practicable after signing the Contract, but in any event prior to the performance of any work by any subcontractor, notify the CITY, in writing, of the names of the subcontractors proposed for the work, designating the portions of work to be performed by each.

The CONTRACTOR agrees that they are as fully responsible to the CITY for the acts and omissions of their subcontractors and of persons either directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by them.

Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the CITY.

2.6.5 UNDERGROUND OBSTRUCTIONS

The CONTRACTOR shall anticipate all underground obstructions, such as water lines, gas lines, sewer lines, concrete, debris, and all other types of utility lines. No extra payment will be allowed for the removal, protection, replacement, repair or possible increased cost caused by underground obstruction. Any such lines or obstructions indicated on the Drawings show only the approximate location from the information available and must be verified in the field by the CONTRACTOR. The ENGINEER will endeavor to familiarize the CONTRACTOR with all underground utilities and obstructions, but this will not relieve the CONTRACTOR from full responsibility for anticipating all underground obstructions.

In accordance with C.R.S. Section 9-1.5-103 (1973), the CONTRACTOR shall not make or begin excavation without first notifying the owners, operators or association of owners and operators having underground facilities in the area of such excavation. Notice may be given in person, by telephone, or in writing and shall be given at least two business days prior to beginning work.

The CONTRACTOR shall protect the existing utilities in a manner as requested by the respective utility owners at no extra compensation. The CONTRACTOR, by their signature on this proposal and subsequently on the Agreement, agrees to hold City of Evans, the agencies thereof, and their officers and employees, harmless from any and all losses, damages or claims which may arise out of, or be connected with, construction performed where said utilities are located.

Should it be necessary to relocate utilities in the area of construction, the CITY, at its own expense, will coordinate these relocations with the utility owner and the CONTRACTOR.

2.6.6 EMERGENCY WORK

In an emergency affecting the safety of life or of the work or of adjoining property, the CONTRACTOR is, without special instructions or authorization from the ENGINEER, hereby permitted to act at its discretion to prevent such threatening loss or injury. He shall also act, without appeal, if so authorized or instructed by the ENGINEER. Any compensation claimed by the CONTRACTOR as a result of emergency work, shall be determined by agreement or in accordance with Article 2.2.33.

2.6.7 CLEANING UP

The CONTRACTOR shall remove, at their own expense, from the CITY's property and from all public and private property, all temporary structures, rubbish and waste materials resulting from their operations. This requirement shall not apply to property used for permanent disposal of rubbish or waste materials in accordance with permission of such disposal granted to the CONTRACTOR by the CITY thereof where such disposal is in accordance with local ordinances and is approved by the ENGINEER.

ARTICLE 3.0
SPECIAL CONDITIONS
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3.1 GOVERNING DOCUMENTS

The governing documents for this Work are as follows:

- Contract Documents Articles 1.0 through 3.0
- Construction Drawings, “49th Street Culvert Emergency Replacement”;
- The City of Evans, “Street Specifications”, dated August 2019.
- Colorado Department of Transportation, “Standard Specifications for Road and Bridge Construction”, latest edition.
- 2009 MUTCD

In the case of conflict, documents shall have the following priorities: (1) Contract Documents Articles 1.0 through 3.0, (2) Article 4.0 – Standard Special Provisions and Project Specials, (3) Construction Drawings, (4) Colorado Department of Transportation “Standard Specifications for Road and Bridge Construction”, 2025, and (5) City of Evans “Specifications for Street Design and Construction”, August 2019.

For all traffic control situations, the “Manual on Uniform Traffic Control Devices”, Current Edition, shall be used.

3.2 DESCRIPTION OF WORK

The 49th Street Culvert Emergency Replacement project will construct a new concrete box culvert (CBC) to convey the Evans Town Ditch flows under 49th Street. The CBC is replacing a current collapsed corrugated metal pipe which has caused 49th Street to be closed for several months. Work for this project includes a concrete box culvert and wingwalls, grouted riprap, storm sewer, asphalt roadway, guardrail, and pavement markings.

3.3 GENERAL

It is the intent of these Special Conditions to require a functionally complete project (or part thereof) to be constructed in accordance, and in conjunction with, all Contract Documents as defined within Article 1.0 – Contracting Procedures and Article 2.0 – General Conditions. Any work, materials, or equipment that may be reasonably inferred, as being required to produce the intended result will be provided whether or not specifically called for. When words, which have a well-known technical or trade meaning, are used to describe work, materials, or equipment, such words shall be interpreted in accordance with that meaning.

Use of these Special Conditions in conjunction with related Contract Documents to establish the total requirements of the project. The CONTRACTOR shall obtain all required documents and have them available during the execution of work. Exceptions, additions and/or modifications to the referenced documents are noted as follows:

3.4 TECHNICAL SPECIFICATIONS

The technical specifications for the work are as referenced from the Colorado Department of Transportation “Standard Specifications for Road and Bridge Construction”, 2025, and the City of Evans “Specifications for Street Design and Construction”, August 2019. The CONTRACTOR shall obtain these documents and have them available during the execution of the work. Exceptions and/or modifications to the referenced document will be noted.

3.5 CONTRACT DRAWINGS AND VICINITY MAPS

The contract drawings for this project include vicinity maps for each location where work will be performed to complete the project.

3.6 PERMITS

Permits necessary for the prosecution of the work will be required for City projects, however, the CITY will waive the filing fee. CONTRACTOR must be a licensed contractor and have a City of Evans business license to work in the public right-of-way. All State of Colorado permits that may be required, depending on the project work being performed, are the responsibility of the CONTRACTOR. The Department of Public Works shall be notified before the planned construction is to commence and also before starting up after construction is delayed for any reason.

3.7 SALES TAX

Sales Tax shall not be paid for materials purchased for use on this project.

3.8 PROJECT TIME, SCHEDULE AND SEQUENCE

It is the intent of the CITY to award this project as soon as possible after receiving bids. The CONTRACTOR shall commence and complete work in accordance with the Agreement within Article 1.0 – Contracting Procedures.

At the pre-construction conference the CONTRACTOR shall submit and update a construction schedule which clearly outlines the work sequence. This schedule will be reviewed by the CITY, and when requested, the CONTRACTOR shall revise their work sequence to better suit job conditions. The CONTRACTOR shall comply with the requirements of Section 4 of the City of Evans “Specification for Street Design and Construction”.

It is the CONTRACTOR’s responsibility to complete this project within the prescribed time as stated in Article 1.0 – Contracting Procedures. A daily charge will be made against the Contractor for each calendar day that any work shall remain uncompleted after elapse of contract time. This daily charge will be deducted from any money due the Contractor. This deduction will not be considered as a penalty but as liquidated damages. The liquidated damages for this project will be as stated in Article 2.0 - General Conditions, Section 2.2.35.

3.9 WORKING HOURS

The CONTRACTOR shall restrict working hours to between 7:00 A.M. and 7:00 P.M. on normal City of Evans business days unless otherwise approved by the City of Evans Project Manager. No work shall be performed on arterial or collector streets before 8:30 a.m. or after 3:30 p.m., unless otherwise approved by the City of Evans Project Manager. There shall be no work allowed on Saturdays, Sundays or Holidays unless approved, in writing, by the City Project Manager.

Costs incurred by the City to inspect work performed outside of these hours will be deducted from progress payments to the Contractor. Inspector overtime costs are approximately \$45/hour.

3.10 PROJECT COORDINATION

The CONTRACTOR is responsible for contacting and coordinating with all project affected stakeholders. These affected stakeholders may include but are not limited to:

- A. Property Owners
- B. Utility Companies (listing of possible companies can be obtained from the City)
- C. Evans Police Department
- D. Evans Fire Protection District
- E. Weld County Sheriffs Department
- F. Weld County Ambulance
- G. Greeley-Evans School District 6

H. City of Greeley

The CONTRACTOR shall contact all appropriate utility companies to notify them of construction, to verify location of utilities in the construction area, and to coordinate utility company relocation, adjustment or installation work with the CONTRACTOR. The locations of utilities shown on the drawings are approximate. It is the responsibilities of the CONTRACTOR to field verify locations of utilities prior to initiating construction and to comply with the requirements of Section 4.03, Paragraphs J & K of the City of Evans "Specifications for Street Design and Construction". The City of Evans will not be responsible for any construction down time due to failure on the Contractors part to notify utility companies.

In addition, any street closures must be properly coordinated with any and all the affected stakeholders listed above. Proper traffic control measures per an approved Traffic Control Plan will be implemented – All anticipated closure times shall be approved by the CITY.

The CONTRACTOR is required to post on all properties adjacent to construction a notification pamphlet forty-eight (48) hours prior to commencement of work. The pamphlets shall only be delivered between the hours of 8:00 a.m. and 5:00 p.m. When delivering the pamphlets the Contractor shall make an effort to make personal contact with the resident or business to advise them what will be taking place on their street. If there is a delay due to weather, equipment and/or other causes, the Contractor shall post on all properties a re-notification pamphlet twenty-four (24) hours prior to commencement of work.

3.11 CONSTRUCTION SURVEY

The CONTRACTOR shall provide the construction survey staking for the project in accordance with Section 4.03, Paragraph G of the "Specifications for Street Design and Construction".

Construction survey and staking is considered incidental to the work, and no separate payment shall be made. The CONTRCATOR is encouraged to begin construction survey control setup during the constructability review phase of the project.

3.12 PROJECT WARRANTY

The CONTRACTOR shall provide a two (2) year warranty for all construction beginning on the date of initial acceptance. All work that fails or deteriorates during the first or second year shall be replaced under this warranty. There will be no additional cost to the CITY for material, equipment, labor and/or traffic control for warranty work. Warranty work shall be completed in accordance with these contract specifications within thirty (30) days of written notification by the CITY.

3.13 PRE-CONSTRUCTION MEETING

The CONTRACTOR shall attend a pre-construction meeting after award of the contract. At the pre-construction meeting, the CONTRACTOR shall submit to the CITY:

- A. Pert or Gantt Chart of Construction Schedule
- B. Materials Supplier List
- C. Subcontractors List
- D. Concrete Mix Design
- E. Traffic Control Plan (approved by the City of Evans)
- F. Certificates of Insurance

3.14 PROJECT MANAGER

The Project Manager designated at the pre-construction meeting by the Contractor will be responsible for the handling of all requests for information or complaints concerning the contract. A local telephone number will be established two weeks prior to commencement of construction. The Project Manager will respond to all requests within four hours. A log of all requests shall be kept and shall include name, telephone number, address, nature of request and response to such.

3.15 JOB FOREMAN

The Job Foreman designated at the pre-construction meeting shall be on the work site during all construction. If the Foreman is unable to be on the job site, then a designee will be assigned with the authority to make all required decisions.

3.16 MATERIALS, MANUFACTURER'S CERTIFICATES & RECOMMENDATIONS

Shop Drawings, samples and product data are required, by these specifications, on the following items before confirmation of orders:

- A. Hot Bituminous Pavement Mix Design
- B. Concrete Mix Design
- C. Reinforcing Steel (Epoxy Coated)
- D. Aggregate Base Course – Class 6
- E. Structure Backfill (Class 1)
- F. Waterproofing (Membrane)
- G. Modified Epoxy Pavement Marking

Certifications by the manufacturer that the material or equipment conforms to all applicable requirements shall be submitted. These certifications shall reference the standard specifications with which compliance is required.

3.17 LOAD RESTRICTIONS

Truck load restrictions shall comply with Section 105.13, 105.14 and 105.15 of the Colorado Department of Transportation Standard Specifications for Road and Bridge Construction, current edition.

The Contractor shall keep fully informed of and comply with all Federal, State and local laws, ordinances, and regulations and all orders and decrees of bodies of tribunal having any jurisdiction or authority, which may affect the conduct of the work.

The Contractor will supply the City Project Manager with the axle load limits for the trucks he plans to use on this project.

3.18 CONSTRUCTION WATER

Construction water shall consist of providing a water supply sufficient for the needs of the project and the hauling and applying of all water required. The CONTRACTOR SHALL NOT use water from local residences for construction purposes or to provide water to laborers.

The CONTRACTOR shall make arrangements for and provide all necessary water for his/her construction operation and domestic use at his/her own expense. The CONTRACTOR shall secure permission from the water utility and notify the ENGINEER and Fire Department/District before obtaining water from fire hydrants.

If the CONTRACTOR purchases water from a water utility at a fire hydrant on or near the project, all arrangements shall be made at his/her own expense and payment made direct to the water utility as agreed upon. The CONTRACTOR shall follow all rules and regulations of the respective district. Use only special hydrant-operating wrenches to open hydrants. Make certain that the hydrant valve is open "full" since cracking the valve causes damaged to the hydrant. If any hydrants are damaged, the CONTRACTOR will be held responsible and shall immediately notify the appropriate agencies so that all damages can be repaired as quickly as possible. Fire hydrants shall be completely accessible to the Fire Department/District at all times.

3.19 SANITATION FACILITIES

The CONTRACTOR shall meet all applicable requirements of OSHA, state and other governing agencies pertaining to sanitary facilities for workers. The CONTRACTOR shall provide chemical toilets of a suitable type and number and shall maintain the facilities in a sanitary condition at all times. The chemical toilets shall be of water-tight construction so that no contamination of the area can result from their use. Upon completion of the work, the sanitary facilities shall be removed, and the area restored to its original condition. Providing sanitary facilities is considered incidental to the work, and no separate payment shall be made.

3.20 REMOVALS

The CONTRACTOR shall be responsible for locating sites and making arrangements for disposal of all materials removed from the sites. The CONTRACTOR's handling and disposition of excavation material shall be to a disposal site designated and/or approved by the ENGINEER. This includes concrete, asphalt, unsuitable or unstable subgrade material, and any other trash, rubbish or debris generated as a result of the construction. No trash, rubbish, or debris shall be allowed on the lawns of local residences by the CONTRACTOR's work force. No separate payment will be made for disposal of excavation material generated. This disposal shall be considered incidental to the construction and all costs thereof shall be included in various unit CONTRACT prices.

3.21 EXISTING CONDITIONS

Prior to starting work on the project, the CONTRACTOR shall walk the project in the areas scheduled for work with the ENGINEER to determine the condition of fences, curbs, walls, drives, asphalt, lawns, sprinklers, and any other existing improvements (collectively surface improvements) that are to remain on both public and private property. The ENGINEER may record the existing condition of features using a video camera.

If in the opinion of the ENGINEER, there is sufficient operating space to perform the work in a reasonable manner without removing or destroying existing improvements, the CONTRACTOR shall perform the work without removing or destroying such improvements. In no event shall the CONTRACTOR remove trees, shrubs, vines, or other items without the prior approval of the ENGINEER. Intersections and driveways shall be closed for a minimum amount of time. The CONTRACTOR shall coordinate driveway closures with property owners with final approval by the City Project Manager.

The CONTRACTOR shall make every effort to prevent or limit damage to surface improvements. The CONTRACTOR is responsible for protecting or restoring all such surface facilities to their original or improved condition. Any existing improvements damaged by the CONTRACTOR shall be replaced by the CONTRACTOR at his/her own expense.

All materials shall be installed and/or applied, in kind, in accordance with applicable specifications.

3.22 SAMPLES AND TESTING

All sampling and testing required by these specifications will be completed by an independent testing laboratory, hired by the CONTRACTOR and approved by the Owner. Tests are to be performed at the discretion of the ENGINEER for this project. Items to be tested are as shown:

- A. Storm Sewer Compaction – (moisture/density curve, percent compaction, percent moisture)
- B. Structural Backfill – (moisture/density curve, percent compaction, percent moisture)
- C. Aggregate Base Course (moisture/density curve, gradation, percent compaction, percent moisture)
- D. Hot Bituminous Pavement (design check, extraction/gradation, marshall/rice, density)
- E. Concrete Sampling & Testing for Structure Concrete – (slump, air content, temperature, compressive strength, gradation)

For all testing frequencies and/or minimum sampling values see Appendix B sheet vi of the City of Evans “Specifications for Street Design and Construction”, dated August 2019.

3.23 CONTRACTORS AND SUBCONTRACTORS

All subcontractors are subject to approval by the CITY.

3.24 MINOR ITEMS OF CONSTRUCTION

Minor items of construction which do not have a bid item provided will not be paid for separately. The costs of these items shall be subsidiary with other unit prices shown on the bid schedule.

3.25 CONSTRUCTION TRAFFIC CONTROL

The CONTRACTOR shall submit a Traffic Control Plan and comply with the requirements of Section 4.03, Paragraph F of the City of Evans “Specifications for Street Design and Construction”. The CONTRACTOR shall not perform any construction work in the public right-of-way prior to receiving approval of the Traffic Control Plan from the CITY.

The approval of the Traffic Control Plan does not relieve the CONTRACTOR from responsibility to change or adjust traffic control devices if traffic or other conditions warrant. Any conditions or changes in project methods shall be submitted to the City Project Manager for review prior to making changes in the field.

The CONTRACTOR shall give proper advance notice to the CITY for approval. The portions applicable to city streets may be closed for short periods of time. The CONTRACTOR shall schedule work to minimize closures and must provide for local access. All anticipated closure times shall be approved by the CITY.

The CONTRACTOR shall appoint a Traffic Control Supervisor to this project. The Traffic Control Supervisor shall be certified as a Work Site Traffic Supervisor by the American Traffic Safety Services Association (ATSSA) or the Colorado Contractors Association (CCA).

All excavations or construction work that will be left open or exposed overnight shall be protected with nighttime barricades and signing. The entire open excavation shall be properly fenced to protect both vehicular and pedestrian traffic.

All flaggers shall be properly trained according to State and Federal guidelines. A copy of each flaggers certification card will be submitted to the City Project Manager 48 hours to commencement of project.

The CONTRACTOR shall inspect all devices and operations a minimum of every 2 hours and repair and replace damaged or missing devices immediately during work hours. Work sites shall be inspected a minimum of every 24 hours during weekends or during periods when the Contractor is not actually performing work.

All work areas including, but not limited to, open cuts, trenches, ditches, manholes, and/or other hazards shall be completely surrounded by approved fencing and other appropriate controls to protect pedestrians and persons using bicycles, wheelchairs, and other vehicles. Temporary walkways must be provided and included on traffic control plans.

The CONTRACTOR agrees to hold harmless the City staff regarding accidents or claims involving construction work and/or construction traffic control.

3.26 CLEANING DURING CONSTRUCTION

During execution of work, the CONTRACTOR shall clean the sites, adjacent properties, and public access roadways on a daily basis at a minimum or as directed by the ENGINEER and shall dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.

The CONTRACTOR shall wet down dry materials and rubbish to lay dust and prevent blowing dust.

The CONTRACTOR shall provide containers for collection and disposal of waste materials, debris, and rubbish.

The CONTRACTOR shall cover or wet loads of excavated material leaving the site to prevent blowing dust. The CONTRACTOR shall also clean the public access roadways to the site of any material falling from the haul trucks.

3.27 FINAL CLEANUP

At the completion of the work and immediately prior to an initial inspection, the CONTRACTOR shall remove from the Construction Site all temporary structures and all materials, equipment, and appurtenances not required as part of, or appurtenant to, the completed work. The CONTRACTOR shall notify the CITY when final cleanup is ready for inspection.

The CONTRACTOR shall repair, patch, and touch-up marred surfaces to specified finish to match adjacent surfaces.

The CONTRACTOR shall broom clean paved surfaces and rake clean other surfaces of ground as necessary and as directed by the ENGINEER.

3.28 SAFETY AND ACCIDENT PREVENTION

The Contractor shall take all reasonable precautions in the performance of the work under this contract to protect from all hazards to life and shall comply with all health, safety and fire protection regulations and requirements.

3.29 MEASUREMENT AND PAYMENT

All materials will be measured and paid for in accordance to the Specifications. All material shall arrive at the job site with load or batch tickets indicating time loaded or batched, material type, material quantity, and date. A copy of the tickets shall be given to the ENGINEER the day the material arrives on site. Material delivered and placed without a load ticket will not be paid. The CITY will not pay for any material if the load ticket indicates that the vehicle and its load exceeded the legal weight limit for the vehicle type.

All work performed and all materials furnished shall conform to the requirements, including tolerances, provided herein. Materials not in conformance with these specifications, but allowed to remain in place by the ENGINEER may be subject to applicable price reductions as specified in Section 105.03 of the Colorado State Department of Transportation "Standard Specifications for Road and Bridge Construction", latest edition.

The CONTRACTOR is responsible for providing a product that is in conformance with the specification provided herein. Suitability of the finished product will be determined by the ENGINEER. A finished product that is not found suitable by the ENGINEER, may be subject to:

- A. Disapproval and subsequent removal and replacement of the material/product at the CONTRACTOR's expense.
- B. A reduction in pay as outlined with formulas in the Colorado Department of Transportation "Standard Specifications for Road and Bridge Construction", current edition. The Colorado Department of Transportation Standard Specifications is strictly used for determining the actual reduction of pay for unsuitable material/product and is not used to determine suitability of a final product. The ENGINEER will determine suitability.
- C. The ENGINEER allows questionable product/material to remain in place with the CONTRACTOR providing some type of remedial action to make the product/material suitable. Type of remedial action to be determined by ENGINEER and paid for by CONTRACTOR.
- D. The addition of an extended warranty for questionable materials/products to allow further review to determine suitability and any further action by CONTRACTOR at the end of the warranty period.

The measurement and payment for this project shall be as written specifically for this project and included in this Article and Article 4.0 of the Contract Document.

The work performed under this Agreement shall be paid for on a unit price basis at the rate for the respective items on the Bid Schedule. The quantities provided on the Bid Schedule are only estimates of the actual quantities of the work to be performed, and are only included for purposes of making the award. The CITY reserves the right to alter and/or eliminate any item of work. Modifications, if any, will be made by Change Order.

Unless otherwise provided for specifically in this section, all lump sum bid items will be paid for upon completion of all work associated with the lump sum bid item.

Payment shall be made only for those items included in the PROPOSAL. All other costs incurred shall comply with the provisions of these Specifications and shall be included in the unit price bid for the associated items in the PROPOSAL. Except as may be otherwise stipulated, no material, labor, or equipment will be furnished by the CITY. The quantity of work which will be considered for payment is the actual number of units completed in accordance with all relative specifications.

1. Measurements:

- a. No measurement for payment shall be made for any of the work, materials and equipment required for mobilization. A lump sum payment will be made.

- b. The quantities of work to be paid will be measured as identified within Article 1.0 – Bid Schedule to perform work, including but not limited to, the furnishing and installation of all components and accessories, in accordance with the Contract Documents. No payment for items outside of the dimensions shown on the Drawings or field markings, unless directed and approved by the ENGINEER, will be included in the amount computed for payment.
- c. No separate measurement shall be made for fittings and accessories necessary to install bid item.
- d. No measurement for payment shall be made for removal or replacement of materials and/or existing features damaged by the CONTRACTOR in his operation.

2. Payments:

- a. Mobilization & demobilization lump sum bid prices shall include all the CONTRACTOR's cost whatsoever the nature required for mobilization of personnel, equipment, construction trailers, or supplies at the project site in preparation for work on the project, and demobilization, location and protection of utilities. This item shall also include the establishment of all necessary facilities, on-site restrooms, and all other costs incurred or labor and operations that must be performed prior to beginning the other items under Contract. Also, to be included shall be all costs whatsoever to obtain any and all required permits, taxes, licenses, fees, and bonds necessary as required by the CITY, water and sanitary districts, and other municipal governments to perform the Work. This item may also include the cost of required bonds, insurance, preparation of the Project schedule and required shop drawings, and clean-up of the site.
- b. Mobilization & demobilization payment will be made as the work progresses. Fifty percent (50%) of the lump sum bid price will be paid at the time of the first monthly progress payment. An additional thirty percent (30%) will be paid when one-half the original contract is earned separately on each of the bid schedules. The remaining twenty percent (20%) will be paid upon final acceptance of the project. The total amount for mobilization shall not exceed five percent (5%) of the total bid.
- c. Payment for the Bid Item other than mobilization & demobilization shall include full compensation for, but is not limited to, all materials, labor, supplies, transportation, disposal, equipment required to complete the work in accordance with the Contract Documents.
- d. No separate payment shall be made for fittings and accessories necessary to install bid item.
- e. CONTRACTOR will not be reimbursed for the retesting of any materials that fail, or due to inclement weather, or for any other reason. All samples required for testing will be provided by the CONTRACTOR and at no cost to the OWNER.
- f. Excess excavation shall be disposed of off-site and shall not be paid for separately.
- g. All samples required for testing will be provided by the CONTRACTOR and at no cost to the OWNER.

3.30 LOCATION OF WORK

It is the intent of the attached vicinity maps to give the general location of the work to be performed under this contract. The final designation of locations will be verified after the contract has been awarded. The City reserves the right to alter quantities (both increase and decrease) from those shown on the plan and bidder's documents. Such alterations or quantities will not change the unit price of the accepted contract, except that if quantities are increased or

decreased by more than twenty-five percent (25%) of the total contract, then a mutually agreeable adjustment may be made.

ARTICLE 4.0

PROJECT STANDARD SPECIAL PROVISIONS AND SPECIAL PROVISIONS

**CITY OF EVANS
DEPARTMENT OF PUBLIC WORKS
49TH STREET CBC
SPECIAL PROVISIONS**

The 2025 CDOT Standard Specifications for Road and Bridge Construction (CDOT Standard Specifications) shall control the construction of this project. Where applicable, the 2019 City of Evans Public Works Design and Construction Standards and Specifications shall supplement the CDOT Specifications. The following Project Special Provisions (PSPs) supplement or modify the CDOT Standard Specifications. When there is a conflict between the PSPs and the CDOT Standard Specifications and plans, the PSPs take precedence and must be followed.

PROJECT SPECIAL PROVISIONS

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Notice to Bidders	(July 11, 2025)	3
Commencement and Completion of Work	(July 11, 2025)	4
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Revision of Section 102 – Bidding Requirements and Conditions	(July 11, 2025)	6
Revision of Section 201 – Clearing and Grubbing	(July 11, 2025)	7
Revision of Section 202 – Removal of Structures and Obstructions	(July 11, 2025)	8-9
Revision of Section 203 – Excavation and Embankment	(July 11, 2025)	10-11
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Revision of Section 216 – Soil Retention Covering	(Aug 28, 2025)	18
Revision of Section 304 – Aggregate Base Course	(July 11, 2025)	19-20
Revision of Section 306 – Reconditioning	(July 11, 2025)	21
Revision of Section 403 – Hot Mix Asphalt	(July 11, 2025)	22
Revision of Section 506 – Grouted Riprap	(July 11, 2025)	23
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Revision of Section 603 – Drainage Pipes	(July 11, 2025)	28
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Revision of Section 627 – Pavement Marking	(July 11, 2025)	30
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Materials and Sample Testing	(July 11, 2025)	33
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**CITY OF EVANS
DEPARTMENT OF PUBLIC WORKS
49TH STREET CBC
STANDARD SPECIAL PROVISIONS**

	<u>Date</u>	<u>No. of Pages</u>
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Revision of Section 105 – Dispute Resolution, Dispute Review Board and Claims for Unresolved Disputes	(June 11, 2025)	24
Revision of Section 107 – Water Quality Control (Under One Acre of Disturbance)	(July 1, 2025)	9
Revision of Section 108 – Liquidated Damages	(July 1, 2025)	1
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Revision of Section 212 – Soil Amendments, Seeding, and Sodding	(July 1, 2025)	25
Revision of Section 401 – Plant Mix Pavements – General (Subsection 401.17)	(July 1, 2025)	4
Revision of Section 627 – Pavement Marking Paint	(July 1, 2025)	15
Affirmative Action Requirements Equal Employment Opportunity	(July 1, 2025)	13

NOTICE TO BIDDERS

The proposal guaranty shall be a certified check, cashier's check, or bid bond in the amount of 5 percent of the Contractor's total bid.

Pursuant to subsections 102.04 and 102.05, it is recommended that bidders on this project review the work site and plan details on their own. Prospective bidders shall attend the mandatory pre-bid conference. There will be no individual showing of the project with the authorized City of Evans representative.

Project Manager: April Tamburelli – City of Evans
3323 1st Avenue
Evans, Colorado 80620
Office Phone: 970-475-1134
Email address: atamburelli@evanscolorado.gov

Project Engineer: Amy Backel, PE – Kimley-Horn
11800 Ridge Parkway, Suite 200
Broomfield, CO 80021 Office Phone: 720-399-8180
Email address: amy.backel@kimley-horn.com

The above referenced individuals are the only representatives of the City or City's consultant with authority to provide any information, clarification or interpretation regarding the plans, specifications, and any other contract documents or requirements.

A pre-bid site walk is scheduled on the date contained in the Request for Proposals at City of Evans 3492 49th St, Evans, Colorado 80620.

All questions shall be directed to the City procurement officer no later than the date and time listed in the Request for Proposals.

COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall commence pre-construction work under the Contract on or before the date listed on the Pre-Construction Notice to Proceed, following Contract execution.

The Contractor shall complete all construction work as follows:

- All field and roadway construction work included in the plans shall be completed within 60 working days, in accordance with the Construction Notice to Proceed. A “punch list” of items to be completed as identified in a project walk-through inspection must be completed in advance and all “punch list” items shall be completed within 60 working days. By this date, the construction improvements included in the plans must be fully completed and all lanes and accesses must be open to traffic.

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.03 shall include the following:

Salient features to be shown on the Contractor's Progress Schedule are:

1. Mobilization
2. Construction Survey and Potholing
3. Clearing and Grubbing
4. Removals
5. Drainage (Storm Sewer)
6. Concrete Box Culvert (Concrete Class D (Box Culvert) and Reinforcing Steel (Epoxy Coated)
6. Earthwork
7. ABC (Class 6)
8. Hot Mix Asphalt
9. Erosion Control/Seeding/Stabilization
10. Final Striping
11. Waterproofing
12. Materials and Sample Testing
13. Permits

The Contractor's progress schedule shall be a Critical Path Method Schedule identifying all of the salient items. The Contractor shall use Microsoft Project software to develop and manage the Critical Path Method Schedule. Microsoft Project Bar Charts will not be accepted.

**REVISION OF SECTION 101
DEFINITION OF TERMS**

Section 101 of the Standard Specifications is hereby revised to include the following:

When the Standard Specifications make reference to CDOT, Department or personnel, such as Project Engineer or Engineer, this will be interpreted as referring to City of Evans or the City’s Project Manager or Project Engineer. The contractor shall direct all questions about the specifications to the City’s Project Manager or Project Engineer.

Definitions and terms of Section 1.05 of the City of Evans Design and Construction Standards and Specifications shall apply to this Project.

Technical Specifications related to construction materials and methods for the work embraced under this contract shall be the 2022 Colorado Department of Transportation Standard Specifications for Road and Bridge Construction (CDOT Specifications), or as modified by these Special Provisions. Certain terms utilized in the CDOT Specifications shall be interpreted to have different meanings within the scope of this contract. A summary of redefinitions follows:

Subsection 101.28:	“Department” shall mean the City of Evans, Colorado
Subsection 101.29	“Engineer” shall mean the City of Evans Project Engineer or designated representative
Subsection 101.39	“Laboratory” shall mean the City of Evans or its designated representative
Subsection 101.51	“Project Engineer” shall mean the City of Evans Project Engineer or their designated representative
Subsection 101.58	“Regional Transportation Director” shall mean the City of Evans Project Engineer or their designated representative
Subsection 101.76	“State” shall mean the City of Evans (where applicable)

**REVISION OF SECTION 102
BIDDING REQUIREMENTS AND CONDITIONS**

Section 102 of the Standard Specifications is hereby revised for this project as follows:

Subsection 102.02 shall include the following:

Where applicable, the City of Evans Design and Construction Standards and Specifications shall supplement the CDOT Standard and Project Specifications.

Subsection 102.05 shall include the following:

The Drawings, Specification, Cross Sections and other Contract Documents can be downloaded from the Rocky Mountain BidNet System.

After the proposals have been opened, the low responsible bidder may obtain from City of Evans, five sets of plans, specifications, and one set of computer output data.

**REVISION OF SECTION 201
CLEARING AND GRUBBING**

Section 201 of the Standard Specifications is hereby revised for this project as follows:

Delete Subsections 201.01 and 201.02 and replace with the following:

Materials and construction requirements for clearing and grubbing shall be in accordance with Section 3.03.03 of the City of Evans Design and Construction Standards and Specifications:

3.03.03 CLEARING AND GRUBBING

The natural ground surface shall be cleared of all vegetation such as trees, logs, upturned stumps, roots of downed trees, brush, grass, weeds, and all other objectionable materials within the limits of construction. All surface objects, trees, roots, and other protruding obstructions not designated to remain shall be cleared and/or grubbed, except stumps and roots and nonperishable solid objects which shall be removed a minimum of two (2) feet below subgrade or slope of embankments. In streets, stumps and root systems shall be removed to below the two (2) foot level. Except in areas to be excavated, all holes resulting from the removal of obstructions shall be backfilled with suitable material and compacted in accordance with these specifications.

Trees which are to be removed shall be removed in such a manner as not to injure standing trees, plants, and improvements which are to remain. Any object that is designated to remain and is damaged shall be repaired or replaced as directed by the City at the developer/contractor's expense. Before the start of any overlot grading, stock piling of soil, or clearing or grubbing operation, the developer/contractor shall file and obtain approval for a State of Colorado permit for Erosion and Sediment Control. Erosion control measures shall always be installed and functional prior to the start of any land disturbing activities and maintained.

METHOD OF MEASUREMENT

When the Contract contains a clearing and grubbing lump sum item, no measurement will be made.

BASIS OF PAYMENT

When the bid schedule contains a lump sum item, the lump sum price so bid will be paid and shall be full compensation for clearing and grubbing the entire project.

Payment will be made under:

Pay Item	Pay Unit
Clearing and Grubbing	Lump Sum

**REVISION OF SECTION 202
REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Delete Subsections 202.01 through 202.10 and replace with the following:

Materials and construction requirements for removal of structures and obstructions shall be in accordance with Section 3 of the City of Evans Design and Construction Standards and Specifications:

3.03.04 REMOVAL AND DISPOSAL OF MATERIALS

All materials removed shall be disposed of outside of the right-of-way. No accumulation of flammable material shall remain on or adjacent to the right-of-way. The roadway and related work areas shall be left with a neat and finished appearance. In no case shall the material removed from the right-of-way and stockpiled be left in such a manner as to pose erosion, weed, or other hazard to the public. Stockpiles shall have long sloping sides and in such a manner as to accommodate the use of mechanical mowing equipment and not in excess of four (horizontal) to one (vertical) (4:1). The developer/contractor shall make all arrangements to obtain permission from property owners for disposal or storage locations outside the limits of the project. The developer/contractor shall legally dispose of all material that is deemed unusable by the City, off the project site prior to project completion. The developer/contractor shall remove all debris from all sidewalks, curb and gutters, pans, and driveways at the construction site and dispose of the debris in an appropriate location.

3.03.05 REMOVAL OF EXISTING IMPROVEMENTS

A. BITUMINOUS PAVEMENT

Bituminous pavement shall be removed to clean, straight lines and should be perpendicular or parallel to the flow of traffic. The developer/contractor shall remove and properly dispose of pavement and road surfaces as a part of trench excavation. If the limits of the asphalt removal are within three (3) feet of the edge of pavement, the pavement shall be removed and replaced to the edge of the pavement. The width of pavement removed along the trench for the installation of pipe shall not exceed the width of the trench specified by more than one (1) foot of each side of the trench without approval of the City.

The edge of the trench should not be closer than three (3) feet to concrete structures (i.e., curb and gutter, sidewalks, driveways, inlets, etc.). The actual distance shall be dependent upon the characteristics of the soil, the type of equipment that is used for trenching, and the methods used for excavation and backfill. If, in the opinion of the City, concrete structures are endangered by undermining of the structure or settlement, the City may require that the structure be replaced, or special construction methods may be required, or the distance of the trench from the structure will be increased.

The developer/contractor shall use such methods such as cutting, drilling, or others that will ensure the breaking of pavement in a straight line. The face of the remaining pavement shall remain approximately vertical. If the edge is damaged during construction, it shall be re-cut prior to final bituminous patching. All saw-cutting shall not extend past the construction limits by more than three (3) inches and such over-cut shall be sealed in the same manner as cracks, or as directed by the City Engineer.

Removal of Pipe (72" x 42" Elliptical CMP) – Removal of pipe shall include excavation/trenching, asphalt removal, and all incidental removals to provide the excavated area as shown in the plans.

Removal of Pipe (18" CMP) – Removal of pipe shall include excavation, asphalt removal, and all incidental removals to provide the trench area as shown in the CDOT M standards.

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**REVISION OF SECTION 202
REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

Removal of Asphalt Mat (Planing)(4-Inch) and **Removal of Asphalt Mat (Planing)(2-Inch)** shall be completed in accordance with Subsection 202.09 of the Standard Specifications.

METHOD OF MEASUREMENT

Sawing concrete and asphalt pavements for removing concrete or asphalt pavements shall not be measured and paid for separately but shall be included in the unit price for the associated bid item. Unless otherwise shown on the plans, existing asphalt and concrete pavement shall be cut full depth with a pavement cutting saw or other method, as approved by the City.

Removal of asphalt mat (planing) will be measured by the area in square yards, completed to the required depth, and accepted.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Removal of Pipe (72" x 42" Elliptical CMP)	Linear Foot
Removal of Pipe (18" CMP)	Linear Foot
Removal of Asphalt Mat (Planing)(4-Inch)	Square Yard
Removal of Asphalt Mat (Planing)(2-Inch)	Square Yard

Payment will be full compensation for all work, equipment, and materials required for removals, hauling, and disposal.

**REVISION OF SECTION 203
EXCAVATION AND EMBANKMENT**

Section 203 of the Standard Specifications is hereby revised for this project as follows:

Delete subsections 203.01 through 203.12 and replace with the following:

Materials and construction requirements for excavation and embankment shall be in accordance with Section 3 of the City of Evans Design and Construction Standards and Specifications:

3.03.07 EXCAVATION

Excavation of all materials shall be performed in conformity to the lines and grades indicated on the drawings. Suitable material removed from the excavations may be used in the formation of embankments and backfilling or any other areas within the right-of-way as permitted by the City. Where material encountered within the limits of the work is considered unsuitable by the City, such material shall be excavated as directed by these standards, the plans, or the City, and replaced with suitable material.

