City of Evans, Colorado

Contract Documents and Specification for

State Street Sewer Replacement

August 2024

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ARTICLE 1.0

CONTRACTING PROCEDURES

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1.1 ADVERTISEMENT FOR BIDS

The City of Evans, Colorado will receive sealed bids for the following project:

State Street Sewer Replacement Project

Project Description: This project will replace an existing undersized 8-inch sanitary sewer in State Street from 31st Street on the north to 37th Street on the south with a 12-inch sanitary sewer.

Bids will be received by the City Clerk of Evans, Colorado (herein call the "City") at the Evans Community Complex, 1100 37th Street, Evans, CO 80620 until **1400 hours on Thursday September 19, 2024** at which time said bids will be publicly opened and read aloud.

Pre-Bid Meeting: A mandatory pre-bid meeting will be held on **Thursday September 5, 2024 from 1100-1200 hours** at the City of Evans office located at 1100 37th Street, Evans, CO 80620.

Plans and Contract Documents: Copies of the contract documents may be obtained from the City website or BidNet Direct (http://bidnetdirect.com).

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.

The Evans City Manager reserves the right to reject any or all bids, to waive any informalities in bids, and to accept the bid that is in the best interests of the City of Evans, Colorado.

CITY OF EVANS, COLORADO

By:_____

Mark Oberschmidt, City Engineer

Published on the City of Evans Website and Rocky Mountain Bid Net on **August 29, 2024**

1.2 INFORMATION FOR BIDDERS

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 Mark Oberschmidt, phone number (970) 475-1110. The City of Evans Project Manager is **Mark Oberschmidt** phone number **(970) 475-1110} or Robby Porsch phone number (970) 475-2241**. For this project, the ENGINEER has contracted with **Ditesco Services**, to do the design of the improvements.

1.2.3 BID SUBMITTAL
Bids will be received by the City Engineer of Evans, Colorado (herein called the "CITY"), at Evans Community Complex, 1100 37th Street, Evans, CO 80620 as noted in the Advertisement for Bid.

Each Bid must be submitted in a sealed envelope, addressed to:

City Clerk
City of Evans
1100 37th Street
Evans, CO 80620

Each sealed envelope containing a bid must be plainly marked on the outside as bid for

State Street Sewer Replacement Project

and the envelope should bear on the outside the name of the bidder, their address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to: City Clerk, City of Evans, 1100 37th Street, Evans, CO 80620.

All bids must be made on the required bid sheet. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid sheet must be fully completed and executed when submitted. Only one copy of the bid sheet is required.

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

Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule(s) by examination of the site. After bids have been submitted, the bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

The CITY shall provide to any and all bidders, prior to bidding, 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 bid. As soon as the bid prices have been compared, the CITY will return the bonds of all except the three lowest responsible bidders within three days after the date of the bid opening. 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.

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.

1.3 AWARD OF CONTRACT

The party to whom the contract is awarded will be required to execute the Agreement and obtain the Performance Bond, Payment Bond, and Certificates of Insurance within ten (10) calendar days from the date when Notice of Award is delivered to the bidder. The Notice of Award shall be accompanied by the necessary Agreement. In case of failure of the bidder to execute the Agreement and to furnish said Bonds and 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 Performance Bond, Payment Bond 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.

The Notice to Proceed 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 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.

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 bid 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 low bidder shall supply the names and addresses of major material suppliers and subcontractors when requested to do so by the CITY.

The successful bidder will provide the CITY of Evans with a current list of references of previous work performed in this field.

The OWNER reserves the right to reject any or all bids 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. The CONTRACTOR'S bid considered for award shall be for the combined low bid for the Base Bid and Force Account.

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 and read, they will be compared on the basis of the 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 immediately available to the public. In the event of a discrepancy between unit bid prices and extensions, the unit bid price shall govern.

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.

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 lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. 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

State Street Sewer Replacement Project

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 **State Street Sewer Replacement Project** 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:

_____
_____
_____
_____

The bid shall include all applicable taxes and fees.

The 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 was left intentionally blank.
Please remove and insert the bid schedule table page.

CITY OF EVANS
STATE STREET SEWER REPLACEMENT PROJECT BID TAB
8/30/2024

Code	Description	Quantity	Units	Unit Cost	Total Cost
1.1	General Conditions	1.00	LS		$0.00
2.1	Mobilization	1.00	LS		$0.00
3.1	Surveying	1.00	LS		$0.00
4.1	Erosion Control / SWMP	1.00	LS		$0.00
5.1	Traffic Control	1.00	LS		$0.00
6.1	Abandon 8" Clay Sanitary Line and Sanitary Services	1.00	LS		$0.00
6.2	Abandon Sanitary Manholes	8.00	EA		$0.00
6.3	Demo & Remove - Concrete & Asphalt	2,790.00	SY		$0.00
7.1	Sanitary Sewer - 8" PVC	191.00	LF		$0.00
7.2	Sanitary Sewer - 12" PVC	2,558.00	LF		$0.00
8.1	Core Existing Manhole, Demolish Ex. Manhole and Repour CIP Base @ EXIST SSMH A1	1.00	EA		$0.00
8.2	4' Sanitary Manhole - CIP - SSMH A2	1.00	EA		$0.00
8.3	4' Sanitary Manhole	12.00	EA		$0.00
8.4	5' Sanitary Manholes	2.00	EA		$0.00
9.1	Reconnect Sanitary Services	17.00	EA		$0.00
10.1	Grease Interceptor(Allowance)	1.00	LS		$0.00
11.1	Paving	2,790.00	SY		$0.00
				TOTAL	$0.00

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

State Street Sewer Replacement Project

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: **State Street Sewer Replacement Project**

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 **August 29, 2024**

You are hereby notified that your bid has been accepted for **State Street Sewer Replacement Project**in the amount of **{Bid Amount}**.

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 _____, 20____.

The City of Evans

By:_____
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 **State Street Sewer Replacement Project**

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 **{Project Amount}** for the **State Street Sewer Replacement Project**

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

BY:_____
Mark C. Clark, Mayor

(SEAL)

ATTEST:

NAME: _____
TITLE: _____

CONTRACTOR

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

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:

State Street Sewer Replacement Project

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

_____ By: _____ (S)
Principal Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

ATTEST:

_____
Surety Secretary

(SEAL)

_____ By:_____
Witness as to Surety 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:

State Street Sewer Replacement Project

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

_____ By: _____
Principal Secretary

(SEAL)

_____
Witness as to Principal

_____
Address

ATTEST:

_____
Surety Secretary

(SEAL)

_____ By:_____
Witness as to Surety 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 this project 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: _____

_____

_____

_____

Project: **State Street Sewer Replacement Project**

You are hereby notified to commence work in accordance with the Agreement dated **{Agreement Date}**, on or before **{Start Date}**, and you are to complete the work within **{Number of Workdays}** consecutive working days thereafter. The date of completion of all work is therefore **{Finish Date}**. Liquidated damages shall apply at the discretion of the City in accordance with Section 2.2.35 of this contract if the project is not completed by {Finish Date} taking into account unavoidable delays due to weather and / or other causes agreed in writing to by both parties.

THE CITY OF EVANS

By: _____
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

CHANGE ORDER NO.: _____
DATE: _____

PROJECT: **State Street Sewer Replacement Project**

TO (CONTRACTOR): _____
JUSTIFICATION: _____

You are directed to make the following changes in the work. All other terms and conditions of the contract not expressly modified hereby shall remain in full force and effect.

ITEM NO.	DESCRIPTION	EST. QTY.	UNIT	UNIT COST	AMOUNT

The original contract sum was	$ _____
Net change by previous change orders	$_____
The contract sum prior to this Change Order was	$_____
The contract sum will be (increased) (decreased) or (unchanged) by this Change Order	$_____
The contract sum including this Change Order will be	$_____

The new contract time will be (increased) (decreased) or (unchanged) by (___) days.

The date of completion as of the date of this Change Order is therefore _____.

ACCEPTED BY:

_____
Contractor

Address

By: _____

Date: _____

ORDERED BY:

The City of Evans
1100 37th Street
Evans, CO 80620

By: _____

Date: _____

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 **State Street Sewer Replacement Project.**

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: _____
Mark Oberschmidt, 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.

State Street Sewer Replacement Project

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/ (Completed Operations Aggregate)	$ 2,000,000
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/ (Combined Single Limit)	$ 1,000,000

The following insurance policies may be required at the discretion of the City:

(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 the 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

INDEX

CONTENTS

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 land 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	Benchmark 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
FlEl	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, pipelines, 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/ (Completed Operations Aggregate)	$2,000,000
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 (Combined Single Limit)	$ 1,000,000

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 CONTRACTOR shall indemnify and hold harmless the City of Evans, its employees and agents, from and against any and all claims, damages, losses, injuries and expenses, including attorney's fees, arising out of or resulting from the performance of work.

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 with 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:

Original Contract Amount		
From More Than	to And Including	Daily Charge
$ 0	$ 25,000	$ 100
25,000	50,000	150
50,000	100,000	225
100,000	500,000	300
500,000	1,000,000	450
1,000,000	2,000,000	600
2,000,000	4,000,000	900
4,000,000	8,000,000	1,200
8,000,000	10,000,000	1,500

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."

2.3.4 NOTIFICATION OF IMMIGRATION COMPLIANCE REQUIREMENTS

"Contractor" acknowledges that Contractor has been notified of the immigration compliance requirements of C.R.S. § 8-17.5-101, *et.seq.* and hereby CERTIFIES that:

A. The Contractor shall not knowingly employ or contract with a worker without authorization to perform work under the public contract for services; or

B. Enter into a contract with a subcontractor that fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with a worker without authorization to perform work under the public contract for services;

C. The Contractor has verified or attempted to verify through participation in the basic pilot program that the Contractor does not employ any worker without authorizations and, if the Contractor is not accepted into the basic pilot program prior to entering into a public contract for services, that the Contractor shall apply to participate in the basic pilot program every three months until the Contractor is accepted or the public contract for services has been completed, whichever is earlier. This provision shall not be required or effective in a public contract for services if the basic pilot program is discontinued;

D. The Contractor acknowledges that the Contractor is prohibited from using basic pilot program procedures to undertake pre-employment screening of job applicants while the public contract for services is being performed;

E. If the Contractor obtains actual knowledge that a subcontractor performing work under the public contract for services knowingly employs or contracts with a worker without authorization, the Contractor shall be required to:

1. Notify the subcontractor and the contracting state agency or political

subdivision within three days that the Contractor has actual knowledge that the subcontractor is employing or contracting with a worker without authorization; and

2. Terminate the subcontract with the subcontractor if within three days of receiving the notice required pursuant to subparagraph (a) of this Section 5. the subcontractor does not stop employing or contracting with the worker without authorization; except that the Contractor shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with a worker without authorization.

F. Contractor is required to comply with any reasonable request by the State Department of Labor and Employment ("Department" herein) made in the course of an investigation that the Department is undertaking pursuant to the authority established in C.R.S. § 8-17.5-102(5).

G. If Contractor violates a provision of the public contract for services required herein may terminate the contract for a breach of the contract. If the contract is so terminated, the Contractor shall be liable for actual and consequential damages to the City.

H. The City is obligated to notify the office of the secretary of state if a contractor violates a provision of this Addendum and the City terminates the contract for such breach. Based on this notification, the secretary of state shall maintain a list that includes the name of the Contractor, the state agency or political subdivision that terminated the public contract for services, and the date of the termination. A contractor shall be removed from the list if two years have passed since the date the contract was terminated, or if a court of competent jurisdiction determines that there has not been a violation of the provision of the public contract for services required pursuant to Section I. An agency or political subdivision shall notify the office of the secretary of state if a court has made such a determination. The list shall be available for public inspection at the office of the secretary of state and shall be published on the internet on the website maintained by the office of the secretary of state.

I. The Department may investigate whether a contractor is complying with the provisions of a public contract for services required pursuant to Section I. The Department may conduct on-site inspections where a public contract for services is being performed, request and review documentation that proves the citizenship of any person performing work on a public contract for services, or take any other reasonable steps that are necessary to determine whether a contractor is complying with the provisions of a public contract for services required pursuant to Section I. The Department shall receive complaints of suspected violations of a provision of a public contract for services (this Addendum) and shall have discretion to determine which complaints, if any, are to be investigated. The results of any investigation shall not constitute final agency action. The Contractor is hereby notified that the Department is authorized to promulgate rules in accordance with article 4 of title 24, C.R.S., to implement the provisions of C.R.S. § 8-17.5-101, *et. seq*.

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; provided, however, that the ENGINEER, at any time after fifty percent (50%) of the work has been completed, finds that satisfactory progress is being made, shall recommend that the remaining partial payment be paid in full.

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 Contact, 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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CONTENTS

3.1 GOVERNING DOCUMENTS

The governing documents for this Work are as follows:

A. Contract Documents Articles 1.0 through 3.0

B. The City of Evans, “Specifications for Street Design and Construction”, dated August 2019.

C. Colorado Department of Transportation, “Standard Specifications for Road and Bridge Construction”, latest edition.

In the case of conflict, documents shall have the following priorities: (1) Contract Documents Article 3.0 – Special Conditions, (2) Contract Documents Article 2.0 – General Conditions, (3) Construction Drawings, (4) City of Evans “Specifications for Street Design and Construction”, August 2019, and (5) Colorado Department of Transportation “Standard Specifications for Road and Bridge Construction”, latest edition.