Foundations and the pavement structure shall be placed on original, undisturbed soil or on structural backfill extended to the undisturbed soil. Foundations and the pavement structure shall not be founded on existing fill if encountered at the project site. If existing fill is encountered at the subgrade, the developer/contractor shall excavate to original undisturbed soil and bring the grade to the required elevation with approved material. Existing fill material, if encountered at the site, shall be removed. Existing fill may be stockpiled for reuse in backfills and embankments if it meets the requirements of the specifications. The developer/contractor shall remove unsuitable soil material as directed by the City. The disposal of unsuitable soil material is the responsibility of the developer/contractor.

Rock that is encountered at the site shall be excavated to a minimum depth of six (6) inches below subgrade within the limits of the roadbed. The developer/contractor shall blend the intersection of cut slopes with the slopes of adjacent natural ground surfaces in a uniform manner. The tops of cut slopes shall be flattened and rounded in accordance with the approved plans.

All excavated material shall be stockpiled in a manner that does not endanger the work or workers, and does not obstruct sidewalks, streets, alleys, or driveways. The work shall be done in a manner that will minimize interference with traffic and drainage of the street. The developer/contractor at the end of each day shall barricade all excavations and ditch lines, remove excess excavated material from travel ways, and thoroughly clean all streets, alleys, and sidewalks affected by the excavation.

Materials encountered during excavation such as trash, organic, or frozen material, and any other material which is unsatisfactory for use as backfill shall be removed from the site and appropriately disposed of at the developer/contractor's expense. Stones, concrete or asphalt chunks larger than six (6) inches, or frozen material shall be considered unsatisfactory backfill and removed by the developer/contractor, prior to project or phase completion. Frozen material, however, may be thawed out and used later.

3.03.08 EMBANKMENT

This work shall consist of the construction of embankments by depositing, placing, and compacting material of acceptable quality and structural value above the natural ground or other surface in conformance with the lines, grades, and cross-sections shown on the drawings or as established. Before any embankment is placed, clearing, tree removal, sod and topsoil removal over the entire area shall be performed in accordance with these specifications.

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**REVISION OF SECTION 203
EXCAVATION AND EMBANKMENT**

When an embankment is to be placed on slopes, it shall be continuously benched in horizontal layers to key into the existing slope. Each layer of the embankment material shall not exceed eight (8) inches in loose depth. The developer/contractor shall thoroughly mix and ensure uniform density and moisture for proper compaction.

Whenever material is encountered that is wet or otherwise unstable and is incapable of supporting structures or the roadbed, the material shall be over-excavated to a depth suitable for construction of a stable subgrade. The developer/contractor shall backfill over-excavated areas with a stabilization material approved by the City. An approved geotextile fabric shall be used where required by the City around the stabilization material and on the subgrade to stabilize the subgrade and prevent fines from migrating into the stabilization material.

Cut areas shall be thoroughly compacted for a depth of eight (8) inches below finished subgrade. Each layer in fill and cut areas shall be prepared, graded, and thoroughly compacted by static roller or vibratory equipment, as detailed in these specifications. The base of fill areas should be scarified to a depth of not less than six (6) inches and compacted to not less than ninety-five (95) percent of maximum density $\pm 2\%$ of optimum moisture content as determined by AASHTO T99 or as recommended by a geotechnical engineer, prior to placement of embankment material. Each layer shall be wetted or aerated, if necessary. No embankment material shall be placed upon soft, spongy, or frozen material or other material, the stability of which is, in the opinion of the City, unsuitable for the placement thereof.

Potholing - All necessary potholing as determined by the Contractor and agreed to by the Engineer shall be completed under this item with appropriate equipment as approved. The Contractor shall acquire necessary permits, locate utilities, excavate all materials of whatever character required to expose the utilities, survey the location of the utilities, and backfill the excavation to existing grade lines with the excavated or other approved materials. Backfilling shall be accomplished per subsection 206.03. The Contractor shall use extreme caution during this work. All damage to existing utility lines or adjacent facilities shall be repaired promptly at the Contractor's expense.

METHOD OF MEASUREMENT

Items paid for by volume be the quantities designated in the Contract. Exceptions will be made when field changes are ordered or when it is determined that there are discrepancies in the Contract in an amount of at least plus or minus two percent of the plan quantity.

Potholing will be measured by the actual number of potholes completed to a depth of 10 feet or until utility is located. No additional payment will be made for slotted potholes. All other related work, including removal of existing pavement, backfilling, shoring, and labor will not be measured and paid for separately, but shall be included in the work.

BASIS OF PAYMENT

Pay Item	Pay Unit
Unclassified Excavation (Complete in Place)	Cubic Yard
Pothole	Each

Payment for Unclassified Excavation (Complete in Place) shall be full compensation for all work necessary to complete the item including construction of embankments, reworking of existing materials to satisfy benching requirements, unclassified excavation, borrow, compaction, compaction of bases of cuts and fills, all work in available materials pits, and disposal of excess excavated material.

**REVISION OF SECTION 206
EXCAVATION AND BACKFILL FOR STRUCTURES**

Section 206 of the Standard Specifications is hereby revised for this project as follows:

Delete subsections 206.01 through 206.05 and replace with the following:

Materials and construction requirements for excavation and backfill for structures shall be in accordance with Section 4 of the City of Evans Design and Construction Standards and Specifications. Native material and squeegee sand shall be used as backfill for storm sewer pipes.

3.04.02 MATERIAL

A. STRUCTURAL BACKFILL

Structural Backfill shall comply with CDOT Standard Specifications Section 703.08. Class 1 Structural Backfill shall be used on all bridges, box culverts, or where otherwise specified. In addition, this material shall have a liquid limit not to exceed thirty-five (35) and a plasticity index of not over six (6) when tested in accordance with AASHTO T 89 and T 90, respectively.

3.04.03 STRUCTURAL EXCAVATION

Unsuitable foundation material shall be removed and disposed of in a manner acceptable to the City. Unsuitable foundation material which is suitable for embankments and suitable surplus excavated material shall be used in the construction of embankments. Unsuitable material removed below designed elevation shall be replaced with approved material.

Rock, hardpan, or other unyielding material encountered in trenches for culvert pipe or conduit shall be removed below the designed grade for a minimum depth of twelve (12) inches. This extra depth excavation shall be backfilled with loose structural backfill (Class 1) or other approved material. The base of structural backfill shall be scarified to a depth of six (6) inches and compacted to a density of not less than ninety-five (95) percent of maximum density $\pm 2\%$ of optimum moisture content as determined by AASHTO T99 or as recommended by a geotechnical engineer, prior to placement of any structural element or structural backfill. The type of compaction shall be the same as that required for structural backfill (Class 2), as specified below.

METHOD OF MEASUREMENT

Structure excavation, structure backfill, and bed course material will not be measured but will be the quantities designated in the Contract.

BASIS OF PAYMENT

Structure excavation and structure backfill required for all pipes, pipe extensions and inlets will not be measured and paid for separately but shall be included in the work. Structure excavation for the concrete box culvert will not be measured or paid for separately, but shall be included in the work.

Structure backfill material shall be native material compacted to $95\% \pm 2\%$ and squeegee sand, material in which 100% passes through a 3/8" sieve and only 0% to 5% passes through a #200 sieve.

Pay Item

Structure Backfill (Class 1)

Pay Unit

Cubic Yard

**REVISION OF SECTION 208
EROSION CONTROL**

Section 208 of the Standard Specification is hereby revised as follows:

Materials and construction requirements for Erosion Control shall be in accordance with Chapter 2 of the of the City of Evans Design and Construction Standards and Specifications:

2.01.01 REQUIREMENTS

Erosion control measures shall be designed in conformance with the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manual (as amended), hereon referred to as the Manual. All land-disturbing activities within the City of Evans shall be in compliance with the City of Evans MS4 Program, and applicable Colorado Discharge Permit System (CDPS) Stormwater, and Colorado Air Quality Control Commission regulations, when applicable. If the project disturbs one (1) or more acres of land, or is part of a larger overall development, Stormwater Permits for Construction Projects from the City of Evans and the Water Quality Control Division of Colorado Department of Public Health and Environment (CDPHE) must be obtained and evidence of the permit must accompany an application for a grading permit. All earth disturbing activities within the City must comply with the City's permitting ordinances and requirements and conform to erosion, sediment control and drainage ordinances and regulations.

METHOD OF MEASUREMENT

Erosion Control Management will not be measured but shall be paid for as a lump sum as detailed below.

Silt fence, silt berms, erosion logs, aggregate bags, silt dikes, temporary berms, temporary diversions, and temporary slope drains, will be measured by the actual number of linear feet that are installed and accepted. Measured length will not include required overlap.

Concrete washout structure will be measured by the actual number of structures that are installed and accepted.

Vehicle tracking pads will be measured by the actual number constructed and accepted. Additional aggregate required for maintaining vehicle-tracking pads will not be measured or paid for separately, but shall be included in the work. Prefabricated vehicle-tracking pads will be measured by the actual number of pads delivered to the site and set up to the minimum dimensions. It shall not include pads moved on-site.

Removal of accumulated sediment from traps, basins, areas adjacent to silt fences and erosion bales, and other clean out excavation of accumulated sediment, and the disposal of such sediment, will be measured by the number of hours that equipment, labor, or both are used for sediment removal.

BASIS OF PAYMENT

Payment for Erosion Control Management (ECM) will be full compensation for all labor, materials and equipment necessary for the SWMP Administrator and Erosion Control Inspectors to perform all the work described in the specifications.

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**REVISION OF SECTION 208
EROSION CONTROL**

Partial payments for Erosion Control Management will be made as follows:

- (1) Twenty-five (25) percent of the lump sum when initial control measures are installed and accepted by the City representative.
- (2) Twenty-five (25) percent of the lump sum when the interim control measures are installed and accepted.
- (3) Twenty-five (25) percent of the lump sum when the final control measures are installed and accepted.
- (4) Twenty-five (25) percent of the lump sum when the project is completed.

Payment will be made under:

Pay Item	Pay Unit
Erosion Log (Type 1)(12 Inch)	Linear Feet
Concrete Washout Structure	Each
Vehicle Tracking Pad	Each
Sweeping (Sediment Removal)	Hour
Erosion Control Management	Lump Sum

Payment for concrete washout structure, whether constructed or prefabricated, will be full compensation for all work and materials required to install, maintain, and remove the item. Maintenance and relocation, as required, of these structures throughout the duration of the project will not be measured and paid for separately but shall be included in the work.

Sweeping, when used as a control measure as shown in the Contract, will be measured by the number of hours that a pickup broom or equipment capable of collecting sediment, authorized by the Engineer, is used to remove sediment from the roadway or other paved surfaces. Each week the Contractor shall submit to the Engineer a statement detailing the type of sweeping equipment used and the number of hours it was used to pick up sediment. The operator will not be measured and paid for separately but shall be included in the work.

Payment for vehicle tracking pad will be full compensation for all work, materials and equipment required to construct, maintain, and remove the entrance upon completion of the work. Aggregate and geotextile will not be measured and paid for separately but shall be included in the work.

Payment will be made for control measures replaced as approved by the Engineer. Temporary erosion and sediment control measures required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or ordered by the Engineer or for the Contractor's convenience, shall be performed at the Contractor's expense. If the Contractor fails to complete construction within the contract time, payment will not be made for Section 8 pay items for the period of time after expiration of the contract time. These items shall be provided at the Contractor's expense.

**REVISION OF SECTION 210
RESET STRUCTURES**

Section 210 of the Standard Specification is hereby revised as follows:

Subsection 210.02 shall include the following:

Reset Marker – Utility markers designated to be reset shall be removed, cleaned, and reset at designated locations as directed by the utility owner.

METHOD OF MEASUREMENT

The quantity to be measured for “Reset Marker” shall be the number of utility markers, restored at new locations and accepted.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Reset Marker	Each

**REVISION OF SECTION 212
LANDSCAPE RESTORATION**

Section 210 of the Standard Specification is hereby revised as follows:

Seeding and Landscape Restoration shall be completed in accordance with the Standard Specification, the Standard Specification Provisions, and Chapter 2 of the of the City of Evans Design and Construction Standards and Specifications.

Seed Mix shall be City seed mix:

N. RIGHT OF WAYS (ROADSIDES)

Low grow mix. Seed must be applied with seed driller @ a rate of 22 lbs. PLS per acre. (If broadcast, approved by the City of Evans only, apply @ a rate of 44+ lbs. PLS per acre).

Rights-of-Way Low Grow Mix	
Species	% Mix
Buffalo Grass	60
Blue Grama	40

Landscape Restoration shall include all work necessary to establish vegetation as required by the City. This may include stockpiling topsoil, soil amendments, watering, and any measures deemed necessary by the Contractor to meet the vegetation establishment requirements of the City.

METHOD OF MEASUREMENT

The quantities of native seeding will not be measured but shall be the quantities designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract. The quantity of native seeding shall include soil preparation, fertilizer, soil conditioner, and seed applied, completed, and accepted.

The Contractor shall furnish the Engineer with seed certifications and analysis, fertilizer analysis, and bag weight tickers before placing any seed or fertilizer. Any seed or fertilizer placed by the Contractor without the Engineer's approval will not be paid for.

Landscape Restoration will not be measured.

BASIS OF PAYMENT

Subsection 212.08 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Seeding (Native)	Acre
Landscape Restoration	Lump Sum

For landscape restoration, the lump sum price so bid will be paid and shall be full compensation for the entire project area, paid at the completion of the project.

**REVISION OF SECTION 213
MULCHING**

Section 213 of the Standard Specifications is hereby revised for this Project as follows:

Materials and construction requirements for Mulching shall be in accordance with Chapter 2 of the of the City of Evans Design and Construction Standards and Specifications:

2.01.10 EROSION AND SEDIMENT CONTROL CRITERIA

C. MULCHING. All disturbed areas shall be properly mulched, or seeded and mulched, within fourteen (14) days after final grade is reached on any portion of the site not otherwise permanently stabilized.

METHOD OF MEASUREMENT

The quantity of hay and straw mulch, wood chip mulch, wood fiber and, spray-on mulch blanket, bonded fiber matrix, and tackifier will not be measured but shall be the quantity designated in the Contract, except that measurements will be made for revisions requested by the Engineer, or for discrepancies of plus or minus five percent of the total quantity designated in the Contract. Measurement for acres will be by slope distances.

Spray-on mulch blanket and bonded fiber matrix will be measured by the acre or by the actual pounds of product applied, as shown on the plans. The area will be calculated on the basis of actual or computed slope measurements. The Contractor shall verify, before application, weight of spray on mulch blanket and bonded fiber matrix bags for certification of materials and application rate.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Mulching	Acre

Water, wood fiber, mixing and application for mulch tackifier will not be measured and paid for separately but shall be included in the work.

Adjusting or readjusting mulching equipment will not be paid for separately but shall be included in the work.

Payment for spray-on mulch blanket and bonded fiber matrix will be full compensation for all work and materials necessary to complete the item.

**REVISION OF SECTION 216
SOIL RETENTION COVERING**

Section 216 of the Standard Specifications is hereby revised for this Project as follows:

METHOD OF MEASUREMENT

Soil retention coverings, including staples, complete in place and accepted, will be measured by the square yard of finished surface, excluding overlap, which is installed and accepted.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Soil Retention Blanket (Straw-Coconut)	Square Yard

Topsoil or amended soil and seed placed on the TRM will be measured and paid for per Sections 207 and 212. Staples will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 304
AGGREGATE BASE COURSE**

Section 304 of the Standard Specifications is hereby revised for this Project as follows:

Delete subsections 304.01 through 304.06 and replace with the following:

Materials and construction requirements for aggregate base course (ABC) shall be in accordance with Section 7 of the City of Evans Design and Construction Standards and Specifications.

For approved aggregate base course classifications see CDOT Standard Specifications Table 703-2.

Aggregate base course (Class 6) shall be 6 inches depth under HMA and 8 inches depth when applied to the roadway shoulder.

3.07.03 PLACEMENT AND COMPACTION OF BASE COURSE

A. PLACING

If the required compacted depth of the aggregate base course exceeds six (6) inches, it shall be constructed in two (2) or more layers of approximately equal thickness. The maximum compacted thickness of anyone (1) layer shall not exceed six (6) inches. When vibratory or other types of special compacting equipment are used, the compacted depth of a single layer may be increased to eight (8) inches upon request, provided that specified density is achieved and is approved by the City Engineer.

B. MIXING

The developer/contractor shall mix the aggregate by methods that produce a thorough and homogenous mixture.

C. SHAPING AND COMPACTION

Compaction of each layer shall continue until a density of not less than ninety-five (95) percent of the maximum density $\pm 2\%$ of optimum moisture content as determined by AASHTO T180 has been achieved or as recommended by a geotechnical engineer. The surface of each layer shall be maintained during the compaction operations so that uniform texture is produced and the aggregates are firmly keyed. Water shall be uniformly applied during compaction in the quantity necessary for proper consolidation of the material, or the material shall be harrowed, disked, bladed, or otherwise worked to ensure a uniform moisture content.

The subgrade and base course shall be free from standing water during construction. Remove any water encountered during construction to the extent necessary to provide a firm and stable subgrade and base course. Divert surface runoff or use other means necessary to accomplish the above. Do not deposit, tamp, roll or otherwise mechanically compact the aggregate base course in water. Do not construct aggregate base course with frozen material or on frozen subgrade.

The prepared surface upon which the surface course is to be placed will be tested with a ten (10) foot straight edge, or another approved device. The surface shall be tested prior to the application of any primer or pavement. The variation above or below the testing edge of the straight edge between any two (2) contacts with the surface shall not exceed one-quarter ($\frac{1}{4}$) inch. Any areas not complying with these tolerances shall be reworked to obtain conformity.

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**REVISION OF SECTION 304
AGGREGATE BASE COURSE**

The in-place compacted thickness of aggregate base course shall be no more than one-quarter (¼) inch less than the thickness shown on the approved drawings. Immediately prior to paving, the aggregate base course shall be proof-rolled as described in these specifications to verify the base course stability. Areas that are found to be unstable shall be removed and replaced.

3.07.04 TESTING OF AGGREGATE

The developer/contractor shall sample and test the subgrade, sub-base, and base material prior to being used on the project site. Written results of the tests will be submitted to the City within ten (10) working days after the results of the tests are known.

The developer/contractor is responsible for the quality control testing and protection of work until the work is accepted by the City. The developer/contractor will provide acceptance testing. Acceptance testing may include but is not limited to tests associated with the base course subgrade preparation and trench compaction. See the Material Sampling and Testing Schedule in Appendix B for additional requirements.

The City may conduct additional testing. The developer/contractor shall provide access to allow for the City's testing representative, his operations, and materials.

METHOD OF MEASUREMENT

Aggregate base course will be measured by the cubic yard compacted in place.

BASIS OF PAYMENT

The accepted quantities of aggregate base course, of the class specified, will be paid for at the contract price bid per cubic yard, as shown in the bid schedule

Payment will be made under:

Pay Item	Pay Unit
Aggregate Base Course (Class 6)	Cubic Yard

Water will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 306
RECONDITIONING**

Section 306 of the Standard Specifications is hereby revised for this Project as follows:

This work consists of blading, shaping, wetting, and compacting the existing subgrade with moisture and density control.

METHOD OF MEASUREMENT

Reconditioning will be measured by the square yard of subgrade, including auxiliary lanes and roadway shoulders, and shall include blading, shaping, scarifying, compacting the subgrade, finishing, and maintenance of the finished surface.

BASIS OF PAYMENT

The accepted quantities of aggregate base course, of the class specified, will be paid for at the contract price bid per cubic yard, as shown in the bid schedule

Payment will be made under:

Pay Item	Pay Unit
Reconditioning	Square Yard

Water will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 403
HOT MIX ASPHALT**

Section 403 of the Standard Specifications is hereby revised for this Project as follows:

Materials and construction requirements for Hot Mix Asphalt shall be in accordance with Chapter 3, Section 8 of the City of Evans Design and Construction Standards and Specifications.

METHOD OF MEASUREMENT

Hot mix asphalt and asphalt cement will be measured by the ton. Batch weights will not be permitted as a method of measurement. The tonnage shall be the weight used in the accepted pavement. Deduction will not be made for the weight of asphalt cement in the mixture.

BASIS OF PAYMENT

If there is no pay item for asphalt cement of the type specified it will not be measured and paid for separately but shall be included in the work. Water used in the mixing plant, per subsection 401.14, to bring the lime-aggregate mixture to approved moisture content will not be measured and paid for separately but shall be included in the work. Facilities for testing hot asphalt plant mix at the site of the commercial plant will not be paid for separately but shall be included in the work.

All costs of the temporary hot mix asphalt layer required according to subsection 401.07, maintenance and removal of the temporary pavement layer, temporary pavement marking, and traffic control will not be paid for separately but shall be included in the work. All costs associated with the construction of the SafetyEdge_{SM} specified in subsection 401.10 will not be paid for separately but shall be included in the work.

Payment will be made under:

Pay Item	Pay Unit
Hot Mix Asphalt (Grading SX)(75)(PG 64-22)	Ton

**REVISION OF SECTION 506
GROUTED RIPRAP**

Section 403 of the Standard Specifications is hereby revised for this Project as follows:

Materials and construction requirements for Grouted Riprap shall be in accordance with Chapter 7, Section 2 of the City of Evans Design and Construction Standards and Specifications:

7.02.13 RIPRAP AND FILTER CLOTH

Where riprap is to be grouted, the stones shall be laid with care to prevent earth and sand from filling the joints. Grout and concrete must be removed from exposed rock for aesthetic purposes. Joints shall be filled with grout and the surfaces swept with a stiff broom. The work shall be protected and kept moist during hot weather for at least three (3) days after grouting or coated with a clear membrane-curing compound. Grout shall consist of one (1) part cement and three (3) parts aggregate, by volume. The Portland cement shall be Type II and aggregate shall be two (2) parts sand and one (1) part gravel passing a three-eighths (3/8) inch square mesh screen. The amount of water in the mix shall be such as to permit gravity flow into the interstices with limited spading and brooming.

Except when approved in writing by the Public Works Director or designee, the developer/contractor shall cease all grouting or placement of concrete into which riprap is to be placed when the descending air temperature in the shade and away from artificial heat falls below thirty-five degrees Fahrenheit (35°F), and there is frost in the subgrade. When concreting is permitted during cold weather, the temperature of the mix shall not be less than sixty degrees Fahrenheit (60°F) at the time of placing. The contractor shall not place filter cloth, stabilization material, or riprap on frozen ground.

METHOD OF MEASUREMENT

Grouted Riprap will be measured by the cubic yard by the method of average end areas based on dimensions shown on the plans.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Grouted Riprap	Cubic Yard

Structure excavation will be not be measured or paid for separately.

Mortar or concrete used for grout in grouted rubble slope and ditch paving will not be measured and paid for separately but shall be included in the work.

Payment for Grouted Riprap will be full compensation for all work and materials required to complete the item.

**REVISION OF SECTION 515
WATERPROOFING**

Section 515 of the Standard Specifications is hereby revised for this project as follows:

This work consists of furnishing and placing an approved waterproofing membrane and protective covering over a prepared concrete box culvert top slab surface.

METHOD OF MEASUREMENT

Waterproofing membrane including protective covering, complete in place, will be measured by the number of square yards of box culvert covered. Material placed on inside faces of headwalls will not be measured.

BASIS OF PAYMENT

The accepted quantities of waterproofing membrane including protective covering will be paid for at the contract unit price per square yard.

Payment will be made under:

Pay Item	Pay Unit
Waterproofing (Membrane)	Square Yard

CITY OF EVANS – 49TH STREET CBC

**REVISION OF SECTION 601
STRUCTURAL CONCRETE**

Structural Concrete shall be constructed in accordance with the Standard Specifications.

The concrete box culvert (CBC) will be constructed with Concrete Class D (Box Culvert).

METHOD OF MEASUREMENT

Concrete will be measured by the cubic yard per the dimensions shown on the plans.

Box culvert concrete shall consist of structural concrete, of the designated class, required for concrete box culvert construction including wingwalls, shown on the plans, completed and accepted.

BASIS OF PAYMENT

Payment will be full compensation for all work necessary to complete the designated Pay Item per subsection 109.02.

Payment will be made under:

Pay Item	Pay Unit
Concrete Class D (Box Culvert)	Cubic Yard

Concrete finish is included in the work.

**REVISION OF SECTION 602
REINFORCING STEEL**

Section 603 of the Standard Specifications is hereby revised for this project as follows:

Materials and construction requirements for Grouted Riprap shall be in accordance with Chapter 4, Section 4 of the City of Evans Design and Construction Standards and Specifications:

4.04.20 REINFORCING STEEL FOR CONCRETE STRUCTURES

A. Installation

Reinforcing steel shall be accurately formed to the dimensions indicated on plans. Bends in bars shall be made cold. Bars with kinks or bends not shown on plans shall not be used.

Splices shall be located where shown on plans. Splices at other locations must be approved in writing by City of Evans. Welded wire mesh shall be lapped one space and securely wired together.

Before reinforcement is embedded in concrete, the surfaces of the bars and the bar supports shall be cleaned of flaky rust, loose mill scale, dirt, grease, or other foreign substances that are objectionable. Reinforcement will be inspected for compliance with requirements as to size, shape, length, splicing position, and amount after it is placed.

B. The Placing and Reinforcing Steel

Steel reinforcing bars and welded wire fabric shall be placed accurately within forms and secured with annealed wire before concrete is placed. Steel reinforcing bars in walls shall be tied at a minimum of every other intersection or as directed by the City of Evans. Steel reinforcing bars in slabs shall be tied at every intersection. Steel reinforcement in slabs shall be supported on chairs of metal, plastic, or concrete in a manner to prevent steel reinforcement dislocation during slab construction.

Splices other than those shown on plans shall not be constructed without City of Evans approval.

Reinforcing steel shall be protected by the thickness of concrete indicated on plans. Where not otherwise shown, the thickness of concrete over the reinforcement shall be as follows:

1. Where concrete is deposited against the ground without the use of forms, it shall not be less than three (3) inches.
2. Where concrete is exposed to weather or exposed to the ground but placed in forms, it shall not be less than two (2) inches for bars more than five-eighths (5/8) inch in diameter and one and one-half (1½) inches for bars five-eighths (5/8) inch diameter or less.
3. In formed surfaces not in contact with the ground or exposed to weather, it shall not be less than three-quarter (¾) inch.

METHOD OF MEASUREMENT

The weight of reinforcing steel for payment will not be measured but shall be the quantities designated in the Contract; except, measurements will be made for revisions requested by the Engineer, or for an error of plus or minus 2 percent of the total weight shown on the plans for each structure. Prospective bidders shall verify the weight of reinforcing steel before submitting a proposal.

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**REVISION OF SECTION 602
REINFORCING STEEL**

An adjustment will not be made in the weight shown on the plans, other than for approved design changes or for an error as stipulated above, even though the actual weight may deviate from the plan weight. The computed weight of epoxy-coated reinforcing bars will be based on the nominal weight before application of the epoxy coating.

BASIS OF PAYMENT

The accepted quantities of reinforcing steel will be paid for at the contract unit price per pound. No allowance will be made for supports, clips, wire, or other material used for fastening reinforcement in place.

Payment will be made under:

Pay Item	Pay Unit
Reinforcing Steel (Epoxy Coated)	Pound

**REVISION OF SECTION 603
DRAINAGE PIPES**

Section 603 of the Standard Specifications is hereby revised for this project as follows:

Subsection 603.12 shall include the following:

For the installation of all pipe, all excavation, trenching, bedding, backfill, all equipment and labor will not be measured and paid for separately but shall be included in the cost of the pipe.

METHOD OF MEASUREMENT

Conduit used for culverts and storm drains of the different types and sizes and corrugated steel pipe nestable will not be measured but will be the net length of pipe called for on the plans, except when field changes are ordered or when there are errors on the plans. In case of exceptions, the quantity to be measured shall be the actual net length of the conduit measured along the bottom centerline. Extra length of the conduit due to joint creep will not be measured and paid for.

End sections and safety grates will be measured by the number of units installed.

BASIS OF PAYMENT

The accepted quantities will be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule. Except as otherwise indicated on the plans or in the special provisions, all joints, elbows, concrete collars, connecting bands, and other connecting devices will not be paid for separately but shall be included in the work.

Payment will be made under:

Pay Item	Pay Unit
18" Reinforced Concrete Pipe	Linear Foot
18" Flared End Section	Each

**REVISION OF SECTION 626
MOBILIZATION**

This work consists of the mobilization of personnel, equipment and supplies at the project site in preparation for work on the project. This item shall also include the establishment of the Contractor's offices, buildings and other necessary facilities, and all other costs incurred or labor and operations that must be performed before beginning the other items under the Contract.

METHOD OF MEASUREMENT

Mobilization will not be measured.

BASIS OF PAYMENT

Partial payments for mobilization will be completed in accordance with Subsection 626.02.

Payment will be made under:

Pay Item	Pay Unit
Mobilization	Lump Sum

**REVISION OF SECTION 627
PAVEMENT MARKING**

Section 627 of the Standard Specifications is hereby revised for this project as follows:

Materials and construction requirements for pavement markings shall be in accordance with Chapter 3, Section 11 of the City of Evans Design and Construction Standards and Specifications.

3.11.04 EPOXY PAVEMENT MARKINGS

The epoxy pavement marking compound shall conform to CDOT Specification Section 713.17 and applied per CDOT Specification 627.05.

METHOD OF MEASUREMENT

Modified epoxy pavement marking, polyurea, and methyl methacrylate pavement marking will be measured by the total number of gallons of components A and B used including glass beads. Material used in excess of coverage limit prescribed will not be measured.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Modified Epoxy Pavement Marking	Gallon

Waterblasting will not be measured and paid for separately but shall be included in the work.

Glass beads and cleaning with high-pressure water blast or air blast shall be included in the cost of the work.

Control points and Contractor pavement marking plans will not be measured and paid for separately but shall be included in the work.

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

Section 630 of the Standard Specifications is hereby revised for this project as follows:

The roadway at the project area is currently closed to traffic. The City will keep all existing roadway closure traffic control devices (advance warning, barriers, signs) in place for the duration of the contract.

Any adjustment of the existing traffic control devices to facilitate the work shall be completed at the Contractor's expense.

If the Contractor deems the existing roadway closure devices are not sufficient for the project area, the Contractor shall supply additional devices, site security, and site fencing as desired.

METHOD OF MEASUREMENT

In Subsection 630.17 delete the first 3 paragraphs and replace with the following:

Subsection 630.17 shall include the following:

All signing and traffic control devices (drum channelizing devices, cones, arrow boards, vertical panels, impact attenuator (temporary) and barrier (temporary) etc.) required shall not be individually measured but shall be incidental to the lump sum measurement of traffic control (special).

Signs damaged due to Contractor operations shall be replaced in kind or repaired by the Contractor at no additional cost to the project.

Resetting of construction signs as required by the work is considered incidental to the project and will not be paid separately. Masking of existing/permanent or temporary signs as required by the work is considered incidental to the project and will not be paid separately.

In the event the Contractor fails to complete the project within the allowable Contract time, including time extensions, the Contractor will bear all costs associated with the additional traffic control required by the project including all flagging, traffic control supervision, rental and maintenance of traffic control devices, etc. until the project is completed.

BASIS OF PAYMENT

Subsection 630.18 shall include the following:

Payment shall be full compensation for furnishing, erecting, cleaning, maintaining, resetting, repairing, replacing, moving, removing, and disposing of construction traffic control devices necessary to complete the work. Payment for traffic control will be prorated based upon the proportionate amount of the work completed.

Payment for Traffic Control (Special) will be full compensation for all work necessary to complete the construction of the project.

Pay Item

Traffic Control (Special)

Pay Unit

Lump Sum

FORCE ACCOUNT ITEMS

DESCRIPTION

This special provision contains the City's estimate for force account items included in the Contract. The estimated amounts marked with an asterisk (*) will be added to the total bid to determine the amount of performance and payment bonds. Force Account work shall be performed as directed by the Engineer.

BASIS OF PAYMENT

Payment will be made in accordance with subsection 109.04. Payment will constitute full compensation for all work necessary to complete the item.

Force account work valued at \$5,000 or less, that must be performed by a licensed journeyman in order to comply with federal, state, or local codes, may be paid for after receipt of an itemized statement endorsed by the Contractor.

<u>Force Account Item</u>	<u>Quantity</u>	<u>Estimated Amount</u>
F/A 01 – Minor Contract Revisions	F.A.	\$ 50,000
F/A 02 – Provide Constructability Review	F.A.	\$ 5,000

Force Account Descriptions:

F/A 01 Minor Contract Revisions - This work consists of minor work authorized and approved in writing by the Engineer, which is not included in the Contract drawings or specifications and is necessary to accomplish the scope of work of the Contract.

F/A 02 Provide Constructability Review – This work consists of providing a constructability review of the 60% bid plans. The contractor is encouraged to provide recommendations for efficiencies and improvements to the project. The City may elect to incorporate these changes into the final for-construction plan set. Changes are anticipated to save costs or remain within the \$50,000 minor contract revisions allowance for the project. The constructability review will be paid on a time and materials basis based on an agreed upon rate schedule for the Contractor’s personnel providing the review.

MATERIALS AND SAMPLE TESTING

DESCRIPTION

The developer/contractor is responsible for the quality control testing, acceptance testing, and protection of work. Quality control and acceptance testing may include tests associated with placing of concrete, asphalt, and base course; subgrade preparation; trench compaction, etc. Test results shall be reported to the City of Evans project inspector on a daily basis verbally or via text. The written results from these tests shall be forwarded to the City Engineering Division within two (2) weeks after the tests have been completed or as agreed to by both parties at the preconstruction meeting.

Materials and Sample Testing shall be in accordance with City of Evans Design and Construction Standards and Specifications.

METHOD OF MEASUREMENT

Materials and Sample Testing will not be measured but will be paid for as a single lump sum at the completion of the project.

BASIS OF PAYMENT

Payment for Materials and Sample Testing will be full compensation for all labor, materials, and equipment required to sample, test, and report testing results as required in the City of Evans Design and Construction Standards and Specifications.

Payment will be made under:

Pay Item

Materials and Sample Testing

Pay Unit

Lump Sum

BID ALTERNATES

DESCRIPTION

This project is an emergency replacement and is being bid at a 60% design level. The City may consider some alternate items be included in the scope of the project.

Bid Alternate 1 – The City may consider providing an inlet at the DCP Midstream Gas Plant driveway that would allow the outlet of the roadside drainage to be further east of the project area, instead of outfalling into the irrigation ditch CBC.

Bid Alternate 2 – The City may consider directing the Contractor to apply temporary cold patch pavement if temperatures prohibit the installation of the final HMA surfacing, to allow the roadway to be opened sooner. Cost of removal of the cold patch pavement will not be measured or paid for separately but shall be included in the work.

Bid Alternate 3 – The City may consider installing guardrail at each end of the proposed CBC.

CONSTRUCTION REQUIREMENTS

Bid Alternate items shall be constructed in accordance to the applicable sections of the Standard Specification.

METHOD OF MEASUREMENT

Bid Alternate items shall be constructed in accordance to the applicable sections of these Project Special Provisions and the Standard Specification.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Unclassified Excavation (Complete in Place)	Cubic Yard
Riprap (12-Inch)	Cubic Yard
18" Reinforced Concrete Pipe	Linear Foot
Inlet Type D (10 FOOT)	Each
18" Flared End Section	Each
Cold Bituminous Pavement	Square Yard
Guardrail Type 3 (31 Inch Midwest Guardrail System)	Linear Foot
End Anchorage Type 3D	Each
End Anchorage (Flared)	Each

CITY OF EVANS – 49TH STREET CBC

UTILITIES

The known utilities within the limits of this project are:

UTILITY COMPANY ADDRESS	CONTACT NAME EMAIL	TELEPHONE
Atmos	Jerry Adams jerry.adams@atmosenergy.com	
Central Weld County Water	Darin Naibauer Darin@cwewd.com	
City of Evans – Sanitary Force Main	Robby Porsch RPorsch@evanscolorado.gov	
Century Link	Justin Chelko justin.chelko1@lumen.com	
Comcast	Marco Povis Marco_Povisr@comcast.com	
DCP Midstream/Phillips 66	Gordon.S.Alexander@p66.com 970-302-7144 (pipe super)	
Noble/Chevron		
Poudre Valley REA	Minas Kavallieros mkavallieros@pvrea.coop	
Xcel	Alyse DeVan Alyse.DeVan@xcelenergy.com	

The work described in these plans and specifications requires full cooperation between the Contractor and the utility owners in accordance with Subsection 105.11 in conducting their respective operations, to complete the utility work with minimum delay to the project.

All new underground facilities, including laterals up to the structure or building being served, installed as part of this project must be electronically locatable when installed, in compliance with Colorado Revised Statutes, Title 9, Article 1.5.

PART 1 - CONTRACTOR SHALL PERFORM THE WORK LISTED BELOW:

Coordinate project construction with the performance by the utility owner of each utility work element listed in Part 2 below. Perform preparatory work specified in Part 2 for each utility work element. Provide an accurate construction schedule that includes all utility work elements to the owner of each impacted utility.

**-2-
UTILITIES**

Provide each utility owner with weekly updates to the schedule. Conduct detailed utility coordination meetings prior to each construction phase to coordinate all requirements and schedules and provide other necessary accommodations as directed by the Engineer. Notify each utility owner in writing, with a copy to the Engineer, prior to the time each utility work element is to be performed by the utility owner. Provide the notice with the number of days specified in Part 2 immediately prior to the time the utility work must begin to meet the project schedule.

Provide traffic control, as directed by the Engineer, for any utility work performed by the utility owner within the project limits expected to be coordinated with construction. However, traffic control for utility work outside of typical project work hours shall be the responsibility of the utility owner.

Perform each utility work element for every utility owner listed in Part 1. Notify each utility owner in advance of any work being done by the Contractor to its facility, so that the utility owner can coordinate its inspections for final acceptance of the work with the Engineer.

Obtain written acceptance from the utility owner for work performed by Contractor. The Contractor shall provide the utility owner written notice at least thirty days immediately prior to each utility work element expected to be coordinated with construction.

Verify the location and depth of existing facilities at potential utility conflicts, and coordinate with the utility owner if a relocation or adjustment to raise/lower lines is needed. If a conflict is determined the Contractor shall expose the utility owner's line if requested by the utility owner so that the utility owner can relocate or adjust to raise/lower as needed. For relocations/adjustments that are expected to be done prior to construction, the Contractor shall coordinate with the utility owner regarding the status of the work and receive as-built information from the utility owner upon completion.

Remove abandoned utility facilities as necessary to accommodate construction of proposed work. The Contractor shall verify with the utility owner if the facility has been abandoned prior to removal.

All Utility Companies

The Contractor will contact each utility company a minimum of 2 business days, unless otherwise noted, prior to working in the utility company's area so that the utility company can provide an inspector and/or complete any necessary adjustments or relocations.

If a need for utility work by either the Contractor or a Utility Company arises, the following shall apply:

The Contractor shall be responsible for coordinating the adjustment of utilities on this project. The Contractor shall keep each utility company advised of any work being performed in the vicinity of their facilities, so that each utility company can coordinate any needed locates, adjustments or inspections. Contractor shall provide the appropriate utility company ample notice, but not less than two (2) working days, prior to commencing activities in the vicinity of their facilities. Any additional work performed by the Contractor on behalf of the impacted utility company shall not be paid for by the City of Boulder but shall be paid by the utility company requiring the work, unless otherwise agreed to in writing by the Engineer.

**-3-
UTILITIES**

GENERAL:

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavating or grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days, not including the actual day of notice, prior to commencing such operations. The Contractor shall contact Colorado 811 at phone no. 811 or co811.org, to have locations of Colorado 811 registered lines marked by member companies. All other underground facilities shall be located by contacting the respective owner. Utility service laterals shall also be located prior to beginning excavation or grading.

The locations of utility facilities as shown on the plan and profile sheets were obtained from the best available information. No warranty is made for the adequacy or accuracy of subsurface information provided. The Contractor shall cooperate with the utility owners in their relocation operations as provided in subsection 105.11 of the Standard Specifications for Road and Bridge Construction. No guarantee is made that utility conflicts will be resolved prior to construction activities and any delays resulting from utility relocation work shall be dealt with in accordance with subsection 108.08 of the Standard Specifications for Road and Bridge Construction as amended.

All costs incidental to the foregoing requirements will not be paid for separately but shall be included in the work.

PART 2 - UTILITY OWNERS SHALL PERFORM THE WORK LISTED BELOW:

Although the Contractor shall provide traffic control for utility work expected to be coordinated with construction, traffic control for utility work outside of typical project work hours or outside of project limits shall be the responsibility of the utility owner. The utility owner shall prepare and submit to the Engineer a Method of Handling Traffic for utility work to be performed outside typical project work hours or outside of project limits. The utility owner shall obtain acceptance of the Method of Handling Traffic from the Engineer prior to beginning the utility work to be performed outside typical project work hours or outside of project limits.

This work will be performed by the utility owners as necessary to avoid conflicts with construction activities. New locations shall be as indicated in the plans. Utility owners shall comply with schedule requirements of the Contractor and make every effort not to impact the overall construction schedule. Unless otherwise approved by the Engineer, abandoned aboveground appurtenances such as pedestals shall be removed and abandoned underground utilities and manholes/handholds shall be abandoned in place.

Utility owners are responsible for obtaining all necessary permits from the City of Boulder, as required.

CENTURY LINK/LUMEN

Lumen shall adjust or protect their facilities in the following locations, as shown in the plans:

- Provide conduit for the exposed copper line on the north side of the roadway and provide temporary support for the line while the excavation for the CBC is open. Contractor will accommodate the new conduit in the top slab of the CBC.

Lumen shall coordinate with the contractor if any additional facility is found to be in conflict. If a relocation or adjustment is necessary, Lumen shall schedule and facilitate the work by Lumen forces.

Timing: The Contractor shall notify Lumen two weeks in advance of exposing any Lumen facilities which will need to be adjusted. It is expected that Lumen's relocations will be coordinated with construction.

ARTICLE 5.0

PROJECT VICINITY

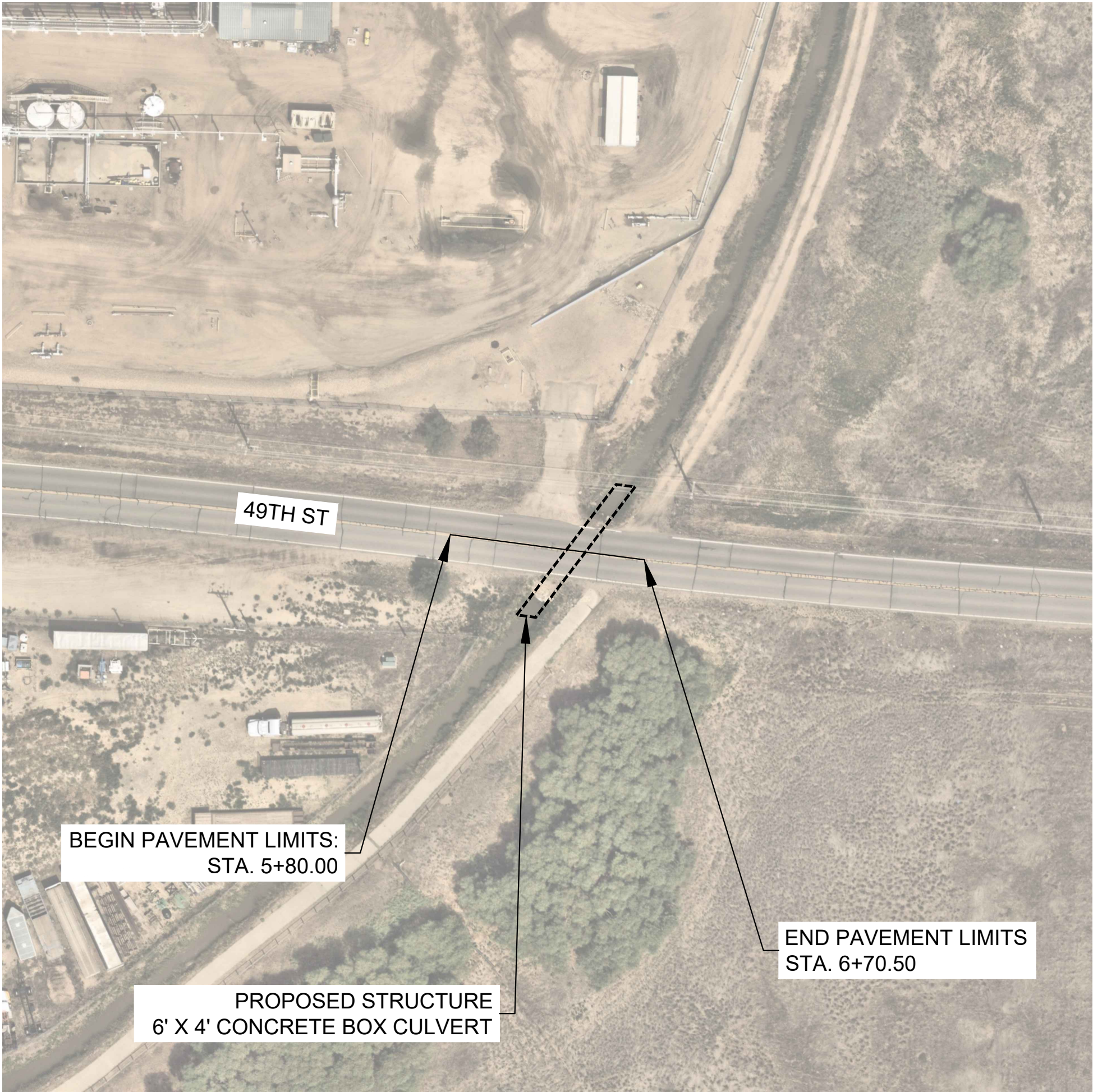


49th Street – Approximately 0.3 miles east of 35th Ave.

K:\DEN_PublicSector\296203001_City of Evans_49th St_CBC\CADD\PlanSheets\XX_01_Title_Sheet.dwg - Backel, Amy 8/29/2025 1:29 AM
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

CITY OF EVANS, COLORADO

CONSTRUCTION PLANS FOR 49TH STREET CULVERT EMERGENCY REPLACEMENT WELD COUNTY, COLORADO PRELIMINARY BID SET



SECTIONS 25 & 36, TOWNSHIP 5 NORTH, RANGE 66 WEST

VICINITY MAP



PROJECT CONTACTS

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GROUND ENGINEERING
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41 INVERNESS DR EAST
ENGLEWOOD, CO 80112
303-991-6944

SURVEYOR:

BOULDER LAND CONSULTANTS
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BOULDER, CO 80305
303-443-3616

CITY OF EVANS:

CITY OF EVANS
APRIL TAMBURELLI
3323 1ST AVE.
EVANS, CO 80620-2036
970-475-1134

PROJECT ENGINEER:

KIMLEY-HORN
AMY BACKEL, PE
11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
720-399-8180

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02	Standard Plans List
03	Typical Sections
04	General Notes
05	Summary of Approximate Quantities
06	Removal & Reset Plan
07	CBC Plan and Profile
08	Roadway Plan and Profile
09	Box Culvert General Information and SAQ
10	Box Culvert General Layout and Details
11	Initial SWMP
12	Final SWMP
13	SWMP Notes
14	SWMP Details
Survey	Topographic Survey

SEE STANDARD PLANS LIST FOR CDOT M&S STANDARD
PLANS SHEETS ATTACHED TO THIS PLAN SET.

CITY ENGINEER

APPROVED BY THE CITY ENGINEER OF THE CITY OF EVANS,
COLORADO,

THIS ____ DAY OF _____, A.D. _____.

CITY ENGINEER

EVANS FIRE PROTECTION DISTRICT

APPROVED BY THE FIRE CHIEF OF THE EVANS FIRE PROTECTION
DISTRICT,

THIS ____ DAY OF _____, A.D. _____.

FIRE CHIEF

49TH STREET DESIGN CRITERIA	
POSTED SPEED	45 MPH
DESIGN SPEED	55 MPH
ROADWAY CLASSIFICATION – MINOR ARTERIAL	
K VALUE FOR VERTICAL CURVES (CREST) (CDOT)	114
K VALUE FOR VERTICAL CURVES (SAG) (CDOT)	115
LANE WIDTH	12 FT.
VERTICAL CURVE LENGTH	900 FT.
LIMITS OF DISTURBANCE	0.14 AC.

NOTE: THE ROADWAY PROFILE ABOVE THE PROPOSED BOX
CULVERT IN THIS PROJECT IS DESIGNED TO MATCH EXISTING
CONDITIONS AND NOT IMPROVED TO MEET COLORADO DEPT. OF
TRANSPORTATION AND AASHTO DESIGN CRITERIA.

PRINT DATE: August 29, 2025

DRAWING FILE NAME:

HORIZ. SCALE:

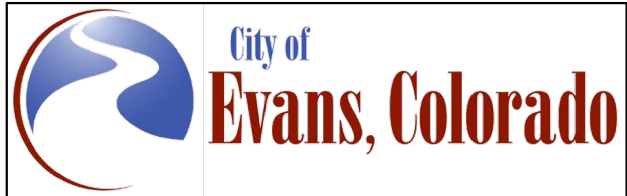
VERT. SCALE:



KIMLEY-HORN AND ASSOCIATES, INC.
11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

SHEET REVISIONS

DATE:	COMMENTS:	INITIAL:



CITY OF EVANS
1100 37TH STREET
EVANS, CO 80620

PRELIMINARY

FOR REVIEW ONLY
NOT FOR
CONSTRUCTION
Kimley»Horn
Kimley-Horn and Associates, Inc.

CITY OF EVANS 49TH STREET CULVERT EMERGENCY REPLACEMENT DESIGN TITLE SHEET

CHECKED BY:	AB	
DESIGNED BY:	MJK/DRL	
SHEET SUBSET:	SUBSET SHEET: ____ OF ____	

PROJECT NO./CODE

296203001

SHEET NUMBER **01**

K:\DEN_PublicSector\296203001_City of Evans_49th St_CBC\CADD\PlanSheets\XX_02_Standard_Plans_List.dwg, Bockel, Arty, 8/29/2025 1:29 AM
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	65'-75' SINGLE MAST ARMS (5 SHEETS) <i>(REVISED ON JULY 22, 2022)</i>	
S-614-40A	ALTERNATIVE TRAFFIC SIGNAL	224-227
	25'-55' SINGLE MAST ARMS (4 SHEETS) <i>(REVISED ON JULY 22, 2022)</i>	
S-614-41	TEMPORARY SPAN WIRE SIGNALS (13 SHEETS)	228-240
S-614-42	CABINET FOUNDATION DETAIL (4 SHEETS).. <i>(REVISED ON</i>	241-244
	<i>APRIL 4, 2024)</i> ..	
S-614-43	TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS.....	245-252
	(7 SHEETS) <i>(REVISED ON APRIL 4, 2024)</i>	
S-614-44	PEDESTAL POLE SIGNALS (2 SHEETS).....	253-254
S-614-45	PEDESTRIAN PUSH BUTTON POST ASSEMBLY DETAILS (6 SHEETS)	
	<i>(REVISED ON DECEMBER 3, 2020)</i>	
S-614-50	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS).....	255-266
S-614-60	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS).....	267-280
S-627-1	PAVEMENT MARKINGS (11 SHEETS) <i>(REV. DEC. 20, 2024)</i> ..	281-289
S-630-1	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION.....	290-313
	(26 SHEETS) <i>(REVISED ON APRIL 30, 2024)</i>	
S-630-2	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP).....	314
	AND VERTICAL PANELS	
S-630-3	FLASHING BEACON (PORTABLE) DETAILS	315
S-630-4	STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION.....	316-317
	DETAILS (2 SHEETS)	
S-630-5	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS)	318-319
S-630-6	EMERGENCY PULL-OFF AREA (TEMPORARY).....	320
S-630-7	ROLLING ROADBLOCKS FOR TRAFFIC CONTROL .(3 SHEETS).	321-323

COLORADO
DEPARTMENT OF TRANSPORTATION
M&S STANDARDS PLANS LIST
July 31, 2019

Revised on April 25, 2025

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED
AND REVISED, APPLY TO THIS PROJECT WHEN USED
BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

THE M&S STANDARD PLANS USED TO DESIGN THIS PROJECT ARE
INDICATED BY A MARKED BOX , AND WILL BE ATTACHED TO THE
PLANS. ALL OTHER M&S STANDARD PLANS ARE STILL ELIGIBLE FOR USE
IN CONSTRUCTION IF APPROVED BY AN APPROPRIATE CDOT ENGINEER.

PRINT DATE: August 29, 2025

DRAWING FILE NAME:

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KIMLEY-HORN AND ASSOCIATES, INC.
11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

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DATE:

COMMENTS:

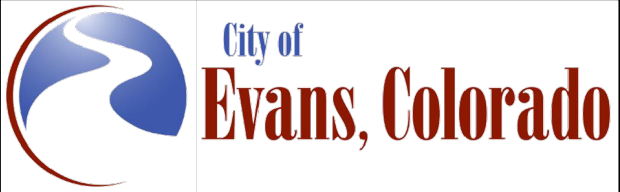
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CITY OF EVANS
1100 37TH STREET
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CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
STANDARD PLANS LIST

CHECKED BY:

AB

DESIGNED BY:

MJK/DRL

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SUBSET SHEET:

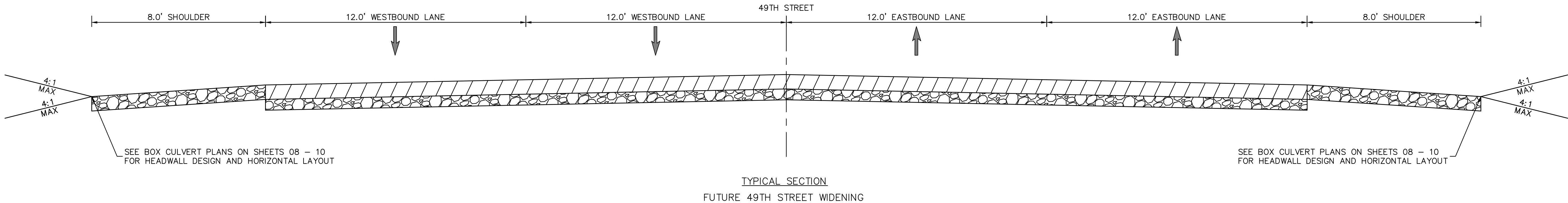
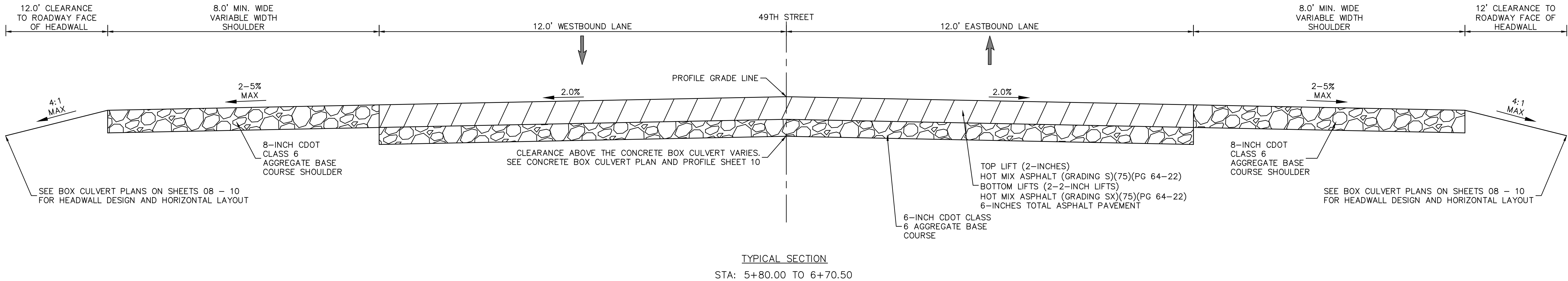
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PROJECT NO./CODE

296203001

SHEET NUMBER 02

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City of Evans, Colorado

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1100 37TH STREET
EVANS, CO 80620

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**CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
TYPICAL SECTIONS**

CHECKED BY: AB

DESIGNED BY: MJK/DRL

SHEET SUBSET: SUBSET SHEET: OF

PROJECT NO./CODE

296203001

SHEET NUMBER 03

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SUMMARY OF APPROXIMATE QUANTITIES												
ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY AND TRAFFIC		BOX CULVERT						PROJECT TOTAL	
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
201-00000	CLEARING AND GRUBBING	LS	1								1	
202-00033	REMOVAL OF PIPE (72" X 42" ELLIPTICAL CMP)	LF	49								49	
202-00035	REMOVAL OF PIPE (18" CMP)	LF	40								40	
202-00221	REMOVAL OF ASPHALT MAT (PLANING) (4-INCH)	SY	223								223	
202-00221	REMOVAL OF ASPHALT MAT (PLANING) (2-INCH)	SY	24								24	
203-00000	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	100								100	
203-01597	POTHOLING	EA	10								10	
206-00100	STRUCTURE BACKFILL (CLASS 1)	CY			283						283	
208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	350								350	
208-00045	CONCRETE WASHOUT STRUCTURE	EA	1								1	
208-00070	VEHICLE TRACKING PAD	EA	1								1	
208-00106	SWEEPING (SEDIMENT REMOVAL)	HOURL	50								50	
208-00200	EROSION CONTROL MANAGEMENT	LS	1								1	
210-00060	RESET MARKER	EA	1								1	
212-00002	SEEDING (NATIVE)	AC	0.05								0.1	
212-01200	LANDSCAPE RESTORATION	LS	1								1	
213-00000	MULCHING	AC	0.05								0.1	
216-00041	SOIL RETENTION BLANKET (STRAW-COCONUT)	SY	200								200	
304-06007	AGGREGATE BASE COURSE (CLASS 6)	CY	50								50	
306-01000	RECONDITIONING (8-INCH)	SY	100								100	
403-32741	HOT MIX ASPHALT (GRADING SX)(75)(PG 64-22)	TON	65								65	
506-00030	GROUTED RIPRAP	CY			16						16	
515-00120	WATERPROOFING (MEMBRANE)	SY			90						90	
601-03030	CONCRETE CLASS D (BOX CULVERT)	CY			69						69	
602-00020	REINFORCING STEEL (EPOXY COATED)	LB			13,851						13,851	
603-01180	18" REINFORCED CONCRETE PIPE	LF	40								40	
606-02005	18" FLARED END SECTION	EA	1								1	
626-00000	MOBILIZATION	LS	1								1	
627-00005	MODIFIED EPOXY PAVEMENT MARKING	GAL	5								5	
630-00016	TRAFFIC CONTROL (SPECIAL)	LS	1								1	
700-70010	F/A MINOR CONTRACT REVISIONS	F/A	1								1	
	MATERIALS AND SAMPLE TESTING	LS	1								1	
-	-	-	-								-	

SUMMARY OF APPROXIMATE QUANTITIES												
ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY AND TRAFFIC		BOX CULVERT						PROJECT TOTAL	
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
	BID ALTERNATE 1											
203-00000	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	200								200	
506-00212	RIPRAP (12-INCH)	CY	15								15	
603-01180	18" REINFORCED CONCRETE PIPE	LF	100								100	
604-00510	INLET TYPE D (10 FOOT)	EA	1								1	
606-02005	18" FLARED END SECTION	EA	1								1	
	BID ALTERNATE 2											
406-09501	COLD BITUMINOUS PAVEMENT	SY	68								68	
	BID ALTERNATE 3											
606-00302	GUARDRAIL TYPE 3 (31 INCH MIDWEST GUARDRAIL SYSTEM)	LF	100								100	
606-01340	END ANCHORAGE TYPE 3D	EA	2								2	
606-02005	END ANCHORAGE (FLARED)	EA	2								2	

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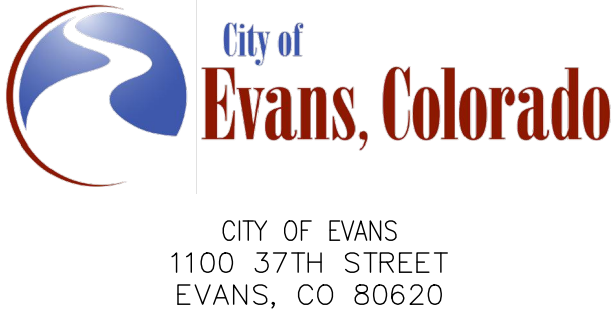
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KIMLEY-HORN AND ASSOCIATES, INC.
11600 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
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Kimley-Horn and Associates, Inc.

CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
SUMMARY OF APPROXIMATE QUANTITIES

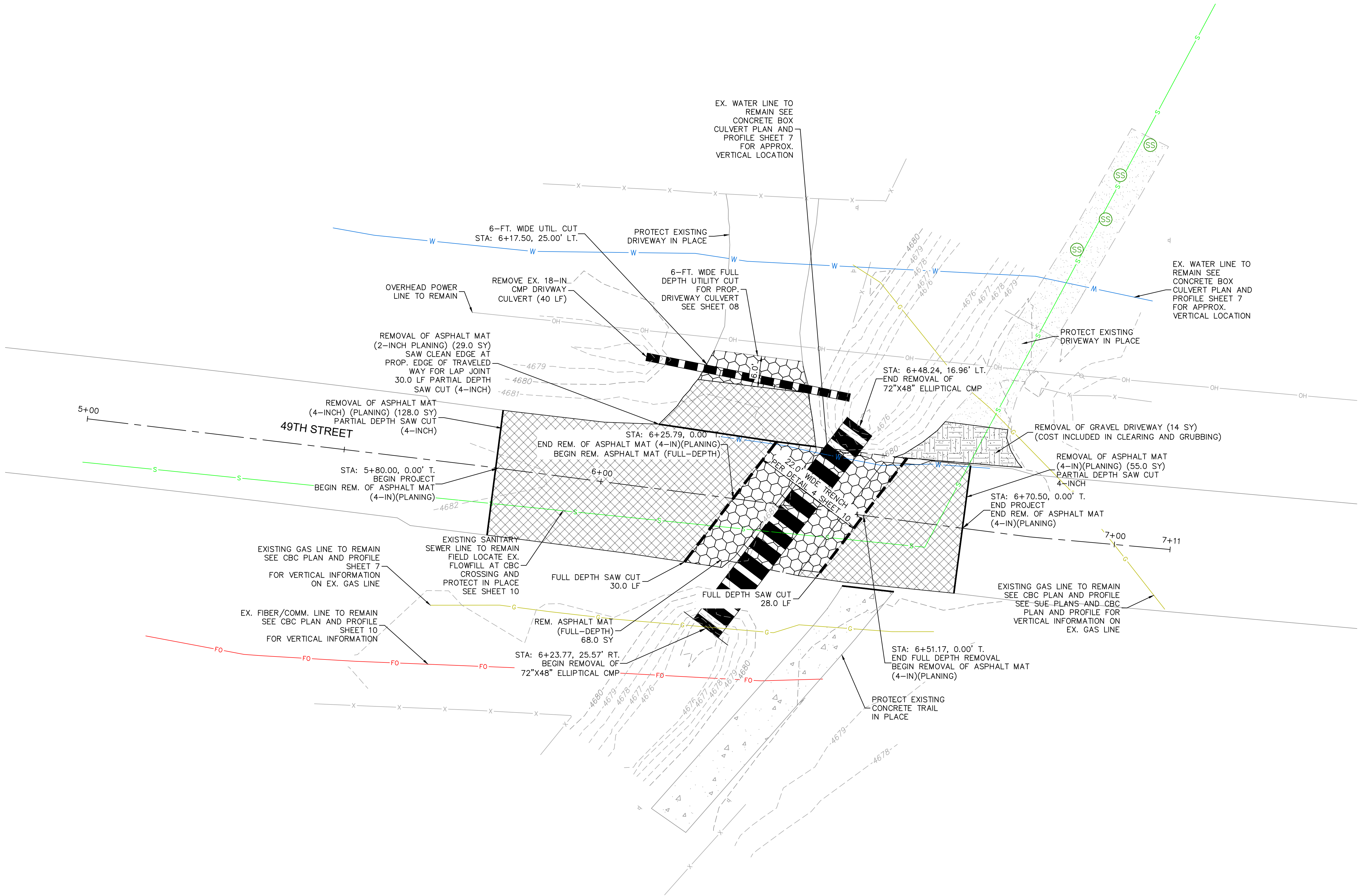
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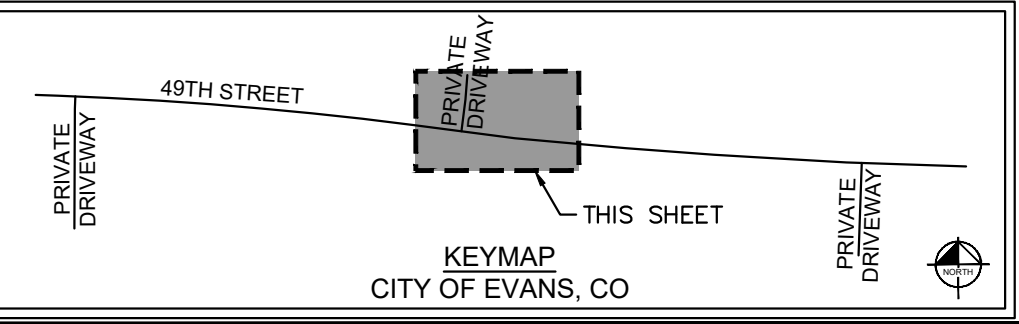
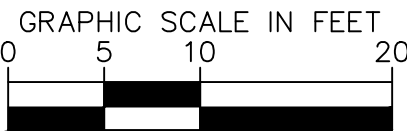
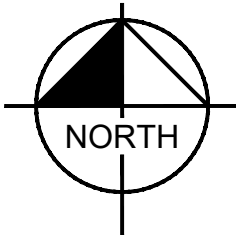
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- NOTES:
- REFERENCE THE CONCRETE BOX CULVERT PLAN AND PROFILE FOR APPROXIMATE UTILITIES VERTICAL LOCATION (POTHOLE DATA) SHEET 10.



PRINT DATE: August 29, 2025

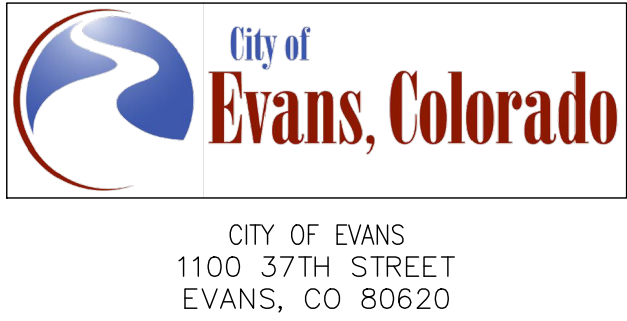
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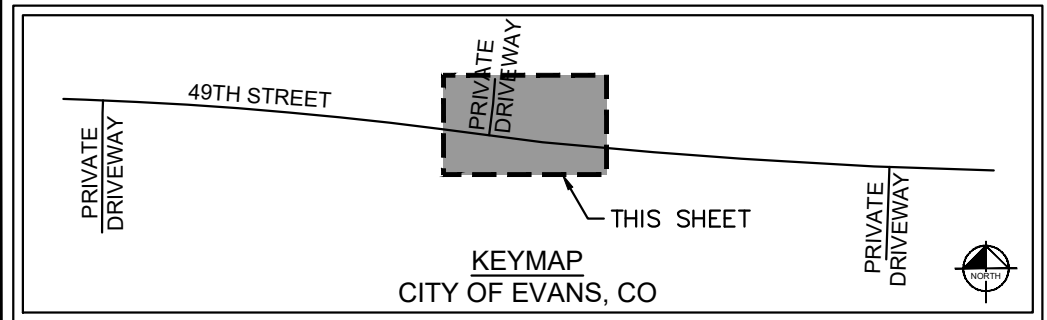
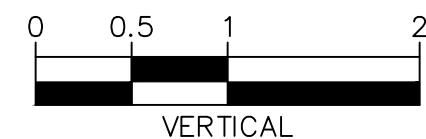
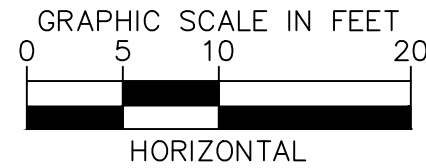
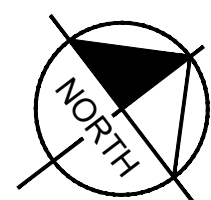
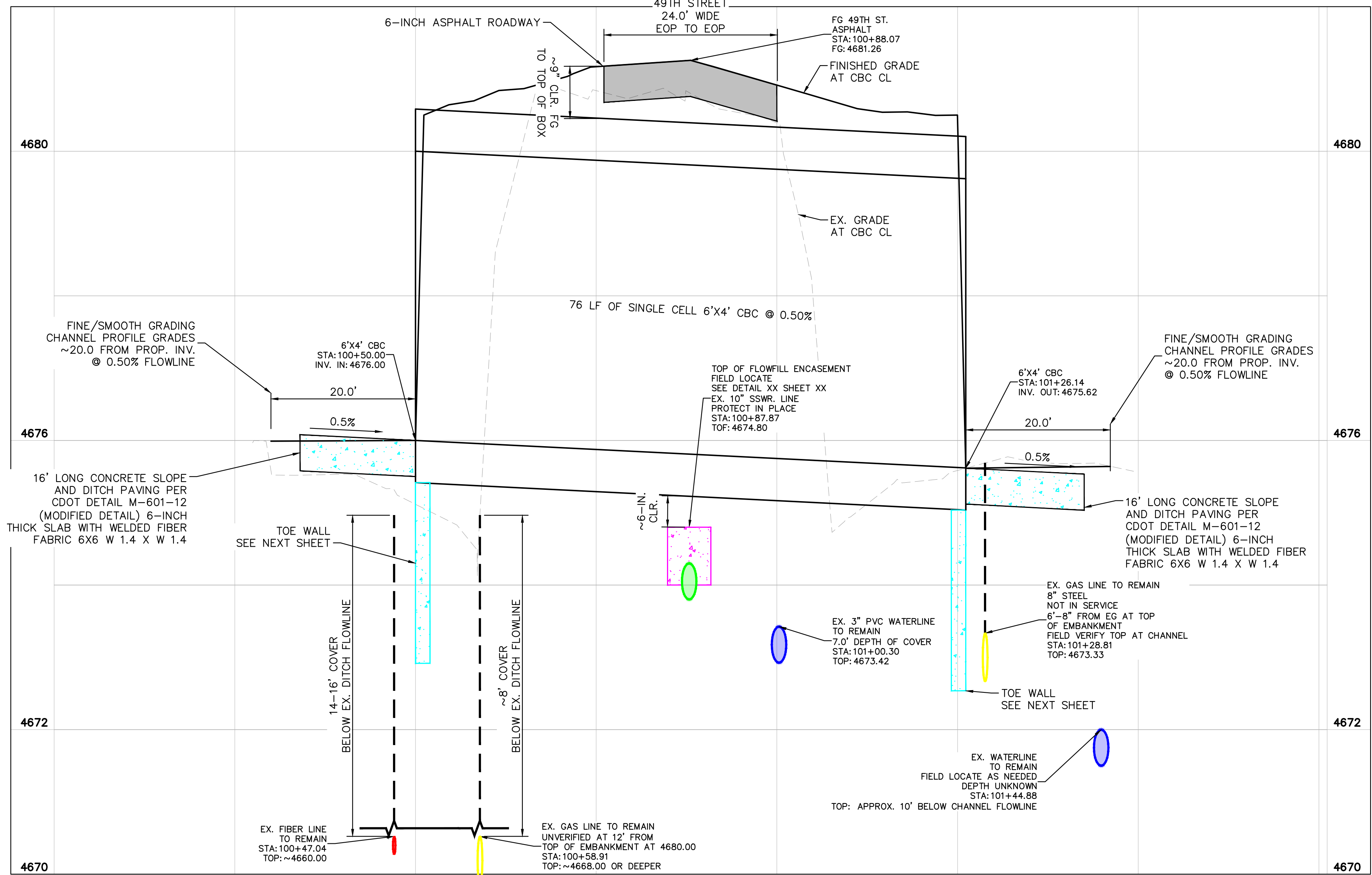
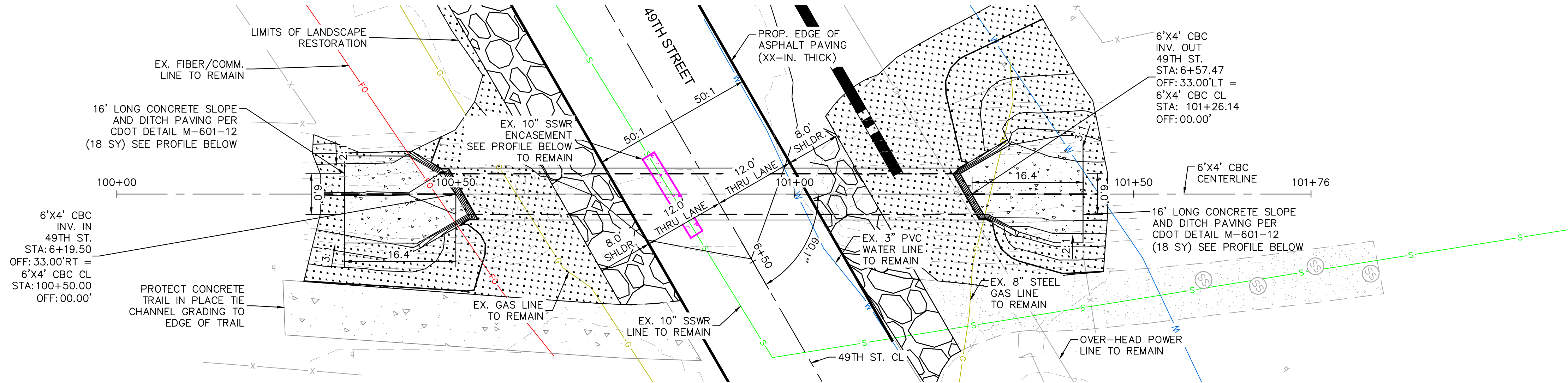


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CITY OF EVANS 49TH STREET CULVERT EMERGENCY REPLACEMENT DESIGN REMOVAL & RESET PLAN			
CHECKED BY:	AB		
DESIGNED BY:	MJK/DRL		
SHEET SUBSET:		SUBSET SHEET:	

PROJECT NO./CODE
296203001
SHEET NUMBER
06

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11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

(R-1)
(R-X)
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SHEET REVISIONS

DATE:	COMMENTS:	INITIAL:



CITY OF EVANS
1100 37TH STREET
EVANS, CO 80620

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Kimley-Horn and Associates, Inc.

CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN

CHECKED BY: AB

DESIGNED BY: MJK/DRL

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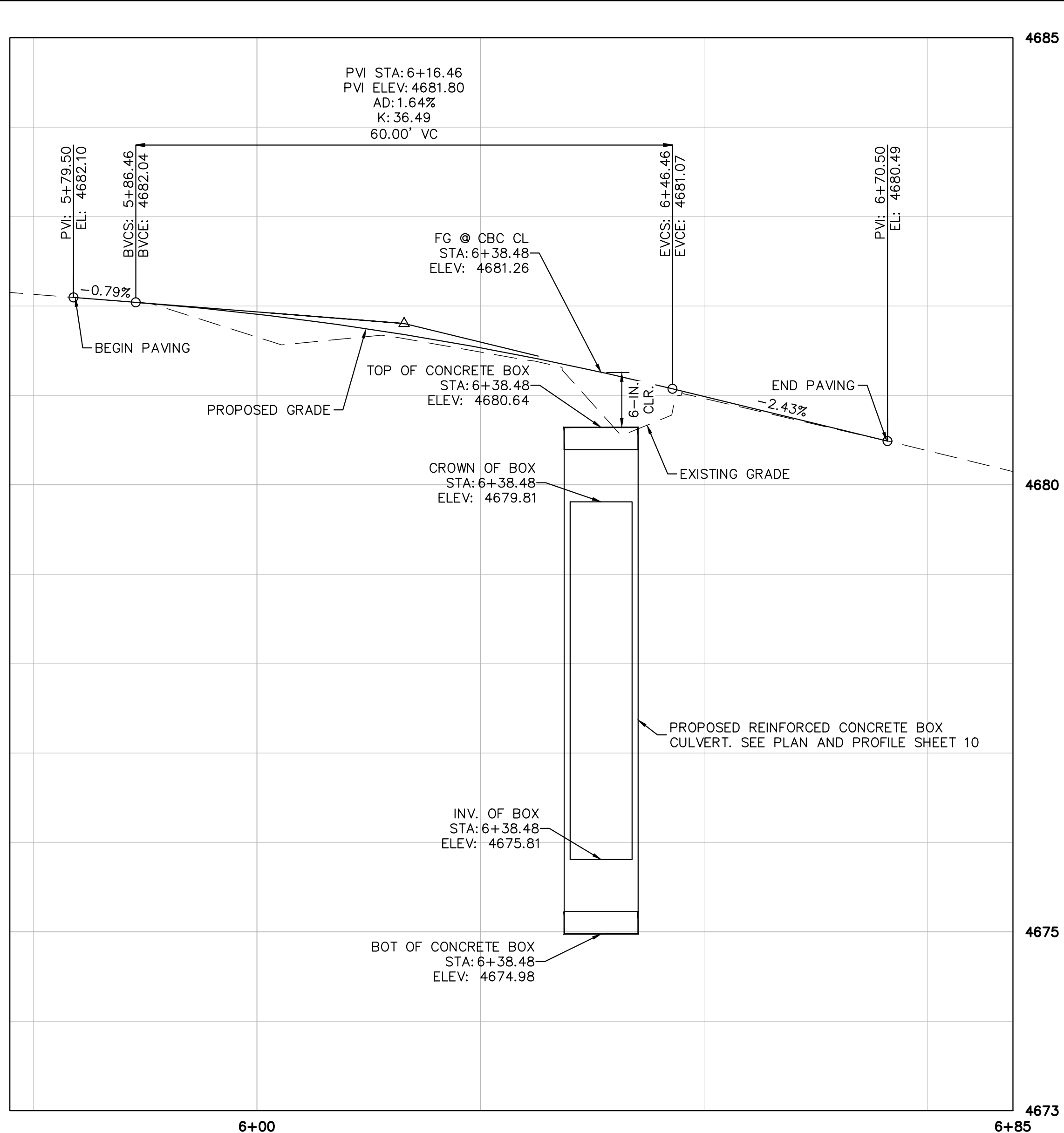
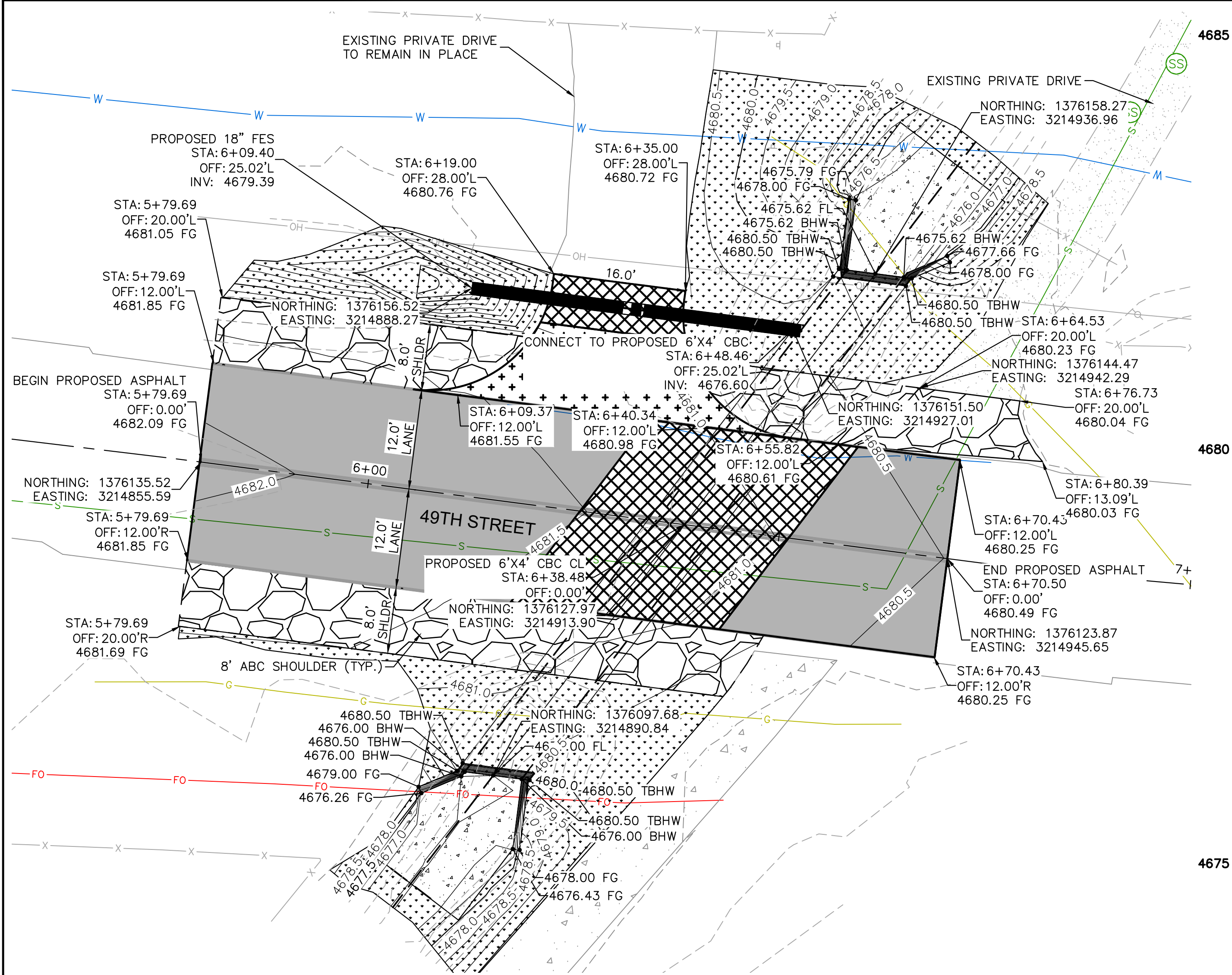
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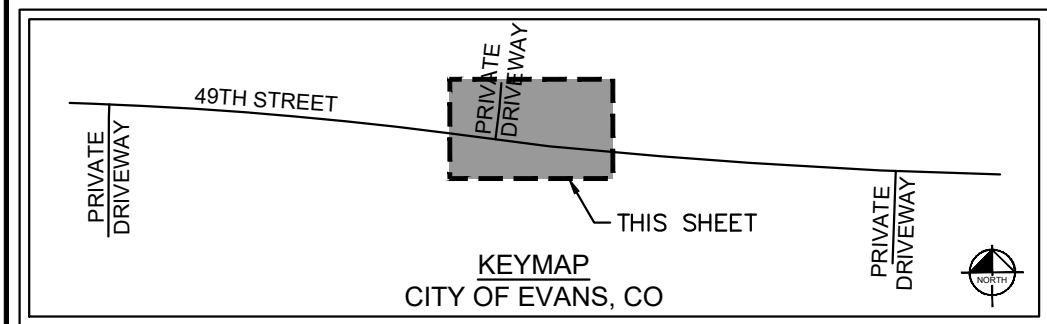
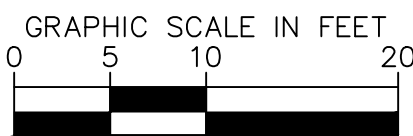
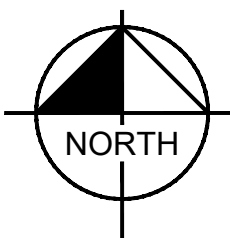
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ABBREVIATIONS:

TBHW - TOP BACK OF HEADWALL
BHW - BOTTOM OF HEADWALL
INV - INVERT OF BOX
FG - FINISHED GRADE
CL - CENTERLINE
CBC - CONCRETE BOX CULVERT
FES - FLARED END SECTION



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BROOMFIELD, CO 80021
PHONE: 720-399-8180

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City of Evans, Colorado

CITY OF EVANS
1100 37TH STREET
EVANS, CO 80620

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CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
ROADWAY PLAN AND PROFILE

CHECKED BY: AB

DESIGNED BY: MJK/DRL

SHEET SUBSET: SUBSET SHEET:

PROJECT NO./CODE

296203001

SHEET NUMBER **08**

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GENERAL NOTES

ALL CONSTRUCTION SHALL CONFORM TO THE COLORADO DEPARTMENT OF TRANSPORTATION 2025 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE COLORADO DEPARTMENT OF TRANSPORTATION M&S STANDARDS (2019).

STRUCTURE EXCAVATION AND BACKFILL SHALL BE AS SHOWN ON THE PLANS. CBC BACKFILL SHALL NOT BEGIN UNTIL TOP SLAB HAS REACHED DESIGN STRENGTH, f_c .

SULFATE EXPOSURE FOR THIS SITE IS CLASS 0.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M213.

THE FINAL FINISH FOR ALL EXPOSED CONCRETE SURFACES SHALL BE CLASS 1 FINISH TO ONE FOOT BELOW THE GROUND LINE. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED $\frac{3}{4}$ INCH.

ALL CONCRETE SHALL BE CONCRETE CLASS D (BOX CULVERT), UNLESS NOTED OTHERWISE.

ALL DIMENSIONS ARE PERPENDICULAR TO THE CENTERLINE OF THE BOX, UNLESS NOTED OTHERWISE. ALL TRANSVERSE REINFORCING SHALL BE NORMAL TO THE CENTERLINE OF THE CBC.

ASTM A615 GRADE 60 REINFORCING STEEL IS REQUIRED.

ALL REINFORCING STEEL SHALL BE EPOXY COATED UNLESS OTHERWISE NOTED.

(N) DENOTES NON COATED REINFORCING STEEL.

ALL REINFORCING STEEL SHALL BE SUPPORTED BY STEEL CHAIRS OR PRECAST MORTAR BLOCKS (DOBIES). PLASTIC CHAIRS SHALL NOT BE USED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION, AND FOR PROVIDING STABLE SLOPES DURING CONSTRUCTION.

STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

ALL PLAN DIMENSIONS ARE TRUE HORIZONTAL. THE CONTRACTOR AND/OR FABRICATOR IS RESPONSIBLE FOR INCORPORATING GRADE, CROSS SLOPE, AND OTHER EFFECTS THAT MAY IMPACT THE FINAL DIMENSIONS AND/OR DETAILING.

THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1897 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.

ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS PLACED.

WINGWALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD M-601-20.

- CONTRACTOR HAS THE OPTION TO PRECAST SEGMENTS OF THE CBC. IF THE CONTRACTOR ELECTS TO PRECAST SEGMENTS:
- A. PRECAST SEGMENT LENGTHS SHALL BE SPECIFIED BY THE MANUFACTURER.
 - B. PRECAST SEGMENTS AND INSTALLATION SHALL BE IN ACCORDANCE WITH CDOT STANDARD M-603-3, EXCEPT THAT BEDDING MATERIAL UNDER THE CBC SHALL BE MINIMUM 3' DEPTH AS SPECIFIED IN THE PLANS.
 - C. PREFORMED JOINT MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 198, 6.1 OR 6.2 (ASTM C 990, 6.1 OR 6.2). THE INTERIOR OF ALL JOINTS SHALL BE GROUTED ALONG THE FLOOR AND SIDES. THE EXTERIOR OF ALL JOINTS SHALL BE WRAPPED WITH BOX MACWRAP (MARMAC.COM), OR APPROVED EQUAL, PRIOR TO THE APPLICATION OF WATERPROOFING MEMBRANE. TENSIONING RATCHETS SHALL BE LOCATED ON THE SIDES OF THE PRECAST SEGMENTS, NOT THE TOP.
 - D. PAYMENT FOR PRECAST SEGMENTS, INCLUDING THE COST OF GROUT, MACWRAP (OR APPROVED EQUAL), PREFORMED JOINT MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS WILL BE MADE BASED ON THE UNIT PRICE BID FOR ITEMS AND QUANTITIES OF AN EQUIVALENT CAST-IN-PLACE BOX LENGTH AS DETERMINED BY FIELD MEASUREMENTS.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	CBC AND HEADWALLS	WINGWALLS	TOTAL
206-00100	STRUCTURE BACKFILL (CLASS 1)	CY	238	45	283
506-00030	GROUTED RIPRAP	CY	-	16	16
515-00120	WATERPROOFING (MEMBRANE)	SY	90	-	90
601-03030	CONCRETE CLASS D (BOX CULVERT)	CY	55	14	69
602-00020	REINFORCING STEEL (EPOXY COATED)	LB	12,400	1,451	13,851

INDEX OF DRAWINGS

- B01 GENERAL INFORMATION AND SAQ
B02 GENERAL LAYOUT AND DETAILS

DESIGN DATA

AASHTO, NINTH EDITION LRFD (2020) WITH CURRENT INTERIMS

DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN

LIVE LOAD: HL-93 (DESIGN TRUCK OR TANDEM, AND DESIGN LANE LOAD)
COLORADO PERMIT VEHICLE

LIVE LOAD SURCHARGE ON EXTERIOR WALLS = 2 FT.

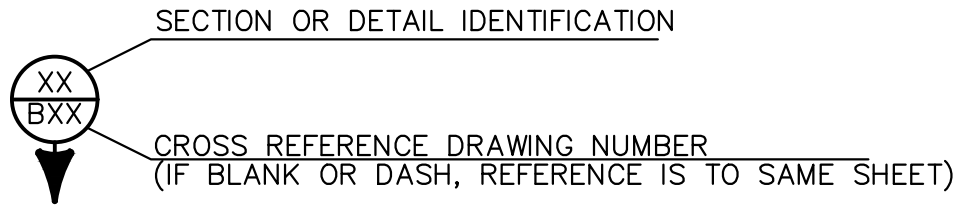
DEAD LOAD: CASE 1: VERTICAL EARTH LOAD = 120 PCF
HORIZONTAL EARTH LOAD = 30 PCF

DEAD LOAD: CASE 2: VERTICAL EARTH LOAD = 120 PCF
HORIZONTAL EARTH LOAD = 60 PCF

THRUST: THRUST = 0

REINFORCED CONCRETE:

CLASS D CONCRETE: f_c = 4,500 PSI
REINFORCING STEEL: f_y = 60,000 PSI



ABBREVIATIONS

- AH = AHEAD
BK = BACK
BF = BACK FACE
CLR = CLEARANCE
CONT = CONTINUOUS
EF = EACH FACE
EL. = ELEVATION
EXT = EXTERIOR
FF = FRONT FACE
MIN. = MINIMUM
TOT. = TOTAL
TYP. = TYPICAL
WSEL = WATER SURFACE ELEVATION
YR = YEAR

SEE STANDARD M-100-2 FOR ADDITIONAL ABBREVIATIONS.

BRIDGE DESCRIPTION

SINGLE CELL CAST-IN-PLACE CONCRETE BOX CULVERT
(6' X 4' X 76'-2") WITH A 29.9° SKEW
CARRIES 49TH STREET OVER EVANS TOWN DITCH



PRINT DATE: August 29, 2025

DRAWING FILE NAME:

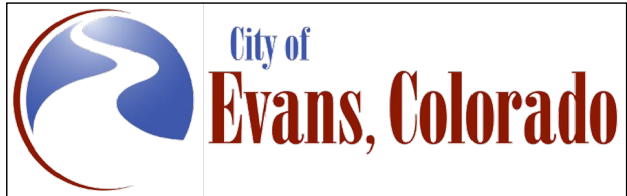
HORIZ. SCALE: VERT. SCALE:



KIMLEY-HORN AND ASSOCIATES, INC.
11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

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EVANS, CO 80620

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Kimley-Horn and Associates, Inc.

CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
BOX CULVERT GENERAL INFORMATION AND SAQ

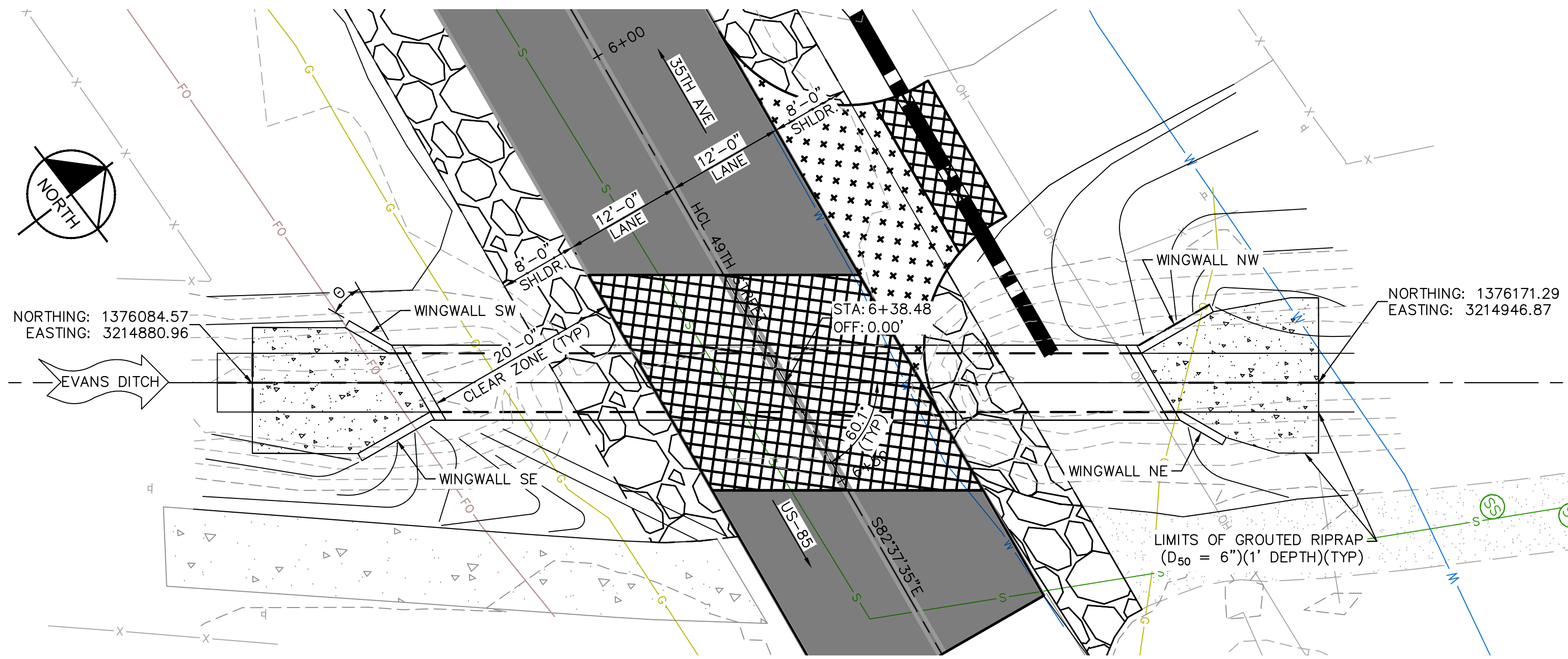
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DESIGNED BY:	MJK/DRL	
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PROJECT NO./CODE

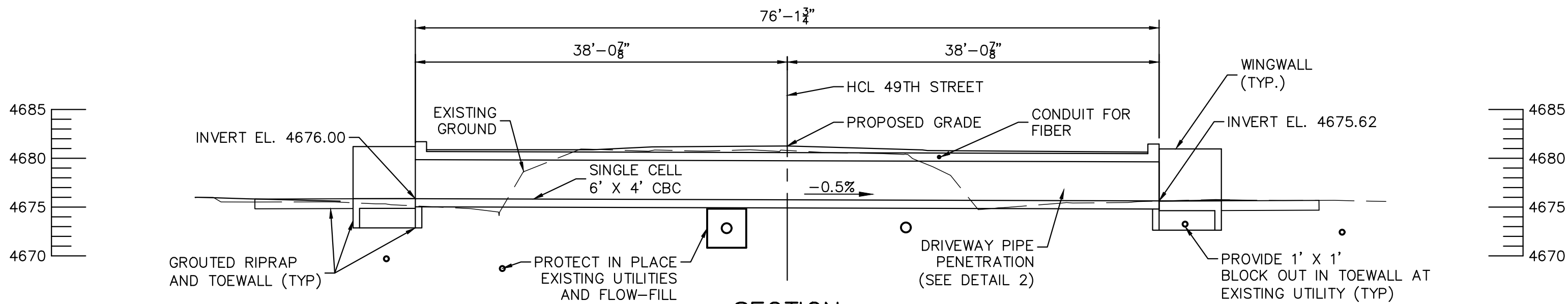
296203001

SHEET NUMBER 09

K:\DEN_PublicSector\296203001_City of Evans_49th St CBC\CADD\PlanSheets\XX_10_Box Culvert Gen Layout.dwg Bockel, Amy 8/29/2025 1:30 AM
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE. IT IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

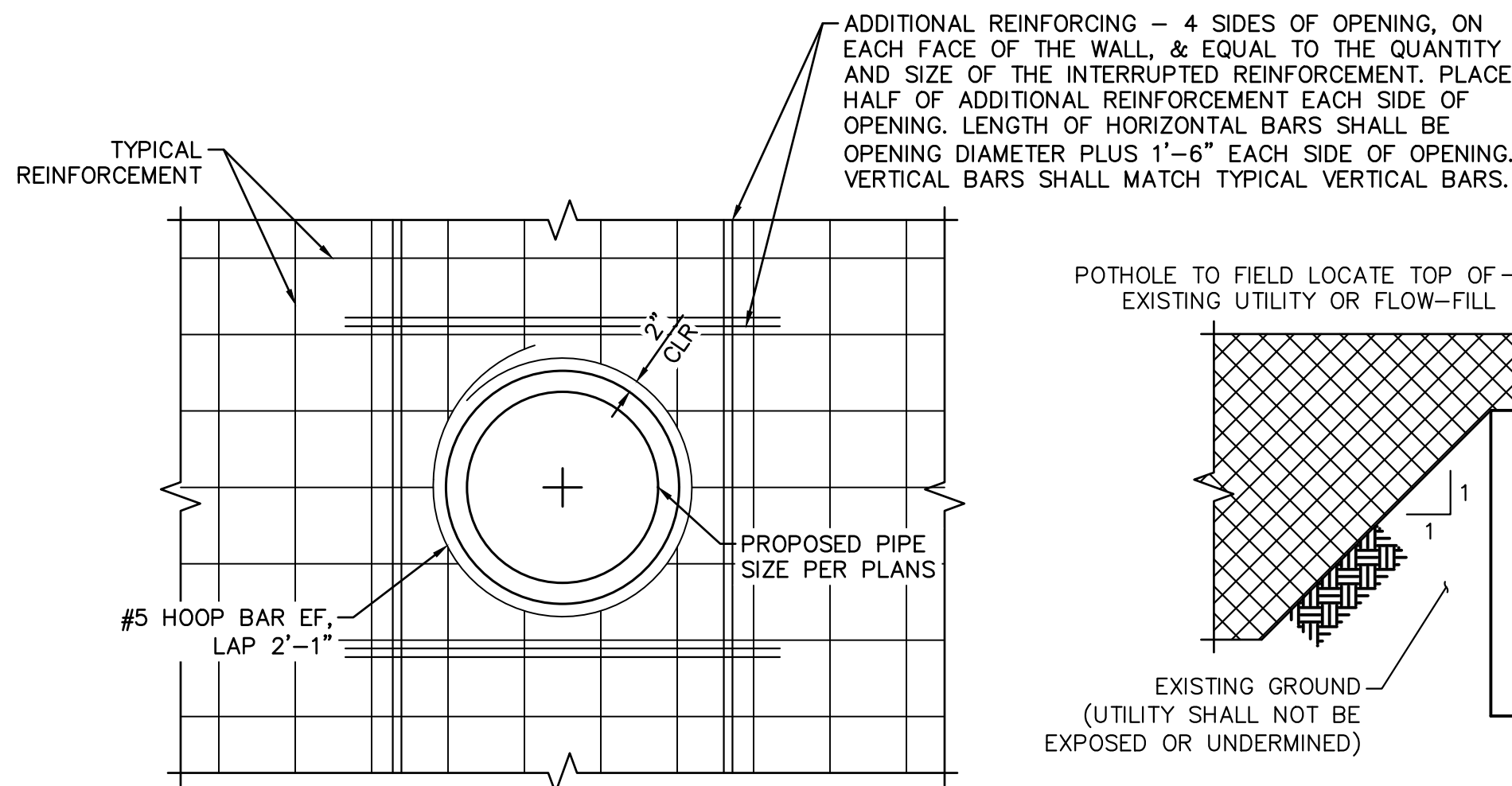


PLAN

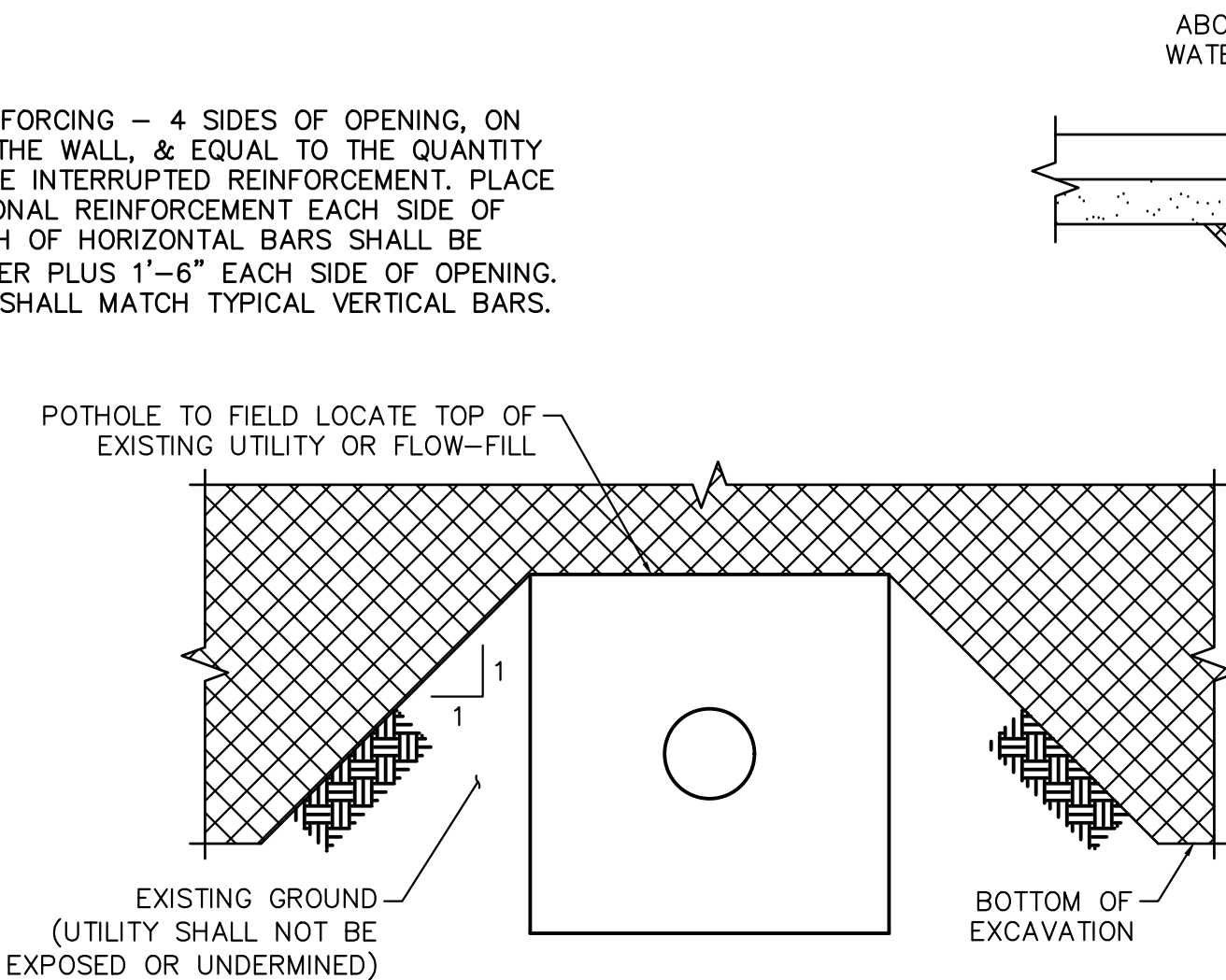


SECTION

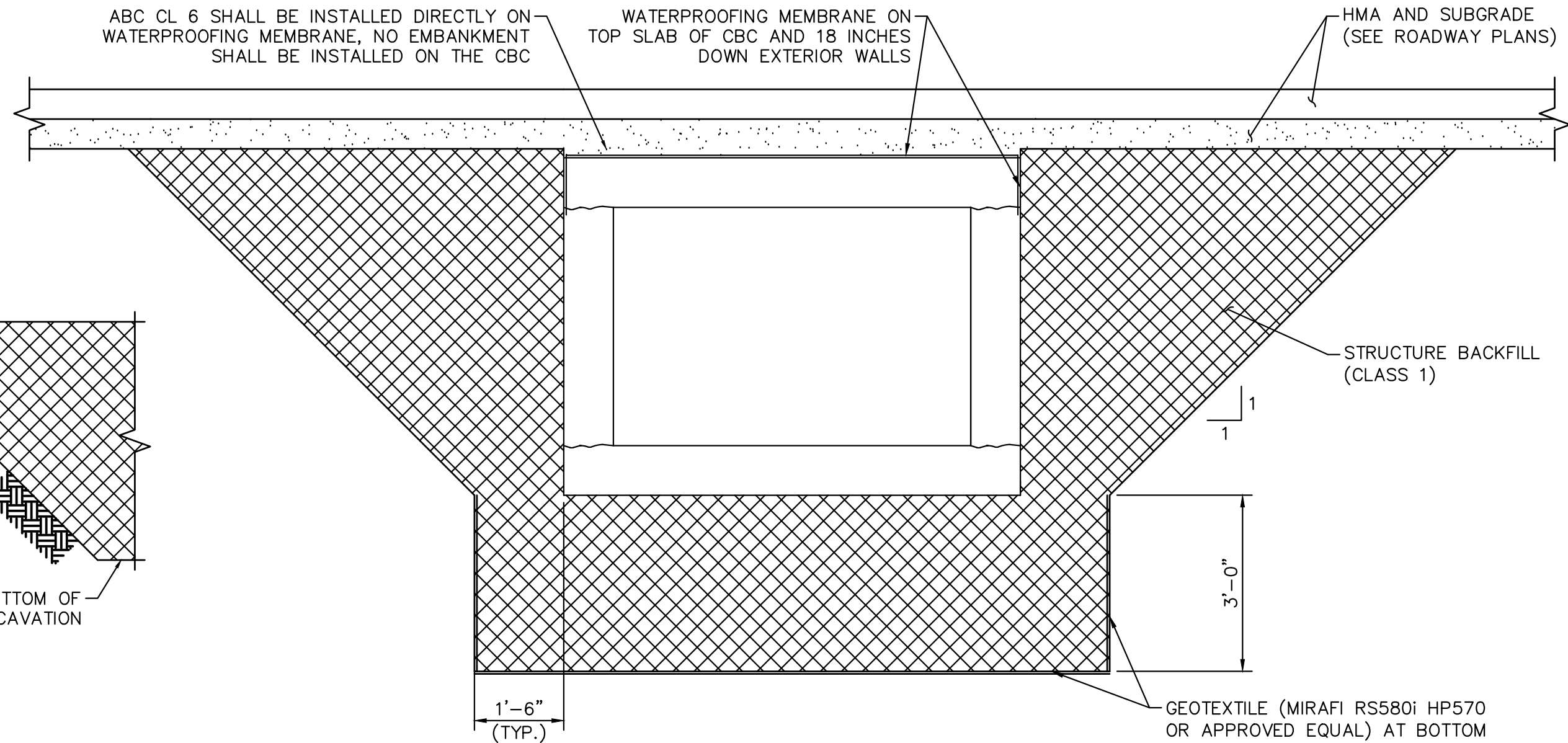
(TAKEN ALONG ∇ CULVERT) (DESIGN FILL = 1'-6")



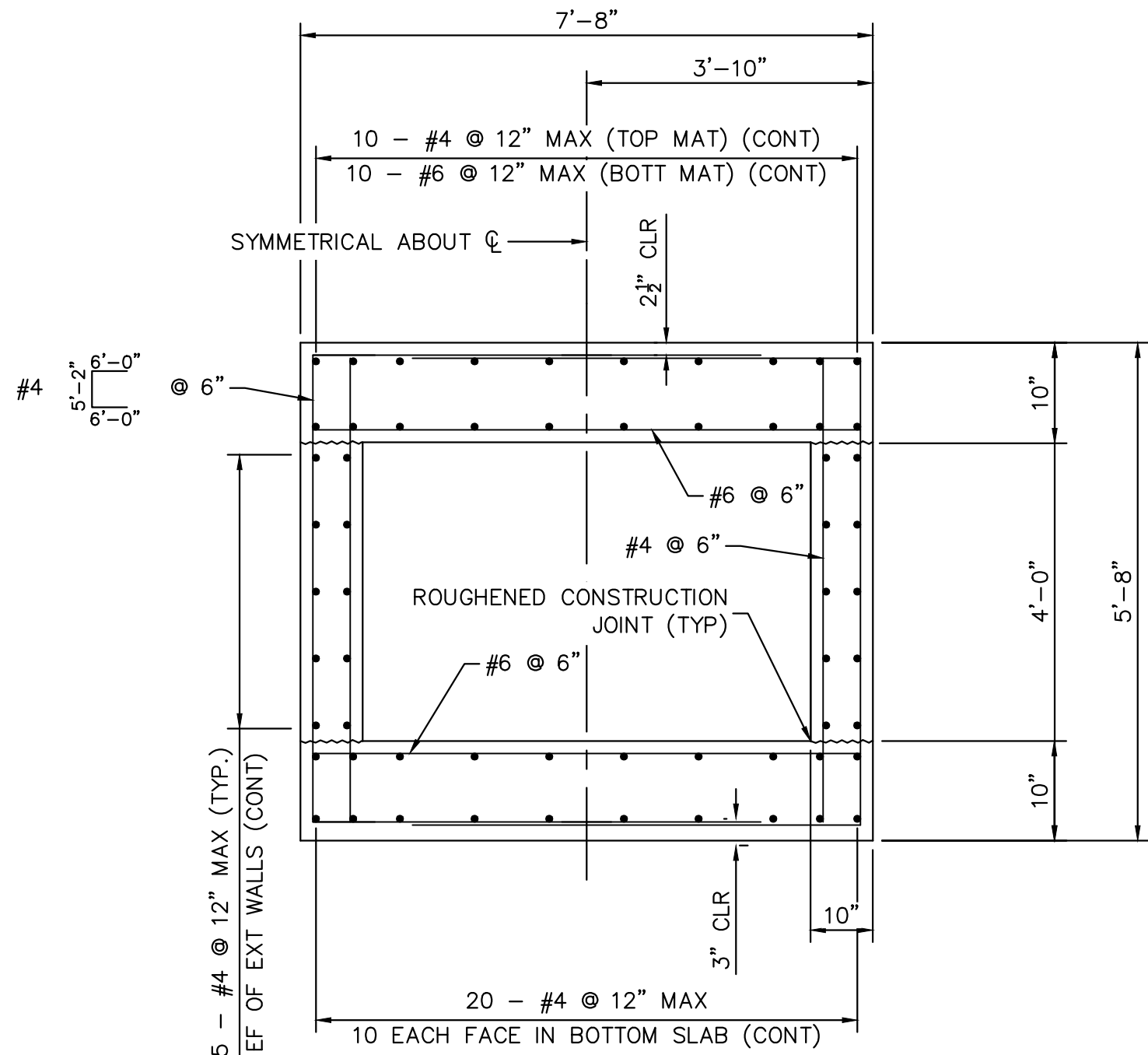
2 TYPICAL PIPE PENETRATION DETAIL
SCALE: N.T.S.



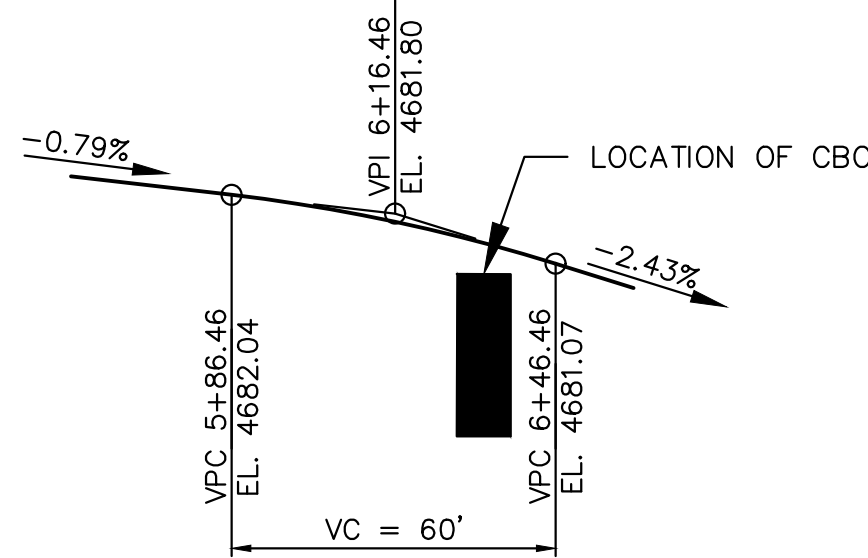
3 TYPICAL EXCAVATION AT UTILITY
SECTION PERPENDICULAR TO UTILITY



4 TYPICAL EXCAVATION AND BACKFILL
PERPENDICULAR TO ∇ CULVERT, WINGWALL SIMILAR



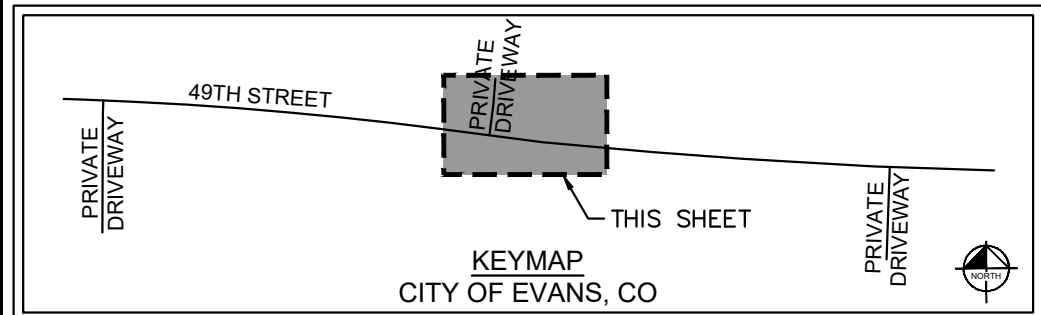
1 TYPICAL CBC SECTION
PERPENDICULAR TO ∇ CULVERT



PROFILE GRADE 49TH STREET

WINGWALL DIMENSIONS				
	k	m	L	θ
WINGWALL SW	5'-4"	5'-4"	5'-0"	30.1°
WINGWALL SE	5'-4"	5'-4"	8'-6"	90.1°
WINGWALL NW	5'-4"	5'-4"	5'-0"	90.1°
WINGWALL NE	5'-4"	5'-4"	8'-6"	30.1°

- NOTES:
- SEE SUE PLANS AND UTILITY SPECIFICATIONS FOR UTILITY INFORMATION. DEPTHS OF EXISTING UTILITIES SHOWN ON ELEVATION VIEW ARE ESTIMATED FROM RECORDS AND UTILITY OWNER ESTIMATES.
 - HYDRAULIC DESIGN CRITERIA WAS SPECIFIED BY THE CITY OF EVANS AS 35 CFS PEAK FLOW.
 - HEADWALLS AND TOEWALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD M-601-1. "Z" BARS SHALL BE #6 BARS.
 - WINGWALLS SHALL BE TIED TO THE CBC AND CONSTRUCTED IN ACCORDANCE WITH STANDARD M-601-20 USING THE VARIABLES DEFINED IN THE "WINGWALL DIMENSIONS" TABLE ON THIS SHEET. FOR VARIABLES NOT DEFINED IN THE M-601-20 STANDARD EXACTLY, USE THE NEXT HIGHEST AVAILABLE VALUE IN THE STANDARD WHEN SELECTING REINFORCING (FOR EXAMPLE, k = 6', m=7', ETC).
 - WINGWALLS SHALL HAVE CONCRETE SEALER APPLIED TO THE LIMITS SHOWN ON M-601-20, COST INCLUDED IN THE WORK.
 - MINIMUM CLASS B LAP SPICE LENGTH FOR #4 BARS SHALL BE 2'-4" AND FOR #6 BARS SHALL BE 3'-11". ALL REINFORCING STEEL SHALL BE EPOXY COATED.
 - REINFORCING STEEL SHALL HAVE 2" MINIMUM COVER UNLESS SHOWN OTHERWISE.