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

3.2 DESCRIPTION OF WORK

Work for the **State Street Sewer Replacement Project** consists of **replacement of an existing undersized 8-inch sanitary sewer from 31st Street to 37th Street with a 12-inhch sanitary sewer.**

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 City of Evans “Specifications for Street Design and Construction”, August 2019. The CONTRACTOR shall obtain this document and have it 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 will not be required for City projects; however, the CONTRACTOR must be a licensed contractor and have a City of Evans business license to work in the public right-of-way. 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 Sheriff's Department

F. Weld County Ambulance

G. Greeley-Evans School District 6

H. Waste Management

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.

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 (if needed)

B. Concrete Mix Design

C. Aggregate Base Course – Class 6 (if needed)

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 is encouraged to use water obtained from the Evans Ditch whenever possible. Contact the City of Evans Public Works Department to arrange for use of Evans Ditch water. Evans Ditch water may not be available at the time of construction.

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.

Construction Water for City projects will be made available from a hydrant or hydrant(s) local to the Site at no cost to the Contractor. However, the Contractor shall use a City-provided water meter for which a **$1,200.00 deposit** will be required. Deposit and meter application shall be made at the Evans Community Center (City Hall) and the deposit will be returned to the Contractor when the meter is turned in at the end of Project.

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.

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. Concrete Sampling & Testing for Sidewalks, Bike Paths – (slump, air content, temperature, compressive strength, gradation)

B. Concrete Sampling & Testing for Curb and Gutter – (slump, air content, temperature, compressive strength, gradation)

C. 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 "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 “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 flagger’s certification card will be submitted to the City Project Manager 48 hours before commencement of the 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 with 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”, current 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 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 the 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. <u>Measurements:</u>
    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.

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 5.0

MAPPING

INDEX

Figure 1: State Street Sewer Vicinity Map

SET NO._____

PROJECT MANUAL

STATE STREET SANITARY SEWER REPLACEMENT

FOR
CITY OF EVANS

OCTOBER 2023

FINAL CONSTRUCTION DOCUMENTS

ditesco
Project & Construction Services

PROJECT MANUAL
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CITY OF EVANS
STATE STREET SANITARY SEWER REPLACEMENT

END OF CONTENTS

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Demolition and removal of pipelines, concrete and asphaltic paving, sidewalk, curb and gutter and other work as required herein for a complete and functional project as indicated on the drawings and as specified in this section.

1.2 RELATED SECTIONS

A. Section 01 11 00—Summary of Work

B. Section 01 12 16—Work Sequence

C. Section 01 52 00—Temporary Construction Facilities

D. Section 31 23 13—Earthwork and Trenching

1.3 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Shop Drawings: Indicate demolition, removal sequence, and location of salvageable items.

1.4 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 77 00

B. Accurately record actual locations of subsurface obstructions.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable State and local codes for demolition of structures, safety of adjacent structures, dust control, and disposal.

B. Obtain required permits from authorities.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Do not close or obstruct roadways, sidewalks, or hydrants without written permission from Owner.

E. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

1.6 SEQUENCING

A. Sequence work under the provisions of Section 01 11 00 and Section 01 12 16.

1.7 SCHEDULING

A. Schedule work under the provisions of Sections 01 11 00 and 01 32 16.

B. Provide detailed descriptions for demolition and removal procedures.

1.8 CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting, and patching, including attendant excavation and backfill, required to complete the Work or to:
   1. Make its several parts fit together properly
   2. Uncover portions of the Work to provide for installation of ill-timed work
   3. Remove and replace defective work
   4. Remove and replace work not conforming to requirements of Contract Documents
   5. Remove samples of installed work as specified for testing

B. Provide products as specified or as required to complete cutting and patching operations.

C. Inspection:
   1. Inspect existing conditions of the Project, including elements subject to damage or to movement during cutting and patching.
   2. After uncovering work, inspect the conditions affecting the installation of products, or performance of the work.
   3. Report unsatisfactory or questionable conditions to the Engineer in writing; do not proceed with the work until the Engineer has provided further instructions.

D. Preparation:
   1. Provide adequate temporary support as necessary to assure the structural value of integrity of the affected portion of the Work.
   2. Provide devices and methods to protect other portions of the Project from damage.
   3. Provide protection from the elements for that portion of the Project which may be exposed by cutting and patching work, and maintain excavations free from water.
   4. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
   5. Restore work which has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 INSPECTION

A. Verify areas to be demolished are unoccupied and discontinued in use.

B. Do not commence work until conditions are acceptable to Engineer.

3.2 PREPARATION

A. Provide, erect, and maintain temporary barriers, enclosures, security fences and shoring at demolition locations in accordance with Section 01 55 26 to protect personnel and on-going operations of campus.

B. Protect existing structures and electrical service which are not to be demolished.

C. Provide temporary wiring and connections to maintain existing telephone, electrical, instrumentation and control systems in service during construction.

D. Protect trees and plants from damage. Erect temporary tree enclosures (fence) as necessary to limit equipment contact with branches or trunks.

E. Mark location of existing utilities.

3.3 GENERAL REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures.

B. Conduct operations with minimum interference to Owner access. Maintain protected egress and access at all times.

C. Sprinkle Work with water to minimize dust where applicable. Provide hoses and water connections for this purpose.

D. Do not use water to extent causing flooding, contaminated runoff, or icing.

E. Break concrete and masonry into sections less than 3 feet in any dimension.

F. Repair damage to adjacent structures.

G. Protect walls or adjacent structures exposed to demolition work.

3.4 DISPOSAL

A. Remove demolition debris daily.

B. Do not store or burn materials on-site.

C. Transport demolition debris to disposal area.

3.5 SITE DEMOLITION

A. Disconnect, remove, cap and identify designated utilities within demolition area.

B. Remove asphalt paving, curb, gutter, sidewalk and other concrete slabs to facilitate construction.

C. Backfill areas excavated caused as a result of demolition, in accordance with Section 31 23 13.

D. Rough grade and compact areas affected by demolition to maintain existing site grades and contours.

E. Remove demolished materials from site.

F. Do not burn or bury materials on site. Leave site in clean condition.

END OF SECTION

SECTION 03 30 00 – CONCRETE PAVING AND FLATWORK

1.1 GENERAL

A. Section includes forming, jointing, placing and curing of concrete pavements, curbs, gutters, sidewalks, ramps, aprons, valley gutter and cross-pans for parking areas, access roads, concrete paving, and pedestrian traffic.

1.2 RELATED SECTIONS

A. Section 01 45 00—Quality Control

B. Section 31 23 13—Earthwork and Trenching

1.3 REFERENCES

A. ACI 214—Recommended Practice for Evaluating Compression Test Results of Field Concrete

B. ACI 301—Specifications for Structural Concrete for buildings

C. ACI 304—Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete

D. ACI 305/305R—Hot Weather Concreting

E. ACI 306/306R—Cold Weather Concreting

F. ACI 308—Standard Practice for Curing Concrete

G. ASTM A82—Cold Drawn Steel Wire for Concrete Reinforcement

H. ASTM A185—Welded Steel Wire Fabric for Concrete Reinforcement

I. ASTM A497—Welded Deformed Steel Wire Fabric for Concrete Reinforcement

J. ASTM A615—Deformed and Plain Billet-Steel for Concrete Reinforcement

K. ASTM C31—Making and Curing Concrete Test Specimens in the Field

L. ASTM C33—Concrete Aggregates

M. ASTM C39—Test Method for Compressive Strength of Cylindrical Concrete Specimens

N. ASTM C94—Ready Mix Concrete

O. ASTM C143—Test Method of Slump of Hydraulic Cement Concrete

P. ASTM C150—Portland Cement

Q. ASTM C260—Air-Entraining Admixtures for Concrete

R. ASTM C309—Liquid Membrane-Forming Compounds for Curing Concrete

S. ASTM C494—Chemical Admixtures for Concrete

T. ASTM C618—Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

U. ASTM D994—Preformed Expansion Joint Filler for Concrete (Bituminous Type)

V. ASTM D1190—Concrete Joint Sealer, Hot-Poured Elastic Type

W. ASTM D1751—Preformed Expansion Joint Fillers for concrete Paving and Structural Construction

X. ASTM D1752—Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

1.4 SUBMITTALS

A. Provide under provisions of Section 01 33 00

B. Product Data: Provide sufficient information on mix design and products specified to verify compliance with specifications. Provide data on joint filler admixtures and curing compounds under provisions of this section.

1. Existing data on proposed design mixes, certified and complete

2. Submit reports of field quality control testing

1.5 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials and aggregate from same source for all work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle materials in accordance with ACI recommendations.

B. Reinforcing steel: Store on supports which will keep it from contact with the ground and cover.

C. Rubber and plastic materials: Store in a cool place, do not expose to direct sunlight.

D. Prepare a delivery ticket for each load of ready-mixed concrete. Owner reserves the right to request batch weight tickets for each load.

E. Truck operator shall hand ticket to Engineer at the time of delivery with ticket to show:

1. Quantity delivered

2. Actual quantity of each material in batch

3. Outdoor temp in the shade

4. Time at which cement was added

5. Numerical sequence of the delivery

6. Quantity of water that can be added in the field based on mix design

7. Free moisture in fine and coarse aggregate in percent by weight

8. Temperature of batch

1.7 REGULATORY REQUIREMENTS

A. Conform to applicable City of Evans Design and Construction Standards and Specifications and Colorado Department of Transportation standards for concrete work.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when subgrade or subbase surface temperature is less than 40 degrees F, or surface is wet or frozen.

B. Protect concrete from rapid loss of moisture during hot water placement.

PART 2 PRODUCTS

2.1 FORM MATERIALS

A. Form Materials: Capable of supporting loads imposed by construction equipment, straight and free from warp. Clean and strong enough to resist pressure of concrete when placed.

B. Joint filler: ASTM D1751 or D1752 type; 3/4 inch thick unless indicated otherwise.

2.2 REINFORCEMENT

A. Reinforcing Steel and Wire Fabric: In accordance with ACI 301.

B. Dowels: ASTM A615; 40 ksi yield grade, plain steel, unfinished finish.

2.3 CONCRETE MATERIALS

A. Provide concrete materials under applicable City of Evans Design and Construction Standards and Specifications and Colorado Department of Transportation standards for concrete work.

2.4 ACCESSORIES

A. Curing Compound: ASTM C309, AASHTO M-148, white pigmented liquid membrane.

B. Joint Sealers: Sikaflex self-leveling, non-sag or approved equal

C. Sheet Materials: AASHTO M171, 4 mil

2.5 MIX

A. Flatwork

1. Maximum Aggregate Size: 3/4"

2. Cement: 564 pounds minimum per cubic yard of concrete.

3. Water/Cementitious Material (Cement and Fly Ash) Ratio Less than or equal to 0.45.

4. Slump: 4 inch maximum:

   a. May be increased to 5 inches for hand work, acceptable to Engineer

   b. As low as possible consistent with proper handling and thorough compaction

5. Volumetric Air Content: 5-8%

6. Vary air content with maximum size aggregate, ASTMC94, Table 3

7. Strength: Compressive strength as determined by ASTM C39, 4,500 psi minimum at 28 days.

B. Concrete Slip Form Paving (PCCP)

1. Conform to CDOT Class P.

2. Conform to Section 412 and 601 of the CDOT Standard Specifications; 2021 or latest edition.

3. Provide surface tining or heavy broom as approved by Engineer.

4. Provide dowel and tie rod installation according to jointing plans.

C. Consistency: Uniform slump, suitable for the placement conditions with aggregate floating uniformly throughout the concrete mass, flowing sluggishly when vibrated or spaded.

D. Adjust mix as required to meet specifications.

E. Contractor may substitute fly ash for up to 15 percent of cement at a ratio of the specific gravity of cement divided by specific gravity of fly ash.

F. Calcium chlorides are not permitted

2.6 SOURCE QUALITY CONTROL AND TESTS

A. Provide under provisions of Section 01 45 00.

B. Submit proposed mix design to Engineer for review prior to commencement of work.

C. Tests on cement and aggregates will be performed to ensure conformance with specified requirements.

D. Test samples in accordance with ACI 301.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.2 SUBGRADE

A. Prepare subgrade in accordance with Section 31 23 13.

B. Check for soft spots by proof-rolling or other means prior to setting forms. Remove soft yielding material and replace. Compact to specifications under provisions of Section 31 23 13.

C. Check crown and/or elevation of subgrade to assure specified thickness. Compact to specification additional material used to bring to correct elevation. Remove excess material where subgrade is too high.

D. Clean subgrade of all loose materials before placement of concrete. Do not disturb area inside forms after fine grading is complete.

3.3 PREPARATION

A. Moisten subgrade to depth of 8 inches at optimal moisture not more than 12 hours prior to placement to minimize absorption of water from fresh concrete.

B. Coat surfaces of manhole and catch basin frames with oil or bond breaker to prevent bond with concrete pavement for concrete collars.

C. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.4 FRAME ADJUSTMENT

A. Set frames of structures in full grout bed to provide proper bearing. Set to final grade.

B. Form construction joints and blockouts as indicated on drawings.

3.5 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Join neatly and mechanically tamp to assure firm placement. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Oil forms prior to concrete placement.

D. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

E. Set dowels, expansion joints, preformed construction joints and header boards as specified or indicated on the drawings

F. Backfill behind forms as required to prevent water from entering subgrade

3.6 REINFORCEMENT

A. Place reinforcement at mid-height of slabs-on-grade or as shown in standard specifications

B. Hold all tie and marginal dowels in proper position by sufficient supports or pins

C. Mechanically install dowels or place on supports if center longitudinal joint is sawed in lieu of placing plastic strip

D. Interrupt reinforcement at expansion joints

E. Place dowels to achieve pavement and curb alignment as detailed

F. Provide doweled joints inch at interruptions of concrete with one end of dowel set in capped sleeve to allow longitudinal movement

G. Grease dowels on one side of joints with caps on greased end

H. Install all reinforcing, tie rods or dowels in accordance with the plans.

3.7 TRANSPORTING MIXED CONCRETE

A. Transporting of mixed concrete shall conform to ACI 305R

B. Do not exceed manufacturer's guaranteed capacity of truck agitators. Maintain the mixed concrete in a thoroughly mixed and uniform mass during hauling

C. Do not incorporate additional mixing water into the concrete during hauling or after arrival at the delivery point, unless ordered by the Engineer. If additional water is to be incorporated into the concrete, revolve the drum not less than 30 revolutions at mixing speed after the water is added and before placing concrete

D. Furnish a water measuring device in good working condition, mounted on each transit mix truck, for measuring the water added to the mix on the site by the Engineer

E. Provide delivery ticket and comply with delivery requirements of this section

3.8 PLACING CONCRETE

A. Place concrete in accordance with ACI 301

B. Lightly moisten subgrade or base course immediately before placing concrete

C. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement

D. Deposit concrete near final position. Minimize segregation and damage to subgrade

E. Place concrete continuously over the full width of the panel and between predetermined construction joints. Spread mechanically to prevent segregation and separation of materials

F. Consolidate concrete with vibrators and spade next to forms to remove air spaces or honeycombs

G. Do not place concrete in forms that has begun to set

H. Do not place more concrete in one day than can be finished before dark the same day

3.9 COLD WEATHER CONCRETING

A. Conform to ACI 306/306R, except as modified herein

B. Minimum concrete temp at the time of mixing

Outdoor Temp at Placement (in shade)	Concrete Temp at Mixing
Below 30 degrees F	70 degrees F
Between 30 degrees F and 45 degrees F	60 degrees F
Above 45 degrees F	50 degrees F

C. Do not place heated concrete which is warmer than 80 degrees F

D. If freezing temp are expected during curing, maintain the concrete temp at or above 50 degrees F for 5 days or 70 degrees F for 3 days with forms in place

E. Do not allow concrete to cool suddenly

3.10 HOT WEATHER CONCRETING

A. Conform to ACI 305/305R, except as modified herein

B. At air temp of 90 degrees F and above keep concrete as cool as possible during placement and curing. Fog sprayers or special wetting agents may be required for protection

C. Do not allow concrete temperature to exceed 70 deg F at placement

D. Prevent plastic shrinkage cracking due to rapid evaporation of moisture

E. Do not place concrete when the actual or anticipated evaporation rate equals or exceeds 0.2 lbs. per sq ft per hr as determined from ACI 305, Fig 2.1.4

3.11 JOINTS

A. Paving:

1. Contraction joints: At intervals not to exceed 10 feet, or as modified by pavement jointing plan. Align curb, gutter, and sidewalk joints where applicable. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab. Construct joints according to approved jointing plan and CDOT M-412-1.

2. Expansion joints: At intervals not to exceed 50 feet, or as modified by pavement jointing plan.

B. Sidewalk:

1. Contraction joints: At intervals not to exceed 5 feet and 1 1/2 inches deep

2. Expansion joints: 1/2 inch premolded joints where sidewalks end at curb returns, against fixed objects, at points of sharp radius, and between sidewalk and driveway slabs. Place expansion joint a maximum of every fifty feet

C. Curb and Gutter:

1. Contraction joints: At intervals not to exceed 10 feet made by insertion of 1/8 inch template at right angles to curb and 1 1/2 inch deep

2. Expansion joints: At curb returns, against fixed objects, at points of sharp radius, between adjacent sidewalk and curb at all curb returns, between sidewalk and all driveway slabs

D. Place joint filler between paving components and building or other appurtenances at temperatures above 50 degrees F. Clean all dust, debris and water from joint. Recess top of filler 1/4 inch for sealant placement

E. Provide keyed joints as indicated

3.12 FINISHING

A. Run straight-edge over forms with sawing motion to fill all holes and depressions

B. Wood float surface immediately after using a straight-edge

C. Brush with soft bristle brush to remove trowel marks and leave a uniform appearance just before concrete takes initial set

D. Direction of Texturing:

1. Paving: Transverse to pavement direction; tining as indicated in the drawings or specifications.

2. Curb and Gutter: At right angles to the curb line

3. Sidewalk: At right angles to centerline of sidewalk

4. Valley Gutters: Parallel to curb line

E. Inclined Vehicular Ramps: Broomed perpendicular to slope

F. Place curing compound on exposed concrete surfaces immediately after finishing. Apply under pressure at the rate of one gallon to not more than 135 square feet by mechanical sprayers in accordance with manufacturer's instructions acceptable to Engineer

3.13 JOINT SEALING

A. Seal all paving joints and clean pavement prior to opening to traffic

B. Seal all expansion joints

C. Separate pavement from vertical surfaces with 3/4 inch thick joint filler

D. Place joint filler in pavement pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete

E. Extend joint filler from bottom of pavement to within 1/4 inch of finished surface.

3.14 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury

B. Have plastic sheeting, straw, burlap and/or canvas materials available at all times to protect fresh uncured surfaces from adverse weather conditions

C. Do not permit pedestrian traffic over sidewalks for 3 days minimum after finishing. Do not permit vehicular traffic over pavement for 7 days minimum after finishing or until 80 percent design strength of concrete has been achieved.

3.15 TOLERANCES

A. Maximum Variation of Surface Grade: 1/4 inch in 10 ft

B. Maximum Variation from True Alignment: 3/8 inch in 10 ft

3.16 FIELD QUALITY CONTROL

A. Section 01 45 00—Quality Assurance: Field inspections and testing

B. Owner will take cylinders and perform slump and air entrainment tests in accordance with ACI 301. Unit weight and mix temperature will also be taken

C. The first three loads will be tested for slump and air content. If any one test fails to meet requirements, that load will be rejected and tests will continue on each load until three consecutive loads meet requirements. Thereafter, five concrete test cylinders will be taken for every 75 cubic yards or less of concrete placed each day or as adjusted by the Engineer.

D. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.

E. One slump and air entrainment test will be taken for each set of test cylinders taken.

F. Cylinders will be tested as follows: 2 at 7 days, 2 at 28 days and 1 at a later date, if necessary, as directed by the Engineer

G. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken

H. Thickness of fresh concrete may be checked by Owner at random. Coring will be conducted in accordance with Colorado Department of Transportation requirements. Any deficiencies greater than ¼” will be removed and replaced at the Contractor’s expense.

I. Failure of Test Cylinders or Coring Results: Engineer may order removal and replacement of concrete as required upon failure of 28-day tests or if thickness of pavement is less than 95 percent of specified thickness

END OF SECTION

SECTION 31 23 13 - EARTHWORK AND TRENCHING

PART 1 GENERAL

1.1 DESCRIPTION

A. Clearing, grubbing and site preparation

B. Removal and disposal of debris

C. Handling, storage, transportation, and disposal of excavated material

D. Sheeting, shoring, bracing and protection work

E. Pumping and dewatering as required or necessary

F. Backfilling

G. Pipe Bedding

H. Construction of fills and embankments

I. Trench Stabilization

J. Final grading

K. Appurtenant work

1.2 RELATED SECTIONS

A. Section 33 05 01 – Sanitary Sewer

1.3 REFERENCES

A. ASTM C33—Concrete Aggregates

B. ASTM C136—Sieve Analysis of Fine and Coarse Aggregates

C. ASTM D1241—Material for Soil Aggregate Subbase, Base and Surface Courses

D. ASTM D698—Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12-Inch Drop

E. ASTM D1557—Test Methods for Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb Rammer and 18 inch drop

F. ASTM D4253—Test Methods for Maximum Index Density of Soils Using a Vibratory Table

G. ASTM D4254—Test Methods for Minimum Index Density of Soils and Calculations of Relative Density

H. ASTM D2922—Test Methods for Density of Soil and Soil-Aggregate Mixtures in Place by Nuclear Methods (Shallow Depth)

I. ASTM D3017—Test Method for Moisture Content of Soil and Soil-Aggregate Mixtures

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00

B. Product Data: Submit on all products or materials supplied herein

C. Test Reports: Indicate sieve analysis, optimum moisture content and density in accordance with ASTM D698 for cohesive soils including onsite native material. Indicate supplier, sieve analysis, and maximum relative density in accordance with ASTM D4253 and D4254 for crushed rock or gravel, pipe bedding and other cohesionless material for fills and embankment.

1.5 REGULATORY REQUIREMENTS

A. Comply with all requirements of State Construction Dewatering Permit.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Protect adjacent structures and surrounding areas from damage during excavation, filling, and backfilling.

B. Protect work from erosion or other similar types of damage until the project has been completed.

C. Do not backfill or construct fills during freezing weather. Backfill or construct fills only when temperature is 35ºF and rising.

D. Do not use frozen materials, snow, or ice in any backfill or fill area.

E. Do not backfill or construct fill on frozen surfaces.

F. Protect excavated material from becoming frozen.

G. Protect trees from permanent damage by construction activities.

H. Provide temporary bridges for roadways, walkways, driveways, etc.

PART 2 PRODUCTS

2.1 MATERIALS

A. Classification of Excavated Materials:
   1. None
   2. Remove and handle excavated materials regardless of type, character, composition, condition, or depth of material at no additional cost to Owner.
   3. Remove and handle excavated materials regardless of means, methods and techniques required, at no additional cost to Owner.

B. Handling of Excavated Materials:
   1. Remove all excavated soils from project Work areas and store at site(s) designated by Contractor.
   2. Separate topsoil from trench excavated soils
   3. Import off-site job excavated soils only as necessary to accommodate current Work
   4. Stockpiling of job excavated soils shall be allowed in designated areas.

C. Backfill below non-paved areas:
   1. Use excess earth from excavation for fill between bedding zone and bottom of topsoil
   2. Free from rocks or stones larger than 6 inch in greatest dimension and free from brush, stumps, logs, roots, debris, and organic and other deleterious materials
   3. No rocks or stones in upper 18 inch of fill

D. Backfill below paved areas:
   1. Use excavated materials
   2. Compact to 95% SPD or as otherwise specified

E. Topsoil:
   1. Native material removed and stockpiled before excavation
   2. Free from trash and debris
   3. Supplement and/or amend as specified

F. Pipe Bedding: Reference project details – CDOT No. 8 or No. 67; provide aggregates as shown on the plans.

Table 703-2
CONCRETE AGGREGATE GRADATION TABLE
Percentage Passing Designated Sieves and Nominal Size Designation

Sieve Size	Coarse Aggregates (from AASHTO M 43)									Fine Aggregate
	No. 3	No. 357	No. 4	No. 467	No. 57	No. 6	No. 67	No. 7	No. 8	
	50 mm to 25.0 mm (2" to 1")	50 mm to 4.75 mm (2" to No. 4)	37.5 mm to 19.0 mm (1½" to ¾")	37.5 mm to 4.75 mm (1½" to #4)	25.0 mm to 4.75 mm (1" to #4)	19.0 mm to 9.5 mm (¾" to ⅜")	19.0 mm to 4.75 mm (¾" to #4)	12.5 mm to 4.75 mm (½" to #4)	9.5 mm to 2.36 mm (⅜" to #8)	4.75 mm to 150 µm (#4 to #100)
63 mm (2½")	100	100								
50 mm (2")	90 – 100	95 – 100	100	100						
37.5 mm (1½")	35 – 70		90 – 100	95 – 100	100					
25.0 mm (1")	0 – 15	35 – 70	20 – 55		95 – 100	100	100			
19.0 mm (¾")			0 – 15	35 – 70		90 – 100	90 – 100	100		
12.5 mm (½")	0 – 5	10 – 30			25 – 60	20 – 55		90 – 100	100	
9.5 mm (⅜")			0 – 5	10 – 30		0 – 15	20 – 55	40 – 70	85 – 100	100
4.75 mm (#4)		0 – 5		0 – 5	0 – 10	0 – 5	0 – 10	0 – 15	10 – 30	95 – 100
2.36 mm (#8)					0 – 5		0 – 5	0 – 5	0 – 10	80 – 100
1.18 mm (#16)									0 – 5	50 – 85
600 µm (#30)										25 – 60
300 µm (#50)										10 – 30
150 µm (#100)										2 – 10

PART 3 EXECUTION

3.1 EXAMINATION

A. Field verify the location of all underground utilities, pipelines and structures prior to excavation.

3.2 PERFORMANCE

A. Perform work in a safe and proper manner with appropriate precautions against hazard.

B. Provide adequate working space and clearances for work performed within excavations and for installation and removal of concrete forms.