PRINT DATE: August 29, 2025

DRAWING FILE NAME:

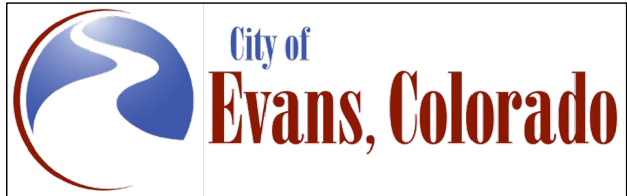
HORIZ. SCALE: VERT. SCALE:

Kimley»Horn

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11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

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CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
BOX CULVERT GENERAL LAYOUT AND DETAILS

CHECKED BY: AB
DESIGNED BY: MJK/DRL
SHEET SUBSET:

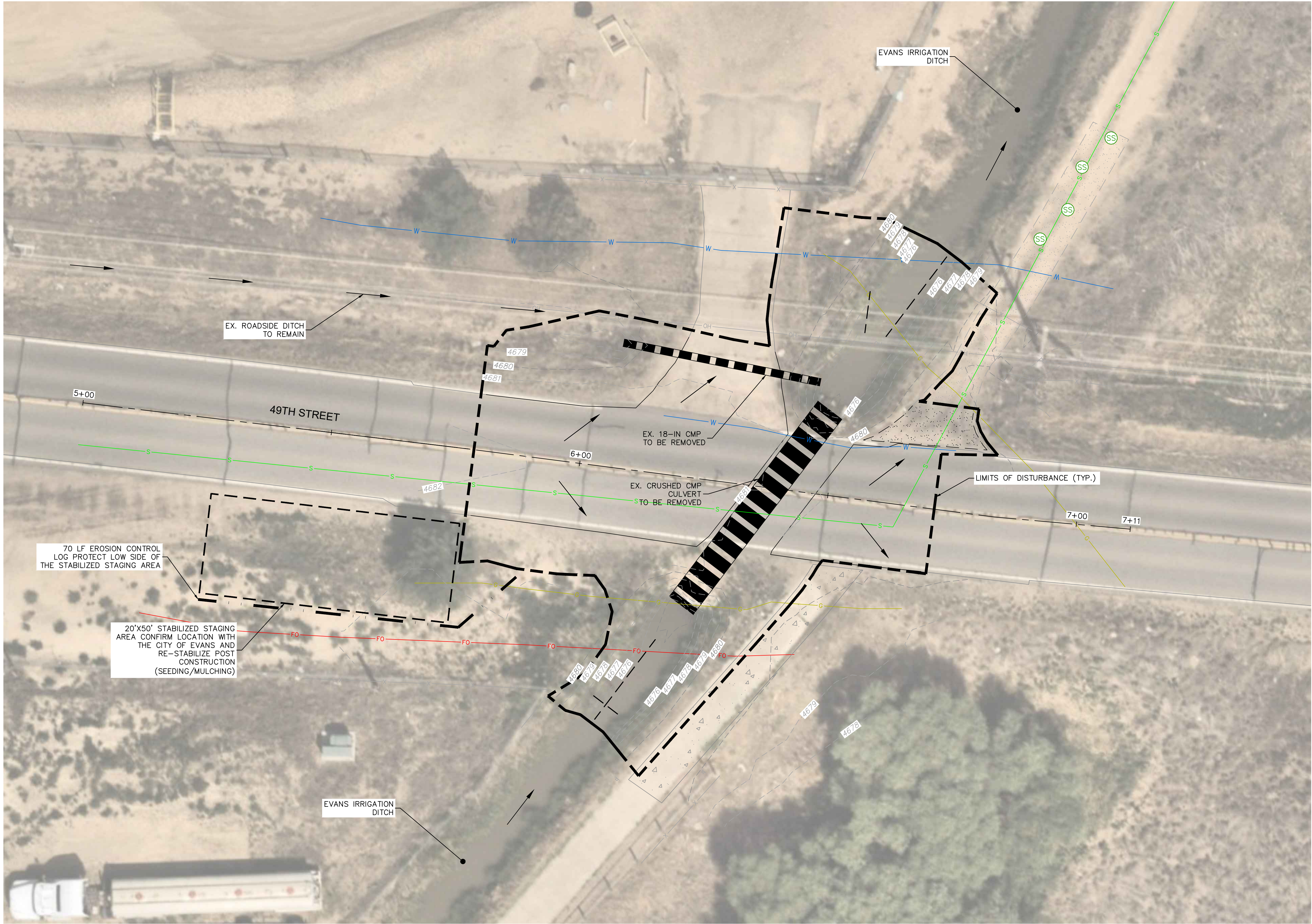
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PROJECT NO./CODE

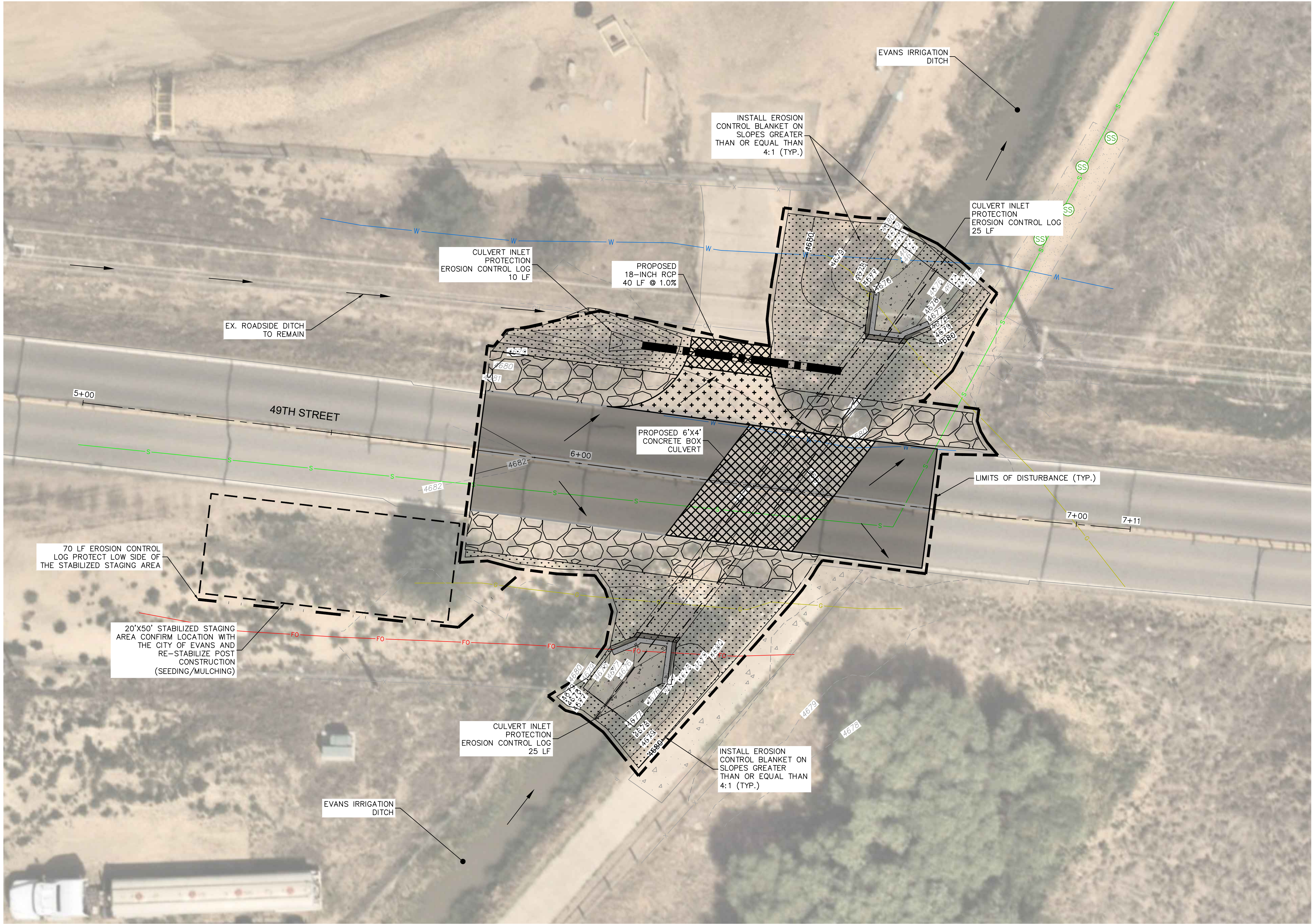
296203001

SHEET NUMBER 10

K:\DEN_PublicSector\296203001_City of Evans_49th St_CBC\CADD\PlanSheets\XX_10_SWMP.dwg Bockel, Amy, 8/29/2025 1:30 AM
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE, AND IS PREPARED FOR THE CITY OF EVANS, COLORADO, AND IS NOT TO BE USED FOR ANY OTHER PROJECT OR PURPOSE WITHOUT THE WRITTEN AUTHORIZATION OF KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

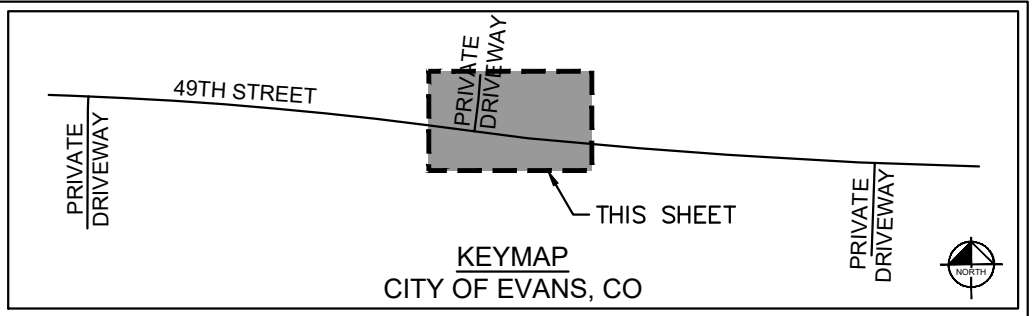
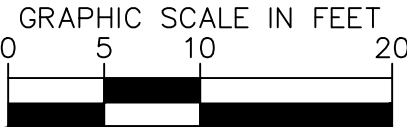
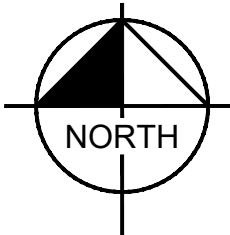


K:\DEN_PublicSector\296203001_City of Evans_49th St_CBC\CADD\PlanSheets\XX_10_SWMP.dwg, Bockel, Amy, 8/29/2025 1:30 AM
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NOTES:

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DESIGNED IN CONFORMANCE CDPHE (COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT) STORMWATER MANAGEMENT PLAN PREPARATION GUIDANCE AND USCDM. ALL LAND DISTURBING ACTIVITIES WITHIN THE CITY OF EVANS SHALL BE IN COMPLIANCE WITH APPLICABLE COLORADO DISCHARGE PERMIT SYSTEM (CDPS) STORMWATER, THE CITY OF EVANS MS4 PROGRAM, AND COLORADO AIR QUALITY CONTROL COMMISSION REGULATIONS.



PRINT DATE: August 29, 2025

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VERT. SCALE:

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11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

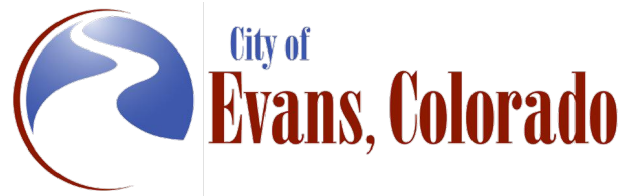
SHEET REVISIONS

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DATE:

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EVANS, CO 80620

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Kimley-Horn and Associates, Inc.

CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
FINAL SWMP

CHECKED BY:

AB

DESIGNED BY:

MJK/DRL

SHEET SUBSET:

SUBSET SHEET:

PROJECT NO./CODE

296203001

SHEET NUMBER 12

K:\DEN_PublicSector\296203001_City of Evans_49th St CBC\CADD\PlanSheets\XX_10_SWMP.dwg Bockel, Amy 8/29/2025 1:30 AM
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GENERAL NOTES:

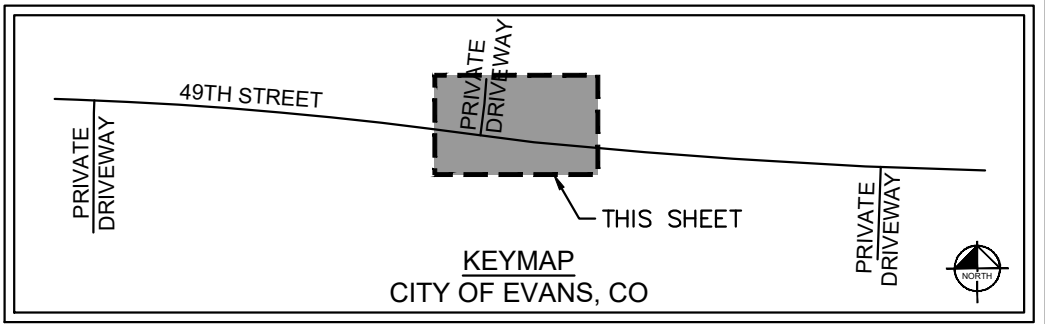
1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DESIGNED IN CONFORMANCE CDPHE (COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT) STORMWATER MANAGEMENT PLAN PREPARATION GUIDANCE AND USODM. ALL LAND DISTURBING ACTIVITIES WITHIN THE CITY OF EVANS SHALL BE IN COMPLIANCE WITH APPLICABLE COLORADO DISCHARGE PERMIT SYSTEM (CDPS) STORMWATER, THE CITY OF EVANS MS4 PROGRAM, AND COLORADO AIR QUALITY CONTROL COMMISSION REGULATIONS.
2. REFER TO THE REMOVAL RESET PLANS AND SUE PLANS FOR LOCATION (APPROXIMATE) OF ALL EXISTING UTILITIES.
3. EXACT LOCATION OF STABILIZED STAGING AREA (SSA) TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR. CONTRACTOR TO ENSURE STABILIZED STAGING AREA IS INSTALLED WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTOR SHALL VERIFY STAGING AND STORAGE LOCATION WITH THE CITY OF EVANS AND ENGINEER BEFORE CONSTRUCTION. STABILIZED STORAGE SHALL NOT BE PLACED IN CONCENTRATED FLOW PATH OF RUNOFF.
4. EXACT LOCATION OF VEHICLE TRACKING CONTROL (VTC) SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. CONTRACTOR TO ENSURE VTC IS INSTALLED WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THESE PLANS AND VERIFIED BY THE CITY OF EVANS..
5. CONTRACTOR TO ENSURE PROTECTION OF TREES WITHIN AND ADJACENT TO LIMITS OF CONSTRUCTION.
6. CONTRACTOR TO INSTALL INLET PROTECTION ON ALL DOWNSTREAM INLETS AND CULVERTS NOT SHOWN ON PLANS.
7. CONTRACTOR TO PROVIDE STREET SWEEPING ON ALL ROADWAYS AS NECESSARY.
8. ALL EXISTING AND PROPOSED CULVERTS WITHIN THE PROJECT LIMITS AND DOWNSTREAM OF THE PROJECT SHALL BE CLEANED AFTER CONSTRUCTION COMPLETION.

SWMP PHASING NOTES:

1. STABILIZED STAGING AREA SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND REMOVED AT THE END OF CONSTRUCTION.
2. INLET PROTECTION TO BE PLACED AROUND EXISTING INLETS PRIOR TO CONSTRUCTION ACTIVITY. INLET PROTECTION SHALL BE INSTALLED UPON PROPOSED INLET INSTALLATION. ALL INLET PROTECTION TO BE REMOVED AFTER FINAL STABILIZATION HAS BEEN ACHIEVED.
3. ALL TEMPORARY CONTROL MEASURES TO BE REMOVED AFTER INSTALLMENT OF IMPROVEMENTS AND AFTER FINAL STABILIZATION HAS BEEN ACHIEVED.
4. ALL DISTURBED LANDSCAPE AREA WITHIN THE LIMITS OF CONSTRUCTION TO BE SEEDED AND MULCHED POST PROJECT GRADING IMPROVEMENTS.
5. CHECK DAMS TO BE PLACED AT A DISTANCE SUCH THAT THE TOE OF THE UPSTREAM CHECK DAM AND DOWNSTREAM TOP OF CHECK DAM ARE THE SAME ELEVATION (AS APPLICABLE).
6. CHECK DAMS TO BE REMOVED AFTER INSTALLMENT OF IMPROVEMENTS AND AFTER FINAL STABILIZATION HAS BEEN ACHIEVED. WHEN CHECK DAMS ARE REMOVED, VEGETATION IS TO BE RESTORED (AS APPLICABLE)..
7. CONTRACTOR SHALL CLEAN, REMOVE, AND PROPERLY DISPOSE OF ALL SEDIMENT AND DEBRIS BUILD-UP AT ALL CONTROL MEASURES.
8. CULVERT PROTECTION TO BE PLACED AROUND EXISTING CULVERTS PRIOR TO CONSTRUCTION ACTIVITY. CULVERT PROTECTION SHALL BE INSTALLED UPON PROPOSED CULVERT INSTALLATION. ALL CULVERT PROTECTION TO BE REMOVED AFTER FINAL STABILIZATION HAS BEEN ACHIEVED.

STORM DRAINAGE NOTES:

1. ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR "STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY". FOR INFORMATION CONTACT THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION, SQCD-PE-B2, 4300 CHERRY CREEK DRIVE SOUTH, DENVER, COLORADO 80246-1530, ATTENTION PERMITS AND ENFORCEMENT SECTION. (303) 692-3575. THE WATER QUALITY PERMITTING PAGE CAN BE ACCESSED AT WWW.CDPHE.STATE.CO.US/WQ/PERMITSUNIT/WQCDPMT.HTML.
2. IF THE CONSTRUCTION SITE IS ONE ACRE OR GREATER IN SIZE, OR IF ANY FORM OF DE-WATERING IS TO BE USED ON THE CONSTRUCTION SITE, THEN PROOF OF A STORM WATER DISCHARGE PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT IS REQUIRED TO BE SUBMITTED TO THE CITY OF EVANS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY.
3. THE GENERAL CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE WORK, AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
4. THE GENERAL CONTRACTOR SHALL GIVE THE CITY OF EVANS AT LEAST 24 HOURS ADVANCE NOTICE BEFORE BEGINNING CONSTRUCTION. A PRE-CONSTRUCTION MEETING WITH THE CITY OF EVANS IS THE PREFERRED METHOD OF NOTIFYING THE CITY OF CONSTRUCTION ACTIVITY.
5. ALL STORM WATER CONSTRUCTION SHALL CONFORM TO THE CITY OF EVANS STANDARDS AND SPECIFICATIONS CURRENT TO THE DATE OF CONSTRUCTION. A CURRENT COPY CAN BE DOWNLOADED FROM THE CITY OF EVANS WEBSITE AT WWW.EVANSCOLORADO.GOV.
6. ALL STORM WATER PIPE SHALL BE CONCRETE REINFORCED PIPE AND SHALL MEET ASTM C-76 CLASS III STANDARDS, UNLESS NOTED, OR APPROVED OTHERWISE. ALL STORM WATER PIPE JOINTS SHALL BE INTEGRAL BELL AND SPIGOT WITH RUBBER O-RING TYPE GASKETS PER ASTM C-361.
7. STORM SEWER MANHOLES SHALL BE 4 FOOT DIAMETER FOR 30 INCH PIPE OR LESS, AND 5 FOOT DIAMETER FOR 36 INCH PIPE OR LARGER. FOR SIZES ABOVE 36 INCH, CONCRETE JUNCTION BOXES, OR PRE-CAST MANHOLE TEES MUST BE DETAILED BY THE DESIGN ENGINEER.
8. ALL PIPES ENTERING THE MANHOLE SHALL BE COMPLETELY GROUTED WITH NON-SHRINK GROUT AROUND THE OUTSIDE DIAMETER OF THE PIPE AND THE MANHOLE WALLS.
9. ALL STORM SEWER MANHOLE LIDS AND STORM SEWER INLET LIDS SHALL BE CAST DUCTILE IRON AND BEAR THE "FISH" LOGO WITH THE WORDING "NO DUMPING DRAINS TO RIVER".
10. MANHOLE TESTING MAY BE NECESSARY IF THE MANHOLE IS LOCATED WITHIN AN AREA OF HIGH GROUND WATER.
11. MANHOLE ELEVATIONS ARE APPROXIMATE AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. THE PAVING CONTRACTOR SHALL USE NO MORE THAN 4 CONCRETE ADJUSTMENT RINGS, OR AN APPROVED EQUAL TO MATCH FINAL PAVEMENT ELEVATIONS.
12. ALL MANHOLE OR INLET STATIONING REFERS TO THE CENTER OF THE MANHOLE, OR THE CENTER OF THE INLET. ALL PIPE LENGTHS ARE MEASURED TO THE CENTER OF THE MANHOLE AND THE INSIDE EDGE OF THE INLET.
13. THE CITY OF EVANS SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF STORM DRAINAGE FACILITIES LOCATED ON PRIVATE PROPERTY. MAINTENANCE OF ONSITE DRAINAGE STRUCTURES AND FACILITIES SHALL BE THE RESPONSIBILITY OF THE DEVELOPER / OWNER UNTIL THE FINAL ACCEPTANCE OF THE PROJECT IS COMPLETE.



PRINT DATE: August 29, 2025

DRAWING FILE NAME:

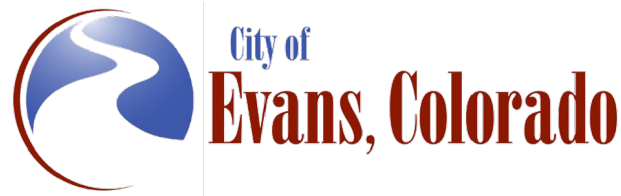
HORIZ. SCALE: VERT. SCALE:



KIMLEY-HORN AND ASSOCIATES, INC.
11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

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R-X		
R-X		
R-X		



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1100 37TH STREET
EVANS, CO 80620

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CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
SWMP NOTES

CHECKED BY: AB

DESIGNED BY: MJK/DRL

SHEET SUBSET: SUBSET SHEET:

PROJECT NO./CODE

296203001

SHEET NUMBER 13

K:\DEN_PublicSector\296203001_City of Evans_49th St CBC\CADD\PlanSheets\XX_10_SWMP.dwg, Backel, Amy, 8/29/2025 1:31 AM
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SEEDING AND MULCHING INSTALLATION NOTES

- All brands furnished shall be free from such noxious seeds as Russian or Canadian thistle, coarse fescue, European bindweed, Johnson grass, Knap weed, and leafy spurge.
- The seeder shall furnish to the Contractor a signed statement certifying that the seed furnished is from a lot that has been tested by a recognized laboratory. Seed that has become wet, moldy, or otherwise damaged in transit or in storage, will not be acceptable. Seed tickets shall be provided to the Engineer upon request.
- Drill seeding mix shall conform to the seed mix table.
- If the seed available on the market does not meet the minimum purity and germination percentages specified, the subcontractor must compensate for a lesser percentage of purity or germination by furnishing sufficient additional seed to equal the specified product. The tags from the seed mixes must be supplied to contractor and forwarded to the Engineer.
- The formula used for determining the quantity of pure live seed (PLS) shall be (pounds of seed) X (purity) X (germination) = pounds of pure live seed (PLS).
- Perminate seed mix shall be used unless otherwise approved by the Engineer.
- All areas to be seeded and mulched shall have native topsoil or approved soil amendments spread to a depth of at least 6 inches (loose depth). Haul roads and other compacted areas shall be loosened to a depth of 6 inches prior to spreading topsoil.
- Soil is to be thoroughly loosened (tilled) to a depth of at least 6 inches prior to seeding. The top 6 inches of the seed bed shall be free of rocks greater than 4 inches and soil clods greater than 2 inches. Seeding over any compacted areas that haven't been thoroughly loosened shall be rejected.
- Seed is to be applied using a mechanical drill to a depth of 1/4 inch. Row spacing shall be no more than 6 inches. Material used for mulch shall consist of long-stemmed straw. At least 50 percent of the mulch, by weight, shall be 10 inches or more in length. Mulch shall be applied and mechanically anchored to a depth of at least 2 inches. Mulch shall be applied at a rate of 4000 Lb. of straw per acre.
- If the permittee demonstrates to the Engineer that it is not possible to drill seed, seed is to be uniformly broadcast at two times the drilled rate, then lightly harrowed to provide a seed depth of approximately 1/4 inch, then rolled to compact, then mulched as specified above.
- Seeding and mulching shall be completed within 30 days of initial exposure or 7 days after grading is substantially complete in a given area (as defined by the Engineer). This may require multiple mobilizations for seeding and mulching.
- Mulch shall be applied within 24-hours of seeding.
- Tackifier should be utilized to help with straw displacement.



STANDARDS & SPECIFICATIONS

REVISED:

EROSION AND SEDIMENT
SEED AND MULCHING

DATE: DRAWING NO. 600-10

DRILL SEEDING MIX

- Seed shall be drilled only (no hydroseed).
- Seed type and amount of pure live seed (PLS) required per acre shall be:

NATIVE AREA SEED MIX

SEED NAME	BOTANIC NAME	% IN MIX	POUNDS OF PLS PER ACRE
Slender Wheatgrass	Agropyron Trachycaulum	0%	3 lbs.
Mountain Brome	Bromus Marginatus	0%	3 lbs.
Indian Ricegrass	Oryzopsis Hymenoides	0%	2 lbs.
Thickspike Wheatgrass	Agropyron Dasystachyum	0%	2 lbs.
Western Wheatgrass	Agropyron Smithii	0%	2 lbs.
Arizona Fescue	Festuca Arizonica	0%	2 lbs.
Sandburg Bluegrass	Poa Sandbergii	0%	0.5 lbs.
Rocky Mountain Penstemon	Penstemon Strictus	0%	0.5 lbs.
Blue Flax	Linium Lewisii	0%	0.5 lbs.
Mountain Lupine	Lupinus Alpestris	0%	1 lbs.
Lance-leaved Coreopsis	Coreopsis Lanceolata	0%	0.5 lbs.
Rubber Rabbitbrush	Chysothanus Nauseosus	0%	0.5 lbs.
Fringed Sagebrush	Artemisia Frigida	0%	0.3 lbs.
Prairie Sage	Artemisia Ludoviciana	0%	0.2 lbs.
		TOTAL	22.5 lbs.

SWALES/DRAINAGE AREA SEED MIX

SEED NAME	BOTANIC NAME	% IN MIX	POUNDS OF PLS PER ACRE
Streambank Wheatgrass	Agropyron Riparium	0%	4 lbs.
Thickspike Wheatgrass	Agropyron Dasystachyum	0%	7 lbs.
Mountain Brome	Bromus Marginatus	0%	3 lbs.
Western Wheatgrass	Agropyron Smithii	0%	3 lbs.
Tufted Hairgrass	Deschampsia Caespitosa	0%	2 lbs.
Nuttall Alkaligrass	Puccinellia Airoides	0%	0.5 lbs.
Western Yarrow	Achillea Lanulosa	0%	0.5 lbs.
New England Aster	Aster Novae-angliae	0%	0.5 lbs.
Rocky Mountain Iris	Iris Missouriensis	0%	0.5 lbs.
		TOTAL	21.0 lbs.



STANDARDS & SPECIFICATIONS

REVISED:

SEED MIX

DATE: DRAWING NO. 600-11

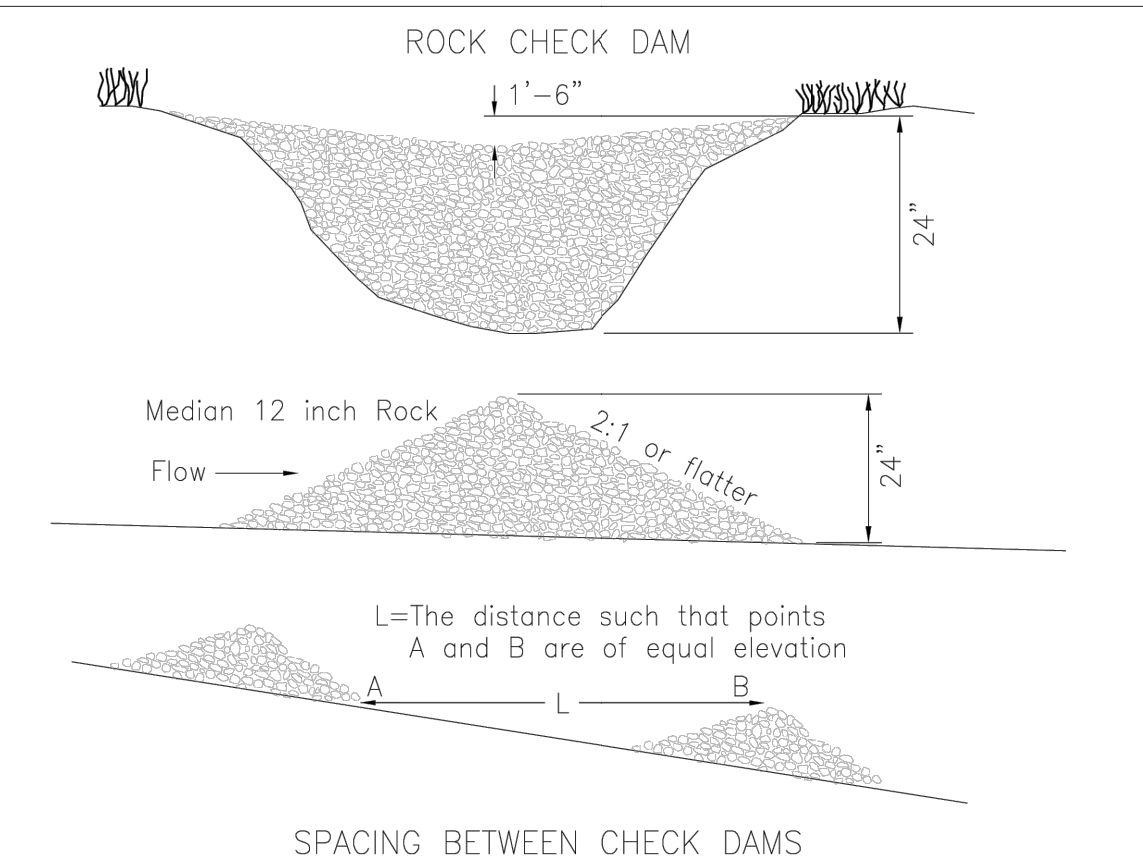
CHECK DAM

Definition

Small temporary dam constructed across a swale or drainage ditch.

Purposes

To reduce the velocity of stormwater flows and erosion of the swale or ditch.



N.T.S.



STANDARDS & SPECIFICATIONS

REVISED:

CHECK DAM
DETAIL

DATE: DRAWING NO. 600-02

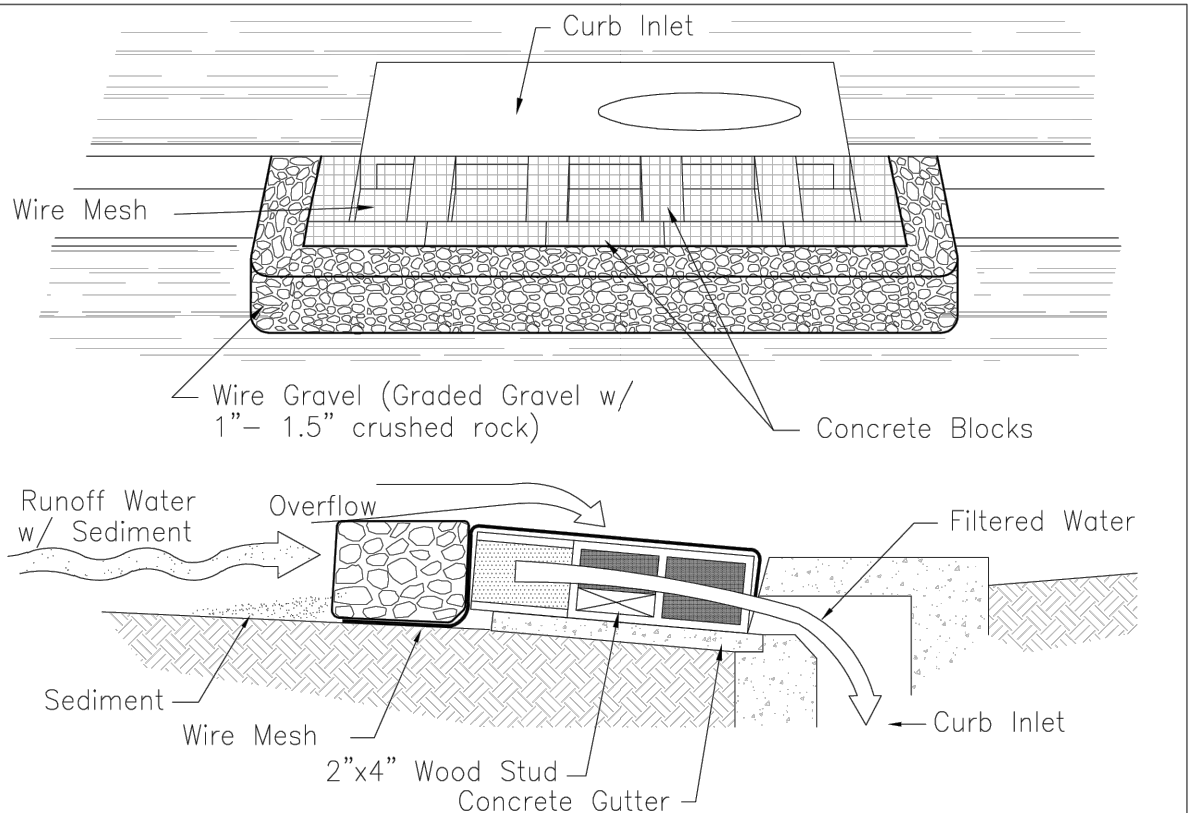
INLET PROTECTION

Definition

A sediment filter or an excavated impounding area around a storm drain drop inlet or curb inlet.

Purposes

To reduce sediment from entering storm drainage systems prior to permanent stabilization of disturbed areas.



STANDARDS & SPECIFICATIONS

REVISED:

INLET PROTECTION
DETAIL

DATE: DRAWING NO. 600-05

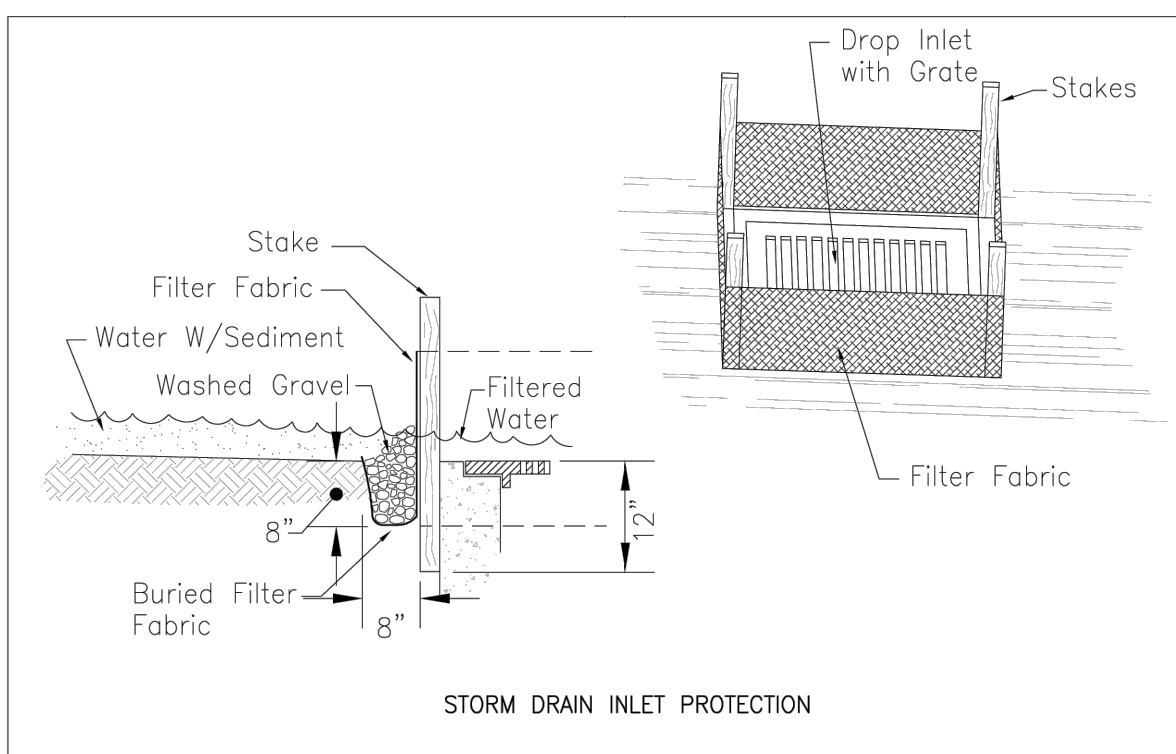
INLET PROTECTION

Definition

A sediment filter or an excavated impounding area around a storm drain or curb inlet.

Purposes

To reduce sediment from entering storm drainage systems prior to permanent stabilization of disturbed area.



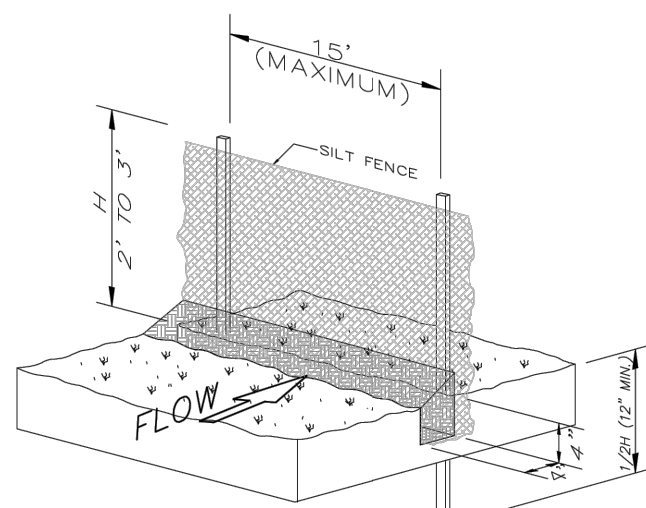
STANDARDS & SPECIFICATIONS

REVISED:

INLET PROTECTION
DETAIL

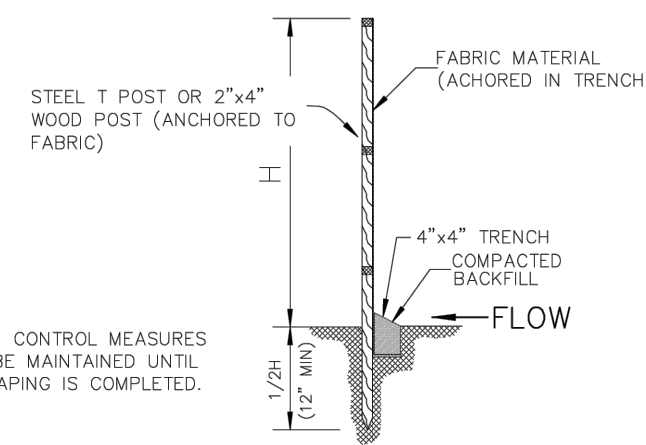
DATE: DRAWING NO. 600-06

SILT FENCE EROSION BARRIER



SILT FENCE INSTALLATION

N.T.S.



NOTE: EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL LANDSCAPING IS COMPLETED.

SECTION

N.T.S.



STANDARDS & SPECIFICATIONS

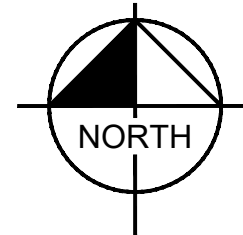
REVISED:

SILT FENCE
EROSION BARRIER

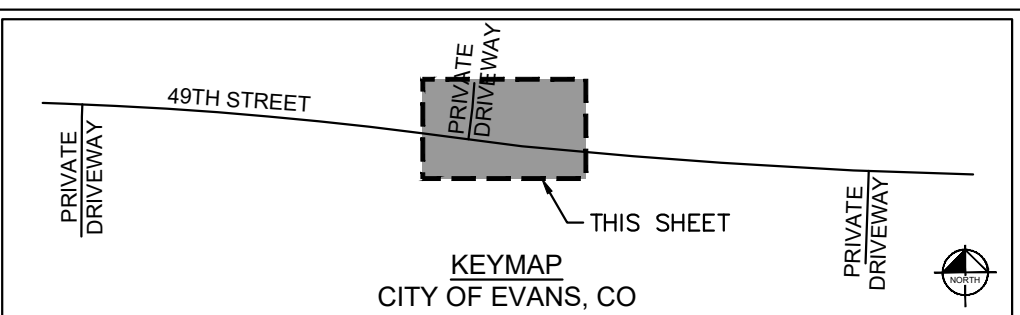
DATE: DRAWING NO. 600-12

NOTES:

- REFERENCE THE CONCRETE BOX CULVERT PLAN AND PROFILE FOR APPROXIMATE UTILITIES VERTICAL LOCATION (POTHOLE DATA).



GRAPHIC SCALE IN FEET
0 # ## ###



PRINT DATE: August 29, 2025

DRAWING FILE NAME:

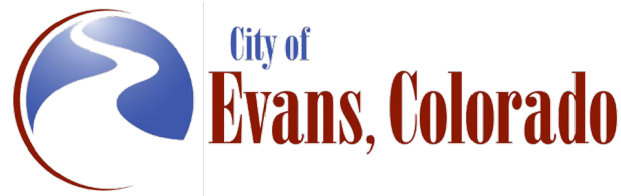
HORIZ. SCALE: VERT. SCALE:

Kimley»Horn

KIMLEY-HORN AND ASSOCIATES, INC.
11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

SHEET REVISIONS

DATE:	COMMENTS:	INITIAL:



CITY OF EVANS
1100 37TH STREET
EVANS, CO 80620

PRELIMINARY

FOR REVIEW ONLY
NOT FOR
CONSTRUCTION
Kimley»Horn
Kimley-Horn and Associates, Inc.

CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN
SWMP DETAILS

CHECKED BY: AB

DESIGNED BY: MJK/DRL

SHEET SUBSET:

SUBSET SHEET:

PROJECT NO./CODE

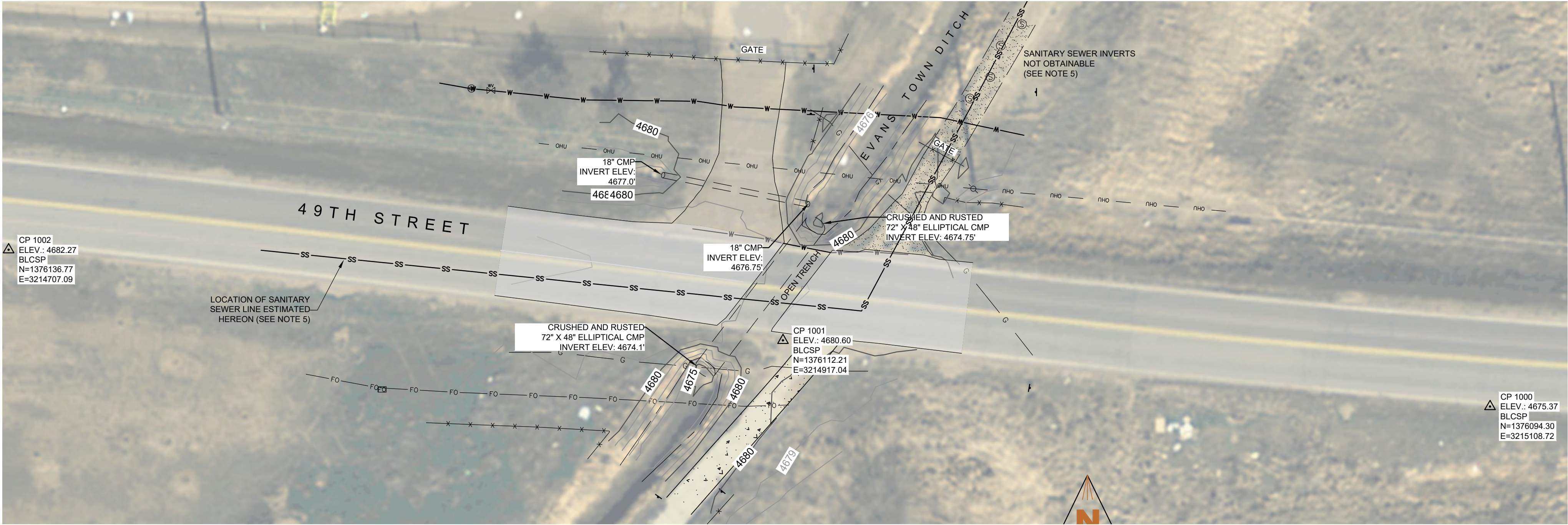
296203001

SHEET NUMBER 14

A TOPOGRAPHIC EXHIBIT OF

EXISTING CULVERT AT 49TH STREET AND EVANS TOWN DITCH

LOCATED IN SECTIONS 25 & 36, TOWNSHIP 5 NORTH, RANGE 66 WEST OF THE 6TH P.M.,
TOWN OF EVANS, COUNTY OF WELD, STATE OF COLORADO



NOTES:

- THIS MAP DOES NOT REPRESENT A BOUNDARY SURVEY OR TITLE SEARCH PERFORMED BY BOULDER LAND CONSULTANTS OR THE UNDERSIGNED. THERE MAY EXIST EASEMENTS AND/OR OTHER ENCUMBRANCES AFFECTING THE SUBJECT PROPERTY THAT ARE NOT SHOWN HEREON.
- LOCATION FOR THE INFORMATION SHOWN HEREON IS BASED ON STATE PLANE COORDINATES, COLORADO NORTH ZONE 501, NAD 83 (NSRS 2011). ALL DIMENSIONS ARE IN U.S. SURVEY FEET (GRID, NOT GROUND). NO BEARINGS ARE SHOWN HEREON HOWEVER THE COORDINATE SYSTEM ESTABLISHES THE BEARINGS TO BE GRID BEARINGS OF THE AFOREMENTIONED SYSTEM.
- VERTICAL DATUM FOR THIS PROJECT IS NAVD 88. CONTOUR INTERVAL IS 1 FOOT.
- PROJECT BENCHMARK FOR VERTICAL INFORMATION AS SHOWN HEREON IS A 3/8" REBAR WITH AN ORANGE PLASTIC CAP SHOWN AS "CP 1000" HAVING A GPS DERIVED ELEVATION OF 4675.37'. THIS ELEVATION WAS VERIFIED WITH GPS OBSERVATIONS ON NGS MONUMENT "R 261", PID LL0207, LOCATED IN THE TOP OF THE WEST END OF THE NORTH CONCRETE ABUTMENT OF A BRIDGE OVER THE SOUTH PLATTE RIVER, HAVING A PUBLISHED NAVD88 ELEVATION: 4655.61 FEET AND NGS "4650", PID LL0206, LOCATED WEST OF A RAILROAD, HAVING A PUBLISHED NAVD88 ELEVATION: 4654.10 FEET.
- THE LOCATIONS OF UNDERGROUND UTILITIES WERE BASED UPON VISIBLE SURFACE EVIDENCE, PAINTED SURFACE MARKINGS DELINEATED BY MAYO GEOPHYSICAL SERVICES LIMITED (MARKED JUNE 9, 2025) AND MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANIES AND THE CITY OF BOULDER. AS STATED IN TABLE A, ITEM 11 OF THE 2021 ALTA/NSPS MINIMUM STANDARD DETAIL REQUIREMENTS "LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND (UTILITY) FEATURES CANNOT BE ACCURATELY, COMPLETELY OR RELIABLY DEPICTED".

INVERT ELEVATIONS ON STORM FEATURES ARE THE BEST ESTIMATED AND ARE ROUNDED TO THE NEAREST 0.05 FOOT. MANHOLE AND INLET FLOW LINES ARE NOT ALWAYS APPARENT AND/OR READILY ACCESSIBLE. OSHA COMPLIANT MANHOLE ENTRY MAY BE NECESSARY TO PROCURE EXACT INVERT ELEVATIONS.

THE LOCATION OF THE SUBSURFACE SANITARY SEWER LINE SHOWN HEREON IS ESTIMATED. POSITION SHOWN HEREON IS BASED ON THAT SHEET TITLED 03C104 OF PLAN SET TITLED 'CITY OF EVANS CONSOLIDATED WWTF, WASTEWATER LIFT STATION AND FORCE MAIN', DATED 5/30/2016, PROJECT NO. 00000000248156. THIS SYSTEM IS PRESSURIZED AND THUSLY, INVERT INFORMATION WAS NOT OBTAINABLE.
- FIELD WORK WAS PERFORMED IN JUNE 2025.
- IN ACCORDANCE WITH C.R.S. 13-80-105:
NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

LEGEND	
	ESTABLISHED CONTROL POINT A SET 3/8" REBAR WITH 1" ORANGE PLASTIC CAP STAMPED "CONTROL PT BLC INC"
	SIGN
	UTILITY POLE
	WATER VALVE
	WATER METER
	SANITARY SEWER MANHOLE
	FIBER OPTIC VAULT
	CHAIN LINK FENCE LINE
	WOOD FENCE LINE
	UNDERGROUND GAS LINE
	UNDERGROUND FIBER OPTIC LINE
	UNDERGROUND WATER LINE
	OVERHEAD UTILITY LINE
	UNDERGROUND SANITARY SEWER LINE
	GRAVEL WALKWAY
	CONCRETE WALKWAY
	ASPHALT

NOTE:
THIS MAP DOES NOT REPRESENT A BOUNDARY SURVEY OR TITLE SEARCH PERFORMED BY BOULDER LAND CONSULTANTS. THERE MAY EXIST EASEMENTS AND/OR OTHER ENCUMBRANCES AFFECTING THE SUBJECT PROPERTY THAT ARE NOT SHOWN HEREON.

SURVEYOR'S CERTIFICATION:

I, KAYCE D. W. KEANE, HEREBY CERTIFY TO KIMLEY-HORN AND ASSOCIATES, INC. THAT, SUBJECT TO THE NOTES SHOWN HEREON, THIS TOPOGRAPHIC EXHIBIT MAP WAS BASED ON A FIELD SURVEY PERFORMED IN JUNE 2025, UNDER MY DIRECT SUPERVISION, AND THAT THIS TOPOGRAPHIC EXHIBIT MAP ACCURATELY DEPICTS THE RESULTS OF SAID SURVEY, AND THAT THIS TOPOGRAPHIC EXHIBIT MAP DOES NOT REPRESENT A LAND SURVEY PLAT OR BOUNDARY SURVEY OF THE SUBJECT PROPERTY.

KAYCE D. W. KEANE
COLORADO REGISTERED PROFESSIONAL
LAND SURVEYOR NO. 38197
FOR, AND ON BEHALF OF,
BOULDER LAND CONSULTANTS
DATE: JUNE 27, 2025

PRELIMINARY
6/27/2025



0 20' 40' 60'
SCALE IS 1" = 20'

THIS MAP WAS PREPARED BY

BOULDER LAND CONSULTANTS

4150 DARLEY AVENUE SUITE 7
BOULDER, CO 80305 (303) 443-3616
WEBSITE: www.BLCsurveyors.com
EMAIL: info@bicsurveyors.com
BOULDER LAND CONSULTANTS IS A SUBSIDIARY OF ROCKY MOUNTAIN GEOMATICS, INC.

TOPO: EVANS CULVERT
BOULDER COUNTY, COLORADO

K:\DEN_SUE\296203001_CityofEvans_49thSt_CBC\CADD\Plans\SUE NOTES.dwg Strien, Corter 8/8/2025 11:59 AM
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

GENERAL NOTES

1. SUBSURFACE UTILITY ENGINEERING (SUE) IS A PROFESSIONAL PRACTICE DEFINED BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE). KIMLEY–HORN AND THEIR SUBCONSULTANTS PERFORM SUE INVESTIGATIONS IN CONFORMANCE WITH THE COLORADO SENATE BILL 18–167 AND THE CONSTRUCTION INSTITUTE (CI) / ASCE 38–22, "STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". IDENTIFYING AND DOCUMENTING UNDERGROUND UTILITIES IS THE RESULT OF GATHERING EVIDENCE FROM VARIOUS SOURCES AND IS LIMITED TO THE ACCURACY OF THE GEOPHYSICAL TOOLS USED, SURVEYING CONTROL AND EQUIPMENT USE, FIELD METHODOLOGIES USED, AND WEATHER CONDITIONS ENCOUNTERED. THE EXACT LOCATIONS OF INDIVIDUAL SUBSURFACE UTILITY INFRASTRUCTURE SHOWN IN THESE PLANS ARE NOT CONFIRMED UNLESS THEY WERE VISUALLY EXPOSED AND SURVEYED, AND SUCH INFORMATION OBTAINED ONLY APPLIES TO THOSE SPECIFIC LOCATIONS OF THE SUBJECT UTILITY INFRASTRUCTURE. IF ANY UTILITIES CONFLICT WITH THE PROPOSED DESIGN BY OTHERS, KIMLEY–HORN RECOMMENDS THAT THE OWNER AND/OR DESIGN ENGINEER COMPLETE A QUALITY LEVAL A TEST HOLE AT EACH CONFLICT LOCATION PRIOR TO FINAL DESIGN AND CONSTRUCTION TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL POSITION OF THE SUBJECT UTILITY INFRASTRUCTURE.
2. UTILITIES ARE DEPICTED IN THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED QUALITY LEVELS AS DEFINED IN THE CI/ASCE 38–02, "STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". BASED ON TYPICAL TASKS LEADING TO UTILITY DEPICTION, ASCE DEFINES THE QUALITY LEVELS AS FOLLOWS.
- QUALITY LEVEL D (QL–D): "INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTION."

• QUALITY LEVEL C (QL–C): "INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE–GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION."

• QUALITY LEVEL B (QL–B): "INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QL–B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS."

• QUALITY LEVEL A (QL–A):PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY ACTUAL EXCAVATION (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 15–MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER.
3. RELIANCE UPON THESE DATA FOR RISK MANAGEMENT PURPOSES DURING BIDDING DOES NOT RELIEVE THE PROJECT OWNER, OWNER’S ENGINEER, CONTRACTOR, OR UTILITY OWNER FROM FOLLOWING ALL APPLICABLE UTILITY DAMAGE PREVENTION STATUTES, POLICIES, AND/OR PROCEDURES DURING EXCAVATION. IT IS IMPORTANT THAT THE CONTRACTOR INVESTIGATES AND UNDERSTANDS THE SCOPE OF WORK BETWEEN THE PROJECT OWNER(S) AND THEIR ENGINEER REGARDING THE SCOPE AND LIMITS OF THE UTILITY INVESTIGATIONS LEADING TO THESE UTILITY DEPICTIONS.
4. THESE PLANS HAVE BEEN PREPARED FOR THE USE OF KIMLEY–HORN’S CLIENT AND MAY NOT BE USED, REPRODUCED OR RELIED UPON BY THIRD PARTIES EXCEPT BY THE EXPRESS WRITTEN CONSENT OF KIMLEY–HORN AND THEIR CLIENT, OR AS REQUIRED BY LAW.
5. THIS SUE INVESTIGATION PLANS DEPICT UTILITIES FOR PLANNING AND DESIGN PURPOSES ONLY – THEY ARE NOT INTENDED FOR CONSTRUCTION.

GEOPHYSICAL INVESTIGATION

1. KIMLEY–HORN AND THEIR SUBCONSULTANTS PERFORMED THE GEOPHYSICAL SUE INVESTIGATION FOR THIS PROJECT IN ACCORDANCE WITH ITS STANDARD OF PRACTICE WHICH GENERALLY CONFORMS TO CI/ASCE 38–22 AND ALIGNS WITH GENERALLY ACCEPTABLE INDUSTRY STANDARDS. THIS INVOLVED THE TRACING OF DISTINCT, KNOWN, AND DETECTABLE UTILITY ALIGNMENTS WITHIN THE LIMITS OF INVESTIGATION. HOWEVER, THIS EFFORT IS NOT A TOTAL GEOPHYSICAL SWEEP OF THE LIMITS OF INVESTIGATION.
2. FOR UTILITIES WHERE A TRACER WIRE IS PRESENT IN A USEABLE CONDITION, THOSE UTILITIES HAVE BEEN DESIGNATED AND LABELED AS QL–B HEREIN UPON SUCCESSFUL DESIGNATION. HOWEVER, DUE TO THE UNKNOWN METHODS USED TO INSTALL THE TRACER WIRE DURING CONSTRUCTION, THE LOCATION OF THE TRACER WIRE MAY BE DIFFERENT THAN THE ACTUAL LOCATION OF THE SUBJECT UNDERGROUND UTILITY LINE, WHICH MAY NECESSITATE THE NEED FOR FURTHER SUE INVESTIGATION OR QL–A TEST HOLES.
3. TO DETERMINE THE EXACT LOCATION OF GRAVITY–FED UTILITY SYSTEMS, KIMLEY–HORN RECOMMENDS THAT A QL–B SUE INVESTIGATION, INCLUDING RODDING OR SIMILAR METHODS, BE COMPLETED ON THE QL–C AND/OR QL–D GRAVITY SEWER LINES SHOWN HEREIN, OR THAT QL–A TEST HOLES BE COMPLETED ON GRAVITY SEWER LINES THAT MAY BE IN CONFLICT WITH THE PROPOSED ENGINEERING DESIGN BY OTHERS.
4. ACCESSIBLE MANHOLE COVERS ARE OPENED WHEN POSSIBLE, TO ALLOW VISUAL VERIFICATION OF UTILITIES AND TO COLLECT GRAVITY SEWER LINE INVERT DATA.

SUE NOTES

PERIOD OF DATA COLLECTION

1. SUE LOCATES INVESTIGATION FIELD WORK WAS PERFORMED ON MAY 02, 2025 BY MAYO GEOPHYSICAL SERVICES, LTD. NO SUE TEST HOLE INVESTIGATION FIELD WORK WAS PERFORMED. KIMLEY–HORN WILL NOT BE HELD LIABLE FOR THE DEPICTION OF ANY CHANGES IN FIELD CONDITIONS RELATED TO THESE PLANS, INCLUDING UTILITIES AND APPURTENANCES THAT WERE INSTALLED, REMOVED, OR ADJUSTED DURING OR AFTER THE FIELD WORK WAS STARTED.

RECORDS RESEARCH & SITE RECONNAISSANCE

1. KIMLEY–HORN AND THEIR SUBCONSULTANTS REQUESTED UTILITY INFORMATION SUCH AS FACILITY MAPS AND RECORD DRAWINGS FROM KNOWN UTILITY OWNERS (CO 811 MEMBERS) AND APPLICABLE CUSTODIANS OF UTILITY RECORDS.
- 1.1. 811 TICKET(S): A519800744

2. KIMLEY–HORN AND THEIR SUBCONSULTANTS SCANNED THE LIMITS OF INVESTIGATION FOR EVIDENCE OF ADDITIONAL UTILITIES NOT MADE KNOWN DURING RECORDS RESEARCH.

3. UTILITIES NOT DISCOVERED THROUGH RECORDS RESEARCH OR SITE INVESTIGATION SHALL BE REFERRED TO AS UNDOCUMENTED UTILITIES. KIMLEY–HORN IS NOT RESPONSIBLE FOR DEPICTING UNDOCUMENTED/UNKNOWN UTILITIES.

4. UTILITIES DOCUMENTED IN RECORDS, IF AVAILABLE TO KIMLEY–HORN, ARE DEPICTED AS QL–D UNLESS A HIGHER QUALITY LEVEL WAS ACHIEVED.

5. THE UTILITY COMPANIES PRESENTED ON THE "COVER" SHEET WERE EITHER CONTACTED DIRECTLY OR NOTIFIED OF THE PROJECT VIA THE CO 811 ENGINEERING TICKET SYSTEM. THIS INFORMATION IS CURRENT AS OF THE ORIGINAL ISSUE DATE OF THESE PLANS.

DATA LIMITATIONS

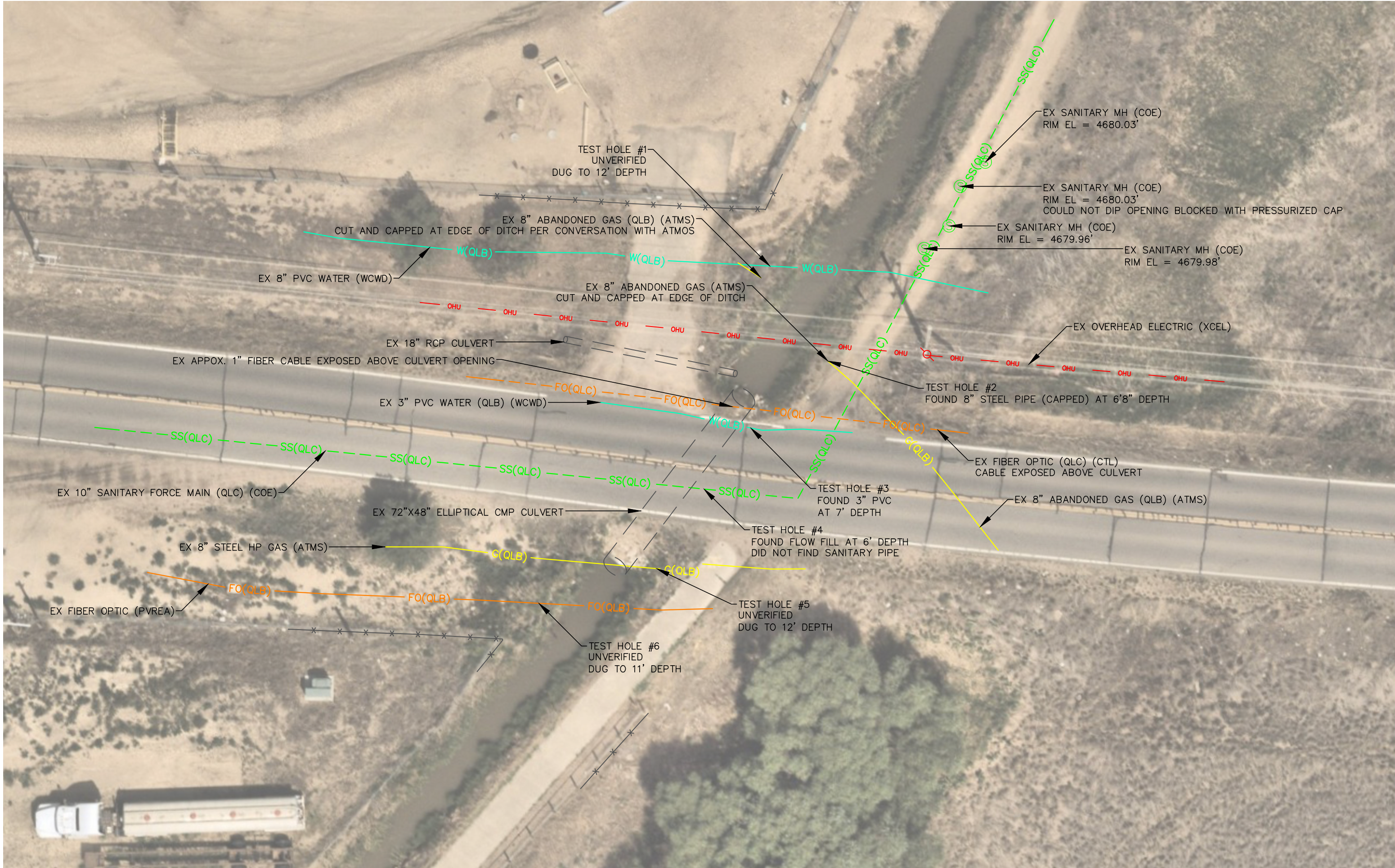
1. ALL QL–D, QL–C, AND/OR QL–B DATA DEPICTED IN THESE PLANS ARE INTENDED AS GUIDELINES FOR QL–A TEST HOLES OR OTHER UTILITY INVESTIGATION PRIOR TO FINAL DESIGN AND CONSTRUCTION BY OTHERS. THE EXACT LOCATIONS OF INDIVIDUAL SUBSURFACE UTILITY INFRASTRUCTURE SHOWN IN THESE PLANS ARE NOT CONFIRMED UNLESS THEY WERE VISUALLY EXPOSED AND SURVEYED, AND SUCH INFORMATION OBTAINED ONLY APPLIES TO THOSE SPECIFIC EXPOSED LOCATIONS OF THE SUBJECT UTILITY INFRASTRUCTURE.
2. KIMLEY–HORN AND THEIR SUBCONSULTANTS PERFORMED THIS SUE PROJECT IN ACCORDANCE WITH THE CI/ASCE 38–22 GUIDELINES AND CURRENT GENERALLY ACCEPTED INDUSTRY STANDARDS. HOWEVER, THE POSSIBILITY STILL EXISTS THAT SOME UTILITIES WERE NOT FOUND OR DEPICTED.
3. THE DEPICTED HORIZONTAL LIMITS OF BURIED UTILITIES ARE NOT NECESSARILY INDICATIVE OF THE UNDERGROUND HORIZONTAL LIMITS, WHICH CAN EXTEND SIGNIFICANTLY BEYOND WHAT IS SHOWN IN THESE PLANS.
4. SOME UTILITIES MAY BE DEPICTED OUTSIDE OF THE LIMITS OF THE SUE INVESTIGATION; THIS IS NOT AN INDICATION THAT ALL EXISTING UTILITIES ARE DEPICTED BEYOND THESE SUE INVESTIGATION LIMITS.
5. UTILITY ATTRIBUTE INFORMATION SUCH AS UTILITY OWNERSHIP, PIPE SIZE, OR PIPE MATERIAL ARE BASED ON INFORMATION GATHERED FROM AVAILABLE RECORDS. IN SOME CASES, THIS INFORMATION MAY BE OBSOLETE OR INACCURATE. THE USER OF THESE PLANS MUST VERIFY UTILITY ATTRIBUTE INFORMATION BY CONTACTING UTILITY OWNERS DURING THEIR UTILITY COORDINATION PROCESS.
6. THE USER OF THESE PLANS SHOULD VERIFY ALL UTILITY CONFLICTS BEFORE EXCAVATION OR CONSTRUCTION.

UTILITY	UTILITY OWNER	TELEPHONE NUMBER
WATER	CENTRAL WELD COUNTY WATER DISTRICT	970-352-1284
STORM/SEWER	CITY OF EVANS	970-590-7026
NATURAL GAS	ATMOS ENERGY	970-534-0288
ELECTRIC	XCEL ENERGY	800-895-1999
FIBER	CENTURYLINK	800-432-1012
FIBER	POUDRE VALLEY RURAL ELECTRIC ASSN., INC	800-432-1012



PRINT DATE: August 8, 2025		(R-1) (R-X) (R-X) (R-X)	SHEET REVISIONS		City of Evans, Colorado CITY OF EVANS 1100 37TH STREET EVANS, CO 80620	PRELIMINARY FOR REVIEW ONLY NOT FOR CONSTRUCTION Kimley»Horn Kimley-Horn and Associates, Inc.	CITY OF EVANS 49TH STREET CULVERT EMERGENCY REPLACEMENT DESIGN			PROJECT NO./CODE			
DRAWING FILE NAME:			DATE:	COMMENTS:			INITIAL:	296203001					
HORIZ. SCALE:			VERT. SCALE:										
Kimley»Horn KIMLEY–HORN AND ASSOCIATES, INC. 11800 RIDGE PARKWAY, SUITE 200 BROOMFIELD, CO 80021 PHONE: 720–399–8180													
								SHEET SUBSET: SUE		SUBSET SHEET: 01 OF 02		SHEET NUMBER 01	

K:\DEN_SUE\296203001_CityofEvans_49thSt_CBC\CADD\Plans\SUE PLANS.dwg Strien Corter 8/8/2025 12:30 PM
THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



TEST HOLE#	UTILITY TYPE	UTILITY OWNER	DEPTH TO TOP OF UTILITY	SURFACE TYPE	NOTES
1	WATER	CENTRAL WELD COUNTY WATER DISTRICT	14'7\" (UNVERIFIED)	GRASS	UNVERIFIED
2	NATURAL GAS	ATMOS ENERGY	6'8"	GRASS	
3	WATER	CENTRAL WELD COUNTY WATER DISTRICT	7'	DIRT	
4	SEWER	CITY OF EVANS	6' TO FLOW FILL	DIRT	
5	NATURAL GAS	ATMOS ENERGY	>12'	GRASS	UNVERIFIED
6	FIBER	POUDRE VALLEY RURAL ELECTRIC ASSN., INC	>11'	GRASS	UNVERIFIED

CERTIFICATION NOTE

THE UTILITY INFRASTRUCTURE DEPICTED HEREIN HAVE BEEN INVESTIGATED IN GENERAL COMPLIANCE WITH CI/ASCE 38-22, "STANDARD UTILITY DATA", AND THEY ARE DEPICTED AT THEIR ACHIEVED QUALITY LEVELS. THE EXACT LOCATIONS OF INDIVIDUAL SUBSURFACE UTILITY INFRASTRUCTURE SHOWN IN THESE PLANS ARE NOT CONFIRMED UNLESS THEY WERE VISUALLY EXPOSED AND SURVEYED, AND SUCH INFORMATION OBTAINED ONLY APPLIES TO THOSE SPECIFIC EXPOSED LOCATIONS OF THE SUBJECT UTILITY INFRASTRUCTURE

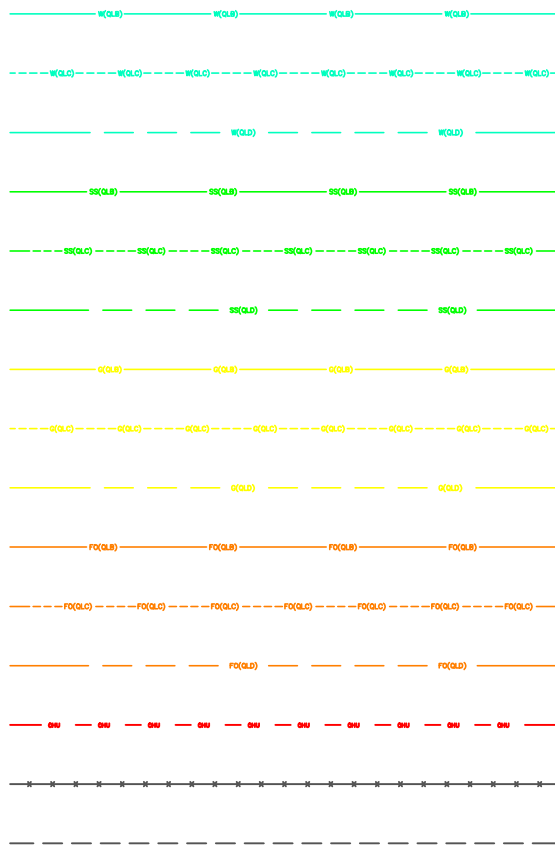
UTILITY DESCRIPTION

- UTILITY POLE
- SANITARY SEWER MANHOLE
- FIBER OPTIC VAULT

ABBREVIATIONS

APPROX	APPROXIMATELY
ASSN	ASSOCIATION
ATMS	ATMOS ENERGY
CMP	CORRUGATED METAL PIPE
COE	CITY OF EVANS
CTL	CENTURY LINK
EL	ELEVATION
EX	EXISTING
FO	FIBER OPTIC
G	NATURAL GAS
HP	HIGH PRESSURE
MH	MANHOLE
OH	OVERHEAD
OHU	OVERHEAD UTILITY
PVC	POLYVINYL CHLORIDE
PVREA	POUDRE VALLEY RURAL ELECTRIC ASSN.
RCP	REINFORCED CONCRETE PIPE
SS	SANITARY SEWER
W	WATER
XCEL	XCEL ENERGY

EXISTING LINETYPES



OWNER/ENTITY

CENTRAL WELD COUNTY WATER DISTRICT
CENTRAL WELD COUNTY WATER DISTRICT
CENTRAL WELD COUNTY WATER DISTRICT
CITY OF EVANS
CITY OF EVANS
CITY OF EVANS
ATMOS ENERGY
ATMOS ENERGY
ATMOS ENERGY
CENTURY LINK/ POUDRE VALLEY RURAL ELECTRIC ASSN.
CENTURY LINK/ POUDRE VALLEY RURAL ELECTRIC ASSN.
CENTURY LINK/ POUDRE VALLEY RURAL ELECTRIC ASSN.
XCEL ENERGY
PRIVATE
CITY OF EVANS

DESCRIPTION

WATER MAIN (QLB)
WATER MAIN (QLC)
WATER MAIN (QLD)
SANITARY SEWER PIPE (QLB)
SANITARY SEWER PIPE (QLC)
SANITARY SEWER PIPE (QLD)
GAS LINE (QLB)
GAS LINE (QLC)
GAS LINE (QLD)
FIBER OPTIC LINE (QLB)
FIBER OPTIC LINE (QLC)
FIBER OPTIC LINE (QLD)
OVERHEAD ELECTRIC LINE
CHAIN LINK FENCE
CULVERT

PRINT DATE: August 8, 2025

DRAWING FILE NAME:

HORIZ. SCALE:

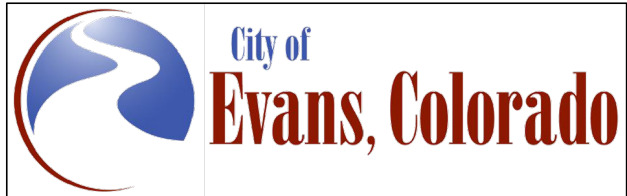
VERT. SCALE:



KIMLEY-HORN AND ASSOCIATES, INC.
11800 RIDGE PARKWAY, SUITE 200
BROOMFIELD, CO 80021
PHONE: 720-399-8180

SHEET REVISIONS

DATE:	COMMENTS:	INITIAL:



CITY OF EVANS
1100 37TH STREET
EVANS, CO 80620

PRELIMINARY

FOR REVIEW ONLY
NOT FOR
CONSTRUCTION
Kimley-Horn
Kimley-Horn and Associates, Inc.