C. Do not undercut excavation faces for extended footings.

D. Clean subgrades of loose material before concrete is placed thereon.

E. Except as otherwise authorized, indicated, or specified, replace all material excavated below the bottom of concrete walls, footings, slabs on grade and foundations with concrete placed at the same time and monolithic with the concrete above.

3.3 PREPARATION

A. Clear sites to be occupied by permanent construction of roots, brush, and other objectionable material and debris.

B. Clean and strip subgrade for fills and embankments of surface vegetation, sod, tree stumps and organic topsoil.

C. Remove waste materials from site and dispose.

D. Remove debris from site daily and dispose of off-site; on-site burning is not permitted.

3.4 PRESERVATION OF TREES

A. Do not remove trees under any circumstances, unless noted otherwise.

B. Protect trees from permanent damage by construction operation.

C. Hand excavate inside of, and within 10’ outside diameter, of root zone

3.5 TOPSOIL

A. Remove and stockpile sufficient topsoil from surface to a minimum depth of 4-inches where the original topsoil will be covered or damaged.

B. Import additional clean material to surface fill embankments, berms, and other areas where original topsoil will be covered or damaged.

C. At the completion of other work in each area, place and grade topsoil to maintain gradient as indicated.

3.6 DEWATERING

A. Provide and maintain adequate dewatering equipment to remove and dispose of surface and groundwater entering excavations, trenches, and other parts of the work.

B. Keep each excavation dry during subgrade preparation and continually thereafter until the structure to be built or the pipe to be installed is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

C. Dewater excavations which extend to or below groundwater by lowering and keeping the groundwater level beneath such excavation at least 12 inches below the bottom of the excavation.

D. Divert surface water or otherwise prevent it from entering excavated areas or trenches to the extent practical without damaging adjacent property.

E. Maintain all drainage pipes, keep clean and free of sediment during construction and final cleanup.

F. Obtain and comply with conditions of CDPHE construction dewatering permit.

3.7 SHEETING, SHORING AND BRACING

A. Provide proper and substantial sheeting, shoring, and bracing, as required, to prevent caving or sliding, to protect workmen and the Work, and to protect existing structures, facilities, and utilities.

B. Design and build sheeting, shoring, and bracing to withstand all loads that might be caused by earth movement or pressure, and to be rigid, maintaining shape and position under all circumstances.

C. Provide a support plan to the Engineer detailing the proposed pile and lagging system, along with assumptions and calculations for design, planned methods and sequencing of the support installation, and anticipated difficulties with proposed resolutions.

D. Do not begin to remove excavation support until support can be removed without damage to existing facilities, completed Work, or adjacent property.

E. Remove excavation support in a manner that does not leave voids in the backfill.

F. Do not pull trench sheeting before backfilling unless pipe strength is sufficient to carry trench loads based on trench width to the back of sheeting.

G. Do not brace sheeting left in place against the pipe, but support it in a manner that precludes concentrated loads or horizontal thrusts on pipe.

H. Cross braces installed above the pipe to support sheeting may be removed after pipe bedding is completed.

3.8 TRENCH STABILIZATION

A. Thoroughly compact and consolidate subgrades for concrete structures, precast structures, and utility trench bottoms so they remain firm, dense and intact during required construction activities.

B. Remove all mud and muck during excavation.

C. Reinforce subgrades with crushed rock or gravel if they become mucky during construction activities.

D. Finished elevation of stabilized subgrades are to be at or below subgrade elevations indicated on drawings.

E. Allow no more than 2 inch depth of mud or muck to remain on trench bottoms when pipe bedding material is placed thereon.

3.9 CRUSHED ROCK OR GRAVEL FILLS

A. Place on suitably prepared subgrade and compacted.

B. Compacted by vibration.

3.10 ROADWAY EXCAVATION AND SUBGRADE PREPARATION

A. Excavate for roadways, drives and parking area to match existing on-site conditions.

B. Excavate unsuitable material from the subgrade.

C. After shaping, roll subgrade compacted to 98 percent of max density within 2 percent (+/-) optimum moisture content, ASTM D698, to a minimum depth of 6 inch.

D. Reshape and wet as required.

E. Remove soft or otherwise unsuitable material, and replace with suitable material.

3.11 FILLS AND EMBANKMENTS

A. Level and roll subgrade so surface materials will be compact and bond with the first layer of fill or embankment.

B. Place in horizontal layers 8 inch max uncompacted depth.

C. Spread and level material deposited in piles and windrows before compacting.

D. Thoroughly compact each layer by rolling or other means acceptable to Engineer to 98 percent of max density within 2 percent (+/-) optimum moisture content.

E. Alter compaction methods if material fails to meet specified density.

F. Where a trench passes through a fill or embankment, place and compact fill or embankment to 12 inch above the top of the pipe before excavating the trench.

G. Add water and harrow, disc, blade, or otherwise work each layer to obtain the uniform moisture content and adequate compaction.

3.12 BLASTING

A. Blasting or other use of explosives is not permitted.

3.13 TRENCH EXCAVATION

A. Establish alignment and grade or elevation from offset stakes

B. Excavate trenches so pipes can be laid straight at uniform grade without dips or bumps, between the terminal elevations indicated on the drawings.

C. Comply with pipe specification sections regarding vertical and horizontal alignment and max joint deflection.

D. Measure pipe cover depth vertically from top of pipe to finished ground or surface elevation.

E. Do not open more trench in advance of pipe laying than is necessary to expedite the work;

F. Except where tunneling or horizontal directional drilling is indicated on the drawings, specified, or permitted by Engineer, excavate trenches by open cut from the surface

G. Mechanical excavation:

1. Do not use where its operation would damage buildings, culverts, or other existing property, structures, or utilities above or below ground; hand excavate only in such areas
2. Use mechanical equipment of a type, design, and construction and operated so that:
   a. Rough trench bottom elevation can be controlled
   b. Uniform trench widths and vertical sidewalls are obtained from 1 foot above the top of the installed pipe to the bottom of the trench
   c. Trench alignment is such that pipe is accurately laid to specified alignment and is centered in the trench with adequate clearance between pipe and trench sidewalls.
3. Do not undercut trench sidewalls.
4. Re-compact trench bottom disturbed by bucket teeth prior to placement of bedding material.

H. Except as otherwise required, excavate trenches below the underside of pipes as indicated in the drawings to provide for installation of granular bedding pipe foundation material.

I. Whenever so directed by Engineer, excavate to such depth below grade as Engineer directs and bring the trench bottom to grade with such material as Engineer may direct.

J. Provide concrete, or other foundations made necessary by unstable soil as directed by Engineer.

K. Excavate to provide adequate clearance for tools and methods of pipe installation.

L. Do not allow any of bells or couplings to contact the trench bottom, walls when pipe is joined.

M. Cuts in surface construction:
1. No larger than necessary to provide adequate working space
2. Cut a clean groove not less than 12 inch deep along each side of trench or around perimeter of excavation area
3. Remove pavement and base pavement to provide shoulder not less than 3 feet wide between cut edge and top edge of trench
4. Do not undercut trenches, resulting in bottom trench width greater than top widths
5. Make pavement cuts to and between straight or accurately marked curved lines parallel to trench centerline or limits of excavation
6. Remove pavement for connections to existing lines or structures only to the extent required for the installation, as determined by Engineer
7. Where the trench parallels the length of a concrete walk which is all or partially over the trench, remove and replace the entire walk
8. Where the trench crosses the drives, walks, curbs, or other surface construction, remove and replace the surface construction between saw cuts as specified for pavement

3.14 PIPE BEDDING

A. Embed pipes above and below the bottom of pipe as indicated in the drawings and as specified.

B. Spread and surface grade granular bedding to provide continuous and uniform support beneath pipe at all points between pipe joints.

C. After grading, aligning, and placing pipe in final position, and shoring home, deposit and compact sufficient bedding under and around each side of the pipe and to hold the pipe in proper position and alignment during subsequent operations

D. Place and compact bedding material uniformly and simultaneously on both sides of pipe to prevent lateral displacement.

E. Granular bedding:
   1. Compact by slicing with shovel or vibrating
   2. Maximum uncompacted thickness of layers: 6 inch

F. Compacted bedding:
   1. Maximum uncompacted thickness of layers: 8 inch
   2. Compact to 95 percent max density as determined by ASTM D698
   3. Compact to 70 percent relative density ASTM D4253/D4254

3.15 TRENCH BACKFILL

A. Compacted backfill:
   1. For full depth of trench above bedding
   2. Beneath roadways, surfacing, driveways, curbs, gutters, walks or other surface construction or structures
   3. In street or highway shoulders
   4. In established sodded areas
   5. Beneath fills and embankments

B. Where the trench for one pipe passes beneath the trench of another pipe, compact the backfill for the lower trench to the bottom of the upper trench.

C. Place job excavated materials in 8 inch max uncompacted thickness, uniform layers.

D. Increased layer thickness may be permitted for uncohesive material if Contractor demonstrates to Engineer's satisfaction that specified compacted density will be achieved.

E. Use methods and equipment appropriate to the material to be compacted to prevent transmission of damaging shocks to pipe.

F. Compact to 98 percent of max density within 2 percent (+/-) optimum moisture content per ASTM D698 or to an equivalent percent relative density per ASTM D4253/D4254 when appropriate.

G. Graded gravel:
   1. Deposit in uniform layers of 8 inch max uncompacted thickness
   2. Compact with suitable vibrating roller or platform vibrator to not less than 70 percent relative density per ASTM D4253/D4254

H. Uncompacted backfill:
   1. Compaction of backfill above pipe bedding in locations other than those specified, is required only to prevent future settlement
   2. May be placed by any method acceptable to Engineer which will not impose excessive concentrated or unbalanced loads, shock, or impact on, and will not result in displacement of installed pipe
   3. Do not drop compact masses of stiff clay or other consolidated material more than 5 feet into trench unless cushioned by 2 feet minimum of loose backfill above pipe bedding

I. Finish the top portion of backfill with a thickness of topsoil corresponding to, or better than, that underlying adjoining sodded areas.

3.16 STRUCTURAL BACKFILL

A. Maximum uncompacted thickness of layers: 6 inches

B. Compact with mechanical, platform-type tampers

C. Minimum density of 98 percent within 2 percent (+/-) optimum moisture content as determined by ASTM D698.

D. Use roller for compaction if necessary to prevent damage to structure and desired density can be obtained.

E. Compaction by inundation by water not permitted.

F. If trench passes through a structure backfill, compact backfill to an elevation of 12 inches above top of pipe before trenching.

G. Do not deposit or compact tamped or otherwise mechanically compacted backfill in water.

H. Take particular care to compact backfill which will be beneath slabs, pipes, drives, roads, parking areas, curb, gutters or other surface construction.

3.17 DRAINAGE MAINTENANCE

A. Do not backfill trenches across roadways, drives, walks or other trafficways adjacent to drainage ditches or water courses prior to backfilling the trench on the upstream side of the trafficway to prevent impounding water after pipe is laid.

B. Backfill so that water does not accumulate in unfilled or partially filled trenches.

C. Remove materials deposited in roadway ditches or other water courses crossed by the trench line immediately after backfilling is completed and restore ditches and water courses to original section, grade, and contours.

D. Do not obstruct surface drainage any longer than necessary.

E. Provide and maintain temporary bridges and other structures across unfilled trenches as required to maintain traffic.

3.18 DISPOSAL OF EXCESS EXCAVATED MATERIALS

A. Use excess excavated materials in fills and embankments as indicated on the drawings to the extent needed.

B. Dispose of suitable excess excavated materials at locations directed by Engineer. Excess excavated materials shall be hauled off site. Excess excavated materials shall not be left on site.

C. Remove unused suitable material from the site and dispose of it.

D. Remove debris, junk, broken concrete, broken asphalt, rock, stones, stumps, logs, roots, and other unsuitable material from the site and dispose of it.

E. Except as otherwise permitted, dispose of excess excavated materials away from the site of the Work or as directed by Owner.

F. Haul excess earth from excavations off-site.

3.19 FINAL GRADING

A. After completion of all other outside work and after backfilling is completed and settled, bring all areas of the site to pre-construction grades.

B. Graders and other power equipment may be used for final grading and slope dressing if the result is uniform and equivalent to hand work.

3.20 STORMWATER MANAGEMENT PLAN

A. Submit General Permit Application to CDPHE for stormwater discharges associated with construction activity and comply with all conditions of the permit.

3.21 SETTLEMENT

A. Warranty for settlement of all fills, embankments, and backfills is stipulated in the General Conditions from final completion of Contract under which Work is performed.

B. Repair or replace within 30 days after notice by Engineer or Owner.

3.22 FIELD QUALITY CONTROL

A. Provide under provisions of Section 01 45 00

B. Coordinate and all tests to determine compliance of in-place and backfill materials and compaction in accordance with the specifications

C. Fills and Embankment:
   1. Two moisture-density relationship tests, ASTM D698 on each type of fill material
   2. One in-place compaction test for every 1.5 feet of vertical lift of material placed

D. Pipe Bedding and Backfill:
   1. Two initial gradation tests for each type of material plus 1 additional test for 500 cubic yards of each material
   2. Two moisture-density relationship tests, ASTM D698, or 2 relative density tests, ASTM D4253/D4254, as appropriate for each type of bedding on backfill material proposed, except granular bedding material
   3. One in-place compaction test every 100 lineal feet of trench in the compacted bedding zone and at every 1.5 feet of vertical lift of backfill materials, ASTM D2922/D3017
   4. One in-place compaction test near top of trench for trench depth of 2 feet or less, ASTM D2922/D3017
   5. Five (5) additional in-place compaction tests at the discretion of the Engineer, ASTM D2922/D3017

END OF SECTION

SECTION 32 11 23 – AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The worked to be performed includes placement of aggregate base courses as subgrade base for leveling, fill, and stabilization prior to installation of pavements.

1.02 RELATED SECTIONS

A. Section 03 30 00 – Concrete Paving and Flatwork

B. Section 31 23 13 – Earthwork and Trenching

1.04 SUBMITTALS

A. The CONTRACTOR shall cooperate with the ENGINEER in obtaining and providing samples of all specified materials. The CONTRACTOR shall submit certified laboratory test certificates for all items required in this section under Section 01 33 00.

PART 2 PRODUCTS

2.01 MATERIALS

A. Recycled Concrete shall be crushed concrete that the amount of minus No. 200 sieve shall not exceed 20%. The liquid limit shall be as shown in the table below and the plasticity index shall be ≤ 8. Alternate gradations of recycled concrete than that provided below may be considered by the Engineer.

B. CDOT Class 5 or 6 Aggregate Base Course. Class 5 or 6 ABC shall be considered an alternate to recycled concrete on this project.

C. Recycled Concrete Material Properties:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
	LL < 35
	R value > 40
	Reycled Concrete Aggregate Base Course
3 inch	---
2 1/2 inch	---
2 inch	---
1 1/2 inch	100
1 inch	90 - 100
3/4 inch	---
No. 4	25 - 75
No. 8	---
No. 200	2 - 20

D. Recycled Asphalt base course. Mill asphalt and stockpile. Utilize millings for road base upon completion of road improvements. Millings shall meet the latest version of CDOT Standard Project Specifications.

3 EQUIPMENT

A. General: Equipment shall be capable of legally performing the work as described in this Specification. Equipment that is inadequate to obtain the results specified shall be replaced or supplemented as required to meet the requirements of this Specification. Any equipment that is used in an improper manner may be cause for rejection of the work if in the opinion of the ENGINEER the work fails to meet the requirements of this specification.

B. Equipment used for compaction shall be the rolling type, vibratory type, or combination of both types, and shall be of sufficient capacity to meet the compaction requirements herein.

PART 3 EXECUTION

3.01 PREPARATION OF FOUNDATION

A. Prior to placement of recycled base materials, the foundation shall be considered to be the finished earth subgrade, subbase course, or base course, as the case may be, upon which any subbase, base or surface course is to be constructed.

Preparation of foundation for construction of a subbase, base, or surface course shall consist of the work necessary to restore, correct, strengthen or prepare the foundation to a condition suitable for applying and supporting the intended course.

For aggregate base course roads and parking areas, the top six-inches of topsoil shall be stripped within the area to be aggregate surfaced. Following stripping of the topsoil, the upper 8 inches of the subgrade shall be scarified and compacted to a minimum of 95% of the Maximum Standard Proctor Density (ASTM D698). On-site material may be used as accepted by the ENGINEER, for compacted fill for the recycled aggregate base course. Fill shall be placed within 2% of optimum moisture content and compacted to a minimum of 95% of the Maximum Standard Proctor Density (ASTM D698).

Recycled aggregate base course used as a foundation for pavements shall be placed on the subgrade within two percent of optimum moisture and compacted to a minimum of 95% of the Maximum Standard Proctor Density (ASTM D698). Deviations in aggregate base course under pavements of more than 1/4 inch in 10 feet, measured with a 10-foot straight edge, shall be corrected prior to pavement construction.

The foundation shall be prepared and constructed such that it will have a uniform density throughout. It shall be brought to the required alignment and cross section with equipment and methods adapted for the purpose. Upon completion of the shaping and compacting operations, the foundation shall be smooth, at the required density, and at the proper elevation and contour to receive the recycled aggregate base course.

Recycled base course material shall not be placed on a foundation that is soft, spongy, or one that is covered by ice or snow. Recycled base course shall not be placed on a dry or dusty foundation where the existing condition would cause rapid dissipation of moisture from the base course material and hinder or preclude its proper compaction. Dry foundations shall have water applied and reworked and compacted as necessary.

The ENGINEER shall direct the CONTRACTOR to make minor adjustments in the finish grade from that shown in the Drawings as may be necessary or desirable to maintain the characteristics of a stabilized foundation by minimizing the amount of cutting or filling.

3.03 EARTH SUBGRADE

A. When the foundation is an earth subgrade it shall be prepared by removing all vegetation, excavating and removing materials, filling depressions, scarifying, shaping, smoothing and compacting to meet the required grade, section and density. Stones over six inches in greatest dimension shall be removed.

3.03 PLACEMENT

A. The recycled aggregate base course shall be constructed to the width, section and areas as shown in the Drawings. If the required compacted depth of base coarse exceeds six inches, the base shall be constructed in two or more layers of approximate equal thickness. The maximum compacted thickness of any one layer shall not exceed six inches.

Each layer shall be constructed as far in advance of the succeeding layer as the ENGINEER may direct. The work shall, in general, proceed from the point on the project nearest the point of supply of the aggregate in order that the hauling equipment may travel over the previously placed material, and the hauling equipment shall be routed as uniformly as possible over all portions of the previously constructed courses or layers of the base course.

The material shall be deposited on the soil foundation, or previously placed layer in a manner to minimize segregation and to facilitate spreading to a uniform layer of the required section. In the event that blending of materials is necessary to provide required gradation and properties of the material, and is done in the roadway or placed area, the same shall be accomplished by mixing the aggregate and blending material by means of blade graders, discs, harrows or other equipment to effect a uniform distribution and gradation throughout the finished mixture. Excessive mixing and grading that will cause segregation between the coarse and fine materials is prohibited.

3.04 COMPACTION

A. After a layer or course has been placed and spread to the required thickness, width and contour, it shall be compacted. If the material is too dry to readily attain the required density, it shall be uniformly moistened to the degree necessary during compaction operations for proper compaction.

B. Compaction of each layer shall continue until the required density of Section 3.02 is reached. The surface of each layer shall be maintained during compaction operations in such a manner that a uniform texture is produced and aggregates firmly keyed.

All areas where proper compaction is not obtainable due to segregation of materials, excess fines, or other deficiencies in the aggregate, shall be reworked as necessary or the material removed and replaced with aggregates that will meet this specification.

The surface of each layer shall be kept true and smooth at all times.

3.05 MIXING

A. General: Unless otherwise specified, the CONTRACTOR shall mix the aggregate by the following methods.

1. Road Mix Method

After material for each layer has been placed, the materials shall be mixed while at an optimum moisture content by motor graders or other approved equipment until the mixture is uniform throughout.

3.06 SHOULDER CONSTRUCTION

A. Shoulders shall be constructed with base course materials to conform to the elevation and section shown in the Drawings. No equipment shall be used which by its design or through its manner of operation that will damage the pavement or curbs. Insofar as practicable, the base course material shall be placed directly on the shoulder area. Materials that are deposited outside the shoulder area, if not contaminated, shall be recovered and placed within the required limits. The CONTRACTOR will not be compensated for materials not recovered as determined by the ENGINEER.

Materials shall not be deposited on the pavement or surfacing during placing unless specifically permitted by the ENGINEER.

The base course material as placed shall be spread and compacted to the required density in Section 3.02 in layers not exceeding six inches in compacted thickness. Any material inadvertently placed on the pavement shall be broomed from the pavement. The result shall not effect a change in the gradation of the shoulder material.

END OF SECTION

SECTION 32 12 16 - ASPHALT PAVING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Asphaltic concrete paving over prepared subgrade and/or base course

B. Repair of existing roads, driveways and parking lots which are removed or damaged during construction

1.2 RELATED SECTIONS

A. Section 32 11 23 – Aggregate Base Courses

1.3 REFERENCES

A. ASTM C29—Unit Weight and Voids in Aggregate

B. ASTM C88—Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

C. ASTM C117—Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing

D. ASTM C128—Specific Gravity Test and Absorption of Fine Aggregate

E. ASTM C131—Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

F. ASTM C136—Sieve or Screen Analysis of Fine and Coarse Aggregates

G. ASTM D4—Bitumen Content

H. ASTM D5—Penetration of Bituminous Materials

I. ASTM D70—Specific Gravity of Semi-Solid Bituminous Materials

J. ASTM D93—Flash Point by Pensky-Martens Closed Tester

K. ASTM D113—Ductility of Bituminous Materials

L. ASTM D 276—Method for Identification of Fibers in Textiles (Melting Point).

M. ASTM D1188—Bulk Specific Gravity of Compacted Bituminous Mixtures

N. ASTM D1559—Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus

O. ASTM D2041—Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures

P. ASTM D2170—Kinematic Viscosity of Asphalts (Bitumens)

Q. ASTM D2172—Quantities Extraction of Bitumens from Bituminous Paving Mixtures

R. ASTM D2419—Sand Equivalent Value of Soils and Fine Aggregate

S. ASTM D290—Bituminous Mixing Plant Inspection

T. ASTM D946—Asphalt Cement for Use in Pavement Construction

U. ASTM D692—Course Aggregate for Bituminous Paving

V. ASTM D1073—Fine Aggregate for Bituminous Paving Mixtures

W. ASTM D4354—Practice for Sampling of Geosynthetics for Testing.

X. ASTM D4355—Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).

Y. ASTM D4439—Terminology for Geotextiles.

Z. ASTM D4533—Test Method for Index Trapezoid Tearing Strength of Geotextiles.

AA. ASTM D4632—Test Method for Grab Breaking Load and Elongation of Geotextiles.

BB. ASTM D4759—Practice for Determining the Specification Conformance of Geosynthetics.

CC. ASTM D4873—Guide for Identification, Storage, and Handling of Geotextiles.

DD. ASTM D5199—Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes.

EE. ASTM D5261—Test Method for Measuring Mass per Unit Area of Geotextiles.

FF. MS-2—Mix Design Method for Asphalt Concrete and Other Hot Mix Types -The Asphalt Institute (AI)

1.4 SUBMITTALS

A. Provide submittals as specified in this section.

B. Samples: Provide samples of materials for laboratory testing and job-mix design for asphaltic concrete paving section

C. Test Reports: Submit laboratory reports for the following materials tests
   1. Coarse and fine aggregate from each material source and each required grading:
      a. Sieve analysis: ASTM C136 (AASHTO T19)
      b. Unit weight of slag: ASTM C29 (AASHTO T19)
      c. Soundness: ASTM C88 (AASHTO T104)
      d. Sand equivalent: ASTM D2419 (AASHTO T176)
      e. Abrasion of coarse aggregate: ASTM C131 (AASHTO T96)
   2. Asphalt cement for each penetration grade:
      a. Penetration: ASTM D5 (AASHTO T49)
      b. Viscosity (Kinematic): ASTM D2170 (AASHTO T201)
      c. Flash Point: ASTM D93 (AASHTO T48)
      d. Ductility: ASTM D113 (AASHTO T51)
      e. Solubility: ASTM D4 (AASHTO T44)
      f. Specific gravity: ASTM D70 (AASHTO T43)
   3. Job-mix design mixtures for each material or grade:
      a. Bulk specific gravity for fine aggregate: ASTM C128 (AASHTO T84)

4. Uncompacted asphalt concrete mix: Maximum specific gravity ASTM D2041 (AASHTO T209)
5. Compacted asphalt concrete mix:
   a. Bulk density: ASTM D1188 (AASHTO T166)
   b. Marshall stability and flow: ASTM D1559
6. Density and void analysis:
   a. Provide each series of asphalt concrete mixture test specimens, in accordance with MS-2
   b. Use Marshall method of mix design unless otherwise directed or acceptable to Engineer
7. Sampling and testing of asphalt concrete mixtures for quality control during paving operations:
   a. Uncompacted asphalt concrete mix:
      1) Asphalt cement content: ASTM D2172 (AASHTO T164)
      2) Penetration of recovered asphalt cement: ASTM D5 (AASHTO T49)
      3) Ductibility of recovered asphalt cement: ASTM D113 (AASHTO T51)
   b. Compacted asphalt concrete mix:
      1) Bulk density: ASTM D1188 (AASHTO T166)
      2) Marshall stability and flow: ASTM D1559
   c. Perform at least one test for each day's paving
8. Asphalt plant inspection: ASTM D290

D. Geotextile Certification:
1. The Contractor shall provide the Engineer a certificate stating the name of the geotextile manufacturer, product name, style, chemical compositions of filaments or yarns and other pertinent information to fully describe the geotextile.
2. The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request.
3. Manufacturing Quality Control (MQC) test results shall be provided upon request.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect and handle materials under provisions of City of Evans Design and Construction Standards and Specifications.

B. Transport mixture from mix plant in trucks with tight, clean, non-sticking compartments. Coat hauling compartments with lime-water mixture to prevent sticking. Elevate and drain compartment of excess solution before loading mix.

C. Provide insulated truck beds during temperature below 50 F on long distance deliveries.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Do not apply when underlying surface is muddy, frozen or wet.