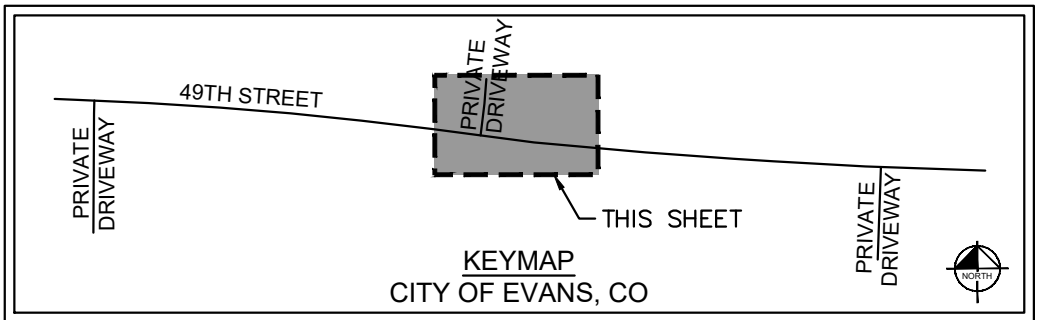
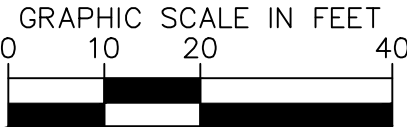
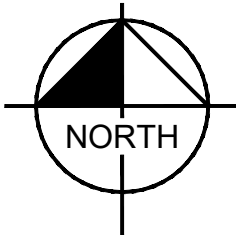
CITY OF EVANS 49TH STREET
CULVERT EMERGENCY REPLACEMENT DESIGN

CHECKED BY:	CJH/NP	
DESIGNED BY:	CAS	
SHEET SUBSET:	SUE	SUBSET SHEET: 02 OF 02

PROJECT NO./CODE

296203001

SHEET NUMBER 02





August 18, 2025

Mazedur Hossain
City of Evans
1100 37th Street
Evans, CO 80620

RE: *Drainage Memorandum*
49th Street Culvert Replacement

PURPOSE

It is our understanding that the City of Evans (the “City”) requires replacement of a failed culvert that carries flow from a City-owned and operated irrigation ditch (“Evans Town Ditch”) at its crossing of 49th Street. The purpose of this Letter is to describe the drainage conditions and proposed drainage improvements associated with the 49th Street Culvert Replacement Project (the “Project”) that will replace the existing corrugated metal pipe (CMP) with a proposed concrete box culvert (CBC).

LOCATION AND DESCRIPTION OF IMPROVEMENTS

The Project consists of the replacement of the existing 72-inch x 48-inch CMP culvert that has caved in with a proposed 4-ft x 6-ft CBC through the Evans Town Ditch at 49th Street within the City of Evans, Weld County, Colorado (the “Site”). See below for a vicinity map of the Project location.

VICINITY MAP



NOT TO SCALE (N.T.S.)

DRAINAGE PATTERN

The irrigation ditch generally flows south to north through the culvert under 49th Street.

FLOODPLAIN

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 08123C1726F (eff. 11/30/2023), the entire Project is located Zone X, which is considered an area with minimal flood hazard, outside of the regulatory floodplain. The effective FEMA FIRM panel is provided in **Appendix A**.

SOIL CONDITIONS

According to the Natural Resources Conservation Service (NRCS), the Site consists of Otero sandy loam (1-3% slopes) which is classified as Hydrologic Soil Group (HSG) A. A Custom Soil Resource Report from the NRCS Web Soil Survey website for the Site is included as **Appendix A**.

DESIGN CRITERIA

The following design criteria manuals were referenced for this project:

- City of Evans, Drainage Criteria Manual, 2016 (the "Criteria")
- Mile High Flood District, Urban Storm Drainage Criteria Manual, latest edition (the "Manual")

Hydrologic Criteria

A hydrologic analysis was not completed for the Project. The decreed flow through the Evans Town Ditch is 29 cubic feet per second (cfs). The hydraulic sizing of the proposed culvert is based on 35 cfs through the culvert crossing, as provided by the City.

Hydraulic Criteria

The proposed culvert was designed to convey 35 cfs with at least 2-ft as freeboard. The culvert meets the maximum allowable headwater to depth (Hw/D) ratio as outlined of Section 10.2 of the Criteria and summarized in **Table 1**.

Table 1: Proposed Culvert Parameters

Flow Depth (ft)	Culvert Depth (ft)	Hw/D
0.92	4.0	0.23

Adaptations from Criteria

No known variances are being requested.

PROPOSED DRAINAGE IMPROVEMENTS

The overall existing drainage patterns will be maintained with the proposed improvements. The proposed improvements include approximately 75 linear feet of 4-ft x 6-ft CBC under 49th Street to replace the failed CMP culvert. Supporting culvert sizing calculations are provided in **Appendix B**.

The proposed culvert is approximately 26% larger than the existing CMP culvert (opening size increase from ~19 sq ft to 24 sq ft). The velocity through the culvert was determined to be 6.4 feet per second (fps). To account for this velocity, grouted riprap is provided at each end of the proposed CBC. Supporting riprap sizing calculations are provided in **Appendix B**.

CONCLUSION

The proposed 49th Street Culvert Replacement Project maintains existing drainage patterns. The proposed improvements consist of a proposed 4-ft x 6-ft CBC through the Evans Town Ditch at 49th Street to replace the failed CMP culvert. There are no anticipated downstream impacts with the installation of the proposed drainage improvements.

Please contact me at (303) 228-2313 or stephanie.maier@kimley-horn.com if you have any questions or need clarification.

Sincerely,
KIMLEY-HORN AND ASSOCIATES, INC.



Stephanie Maier, P.E. CFM

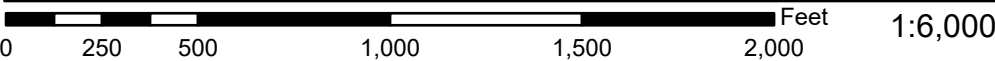
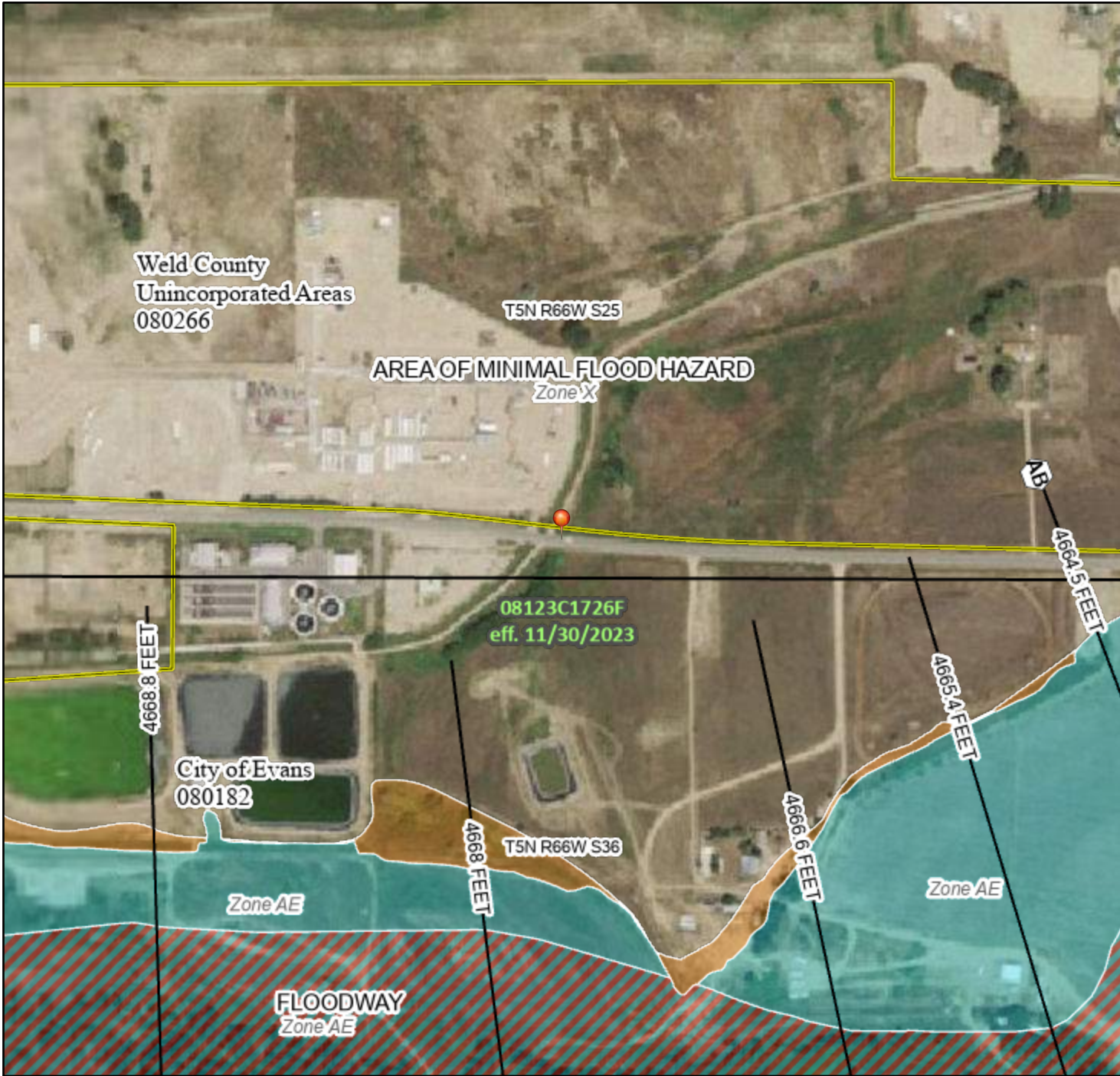
Appendices:

- Appendix A – FEMA FIRM and NRCS Soils Map
- Appendix B – Hydraulic Calculations

National Flood Hazard Layer FIRMette



104°44'1"W 40°22'2"N



Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/11/2025 at 7:19 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

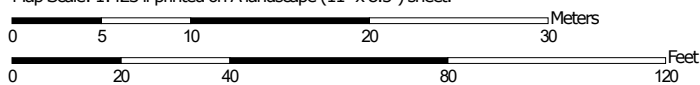
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Hydrologic Soil Group—Weld County, Colorado, Southern Part



Soil Map may not be valid at this scale.

Map Scale: 1:423 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

8/11/2025
Page 1 of 4

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Weld County, Colorado, Southern Part
 Survey Area Data: Version 23, Aug 29, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2021—Jun 12, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
51	Otero sandy loam, 1 to 3 percent slopes	A	0.4	100.0%
Totals for Area of Interest			0.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

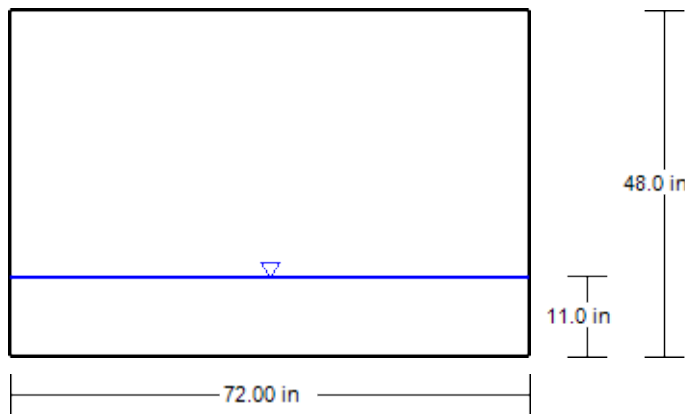
Tie-break Rule: Higher

Worksheet for Proposed CBC

Project Description	
Friction Method	Manning
Solve For	Formula Normal Depth
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.500 %
Height	48.0 in
Bottom Width	72.00 in
Discharge	35.00 cfs
Results	
Normal Depth	11.0 in
Flow Area	5.5 ft ²
Wetted Perimeter	94.0 in
Hydraulic Radius	8.4 in
Top Width	72.00 in
Critical Depth	12.2 in
Percent Full	22.9 %
Critical Slope	0.361 %
Velocity	6.38 ft/s
Velocity Head	0.63 ft
Specific Energy	1.55 ft
Froude Number	1.176
Discharge Full	219.05 cfs
Slope Full	0.500 %
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 in
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	22.9 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	11.0 in
Critical Depth	12.2 in
Channel Slope	0.500 %
Critical Slope	0.361 %

Cross Section for Proposed CBC

Project Description	
Friction Method	Manning
	Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.013
Channel Slope	0.500 %
Normal Depth	11.0 in
Height	48.0 in
Bottom Width	72.00 in
Discharge	35.00 cfs



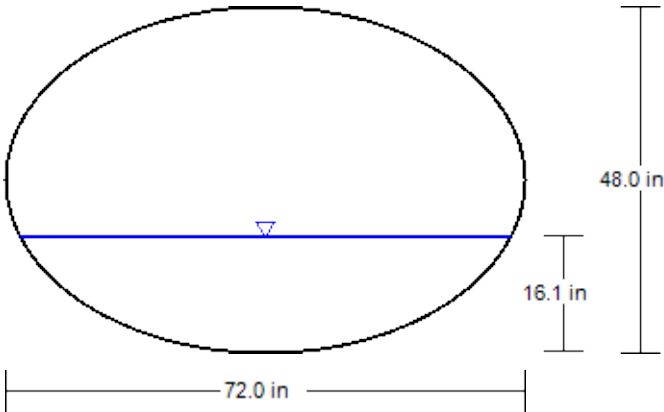
V: 1
H: 1

Worksheet for Existing Elliptical Pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.024
Channel Slope	1.320 %
Rise	48.0 in
Span	72.0 in
Discharge	35.00 cfs
Results	
Normal Depth	16.1 in
Flow Area	5.6 ft ²
Wetted Perimeter	80.1 in
Hydraulic Radius	10.0 in
Top Width	68.01 in
Critical Depth	17.1 in
Percent Full	33.6 %
Critical Slope	1.044 %
Velocity	6.30 ft/s
Velocity Head	0.62 ft
Specific Energy	1.96 ft
Froude Number	1.121
Maximum Discharge	160.44 cfs
Discharge Full	150.41 cfs
Slope Full	24.377 %
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 in
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	0.0 %
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	16.1 in
Critical Depth	17.1 in
Channel Slope	1.320 %
Critical Slope	1.044 %

Cross Section for Existing Elliptical Pipe

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Roughness Coefficient	0.024
Channel Slope	1.320 %
Normal Depth	16.1 in
Rise	48.0 in
Span	72.0 in
Discharge	35.00 cfs

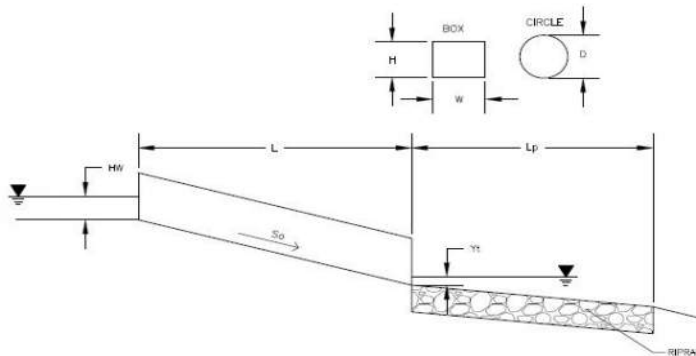


V: 1
H: 1

DETERMINATION OF CULVERT HEADWATER AND OUTLET PROTECTION

MHFD-Culvert, Version 4.01 (April 2025)

Project: _____
ID: _____



Soil Type:

Choose One:

☒ Sandy

☐ Non-Sandy

Supercritical Flow! Using Adjusted Rise to calculate protection type.

Design Information:

Design Discharge

Q = 35 cfs

Circular Culvert:

Barrel Diameter in Inches

D = inches

Inlet Edge Type (Choose from pull-down list)

OR:

Box Culvert:

Barrel Height (Rise) in Feet

H (Rise) = 4 ft

Barrel Width (Span) in Feet

W (Span) = 6 ft

Inlet Edge Type (Choose from pull-down list)

Square Edge w/ 30-75 deg. Flared Wingwall

Number of Barrels

Barrels = 1

Inlet Elevation

Elev IN = 4676 ft

Outlet Elevation OR Slope

Elev OUT = 4675.62 ft

Culvert Length

L = 76.1 ft

Manning's Roughness

n = 0.012

Bend Loss Coefficient

k_b = 0

Exit Loss Coefficient

k_x = 1

Tailwater Surface Elevation

Y_t, Elevation = ft

Max Allowable Channel Velocity

V = 5 ft/s

Calculated Results:

Culvert Cross Sectional Area Available

A = 24.00 ft²

Culvert Normal Depth

Y_n = 0.87 ft

Culvert Critical Depth

Y_c = 1.02 ft

Froude Number

Fr = 1.27 Supercritical!

Entrance Loss Coefficient

k_e = 0.40

Friction Loss Coefficient

k_f = 0.25

Sum of All Loss Coefficients

k_s = 1.65 ft

Headwater:

Inlet Control Headwater

HW_i = 1.56 ft

Outlet Control Headwater

HW_o = N/A

Design Headwater Elevation

HW = N/A ft

Headwater/Diameter OR Headwater/Rise Ratio

HW/H = N/A

Outlet Control Headwater Approximation Method Inaccurate for Low Flow - Backwater Calculations Required

Outlet Protection:

Flow/(Span * Rise^{1.5})

Q/WH^{1.5} = 0.73 ft^{0.5}/s

Tailwater Surface Height

Y_t = 1.60 ft

Tailwater/Rise

Y_t/H = 0.40

Expansion Factor

1/(2*tan(Θ)) = 6.65

Flow Area at Max Channel Velocity

A_t = 7.00 ft²

Width of Equivalent Conduit for Multiple Barrels

W_{eq} = - ft

Length of Riprap Protection

L_p = 12 ft

Width of Riprap Protection at Downstream End

T = 8 ft

Adjusted Rise for Supercritical Flow

Ha = 2.43 ft

Minimum Theoretical Riprap Size

d_{50 min} = 1 in

Nominal Riprap Size

d_{50 nominal} = 6 in

MHFD Riprap Type

Type = VL

**Geotechnical Evaluation
49th Street Culvert Replacement
Evans, Colorado**



Prepared for:
**Kimley-Horn & Associates, Inc.
11800 Ridge Parkway, Suite 200
Broomfield, Colorado 80021**

Attention: Ms. Amy Backel, P.E.

Job Number: 25-3592

July 28, 2025

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PURPOSE AND SCOPE OF STUDY

This report presents the results of a geotechnical evaluation performed by GROUND Engineering Consultants, Inc. (GROUND) for Kimley-Horn & Associates, Inc. in support of the proposed culvert replacement planned for construction along 49th Street at the Evans Ditch crossing in Evans, Colorado. Our study was conducted in general accordance with the Standard Master Agreement for Continuing Professional Services (dated March 20, 2019) and Individual Project Order Number 296203001 (dated June 3, 2025).

A field exploration program was conducted to obtain information on the subsurface conditions. Material samples obtained during the subsurface exploration were tested in the laboratory to provide data on the engineering characteristics of the site soils and bedrock. The results of the field exploration and laboratory testing are presented herein.

This report has been prepared to summarize the data obtained and to present our findings and conclusions based on the proposed improvements and the subsurface conditions encountered. Design parameters and a discussion of engineering considerations related to the proposed improvements are included herein. This report should be understood and utilized in its entirety; specific sections of the text, drawings, graphs, tables, and other information contained within this report are intended to be understood in the context of the entire report. This includes the *Closure* section of the report which outlines important limitations on the information contained herein.

This report was prepared for design purposes of Kimley-Horn & Associates, Inc., based on our understanding of the proposed project at the time of preparation of this report. The data, conclusions, opinions, and geotechnical parameters provided herein should not be construed to be sufficient for other purposes, including the use by contractors, or any other parties for any reason not specifically related to the design of the project. Furthermore, the information provided in this report was based on the exploration and testing methods described below. Deviations between what was reported herein and the actual surface and/or subsurface conditions may exist, and in some cases those deviations may be significant.

PROPOSED CONSTRUCTION

Based on provided information, we understand a new concrete box culvert (CBC) is planned to replace the existing partially collapsed culvert pipe at the Evans Ditch Crossing under 49th Street. Associated wingwalls are also anticipated. Plans for the culvert depicting grading, dimensions, and/or loading were not available at the time of this report preparation. We assume the culvert will bear slightly below the bottom of the existing ditch, span the width of 49th Street, and will be roughly 6 to 10 feet wide.

The project site is shown in Figure 1. **If our described understanding/interpretation of the proposed project is incorrect or project elements differ in any way from that expressed above, including changes to improvement locations, dimensions, orientations, loading conditions, elevation/grades, etc., and/or additional buildings/structures/site improvements are incorporated into this project, either after the original information was provided to us or after the date of this report, GROUND or another geotechnical engineer must be retained to re-evaluate the conclusions and parameters presented herein.**

SITE CONDITIONS

At the time of our exploration, the project site consisted of 49th Street and the existing culvert pipe at Evans Ditch. The culvert pipe was a 2- or 3-foot diameter corrugated metal pipe and appeared to be partially collapsed on the northern side of 49th Street. The pipe also



appeared to be partially collapsed beneath the center portion of the road. Standing water was observed inside of the pipe and at adjacent portions of Evans Ditch. Other portions of Evans Ditch beyond the culvert were dry. The bottom of the ditch was approximately 6 feet below 49th Street. The road was asphalt-paved with one travel lane in each direction and was closed to traffic in the vicinity of the culvert crossing. The asphalt directly above the culvert had been saw-cut and removed. It appeared that fill had been recently been placed inside the saw-cut portion of the road over the culvert. Asphalt debris were observed within this fill.

49th Street Culvert Replacement Evans, Colorado

A two-track access road paralleled the eastern side of Evans Ditch north of 49th Street. A concrete paved trail paralleled the east side of Evans Ditch south of 49th Street. A gravel access road to an oil/gas facility was noted on the west side of the culvert, north of 49th Street.



The project area sloped gently to the south. The South Platte River was located approximately ½ mile south of the site. In general, 49th Street appeared to be in moderate condition with longitudinal cracking observed generally down the centerline of the road. Traverse cracking was observed as well. Based on utility locate marks, numerous buried utilities were present within 49th Street.

GEOLOGIC SETTING

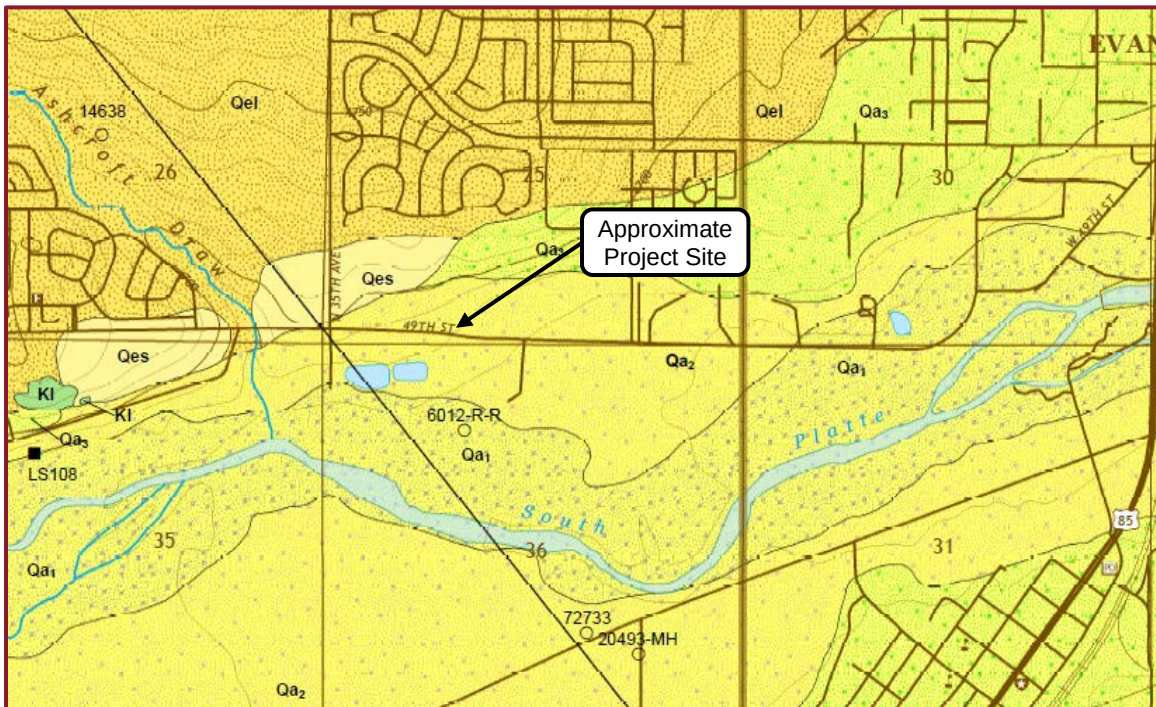
Published geologic maps (Palkovic, Lindsey, and Morgan (2019)¹) depict the project area as underlain by Alluvium two (**Qa₂**). These overburden materials are depicted to be underlain by the Laramie Formation (**Kl**).

In the project area, alluvial (stream-laid) deposits typically consist of silty to clayey sands with lenses of sandy gravels. The larger clasts (cobbles and boulders) may be awkward or difficult to handle and may not be appropriate for use in all fills.

The Laramie Formation, in the project area, typically consists of sandstones with interbedded shales, claystones, siltstones, and lignite. The claystones and siltstones are commonly moderately to highly expansive. Additionally, well-cemented beds that can be very hard and difficult to excavate have been encountered locally. A portion of the above-referenced map is presented below.

¹ Palkovic, Martin J., Lindsey, Kassandra O., and Morgan, Matthew L. (2019). *Geologic Map of the La Salle Quadrangle, Weld County, Colorado*. Colorado Geologic Survey. Open File Report 19-03

**49th Street Culvert Replacement
Evans, Colorado**



SUBSURFACE EXPLORATION

The subsurface exploration for the project was conducted on June 6, 2025. Two (2) test holes were drilled at the existing culvert (one on each side) with a truck-mounted, continuous flight power auger drilling rig to evaluate the subsurface conditions as well as to retrieve soil and bedrock samples for laboratory testing and analysis. Hollow-stem augers were advanced in Test Hole 1 due to caving and sloughing. The test holes were drilled to depths of approximately 14½ and 19½ feet below existing grades. GROUND directed the subsurface exploration, logged the test holes in the field, and prepared the soil and bedrock samples for transport to our laboratory.

Samples of the subsurface materials were taken with a 2-inch I.D. Modified California-type liner sampler and a 1¾-inch inner diameter standard penetration test sampler. The sampler was driven into the substrata with blows from a 140-pound hammer falling 30 inches. Penetration resistance values (blows per distance driven, typically 12 inches), when properly evaluated, indicate the relative density or consistency of soils. Depths at which the samples were taken, and associated penetration resistance values are shown on the test hole logs. A composite disturbed sample was obtained from the uppermost approximately 6 feet of the test holes.

GROUND utilized Google Map imagery and a hand-held GPS device to determine the locations of the test holes. The approximate locations of the test holes are shown in Figure 1. Summary logs are provided in Figure 2. A legend and notes are provided in Figure 3. Detailed logs of the test holes are presented in Appendix A.

LABORATORY TESTING

Samples retrieved from our test holes were examined and visually classified in the laboratory by the project engineer. Laboratory testing of soil and bedrock samples obtained from the subject site included standard property tests, such as natural moisture contents, dry unit weights, grain size analyses, and Atterberg limits. Grain-size analysis, Atterberg limits, and water-soluble sulfate testing were completed on a composite disturbed sample as well. Laboratory tests were performed in general accordance with applicable ASTM protocols. Results of the laboratory testing program are summarized in Table 1 and Appendix A. The gradation testing results from the composite disturbed sample are provided in Figure 4.

SUBSURFACE CONDITIONS

The subsurface conditions encountered in the test holes generally consisted of approximately 6 inches of asphalt² underlain by approximately 6 inches of road base. These surficial materials were underlain by fill that extended to depths of approximately 8 and 9 feet below existing grades. These materials were underlain by approximately 2 feet of native sands that extended to depths of approximately 10 and 11 feet. Weathered sandstones and claystones were encountered beneath the sands and extended to depths of approximately 12 and 17 feet below existing grades. Comparatively unweathered sandstone bedrock was encountered below the weathered materials and persisted to the depths explored.

The 2-inch diameter (or smaller) sampling apparatus inherently cannot sample undisturbed cobble and boulder materials due to their larger size. It should be understood that the samples obtained during drilling operations may not be representative of the larger sized earth materials that may be encountered during construction. Material sizes and descriptions are largely interpreted based on drilling advancement rates and other

² Asphalt thicknesses are difficult to determine with precision in small diameter test holes. If existing pavement thicknesses are of significance to the project, then additional, larger diameter test holes or pavement cores should be drilled.

observations during the drilling operations. Additional exploration utilizing alternate methods, such as test pits, should be considered if more information is desired.

Based on the geologic setting at this site, therefore, it should be anticipated that gravels and cobbles, and possibly boulders, may be present in the site soils, even where not included in the general descriptions of the site soil types below.

Fill soils may also contain coarse gravels, cobbles, boulder, and similar sized pieces of construction debris. Delineation of the complete lateral and vertical extents of the fills at the site or their composition was beyond our present scope of services. If fill soil volumes and compositions at the site are of significance, they should be further evaluated using test pits.

Fills generally consisted of fine to coarse, silty to clayey sands with gravels. They were slightly plastic, moist, and brown in color. Iron staining was noted locally.

Sands generally consisted of fine to coarse, relatively clean sands with gravels. They were non-to slightly plastic, medium dense, wet, and brown in color. Iron staining was noted locally.

Weathered Claystones and Sandstones consisted of interbedded claystones and fine, clayey sandstones. They were slightly to moderately plastic, weathered to firm, moist to very moist, and brown to gray-brown in color. Iron staining was noted locally

Sandstone Bedrock consisted of fine, clayey sandstones. They were slightly plastic, medium hard to very hard, very moist, and gray to gray-brown in color. Iron staining was noted locally.

Groundwater was encountered in the test holes at depths of approximately 7 feet below existing grades at the time of drilling. The test holes were backfilled upon drilling completion per Code of Colorado Regulations (2 CCR 402-2). Groundwater levels can be expected to fluctuate, however, in response to annual and longer-term cycles of precipitation, irrigation, surface drainage, nearby rivers and creeks, land use, and the development of transient, perched water conditions. The groundwater observations performed during our exploration must be interpreted carefully as they are short-term and do not constitute a groundwater study. In the event the Client desires additional/repeated

groundwater level observations, GROUND should be contacted; additional exploration and fees will be necessary in this regard.

SEISMIC CLASSIFICATION

Based on extrapolation of available data to depth and our experience in the project area, we consider the area of the proposed improvements likely to meet the criteria for a Seismic Site Classification of **D** according to the AASHTO LRFD Bridge Design Specifications, Ninth Edition (Table 3.10.3.1-1). (Exploration and/or shear wave velocity testing to a depth of 100 feet or more was not part of our present scope of services.) If, however, a quantitative assessment of the site seismic properties is desired, then shear wave velocity testing should be performed. GROUND can provide a fee estimate for shear wave velocity testing upon request. We consider the likelihood of achieving a Site Class C to be moderate.

The following seismic parameters are applicable the low water crossing structures:

Peak Ground Acceleration (PGA):	0.052 g
Short Period Spectral Acceleration (S_s):	0.113 g
Long Period Spectral Acceleration (S_1):	0.032 g
F_{PGA} :	1.6
F_a :	1.6
F_v :	2.4
SD_s :	0.181 g
SD_1 :	0.077 g
AASHTO Seismic Zone:	1

A seismic response spectrum for the site, based on these parameters is provided on Figure 5.

GEOTECHNICAL CONSIDERATIONS FOR DESIGN

The conclusions and parameters provided in this report were based on the data presented herein, our experience in the general project area with similar structures, and our engineering judgment with regard to the applicability of the data and methods of forecasting future performance. A variety of engineering parameters were considered as indicators of potential future soil movements. Our parameters and conclusions were

based on our judgment of “likely movement potentials,” (i.e., the amount of movement likely to be realized if site drainage is generally effective, estimated to a reasonable degree of engineering certainty) as well as our assumptions about the owner’s willingness to accept geotechnical risk. “Maximum possible” movement estimates necessarily will be larger than those presented herein. They also have a significantly lower likelihood of being realized in our opinion, and generally require more expensive measures to address. We encourage Kimley-Horn & Associates, Inc. upon receipt of this report, to discuss these risks and the geotechnical alternatives with us.

Geotechnical Risk In GROUND’s opinion, the primary source of geotechnical risk for this project is the presence of saturated earth materials with relatively low bearing strengths at and below the assumed culvert bearing elevation. Blow counts as low as 5 blows for 12 inches were recorded in some of these materials. These materials commonly do not provide sufficient bearing support for moderate for heavily loaded structures.

Given the anticipated culvert bearing elevation, water (surface and/or groundwater) will likely be encountered during construction. Therefore, unstable conditions should be anticipated that may result in some difficulty during construction. The contractor should be prepared to dewater the excavation during construction. Based on our experience with similar structures, a layer of crushed rock or granular fill is often placed beneath these types of structures in order to provide a more stable platform.

Likely Post-Construction Movements for Improvements Placed on Site Earth Materials Based on our data and our experience with similar sites, we estimate improvements supported directly on the existing site soils are subject to likely, post-construction, vertical movements of 1½ to 2 inches or more. Lateral movements will result, as well. Foundation, slab, pavement, flatwork, and other improvement subjected to post-construction movements of these magnitudes can result in significant damage. Nearly all of the proposed improvements are vulnerable in this regard.

Wingwall and Culvert Foundations For the least potential for post-construction movement, a deep foundation system consisting of drilled piers or driven piles can be utilized to support the proposed structures. We estimate that likely, post-construction settlements of deep foundations to be approximately ½-inch. Our understanding is that the use of deep foundations to support drainage structures such as these is not common

in the project area. However, GROUND can provide parameters for design of deep foundations upon request.

Our experience suggests that drainage structures often have a greater tolerance for movement and when movement does occur, the movement often tends to not appear as severe as that observed in other types of structures, i.e., a building. Therefore, we assume post-construction movements are anticipated and acceptable by the client and owner.

As an alternate (but not equal in performance), the drainage structures may be supported on a shallowly founded system. Based on the potential for settlement and potentially unstable conditions, it is GROUND's opinion that **at least 3 feet of imported granular fill** should be placed below the bottom of each structure/shallowly founded system. The granular fill should consist of CDOT Class 1 Structure Backfill or relatively clean, approximately ¾-inch to 1½-inch crushed rock. A layer of geotextile, i.e., Mirafi® RS580j, HP570, or approved equivalent, should also be installed between the imported granular fill and underlying site soils. Greater thicknesses of imported granular fill may be necessary to achieve stable bearing soils as well as due to the depth of scour. The imported granular fill should extend at least 3 feet beyond the edge of the structures on all sides. Post-construction movements of approximately 1 to 1½ inches should be anticipated. In the event these movements cannot be tolerated, a thicker granular fill section or a deep foundation system should be considered; GROUND should be contacted to provide additional design parameters in this regard.

Realized movements may be more or less than estimated above depending on the subsurface materials present and the overall site drainage after construction is completed; some movement associated with settlement is anticipated to occur. In the event the earth materials supporting the proposed structures experience erosion and/or water infiltration, post-construction movements in excess of these provided herein, should be anticipated.

The geotechnical parameters indicated below may be used for design of the structures. We assume the structures will be designed in general accordance with the AASHTO – LRFD Bridge Design Specifications (9th Edition). Scour design should satisfy the requirements of Article 12.6.5 of the LRFD manual.

FOUNDATION SYSTEM

Geotechnical Parameters for Shallow Foundation Design

- (1) The structures should be placed on a layer of at least 3 feet of properly placed imported granular fill (see *Geotechnical Considerations for Design* section). A layer of geotextile, i.e., Mirafi® RS580i, HP570, or approved equivalent, should also be installed between the imported granular fill and underlying site soils.
- (2) Foundations and culverts bearing on a layer of imported granular fill may be designed for a nominal bearing capacity of **7.2 ksf** and a resistance factor of **0.45** for footings up to **10 feet** in width. If wider footings are necessary to accommodate greater loads, GROUND should be contacted to perform additional evaluation.

Compression of the bearing soils for the provided bearing capacity after factoring is estimated to be 1 inch, based on an assumption of drained foundation conditions. If foundation soils are subjected to an increase/fluctuation in moisture content, the effective bearing capacity will be reduced and greater post-construction movements than those estimated above may result.

This estimate of foundation movement from direct compression of the foundation soils is in addition to movements from post-construction volume change in the native soils underlying the site.

To reduce differential settlements between foundation elements, foundation loads should be as uniform as possible. Differentially loaded foundations will settle differentially.

Shallow Foundation Construction

- (3) We anticipate that surface water and/or groundwater will likely be encountered in project excavations. Dewatering will likely be necessary. Additionally, wet, soft, and/or unstable subgrades are likely to be encountered at or near the proposed culvert bearing elevation. Care should be taken to avoid placement of structures or imported granular fill materials upon these wet, soft, or unstable subgrades (including standing/ponding water conditions). See the *Wet, Soft, or Unstable*

Subgrades subsection within the *Project Earthwork* section of this report for further discussion on this matter.

- (4) A geotechnical engineer should be retained to observe excavations prior to placement of rock, stabilization materials, structures, etc.
- (5) The contractor should take adequate care when making excavations not to compromise the bearing or lateral support for nearby improvements.
- (6) All structure bearing areas should be compacted prior to placement of concrete.
- (7) Compacted fill placed against the sides of the structures should be compacted to at least 95 percent relative compaction in accordance with the *Project Earthwork* section of this report. CDOT Class 1 Structure Backfill should be utilized as backfill material for concrete structures. Use of controlled low strength material (CLSM), i.e., a lean sand-cement slurry, flowable fill, or a similar material in lieu of compacted soil backfill in these locations may be beneficial where access is restricted or when it can be placed more rapidly than properly compacted soil fill. The use of CLSM is also anticipated to reduce post-construction movements. CLSM should be placed in general accordance with Section 206.02 of the CDOT Standard Specifications for Road and Bridge Construction.
- (8) Foundation-supporting soils may be disturbed or deform excessively under the wheel loads of heavy construction vehicles as the excavations approach footing bearing levels. Construction equipment should be as light as possible to limit development of this condition. The movement of vehicles over proposed foundation areas should be restricted.

WINGWALLS

For wall backfill, we suggest the use of CDOT Class 1 Structure Backfill. In order to realize the provided parameters for these imported materials, they should be placed within a 1(H) to 1(V) wedge behind the wall(s).

Lateral load parameters for design of the wing walls for the culvert structures are provided in the *Lateral Earth Pressures* section of this report. Wall design should incorporate any

upward sloping backfills, live loads such as traffic, construction equipment, material stockpiles, etc., and other surcharge pressures.