B. Do not place by spreading and finishing machine tack coat or asphaltic cement when temperature is below 45°F and falling. Place when above 40°F and rising.

C. Do not apply pavement marking paint within 8 hours of fog or rain or when below 40 F.

D. Provide flagmen, barricades, warning signs, and warning lights for movement of traffic and safety and to cause the least interruption of work.

1.7 QUALITY ASSURANCE

A. Comply with all applicable requirements of City of Evans Design and Construction Standards and Specifications.

PART 2 PRODUCTS

2.1 MATERIALS

A. Asphaltic Cement: ASTM D946, AC10 or AC20 grade determined by design mix, homogeneous, free from water, no tendency to foam when heated to 347 F, and per CDOT Standard Section 702.

B. Aggregate for Asphaltic Concrete:
   1. Sound, angular crushed stone, crushed gravel, or crushed slag: ASTM D692.
   2. Sand, stone, or slag screening: ASTM D1073.
   3. Provide aggregate in gradations for courses to comply with Class S, Colorado Department of Transportation, ASTM C136.
   4. Percent wear: ASTM C131, less than 45 for aggregates retained in #10 sieve.

C. Tack Coat: Emulsified asphalt: SS-1 or CSS-1h, ASTM D977.

2.2 MIXES

A. Determine design mix based upon aggregates furnished (Grade S):
   1. Test mix by independent laboratory at Contractor's expense
   2. Grade dependent on temperature during placement
   3. Submit mix designs under provisions of this section for review and acceptance by Engineer

B. Submit mix design consistent with City of Evans Design and Construction Standards and Specifications.

2.3 ACCESSORIES

A. Pavement Marking—Replace all pre-construction pavement marking materials as identified below:
   1. White paint, color after drying shall be flat-white, free from tint, and provide maximum amount of opacity and visibility under both daylight and artificial light, meeting the standards of CDOT Standard Specification 708.
   2. FS TT-P-115, Type I Alkyd, yellow color meeting requirements of CDOT Standard Specification 708.
   3. Preformed plastic marking material or reflectorized paint with glass beads shall be used for all pavement marking.
   4. Furnish paint with a no-pick-up maximum drying time of 20 minutes, when tested according to ASTM D711 using a wet film thickness of 0.015" when tested and applied at 77 F
   5. Provide two coats.

PART 3 EXECUTION

3.1 PREPARATION

A. Prepare subgrade under provisions of Section 32 11 23.

B. Loose and Foreign Material:
   1. Remove loose and foreign material from compacted subgrade surface immediately before application of paving. Clean surface with mechanical sweeper, blowers, or hand brooms, until surfaces are free from dust

C. Tack Coat:
   1. Dilute material with equal parts of water and apply to contact surfaces of previously constructed asphaltic concrete or portland cement concrete and surfaces
   2. Apply at rate of 0.05 to 0.15 gallons per square yard of surface
   3. Apply tack coat by brush to contact surfaces of curbs, gutters, manholes, and other structures projecting into or abutting asphaltic concrete pavement
   4. Allow surfaces to dry until material is at condition of tackiness to receive pavement
   5. Where asphaltic concrete will adhere to surface, tack coat may be eliminated by Engineer

3.2 RING/FRAME ADJUSTMENTS

A. Set ring/frames of subsurface structures to final grade as a portion of this work, include existing ring/frames and new ring/frames furnished under other work of project

B. Placing Ring/Frames:
   1. Surround ring/frames set to elevation with a ring of compacted asphalt concrete base prior to paving.
   2. Place asphalt concrete mixture up to 1 inch below top of ring/frame, slope to grade, and compact by hand tamping.

C. Adjust frames to proper position to meet paving.

D. If permanent covers are not in place, provide temporary covers over openings until completion of rolling operations.

E. Set ring/frames to grade, flush with surface of adjacent pavement. Maximum ring grade below pavement shall be ¼". Ring grade shall not protrude above pavement.

3.3 PREPARING THE MIXTURE

A. Comply with ASTM D995 for material storage, control, and mixing and for plant equipment and operation.

B. Stockpile:
   1. Keep each component of the various sized combined aggregates in separate stockpiles.
   2. Maintain stockpiles so that separate aggregate sizes will not be intermixed and to prevent segregation.

C. Heating:
   1. Heat the asphalt cement at the mixing plant to viscosity at which it can be uniformly distributed throughout mixture.
   2. Use lowest possible temperature to suite temperature viscosity characteristics of asphalt.
   3. Do not exceed 350 F.

D. Aggregate:
   1. Heat-dry aggregates to acceptable moisture content.
   2. Deliver to mixer at recommended temperature to suite penetration grade and viscosity characteristics of asphalt cement, ambient temperature, and workability of mixture.
   3. Accurately weigh or measure dry aggregates and weigh or meter asphalt cement to comply with job-mix formula requirements.

E. Mix aggregate and asphalt cement to achieve 90-95 percent coated particles.

3.4 EQUIPMENT

A. Bituminous Pavers: Self-propelled, spreads without tearing surfaces, and controls pavement edges to true lines without use of stationary forms.

B. Rolling Equipment:
   1. Steel-wheel roller: Self-propelled, contact pressure of 250 to 350 psi per inch of width of roller wheel, equipped with adjustable scrapers and means for keeping wheel wet to prevent mix from sticking.
   2. Pneumatic-tired rollers: Self-propelled, contact pressure under each tire of 85 to 110 psi, wheels spaced so that one pass will accomplish one complete coverage equal to rolling width of machine, oscillating wheels. Remove and replace immediately tires picking up fines.

C. Hand Tools: Provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools.

3.5 INSTALLATION OF GEOTEXTILE PAVING FABRIC

A. Do not install paving fabric in areas that will be exposed to traffic prior to placement of the topping asphaltic mat.

B. Air and pavement temperatures shall be sufficient to allow the tack coat to hold the engineered paving mat in place. The air temperature shall be 40°F and rising for placement of the asphalt tack coat.

C. In locations designated to receive geotextile paving fabric, the geotextile shall be placed onto the asphalt tack coat (calendared or smooth side up) with minimum wrinkling prior to the time the asphalt has cooled and lost tackiness. As directed by the Engineer, wrinkles or folds in excess of 1-inch shall be slit and laid flat. If fabric is removed and replaced, apply additional tack coat as needed to fully bond paving fabric to the substrate.

D. Tack coat shall be applied to the width of the paving fabric plus 4-inches on all sides of paving fabric.

E. Blooming and/or pneumatic rolling shall be utilized to maximize geotextile contact with the pavement surface and remove air bubbles.

F. Overlap of geotextile joints shall be as specified by the manufacturer, but generally shall be sufficient to ensure full closure of the joint, and should not exceed 6-inches. Transverse joints shall be lapped in the direction of paving to prevent edge pickup by the paver. A second application of asphalt sealant to the geotextile overlaps will be required if in the judgement of the Engineer additional asphalt sealant is needed to ensure proper bonding of the double geotextile layer.

G. Placement of HMA mat shall immediately follow the placement of geotextile fabric per the requirements of this section.

H. Removal and replacement of geotextile that is damaged will be the responsibility of the Contractor.

3.6 PLACING THE MIX

A. Place asphalt concrete mixture on prepared surface, spread and strike-off using paving machine.

B. Maximum thickness per laying course: 2".

C. Minimum temperature of 225°F at time of placement. In locations where geotextile paving fabric is utilized, do not exceed paving fabric maximum temperature threshold.

D. Inaccessible and small areas may be placed by hand.

E. Conform to the grade, cross section, finish thickness, and density indicated.

F. Paver Placing:
   1. Unless otherwise directed, begin placing at high side on one-way slope and in direction of traffic flow.
   2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
   3. Place mixture in continuous operation as practicable.

G. Hand Placing:
   1. Spread, tamp, and finish mixing using hand tools in areas where machine spreading is not possible as acceptable to Engineer.
   2. Place mixture at a rate that will insure handling and compaction before mixture becomes cooler than acceptable working temperature.

H. Joints:
   1. Construct joints to have same texture, density, and smoothness as adjacent sections of asphalt concrete course.
   2. Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
   3. Offset transverse joints in succeeding courses not less than 24 inches.
   4. Cut back edge of existing pavement or previously placed course to expose an even, vertical surface for full course thickness.
   5. Offset longitudinal joints in succeeding courses not less than 6 inches.
   6. When the edges of longitudinal joints are irregular, honeycombed or inadequately compacted, cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.

3.7 COMPACTING THE MIX

A. Provide pneumatic and steel-wheel type rollers to obtain the required pavement density, surface texture and ride-ability.

B. Begin rolling operations when the mixture will bear weight of roller without excessive displacement.

C. Do not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.

D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

E. Breakdown Rolling:

1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
2. Operate rollers as close as possible to paver without causing pavement displacement
3. Check grade and smoothness after breakdown rolling.
4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

F. Second Rolling:
1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
2. Continue second rolling until mixture has been thoroughly compacted.

G. Finish Rolling:
1. Perform finish rolling while mixture is still warm enough for removal of roller marks by combination of steel and pneumatic rollers.
2. Continue rolling until roller marks are eliminated and course has attained specified density, and required surface texture and surface tolerances.

H. Patching:
1. Remove and replace defective areas.
2. Cut-out and fill with fresh, hot asphaltic concrete.
3. Remove deficient areas for full depth of course.
4. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
5. Apply tack coat to exposed surfaces before placing new asphaltic concrete mixture.
6. Compact by rolling to specified surface density and smoothness.

3.8 REPAIRING EXISTING ASPHALTIC CONCRETE SURFACES

A. Cut sides of pavement area to be replaced perpendicular and parallel to direction of traffic.

B. Subbase preparation:
1. Scarify below existing subbase to 8" depth or greater
2. Grade subbase to match existing subbase depth and required elevation
3. Obtain optimum moisture content
4. Compact subbase to 98 percent maximum density, ASTM 698

C. Paving Fabric:
1. Where applicable, after asphalt milling is completed, install paving fabric.
2. Utilize paving fabric as specified on the Drawings or designated by the Engineer.
3. Paving fabric shall be installed above existing paving course, to minimize reflective cracking, per the manufacturers recommendations.

D. Paving:
1. Apply tack coat against all abutting vertical concrete or bituminous surfaces as specified herein
2. Place and compact asphalt concrete mixture in two equal layers to match the existing elevation and the total compacted thickness
3. Apply asphalt emulsion tack coat between pavement layers as specified

E. Compact mix as specified

3.9 MARKING ASPHALTIC CONCRETE PAVEMENT

A. Remove dirt, sand, gravel and oil

B. Cure asphaltic concrete before painting

C. Apply paint with pressurized, self-contained paint machine

D. Apply in straight line 2-6 inches wide, as specified on the drawings.

E. Lay out markings with guide lines, templates and forms

F. Apply at 1 gallon per 105 square foot

G. Provide qualified technician for supervision

3.10 FIELD QUALITY CONTROL

A. Owner will provide field testing to determine compliance of in-place asphaltic concrete paving materials and compaction.

B. Final surfaces of uniform texture, conforming to required grades and cross sections.

C. Test in-place for density, thickness, and surface smoothness.

D. Take not less than 4 inch diameter pavement specimens for each completed course from locations as directed by Engineer if required to confirm total thickness or for additional testing purposes

E. Repair holes from test specimens as specified for patching defective work

F. Minimum acceptable density of in-place course materials is 97 percent of the recorded laboratory specimen density. For each laying course: perform two tests for under 400 SY of material in place. Immediately re-compact asphaltic concrete not conforming to acceptable density. Remove and replace all sections not in conformance density requirements

G. Thickness: Variations from Drawings
   1. Total depth: 1/4 inch
   2. Remove and replace paving less than minimum thickness

H. Surface Smoothness:
   1. Test using a 10 foot straight edge applied parallel to any direction
   2. Advance straight edge five feet, maximum 1/4 inch per foot from nearest point of contact
   3. Do not permit pockets or depressions where water may pool
   4. Remove and replace areas, deficient in smoothness. Overlay corrections may be permitted only if acceptable to Engineer

3.11 CLEANING

A. After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of Engineer

3.12 PROTECTION OF FINISHED WORK

A. After final rolling, do not permit vehicular traffic on asphalt concrete pavement until it has cooled and hardened and in no case sooner than 6 hours

B. Provide barricades and warning devices as required to protect pavement and general public

END OF SECTION

SECTION 33 05 01 – SANITARY SEWER

PART 1 - GENERAL

1.1 DESCRIPTION

A. Sanitary sewage piping, fittings, accessories, and bedding

B. Connection of building sanitary system

C. Cleanout access, and accessories

1.1 RELATED SECTIONS

A. Section 01 33 00—Submittal Procedures

B. Section 31 23 13—Earthwork and Trenching

C. Section 33 39 13 – Manholes and Covers

1.2 REFERENCES

A. ASTM D1784—Rigid Polyvinyl Chloride (PVC) Compounds

B. ASTM D2321—Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe

C. ASTM D3034—TYPE PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings

D. ASTM D3212—Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

E. ASTM F477—Elastomeric Seals (Gaskets) for Joining Plastic Pipe

F. ASTM F679—Polyvinyl Chloride (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings

1.3 DEFINITIONS

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

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Provide data indicating pipe, pipe accessories, and standard dimensions

C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.5 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Section 01 33 00

B. Accurately record location of pipe, pipe fittings, connections, cleanouts, invert elevations and coordinates at each pipe run (0.1' vertically and horizontally) entrance and exit including all manholes. Record the elevation of the invert into the manhole, elevation of the drop invert, and elevation of the pipeline exiting the manhole. Horizontal and vertical as-built elevations are required for all pipe joints.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 FIELD MEASUREMENTS

A. Verify that field measurements and elevations are as indicated.

1.7 COORDINATION

A. Coordinate any Work requiring temporary disruption of sanitary sewer connection with the Owner and Engineer a minimum of seven working days in advance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Westlake (NAPCO)

B. JM Eagle

C. Or approved equal

2.2 MATERIALS

A. Sanitary sewer pipe and fittings:
   1. 12-inch, ASTM D3034, SDR 35 gasketed sewer pipe
   2. 8-inch, ASTM D3034, SDR 35 gasketed sewer pipe
   3. Pipe length: 14 to 20 feet standard manufactured length for construction

B. Joints
   1. Joints: ASTM D3212, push-on with an O-ring rubber gasket conforming to ASTM Designation D3034. Solvent cement joints are strictly prohibited.

2.3 CLEANOUTS

A. Lid and Frame—Cast iron construction.

B. Bedding: Provide bedding as specified in Section 31 23 13 and as shown on Drawings

2.4 SOURCE QUALITY CONTROL

A. Identification Marks: Clearly and permanently marked at not greater than 5-foot intervals with pipe diameter, PVC cell classification, manufacturer, plant, shift, ASTM, SDR (SCHD)

B. Testing per ASTM D3034:
   1. Test products not manufactured in the U.S. at an acceptable laboratory in the U.S.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine pipe and fittings and do not use individual sections containing cracks, dents, abrasions, and other defects. Remove defective material from the site

B. Mark rejected pipe and remove from the site

C. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on Drawings

3.2 PREPARATION

A. Hand trim excavations to required elevations. Correct over excavation with coarse aggregate

B. Remove large stones or other hard matter which could damage pipe or impede consistent backfilling or compaction

C. Cutting:
1. Cut and bevel ends in accordance with manufacturer's standard instructions
2. Machine cut ends smooth and square to proper dimensions
3. Do not cut with a cold chisel, iron pipe cutter, or any other method that may fracture the pipe or leave ragged, uneven edges
4. Remove burrs and wipe off all dust and dirt from jointing surfaces

3.3 BEDDING

A. Excavate pipe trench in accordance with Section 31 23 13 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.

B. Place minimum of 6 inches of bedding material at trench bottom, level and consolidate materials in accordance with Section 31 23 13.

C. Place a minimum of 12 inches of bedding material over the top of the pipe, level and consolidate materials in accordance with Section 31 23 13.

3.4 INSTALLATION – PIPE

A. Install pipe, fittings, and accessories in accordance with ASTM D2321 and manufacturer's instructions. Seal joints watertight

B. Inspect pipe and accessories for defects before lowering into trench. Replace all defective, damaged or unsound pipe

C. Remove all dirt and foreign material from the inside of pipe before laying

D. Check bedding for firmness and uniformity of surface immediately before laying each section of pipe

E. Carefully lower pipe, fittings, valves, and accessories into the trench with derricks, ropes, and other suitable equipment to prevent damage

F. Do not dump or drop pipe or accessories into trench

G. Lay pipe to grades noted on Drawings:

1. Closely joint to form a smooth flow line

H. Provide full support of pipe barrel over its entire length

I. Place and tamp bedding under haunches of pipe up to spring line in previously dug bell holes

J. Install bedding at sides and over top of pipe to minimum compacted thickness of 12 inches compacted to 70 percent of relative density

K. Utilize implements, tools, and facilities per manufacturer instructions

L. Keep pipe clean during and after laying

M. Close all open ends with watertight expandable type sewer plugs or test plugs

N. Remove and relay any pipe which has floated

O. Do not lay pipe when:
1. There is water in the trench
2. Trench conditions are unsuitable
3. Weather conditions are unsuitable

P. Use acceptable adaptors at manhole and structure connections to provide a watertight seal and flexibility; provide a short length of pipe (between 3’ and 5’ long) outside each connection.
1. Concrete or grout “patching” shall not be considered an acceptable adaptor

Q. Refer to Section 31 23 13 for trenching requirements. Do not displace or damage pipe when compacting

R. Refer to Section 33 39 13 for manhole and cover requirements.

3.5 JOINTING

A. Assemble in accordance with the manufacturer's instructions

B. Wipe clean pipe ends, gasket and gasket groove before inserting gasket

C. Apply lubricant furnished by the pipe manufacturer to the gasket and the outside of the spigot end

D. Utilize assembly tool per manufacturer instructions to center the sleeve over the spigot end

E. Insert the spigot end to the reference mark

F. Check gasket location after assembly with a suitable gage:
1. Gasket locations to be the distance from the sleeve and recommended by the coupling manufacturer for the full circumference
2. If not within the required limits, disassemble and reassemble the joint

3.6 FITTINGS

A. Install utilizing standard methods

B. Lower into trench with rope, cable, chain, or other means to prevent damage

C. Attach rope, cable or chain around the exterior

D. Do not attach rope, cable, or chain through the interior

E. Carefully connect to pipe or other facility

F. Check joint to insure a sound and proper joint

3.7 INSTALLATION – CLEANOUTS

A. Form bottom of excavation clean and smooth to correct elevation

B. Form and place cast-in-place concrete base pad, with provision for sanitary sewer pipe end sections

C. Establish elevations and pipe inverts for inlets, drops, and outlets as indicated

D. Mount lid and frame level in grout, secured to top section to elevation indicated

3.8 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 45 00

B. Request inspection prior to and immediately after placing bedding

C. Compaction testing will be performed in accordance with ANSI/ASTM D698, ASTM D2922, ASTM D3017

D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to the Owner

E. Air test:
1. Perform an air test on each reach of sewer pipe between manholes:
   a. Test the first reach prior to installing any of the remaining pipe
   b. Provide all necessary piping between the reach to be tested together with all required materials and equipment
   c. Methods used, scheduling, and duration of tests shall be acceptable to Engineer
   d. Low pressure air testing 100 percent of system:
      1) Submit complete information to Engineer for review describing the proposed test method of water exfiltration testing manholes before beginning air testing
      2) Preparation for tests: Flush and clean the sewer line prior to testing in order to wet the pipe surfaces and produce more consistent results. Plug and brace all openings in the main sewer line and the upper connections. Check all pipe plugs with a soap solution to detect any air leakage. If leaks are found, release the air pressure, eliminate the leaks and start the test procedure over again
      3) Procedure of test: Add air until the internal pressure of the sewer line is raised to approximately 4.0 psi gage at which time the flow of air shall be reduced, and the pressure maintained between 3.5 and 4.5 psi gage for a sufficient time to allow the air temperature to come to equilibrium with the temperature of the pipe
      4) After the temperature has stabilized, permit the pressure to drop to 3.5 psi gage in excess of the ground water pressure above the top of the sewer, at

which time a stopwatch or a sweep secondhand watch shall be used to determine the time lapse required for the air pressure to drop to 3.0 psi gage

5) The time elapsed shall not be less than the following:

Pipe size (Inches)	Time (sec)
6 through 15	2.67 by length of pipe in feet
18 through 24	6.84 by length of pipe in feet

6) Brace all plugs sufficiently to prevent blowouts and vent the pipeline completely before attempting to remove the plugs
7) Provide pressurizing equipment with a relief valve set at 5 psi to avoid over pressurizing and damaging an otherwise acceptable line
8) Conduct exfiltration tests on each manhole, leakage as per exfiltration allowable leakage for manhole

e. Conduct smoke tests to detect leaks if exfiltration or air tests fail to meet specified limits
f. Manholes and pipe lines shall not have any visible leaks or damp spots
g. Repair and retest lines that fail tests until satisfactory results are obtained

F. Lamp Test:
1. Each section between manholes will be lamped by the Engineer
2. Contractor shall furnish suitable assistants to help the Engineer
3. A minimum of 95 percent of a true circle will be required in the lamp tests to indicate a properly constructed sewer line
4. Repair any sections not passing the lamp test

G. Infiltration Test:
1. At any time prior to expiration of the correction period, infiltration exceeds 50 gallons per inch of nominal diameter per mile per day, locate the leaks and make repairs
2. If results of infiltration test are not acceptable, perform TV inspection of the reach in question at the discretion of the Owner

H. Pipe Deflection test:
1. No sooner than 30 days after placement and compaction of backfill, but prior to placement of permanent surface materials, perform pipe deflection tests in presence of Engineer or Owner
2. Use a rigid mandrel with diameter of at least 95 percent of the pipe's specified average inside diameter and a length of the mandrel circular portion at least equal to the nominal pipe diameter
3. Maximum allowable deflection is 5 percent of the base internal diameter
4. Pull the mandrel through the pipe by hand
5. Relay or replace all pipe exceeding the 5 percent deflection at no additional cost to Owner
6. Retest repaired sections
7. Maximum allowable deflection at end of one year correction period shall not exceed 7-1/2 percent of the base internal diameter tested in the same manner. Uncover and repair sections exceeding the allowable deflection

I. CCTV Acceptance
1. All sanitary sewer installation including CIPP shall be subject to a final CCTV inspection performed by the Contractor prior to substantial completion and acceptance. The Contractor shall CCTV all improved lines and provide video footage to Owner and Engineer for evaluation.

END OF SECTION

SECTION 33 39 13 - MANHOLES AND COVERS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Modular precast concrete manhole sections with tongue-and-groove joints, transition, frame, cover and accessories

1.2 RELATED SECTIONS

A. Section 31 23 13—Earthwork And Trenching

1.3 REFERENCES

A. ASTM A48—Gray Iron Castings

B. ASTM A185—Steel Welded Wire Fabric, Plain, for Concrete Reinforcement

C. ASTM A615—Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

D. ASTM C33—Concrete Aggregate

E. ASTM C150—Portland Cement

F. ASTM C478—Precast Reinforced Concrete Manhole Sections

G. ASTM C913—Precast Concrete Water and Wastewater Structures

H. ASTM C923—Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes

I. ASTM D3753—Glass Fiber-Reinforced Polyester Manholes

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00

B. Shop Drawings: Indicate manhole locations, elevations, and sizes, locations and elevations of penetrations

C. Product Data: Provide manhole covers, steps, component construction, features, configuration, and dimensions

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience

1.6 ENVIRONMENTAL REQUIREMENTS

A. Product suitable for use with raw wastewater

B. Water temperature: Range 5°C to 25°C

PART 2 - PRODUCTS

2.1 MATERIALS

A. Reinforcement for cast in place bases: No. 5 Rebar
   1. Reinforcing Steel: ASTM A615 Grade 60
   2. Welded Wire Fabric: ASTM A185

B. Concrete
   1. Minimum compressive strength: 4,500 psi at 28 days
   2. Cement: ASTM C150, Portland Cement, Type II
   3. Aggregates: ASTM C33, free of deleterious substances

C. Pipe penetration gaskets
   1. Kor-N-Seal, Dukor Company
   2. PS-10, Press Seal Gasket Corp
   3. A-Lok, A-Lok Corp
   4. Lock Joint Flexible Manhole Sleeve, Interpace Corp
   5. Or City approved equal

D. Precast Sections
   1. Specifications: ASTM C478
   2. Minimum wall thickness: 6 inch
   3. Reinforcement: Welded wire fabric, ASTM A185
   4. Grade rings as required
   5. Precast base and first barrel section cast monolithically
      a. Provide with neoprene rubber pipe penetration gaskets, #40 durometer A, ASTM D2240 and stainless steel adjustable pipe clamps

E. Manhole Sections: Fiber reinforced plastic ASTM D3753

F. Preformed Mastec Gaskets
   1. Conformance: Fed. Spec. SS-S-00210 (GSA-FSS), Type 1, Rope Form. Primer Required
   2. Diameter: 12 inch for 48 inch manhole; 2 inch for 60 inch manholes and larger
   3. Acceptable Manufacturers:
      a. "Rub'r-Nek," K.T. Snyder Co.
      b. "Kent Seal No. 2," Hamilton-Kent Manufacturing Co.
      c. GS #44, or #79, General Sealants, Inc.
      d. ConSeal, CS202
      e. Ram-Nek
      f. Or approved equal

G. Castings: ASTM A48 with asphalt varnish coating hot dip applied at foundry, 6 mils thick

H. Pipe and Fittings for Drop Manholes: ASTM C14, Class 2 concrete

I. Manhole Steps: Steel bar, 2 inch Grade 60, drop-front type with polypropylene coating applied by manufacturer, Type MA Industries Inc. "PS2-PFS" or accepted substitution

J. Manhole Rings and Covers
   1. Cast iron, heavy duty traffic type, ASTM A48, Class 30B. Grind bearing surfaces to ensure flat, true surfaces;
   2. Covers to seat at all points on ring
   3. Word "SEWER" in flushed boss letters

4. Gasket Ring and cover models shall be used – no exceptions. Ring and cover models shall be Neenah Foundry R-1916-F or approved equal.