Wall Drainage Properly designed, constructed, and maintained wall drainage systems reduce the likelihood of hydrostatic pressure buildup behind the walls and the associated distresses that can result. Therefore, it is GROUND's opinion that wall drainage measures should be included in project designs. Such systems could consist of an underdrain system with perforated pipe and free-draining gravel and/or plastic drainage core, drainage geotextile, and drain holes (see CDOT Standard Plan No. M-601-20).

LATERAL EARTH PRESSURES

The at-rest, active, and passive earth pressures in terms of equivalent fluid unit weight for the site-derived backfill and imported backfill materials discussed herein are summarized in the table below. Values for the coefficient for frictional resistance to sliding are also provided below. These values were approximated based on a moist unit weight (γ') of 130 pcf and an angle of internal friction (Φ) of 28 degrees for site soils reworked as properly compacted fill. The values were approximated utilizing laboratory testing results and our experience with similar materials. CDOT M Standards and a moist unit weight (γ') of 135 pcf and an angle of internal friction (Φ) of 34 degrees were utilized to approximate the values for CDOT Class 1 Structure Backfill below. A moist unit weight of (γ') 115 pcf and an angle of internal friction (Φ) of 40 degrees were utilized to approximate the values for imported crushed rock

LATERAL EARTH PRESSURES (EQUIVALENT FLUID UNIT WEIGHTS)

Material Type	Water Condition	At-Rest (pcf)	Active (pcf)	Passive (pcf)	Friction Coefficient
Site-Derived Fill (Clayey to silty Sands)	Drained	69	47	320	0.35
	Submerged	99	87	-	0.35
Imported CDOT Class 1 Structure Backfill	Drained	55	40	400	0.45
	Submerged	95	83	-	0.45
Imported Crushed Rock	Drained	42	26	485	0.56
	Submerged	82	74	-	0.56

The upper 1 foot of embedment should be neglected for passive resistance. Base friction may be combined with passive earth pressure if the foundation is in a drained condition.

Where passive pressure is used to resist lateral loads, it should be understood that lateral strains on the order of 1 inch will be required to mobilize the full value indicated above; however, a reduced passive pressure can be used for reduced anticipated strains.

The lateral earth pressures provided above are for a horizontal upper backfill slope. The additional loading of an upward sloping backfill as well as surcharge loads from traffic, stockpiles materials, proposed improvements, etc. should be evaluated using appropriate methods. These values are unfactored and appropriate factors of safety should be included in design calculations.

WATER-SOLUBLE SULFATES

The concentration of water-soluble sulfates measured in a selected sample of the site soils was approximately 0.03 percent by weight (see Table 2). Such a concentration of soluble sulfates represents a negligible environment for sulfate attack on concrete exposed to these materials. Degrees of attack are based on the scale of 'negligible,' 'moderate,' 'severe' and 'very severe' as described in the "Design and Control of Concrete Mixtures," published by the Portland Cement Association (PCA). The Colorado Department of Transportation (CDOT) utilizes a corresponding scale with 4 classes of severity of sulfate exposure (Class 0 to Class 3) as described in the published table below.

REQUIREMENTS TO PROTECT AGAINST DAMAGE TO CONCRETE BY SULFATE ATTACK FROM EXTERNAL SOURCES OF SULFATE

Severity of Sulfate Exposure	Water-Soluble Sulfate (SO₄) In Dry Soil (%)	Sulfate (SO₄) In Water (ppm)	Water Cementitious Ratio (maximum)	Cementitious Material Requirements
Class 0	0.00 to 0.10	0 to 150	0.45	Class 0
Class 1	0.11 to 0.20	151 to 1500	0.45	Class 1
Class 2	0.21 to 2.00	1501 to 10,000	0.45	Class 2
Class 3	2.01 or greater	10,001 or greater	0.40	Class 3

Based on our test results and PCA and CDOT guidelines, GROUND recommends the use of the appropriate cement in all concrete exposed to site soils, conforming to one of the following requirements:

Class 0 (Negligible)

- 1) ASTM C150 Type I, II, III, or V.
- 2) ASTM C595 Type IL, IP, IP(MS), IP(HS), or IT.

The contractor should be aware that certain concrete mix components affecting sulfate resistance including, but not limited to, the cement, entrained air, and fly ash, can affect workability, set time, and other characteristics during placement, finishing and curing. The contractor should develop mix(es) for use in project concrete which are suitable with regard to these construction factors, as well as sulfate resistance. A reduced, but still significant, sulfate resistance may be acceptable to the owner, in exchange for desired construction characteristics.

PROJECT EARTHWORK

Public roadways or utilities should be constructed in accordance with applicable municipal / agency standards. The information below should not be anticipated to be sufficient for all future site improvements.

General Considerations As applicable, site grading should be performed as early as possible in the construction sequence to allow settlement of fills and surcharged ground to be realized to the greatest extent prior to subsequent construction.

Prior to earthwork construction, vegetation and other deleterious materials should be removed and disposed of off-site. Relic underground utilities should be abandoned in accordance with applicable regulations, removed as necessary, and properly capped.

Topsoil present on-site should not be incorporated into ordinary fills. Instead, topsoil should be stockpiled during initial grading operations for placement in areas to be landscaped or for other approved uses.

Existing Fill Soils As discussed, fills were encountered in the test holes and are likely present elsewhere at the site, given the existing improvements. Because not all the fill soils were sampled and tested, it is possible that some of the fill soils may not be suitable for re-use as compacted fill, due to the potential presence of deleterious materials such as trash, organic material, coarse cobbles and boulders, or construction debris.

Therefore, excavated fill materials should be evaluated and tested, as appropriate, with regard to re-use. However, we anticipate that the majority of the existing site fill soils, cleared on any deleterious materials, will be appropriate for reuse in site fills. Environmental evaluation of the existing fill soil was not part of our scope of services, and should an environmental assessment of the site fill soils be needed, an environmental consultant should be retained.

Use of Existing Native Soils Overburden soils that are free of organic material are suitable, in general, for placement as compacted fill. Organic materials should not be incorporated into project fills.

Use of Large Fragments of Rock Fragments of rock and cobbles larger than 3 inches in maximum dimension will require special handling and/or placement to be incorporated into project fills. In general, such materials should be placed as deeply as possible in the project fills. A geotechnical engineer should be consulted regarding appropriate parameters for usage of such materials on a case-by-case basis when such materials have been identified during earthwork. Standard parameters that likely will be generally applicable can be found in Section 203 of the current CDOT Standard Specifications for Road and Bridge Construction.

Imported Fill Materials If it is necessary to import material to the site, the imported soils should be free of organic material, and other deleterious materials. **Imported material should consist of soils that have less than 35 percent passing the No. 200 Sieve and should have a plasticity index less than 15.**

Imported soils for use in culvert and wingwall structure construction and backfill should meet the criteria for CDOT Class 1 Structure Backfill.

Imported crushed rock for use beneath structures should consist of relatively clean, approximately ¾-inch to 1½-inch crushed rock.

Representative samples of the materials proposed for import should be tested and approved prior to transport to the site.

Fill Platform Preparation Prior to filling, the top 8 to 12 inches of in-place materials on which fill soils will be placed should be scarified, moisture conditioned and properly compacted in accordance with the parameters below to provide a uniform base for fill

placement. *If over-excavation is to be performed, then these parameters for subgrade preparation are for the subgrade **below the bottom** of the specified over-excavation depth.*

If surfaces to receive fill expose loose, wet, soft or otherwise deleterious material, additional material should be excavated, or other measures taken to establish a firm platform for filling. The surfaces to receive fill must be effectively stable prior to placement of fill.

Fill Placement Fill materials should be thoroughly mixed to achieve a uniform moisture content, placed in uniform lifts not exceeding 8 inches in loose thickness, and properly compacted.

Soils that classify as **A-1 through A-5** in accordance with the AASHTO classification system (granular materials) should be compacted to **95 or more percent of the maximum modified Proctor dry density at moisture contents within 2 percent of optimum moisture content** as determined by AASHTO T180.

General Fill Placement Considerations: No fill materials should be placed, worked, rolled while they are frozen, thawing, or during poor/inclement weather conditions.

Care should be taken with regard to achieving and maintaining proper moisture contents during placement and compaction. Materials that are not properly moisture conditioned may exhibit significant pumping, rutting, and deflection at moisture contents near optimum and above. The contractor should be prepared to handle soils of this type, including the use of chemical stabilization, if necessary.

Compaction areas should be kept separate, and no lift should be covered by another until relative compaction and moisture content within the suggested ranges are obtained.

Settlements Settlements will occur in filled ground, typically on the order of 1 to 2 percent of the fill depth. If fill placement is performed properly and is tightly controlled, in GROUND's experience the majority (on the order of 60 to 80 percent) of that settlement will typically take place during earthwork construction, provided the contractor achieves the compaction levels herein. The remaining potential settlements likely will take several months or longer to be realized, and may be exacerbated if these fills are subjected to changes in moisture content. Due to deep/thick backfill and challenges related to culvert

installation and roadway embankment construction, long-term settlements will most likely take longer to be recognized. Regardless, settlement of backfills will occur and the owner must realize some improvements may require removal of concrete, asphalt, or other surface-placed improvements as well as replacement. Allowing as much time as possible between backfilling and placement/construction of improvements will reduce, but not eliminate the impact of, realized settlements.

Use of Squeegee Relatively uniformly graded fine gravel or coarse sand, i.e., “squeegee,” or similar materials commonly are proposed for backfilling foundation excavations, utility trenches (excluding approved pipe bedding), and other areas where employing compaction equipment is difficult. In general, GROUND does not suggest this procedure for the following reasons:

Although commonly considered “self-compacting,” uniformly graded granular materials require densification after placement, typically by vibration. The equipment to densify these materials is not available on many job-sites.

Even when properly densified, granular materials are permeable and allow water to reach and collect in the lower portions of the excavations backfilled with those materials. This leads to wetting of the underlying soils and resultant potential loss of bearing support as well as increased local heave or settlement.

It is GROUND’s opinion that wherever possible, excavations be backfilled with approved, on-site soils placed as properly compacted fill. Where this is not feasible, use of “Controlled Low Strength Material” (CLSM), i.e., a lean, sand-cement slurry (“flowable fill”) or a similar material for backfilling should be considered.

Where “squeegee” or similar materials are proposed for use by the contractor, the design team should be notified by means of a Request for Information (RFI), so that the proposed use can be considered on a case-by-case basis. Where “squeegee” meets the project requirements for pipe bedding material, however, it is acceptable for that use.

Wet, Soft, or Unstable Subgrades Where wet, soft, or unstable subgrades are encountered, the contractor should establish a stable platform for fill placement and achieving compaction in the overlying fill soils. Therefore, excavation of the unstable soils and replacing them with relatively dry or granular material, possibly together with the use

of stabilization geotextile or geogrid, may be necessary to achieve stability. Whereas the stabilization approach should be determined by the contractor, GROUND offers the alternatives below for consideration. Proof-rolling can be beneficial for identifying unstable areas.

- Compacting or “crowding” of coarse crushed aggregate (i.e., vehicle tracking control materials, rip-rap, or other crushed “clean” aggregates) into unstable subgrade soils until a stable base develops.
- Replacement of the existing subgrade soils with clean, coarse, aggregate (e.g., crushed rock or “pit run” materials) or road base. Excavation and replacement to a depth of 1 to 2 feet commonly is sufficient, but greater depths may be necessary to establish a stable surface.

On very weak subgrades, an 18- to 24-inch “pioneer” lift that is not well compacted may be beneficial to stabilize the subgrade. Where this approach is employed, however, additional settlements of up to ½ inch may result.

- Where coarse, aggregate alone does not appear sufficient to provide stable conditions, it can be beneficial to place a layer of stabilization geotextile or geogrid (e.g., Tencate Mirafi® RS 580j, or Tensar® BX 1100) at the base of the aggregate section.

The stabilization geotextile / geogrid should be selected based on the aggregate proposed for use. It should be placed and lapped in accordance with the manufacturer's recommendations.

Geotextile or geogrid products can be disturbed by the wheels or tracks of construction vehicles. We suggest that appropriate care be taken to maintain the effectiveness of the system. Placement of a layer of aggregate over the geo-textile / geo-grid prior to allowing vehicle traffic over it can be beneficial in this regard.

When a given remedial approach has been selected, the contractor should construct a test section to evaluate the effectiveness of the approach prior to use over a larger area. One method to demonstrate adequate stability can be to pass a proof roll which shows no significant rutting, pumping, and cracking. Achieving compaction in the first lift of compacted fill above the stabilization layer can also demonstrate stability.

EXCAVATION CONSIDERATIONS

Excavation Difficulty Test holes for the subsurface exploration were advanced to the depths indicated on the test hole logs by means of conventional, truck-mounted, geotechnical drilling equipment. Fill was encountered in the test holes during our exploration program. Although not obviously encountered in the test holes at the time of drilling, construction debris, such as concrete, asphalt, rebar, etc., should be anticipated to exist within the fill materials. The contractor should be prepared to handle these large and potentially awkward materials.

Groundwater Conditions Groundwater was encountered in the test holes at a depth of approximately 7 feet below existing grades at the time of drilling. The test holes were backfilled upon drilling completion per Code of Colorado Regulations (2 CCR 402-2). Groundwater levels can be expected to fluctuate, however, in response to annual and longer-term cycles of precipitation, irrigation, surface drainage, nearby rivers and creeks, land use, and the development of transient, perched water conditions. The groundwater observations performed during our exploration must be interpreted carefully as they are short-term and do not comprise a groundwater study. In the event the Client desires additional/repeated groundwater level observations, GROUND should be contacted; additional exploration and fees will be necessary in this regard.

It is possible that groundwater may be encountered in project excavations at depths both shallower and deeper than those indicated above. The contractor should be prepared to dewater the excavation during construction. Pumps adequate to discharge water and/or well points to draw down the water level may be appropriate methods. Other methods may also be necessary. The dewatering approach should ultimately be determined by the contractor based on their means and methods experience. Dewatering operations may be necessary as both temporary and long-term/permanent installations. If seepage or groundwater is encountered during excavation or at any time during construction, the Geotechnical Engineer and project team should be contacted to evaluate the conditions. The presence of groundwater in these types of situations and associated potential design changes can have an impact to both the financial and schedule components of a project.

Temporary Excavations and Personnel Safety Excavations in which personnel will be working must comply with all applicable OSHA Standards and Regulations, particularly CFR 29 Part 1926, OSHA Standards-Excavations, adopted March 5, 1990. The

contractors “responsible person” should evaluate the soil exposed in the excavations as part of the contractor’s safety procedures. GROUND has provided the information in this report solely as a service to the Client and is not assuming responsibility for construction site safety or the contractor’s activities.

The contractor should take care when making excavations not to compromise the bearing or lateral support for any adjacent, existing improvements. Should site constraints prohibit the use of the slope angles, temporary shoring should be used. The shoring should be designed to resist the lateral earth pressure exerted by buildings, improvements, traffic, equipment, stockpiles, etc.

Surface Water Surface water should be anticipated to be encountered during project excavations. The contractor should take pro-active measures to control surface waters during construction and maintain good surface drainage conditions to direct waters away from excavations and into proper drainage structures. A properly designed drainage swale should be provided at the top of the excavations. In no case should water be allowed to pond at the site. Slopes should also be protected against erosion. Erosion along the slopes will result in sloughing and could lead to a slope failure.

CLOSURE

Geotechnical Review The author of this report or a GROUND principal should be retained to review project plans and specifications to evaluate whether they comply with the intent of the measures discussed in this report. The review should be requested in writing.

The geotechnical conclusions and parameters presented in this report are contingent upon observation and testing of project earthwork by representatives of GROUND. If another geotechnical consultant is selected to provide materials testing, then that consultant must assume all responsibility for the geotechnical aspects of the project by concurring in writing with the parameters in this report, or by providing alternative parameters.

Materials Testing Kimley-Horn & Associates, Inc. should consider retaining a geotechnical engineer to perform materials testing during construction. The performance of such testing or lack thereof, however, in no way alleviates the burden of the contractor or subcontractor from constructing in a manner that conforms to applicable project

documents and industry standards. The contractor or pertinent subcontractor is ultimately responsible for managing the quality of his work; furthermore, testing by the geotechnical engineer does not preclude the contractor from obtaining or providing whatever services that he deems necessary to complete the project in accordance with applicable documents.

Limitations This report has been prepared for Kimley-Horn & Associates, Inc. as it pertains to the proposed culvert replacement project, as described herein. It should not be assumed to contain sufficient information for other parties or other purposes. The Client has agreed to the terms, conditions, and liability limitations outlined in the Master Agreement for Continuing Professional Services between Kimley-Horn & Associates, Inc. and GROUND. Reliance upon our report is not granted to any other potential owner, contractor, or lender.

In addition, GROUND has assumed that project construction will commence by summer 2026 and end within 1 year of the project commencement date. Any changes in project plans or schedule should be brought to the attention of a geotechnical engineer, in order that the geotechnical conclusions in this report may be re-evaluated and, as necessary, modified.

The geotechnical conclusions and parameters in this report were based on subsurface information from a limited number of exploration points, as shown in *Figure 1*, as well as the means and methods described herein. Subsurface conditions were interpolated between and extrapolated beyond these locations. It is not possible to guarantee the subsurface conditions are as indicated in this report. Actual conditions exposed during construction may differ from those encountered during site exploration. Design modifications may be necessary by the project team; this may result in an increase in project costs and schedule delays. In addition, a contractor who obtains information from this report for development of his scope of work or cost estimates does so solely at his own risk and may find the geotechnical information in this report to be inadequate for his purposes or find the geotechnical conditions described herein to be at variance with his experience in the greater project area. The contractor should obtain the additional geotechnical information that is necessary to develop his workscope and cost estimates with sufficient precision. This includes, but is not limited to, information regarding excavation conditions, earth material usage, current depths to groundwater, etc. Because

of the necessarily limited nature of the subsurface exploration performed for this study, the contractor should be allowed to evaluate the site using test pits or other means to obtain additional subsurface information to prepare his bid.

If during construction, surface, soil, bedrock, or groundwater conditions appear to be at variance with those described herein, work should cease and a geotechnical engineer should be retained at once, so that our conclusions and design parameters for this site may be re-evaluated in a timely manner and dependent aspects of project design can be modified, as necessary.

The materials present on-site are stable at their natural moisture content, but may change volume or lose bearing capacity or stability with changes in moisture content. Performance of the proposed structure and pavement will depend on implementation of the conclusions and information in this report and on proper maintenance after construction is completed. Because water is a significant cause of volume change in soils and rock, allowing moisture infiltration may result in movements, some of which will exceed estimates provided herein and should therefore be expected by Kimley-Horn & Associates, Inc.

ALL DEVELOPMENT CONTAINS INHERENT RISKS. It is important that ALL aspects of this report, as well as the estimated performance (and limitations with any such estimations) of proposed improvements are understood by Kimley-Horn & Associates, Inc. Utilizing the geotechnical parameters and measures herein for planning, design, and/or construction constitutes understanding and acceptance of the conclusions with regard to risk and other information provided herein, associated improvement performance, as well as the limitations inherent within such estimates. Ensuring correct interpretation of the contents of this report by others is not the responsibility of GROUND. If any information referred to herein is not well understood, it is imperative that Kimley-Horn & Associates, Inc. or the owner contact the author or a GROUND principal immediately. We will be available to meet to discuss the risks and remedial approaches presented in this report, as well as other potential approaches, upon request.

Current applicable codes may contain criteria regarding performance of structures and/or site improvements which may differ from those provided herein. Our office should be contacted regarding any apparent disparity.

**49th Street Culvert Replacement
Evans, Colorado**

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GROUND appreciates the opportunity to complete this portion of the project and welcomes the opportunity to provide Kimley-Horn & Associates, Inc. or the Owner with a proposal for construction observation and materials testing.

Sincerely,

GROUND Engineering Consultants, Inc.


Brian J. Knecht, P.G.



Reviewed by Jason A. Smith, REM, P.E.



GOOGLE EARTH AERIAL IMAGE (03/02/2025)

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Indicates test hole numbers and approximate locations.



NOT TO SCALE

GROUND
ENGINEERING

JOB NO.: 25-3592

FIGURE: 1

LOCATION OF TEST HOLES

PROJECT: 49th Street - Culvert Replacement

JOB NO: 25-3592

CLIENT: Kimley-Horn & Associates, Inc.

SITE LOCATION: Evans, CO

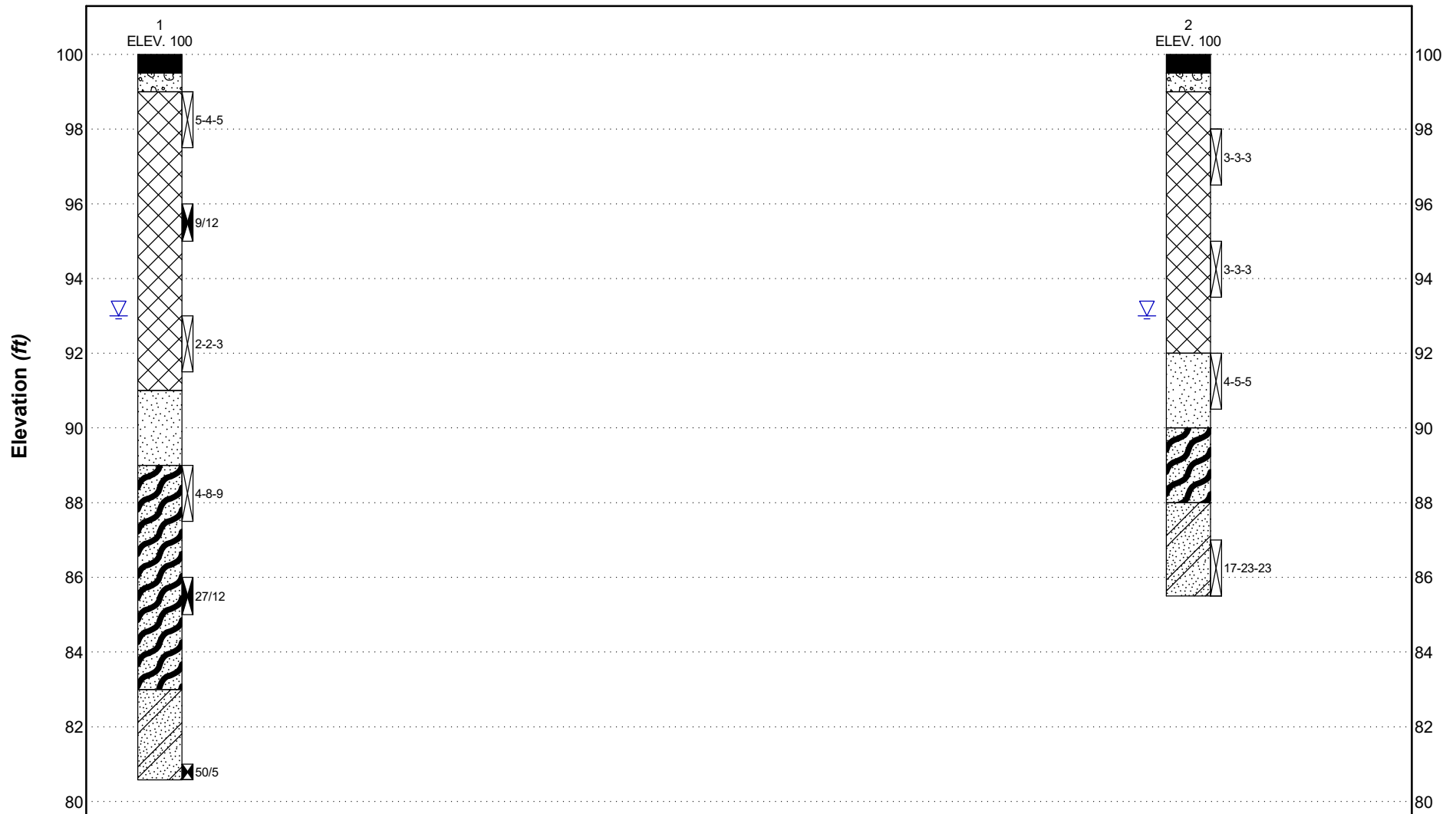


FIGURE: 2

PROJECT: 49th Street - Culvert Replacement

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SITE LOCATION: Evans, CO

MATERIAL SYMBOLS



SAMPLER SYMBOLS



Modified California Liner Sampler

23 / 12 Drive sample blow count indicates 23 blows of a 140 pound hammer falling 30 inches were required to drive the sampler 12 inches.



Standard Penetration Test Sampler

20-25-30 Drive sample blow count, indicates 20, 25, and 30 blows of a 140 pound hammer falling 30 inches were required to drive the sampler 18 inches in three 6 inch increments.

NOTES

1. Test holes were drilled on 6/6/2025 with 6" hollow stem auger and 4" solid stem auger.
2. Locations of the test holes were determined in the field using a hand held GPS device by GROUND.
3. Elevations of the test holes were not measured and the logs of the test holes are drawn to depth. Nominal elevation of "100 feet" indicates existing ground level at the test hole at the time of drilling.
4. The test hole locations and elevations should be considered accurate only to the degree implied by the method used.
5. The lines between materials shown on the test hole logs represent the approximate boundaries between material types and the transitions may be gradual.
6. Groundwater level readings shown on the logs were made at the time and under the conditions indicated. Fluctuations in the water level may occur with time.
7. The material descriptions on these logs are for general classification purposes only. See full text of this report for descriptions of the site materials & related information.
8. All test holes were immediately backfilled upon completion of drilling, unless otherwise specified in this report.

NOTE: See Detailed Logs for Material descriptions.

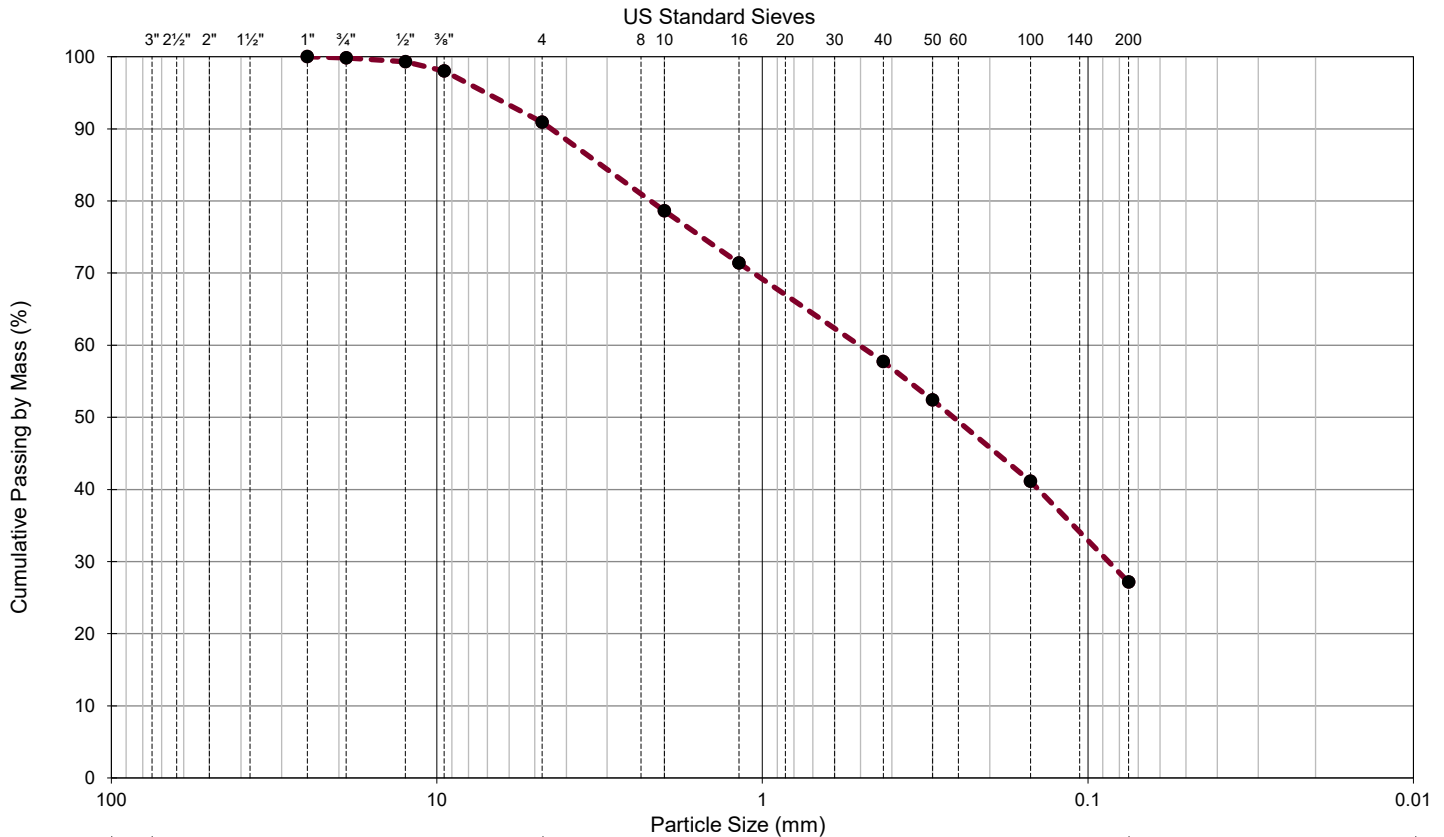
ABBREVIATIONS

- ☐ Water Level at Time of Drilling, or as Shown
☐ Water Level at End of Drilling, or as Shown
☐ Water Level After 24 Hours, or as Shown

NV No Value
NP Non-Plastic

49th Street Culvert Replacement

Gradation (ASTM D422-63[2007])



COBBLES	Coarse	Fine	Coarse	Medium	Fine	Silt and Clay
	GRAVELS		SANDS			FINES

Coarse Gradation			Fine Gradation			Grading	
US Standard Sieve	Particle Size (mm)	Passing by Mass (%)	US Standard Sieve	Particle Size (mm)	Passing by Mass (%)	Coefficient	Value
6 in	150	-	No. 4	4.75	91	D ₉₀	4.451
5 in	125	-	No. 8	2.36	-	D ₈₅	3.130
4 in	100	-	No. 10	2.00	79	D ₈₀	2.201
3 in	75	-	No. 16	1.18	71	D ₆₀	0.503
2.5 in	63	-	No. 20	0.85	-	D ₅₀	0.259
2 in	50	-	No. 30	0.60	-	D ₄₀	0.142
1.5 in	37.5	-	No. 40	0.425	58	D ₃₀	0.086
1 in	25.0	100	No. 50	0.300	52	D ₁₅	-
3/4 in	19.0	100	No. 60	0.250	-	D ₁₀	-
1/2 in	12.5	99	No. 100	0.150	41	D ₀₅	-
3/8 in	9.5	98	No. 140	0.106	-	C _u	-
No. 4	4.75	91	No. 200	0.075	27.1	C _c	-

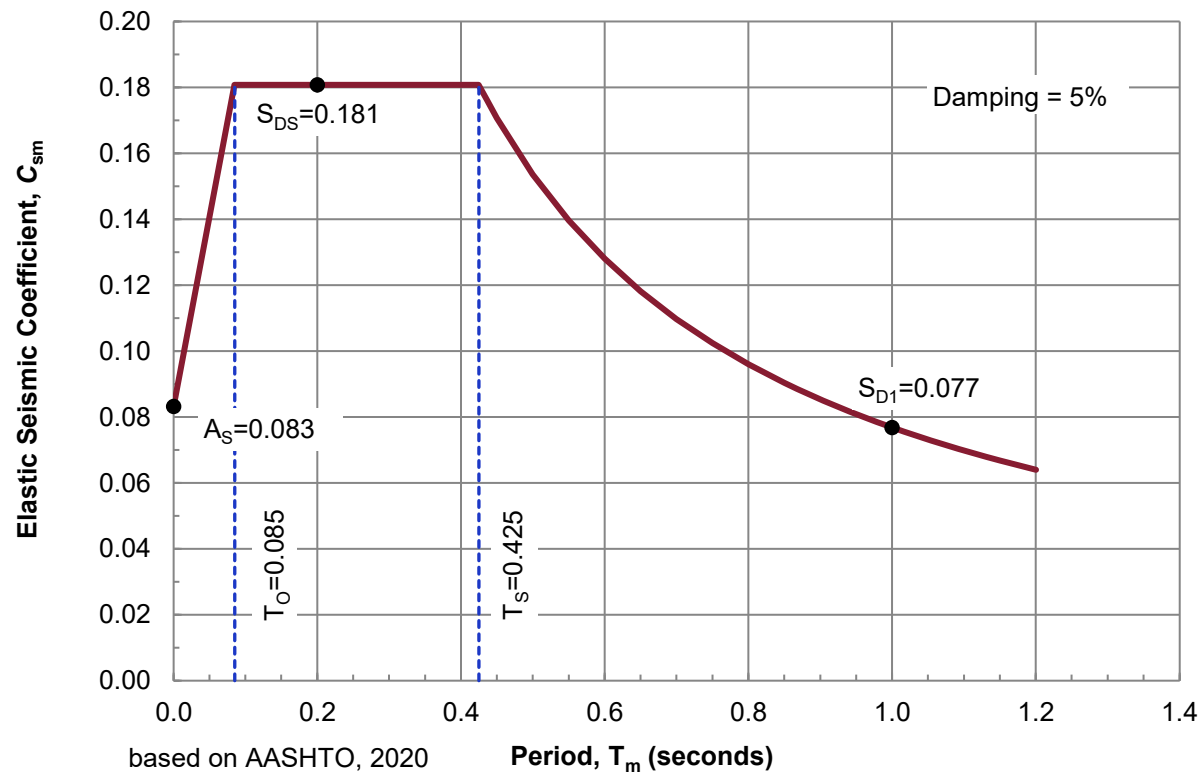
Location: Test Holes 1 - 2 from 1 - 6 feet
Description: Silty, Clayey SAND

Classification: SC-SM / A-2-4 (0)
Liquid Limit: 24
Plasticity Index: 6

Gravel (%): 9
Sand (%): 64
Silt/Clay (%): 27.1

Results apply only to the specific items and locations referenced and at the time of testing. This report should not be reproduced, except in full, without the written permission of GROUND Engineering Consultants, Inc.

DESIGN RESPONSE SPECTRUM



49th Street Culvert Replacement

TABLE 1: SUMMARY OF LABORATORY TEST RESULTS

Sample Location		Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg Limits		Water-Soluble Sulfates (%)	USCS Equivalent Classification	AASHTO Equivalent Classification (Group Index)	Sample Description
Test Hole No.	Depth (feet)			Gravel (%)	Sand (%)	Fines (%)	Liquid Limit	Plasticity Index				
1	4	6.3	118.0	15	71	13.9	22	7	-	(SC)g	A-2-4 (0)	FILL: Clayey SAND with Gravel
1	11	25.8	SD	0	30	70.3	39	16	-	(CL)s	A-6 (10)	Weathered CLAYSTONE
2	2	12.0	SD	8	64	28.2	22	7	-	SC-SM	A-2-4 (0)	FILL: Silty, Clayey SAND
2	5	11.6	SD	6	68	26.3	22	5	-	SC-SM	A-2-4 (0)	FILL: Silty, Clayey SAND
2	8	7.2	SD	16	81	3.2	NV	NP	-	(SP)g	A-2-4 (0)	SAND with Gravel
* 1 - 2	1 - 6	-	-	9	64	27.1	24	6	0.03	SC-SM	A-2-4 (0)	Silty, Clayey SAND

SD = Sample disturbed, NV = No value, NP = Non-plastic, * Indicates composite disturbed sample.

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APPENDIX A:

Detailed Test Hole Logs

PROJECT: 49th Street - Culvert Replacement

JOB NO: 25-3592

CLIENT: Kimley-Horn & Associates, Inc.

SITE LOCATION: Evans, CO

Elevation (ft)	Depth (ft)	Graphic Log	Material Descriptions and Drilling Notes	Sample Type	Blow Count	Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg Limits		USCS
								Gravel %	Sand %	Fines %	Liquid Limit	Plasticity Index	
100.0	0.0		ASPHALT: Approximately 6 inches of asphalt.										
			ROAD BASE: Approximately 6 inches of road base.										
97.5	2.5		FILLS: Fine to coarse, silty to clayey sands with gravels. They were slightly plastic, moist, and brown in color. Iron staining was noted locally.	X	5-4-5								
95.0	5.0			⬛	9/12	6.3	118	15	71	14	22	7	(SC)g
92.5	7.5		Groundwater encountered at 7 feet at the time of drilling.	X	2-2-3								
90.0	10.0		SANDS: Fine to coarse, relatively clean sands with gravels. They were non-plastic, medium dense, wet, and brown in color. Iron staining was noted locally.										
87.5	12.5		WEATHERED CLAYSTONES and SANDSTONES: Interbedded claystones and fine, clayey sandstones. They were slightly to moderately plastic, weathered to firm, moist to very moist, and brown to gray-brown in color. Iron staining was noted locally	X	4-8-9	25.8	SD	30	70	39	16		(CL)s
85.0	15.0			⬛	27/12								
82.5	17.5		SANDSTONE BEDROCK: Fine, clayey sandstones. They were slightly plastic, medium hard to very hard, very moist, and gray to gray-brown in color. Iron staining was noted locally.										
				⬛	50/5								

Bottom of test hole at approx. 19.42 feet.

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100.0	0.0												
			ASPHALT: Approximately 6 inches of asphalt.										
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			FILLS: Fine to coarse, silty to clayey sands with gravels. They were slightly plastic, moist, and brown in color. Iron staining was noted locally.										
97.5	2.5			X	3-3-3	12	SD	8	64	28	22	7	SC-SM
95.0	5.0			X	3-3-3	11.6	SD	6	68	26	22	5	SC-SM
92.5	7.5		Groundwater encountered at 7 feet at the time of drilling.										
			SANDS: Fine to coarse, relatively clean sands with gravels. They were non- to slightly plastic, medium dense, wet, and brown in color. Iron staining was noted locally.	X	4-5-5	7.2	SD	16	81	3	NV	NP	(SP)g
90.0	10.0												
			WEATHERED CLAYSTONES and SANDSTONES: Interbedded claystones and fine, clayey sandstones. They were slightly to moderately plastic, weathered to firm, moist to very moist, and brown to gray-brown in color. Iron staining was noted locally										
87.5	12.5		SANDSTONE BEDROCK: Fine, clayey sandstones. They were slightly plastic, medium hard to very hard, very moist, and gray to gray-brown in color. Iron staining was noted locally.	X	17-23-23								

Bottom of test hole at approx. 14.5 feet.