K. Cleanout Rings and Covers
1. Cast iron ASTM A48, Class 30B. Grind bearing surfaces to ensure flat, true surfaces
2. Covers to seat at all points on ring

L. Manhole Height Adjustment: Use precast concrete grade rings

M. Rock Subbase: 3/4 inch minus, well-graded gravel

N. Water: Clean and free of deleterious substances

O. Grout: Provide under provisions of Section 03600

2.2 FABRICATION

A. Manhole Section
1. Precast concrete
2. Minimum manhole inside diameter: 48 inch
3. Provide eccentric cones for all manholes or as specified on Contract Drawings
4. Cones: Same or greater reinforcement and wall thickness as manhole section
5. Manhole steps: 12 inch on center, vertical alignment above largest bench
6. Joints: Keylock type with double mastic gaskets, each joint to set equally and tightly
7. Manhole opening: Minimum 24 inch clear
8. Drop structure: As indicated on Drawings

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify items provided by other section of Work are properly sized and located

B. Verify that built-in items are in proper location, ready for roughing into Work

C. Verify excavation for manholes is correct

3.2 PREPARATION

A. Excavation and Backfill: Refer to Section 31 23 13 for requirements

B. Rock Subbase: Remove water, excavate, and place 3/4 inch rock 6 inch minimum depth, vibrate for compaction

3.3 PLACING MANHOLE SECTIONS

A. Place manhole sections plumb and level, trim to correct elevations.

B. Fill inside and outside of joint completely with non-shrink grout and trowel smooth

C. Cure non-shrink grout using approved methods outlined in Section 03600

D. Set cover rings and covers level without tipping, to correct elevations

E. Wrap manhole joints using mastic joint wrap

F. Spray waterproofing membrane on exterior surface of manhole to ensure watertight

G. Completed manholes shall be rigid and watertight

H. Coordinate with other sections of work to provide correct size, shape, and location

3.4 PREFORMED GASKETS

A. Remove and replace manhole sections which have chipped or cracked joints

B. Thoroughly clean section joints

C. Install gasket in conformance with manufacturer's recommendations

D. Only use primer furnished by gasket manufacturer

3.5 MANHOLE INVERT

A. Place concrete in bottom of manhole and form smooth transition. Trowel smooth and brush for non-skid finish. Slope bench 1 inch per foot for drainage to invert

B. Invert shape to conform to radius of pipe it connects

C. Remove all rough sections or sharp edges which tend to obstruct flow or cause material to snag

D. Construct in conformance with standard drawings

E. Remove all grout droplets from invert

3.6 DROP ASSEMBLIES

A. Construct as shown on Contract Documents

3.7 FLEXIBLE JOINTS

A. Provide joint in rigid sewer pipe less than 2 feet from manhole

B. Where last joint to manhole is more than 2 feet away, place concrete cradle under pipe to within 2 feet

C. Pipe material: All non-reinforced concrete pipe to have this requirement

3.8 MANHOLE RINGS AND COVERS

A. Place rings in bed of non-shrink grout on top of manholes

B. Ensure no infiltration will enter manhole at this location

C. Carry non-shrink grout over flange of ring

D. Set top of ring flush with existing ground

E. Use precast grade rings for height adjustment

3.9 CONNECTION TO EXISTING MANHOLES

A. Maintain flow at all times

B. Prior approval of proposed method for maintaining flow must be obtained from Engineer

C. Concrete core into existing manhole and reform invert to provide smooth flow transition

D. Cover area around new pipe with non-shrink grout and waterstop gasket to ensure a watertight structure

E. Make connection during low flow periods

3.10 EXTERIOR DAMPPROOFING

A. Dampproof all exterior surfaces of manholes after installation

3.11 FIELD TESTING

A. Test all manholes
   1. Hydrostatic test
      a. Plug all inlets and outlets
      b. Fill manhole to 3/4 height
      c. Allow water to stand for 24 hours
      d. Leakage tested during following 24 hour period
      e. Leakage: Less than 0.2 gph/ft above invert
      f. Repair all manholes that do not meet leakage test
   2. Vacuum test
      a. Manholes shall be tested before the ring and cover and grade adjustment rings are installed.
      b. All pipes entering the manhole shall be plugged and braced.
      c. A vacuum of ten inches (10”) of mercury shall be drawn.
      d. The vacuum pump shall be turned off and the time monitored.
         1) Vacuum must not drop more than one inch (1”) for the duration of the time indicated in the following table:

Specified Test Duration for Diameter of Manhole
(duration in minutes:seconds)

Manhole Diameter (in)	48	60	72
Time	1:00	1:15	1:30

B. Manholes which fail the vacuum test shall have the defects located and repaired from the outside of the manhole, and the test shall be repeated.
   1. Repair and repeat testing of the failed manhole shall be repeated until the testing requirements are met.
   2. No chemical injection on the manhole interior is allowed.
   3. One attempt at removing and re-grouting of pipe connections is allowed. All other required repair of defects shall be done on the outside of the manhole.
   4. A manhole that passes the vacuum test, and leaks or shows signs of a moisture/damp area, shall be considered unacceptable.

END OF SECTION

CTL | THOMPSON INCORPORATED

APPENDIX A

GEOTECHNICAL INVESTIGATION
PROPOSED CITY OF EVANS SEWER LINE
WATERLINE IMPROVEMENTS PROJECT 2
STATE STREET SEWER
EVANS, COLORADO

DITESCO
2133 South Timberline Road
Fort Collins, Colorado 80525

Attention: Bill Renz, P.E.

Project No. FC09827.001-125 R2

September 13, 2021

400 North Link Lane | Fort Collins, Colorado 80524
Telephone: 970-206-9455 Fax: 970-206-9441

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SCOPE

This report presents the results of our Geotechnical Investigation for the proposed sewer line improvements along State Street in Evans, Colorado. The purpose of the investigation was to evaluate the subsurface conditions and provide recommendations and geotechnical design criteria for the project.

The report was prepared from data developed during field exploration, laboratory testing, engineering analysis, and experience with similar conditions. The report includes a description of subsurface conditions found in our exploratory borings, and discussions of site development as influenced by geotechnical considerations. Our opinions and recommendations regarding design criteria and construction details for site development are provided. The report was prepared for the exclusive use of Ditesco in design and construction of the proposed improvements. If the proposed construction differs from descriptions herein, we should be requested to review our recommendations. Our conclusions are summarized in the following paragraphs.

SUMMARY OF CONCLUSIONS

1. The soils encountered generally consisted clayey sand and/or sandy clay underlain by gravelly sand.

2. Groundwater was encountered in TH-1 and TH-2 at a depth of 13 feet and 7 feet, respectively. Dewatering of excavations and particle migration prevention will likely be required.

3. No conditions were encountered that would preclude the construction of the planned utility line.

PROPOSED CONSTRUCTION

The PVC sewer line improvements are proposed on State Street in Evans, Colorado as presented on Figure 1. We anticipate excavations of approximately 6 to 10 feet. Boring locations and a general site area figure were provided by Ditesco.

INVESTIGATION

The field investigation included drilling two exploratory borings at the locations selected by Ditesco and presented on Figure 1. The borings were drilled to a depth of approximately 20 feet using 4-inch diameter, continuous-flight augers, and a truck-mounted drill. Drilling was observed by our field representative who logged the soils and bedrock. Summary logs of the borings, including results of field penetration resistance tests, are presented in Figure 2.

Soil and bedrock samples obtained during drilling were returned to our laboratory and visually examined by our geologist. Laboratory testing was assigned and included moisture content, dry density, swell-consolidation, and particle-size analysis. Results of the laboratory tests are presented on our boring logs and in Figure 3 and Table 1.

SUBSURFACE CONDITIONS

The soils encountered generally consisted clayey sand and/or sandy clay underlain by gravelly sand. The soils encountered are discussed in detail below. Further descriptions of the subsurface conditions are presented on our boring logs and in our laboratory test results.

Clayey Sand

Medium dense clayey sand was encountered in both borings as shown on Figure 2. Particle size analysis of one sample of clayey sand indicated fines contents of 19 percent.

Gravelly Sand

Loose to medium dense gravelly sand was encountered in both borings as shown on Figure 2. Particle size analysis of one sample of gravelly sand indicated fines contents of 2 percent.

Sandy Clay

Very stiff sandy clay was encountered in one boring as shown on Figure 2. Swell-consolidation testing indicated a swell percent of 0.1.

Groundwater

Groundwater was encountered in both borings at depths of 13 and 7 feet. Both borings were backfilled immediately after drilling, preventing later measurement. The water levels at this location seem consistent with groundwater levels measured on nearby projects. Dewatering and particle migration prevention will need to be considered.

EXCAVATIONS

Excavations for the sewer line will vary in depth and could be up to 10 feet deep. We believe the soils encountered during this investigation at, and above, planned construction depths can be excavated with conventional heavy duty excavation equipment. Excavations should be sloped or shored to meet local, State, and Federal safety regulations. Based on our investigation and OSHA standards, we believe the sand classifies as Type C soil and the clay as Type B soil. Type C soils require a maximum slope inclination of 1.5:1 (H:V) in dry conditions. Type B soils require a maximum slope inclination of 1:1 (H:V) in dry conditions. If groundwater is encountered and/or seeping from the slopes, other precautions may be required. Excavation slopes specified by OSHA are dependent upon types of soil and groundwater conditions encountered during excavation. The contractor's "competent person" should identify the soils and/or rock and groundwater conditions encountered in the excavation and refer to OSHA standards to determine appropriate slopes. Stockpiles of soils, rock, equipment, or other items should not be placed within a horizontal distance equal to one-half the excavation depth, from the edge of excavation. Excavations deeper than 20 feet should be braced or a professional engineer should design the slopes.

Bracing

Bracing or "trench box" construction may be necessary in order to limit the width of excavations and reduce the amount of surface disturbance. Bracing systems include driven sheet piling, soldier piles and lagging, and others. Lateral loading of bracing depends on the depth of excavation, slope of excavation above the bracing, soil stockpiles and other surface loads, hydrostatic pressures, and allowable movement.

For bracing allowed to move enough to mobilize the strength of the soils with associated settlement and cracking of the ground surface, “active” earth pressure conditions are appropriate for design. If movement is not tolerable, “at rest” earth pressures are appropriate. Lateral load can be calculated using an equivalent fluid density of 40 pcf and 55 pcf for “active” and “at rest” conditions, respectively. Hydrostatic pressure and surcharge loads should be accounted for, where applicable.

The OSHA construction standard provides recommendations for timber bracing. We are also available to assist further with bracing design if desired. Bracing and/or slopes for excavations greater than 20 feet should be designed by a registered professional engineer.

DEWATERING

Groundwater was encountered in both borings at depths of 13 and 7 feet. Our experience suggests that groundwater depths can vary with season and, depending on the time of construction, could be higher than measured in our borings. Saturated soil and/or groundwater are likely in the trench excavations. If possible, we recommend that construction take place during the dry season to reduce the possibility of water intrusion into the trenches.

Excavations within about 3 feet of the groundwater level should consider temporary dewatering prior to and/or during construction. Dewatering can be accomplished using a series of trenches and sumps and granular materials from which water can be pumped, or by a system of well points. The sumps should be several feet below the bottom of the excavations to pump water down through the soil rather than up through the bottom of the excavation. Pumping water up through the base of the excavation will likely result in destabilization of the base of the excavation. The ground surface surrounding the excavation should be sloped to direct runoff away from the excavation.

For excavations planned several feet below the groundwater level, a series of well points may be needed to effectively dewater the excavation. The contractor should anticipate extensive dewatering and possibly caving soils in excavations below the water table. The design of a well point system will likely require further exploratory drilling to deeper depth and permeability tests both of which were not in the scope of this study.

All pipe trench excavations shall be kept free from all water during pipe laying and other related work. All pipes shall be plugged with a temporary water-tight plug at the end of the day. The method of dewatering shall remove all free-standing water at the final lines and grades of the excavation. All water shall be disposed of in a suitable manner without creating a menace to public health or causing a public inconvenience. The dewatering operation shall continue until such time as it is safe to allow the water table to rise in the excavations. Pipe trenches shall contain enough backfill to prevent pipe flotation.

PIPE SUPPORT

Typically, the bedding material and the embedment material are the same soil type. A granular soil or gravel material is typically selected. Compaction of very coarse materials and gravels can be difficult or impossible to evaluate with standard methods such as the nuclear density gage; alternative testing methods such as relative density testing or proof rolling may be required.

Consideration should be given to particle size compatibility between the native soils and the bedding and embedment materials. If the particle sizes are sufficiently different, migration or piping of soil around the trench could occur, leading to poor support and even sinkholes. Often this issue is avoided by simply wrapping the bedding/embedment soils with a geotextile to limit particle migration as discussed in Pipe Bedding.

Pipe Bedding

We believe pipe is normally bedded in manufactured granular material in accordance with the pipe manufacturer specifications. We believe angular crushed rock, conforming to CDOT #67 specifications is usually acceptable bedding material. Squeegee or sand normally is not considered acceptable bedding material. Maximum particle size depends on selected piping material according to ASTM and AWWA and should be verified with the pipe manufacturer. We do not recommend the natural soils encountered on the site be used as bedding material. We recommend bedding material, thickness and compaction meet current City of Evans Design and Construction Standards and Specifications. Pipe bedding will need to consider particle migration due to incompatible materials and likely groundwater fluctuation. A layer of geosynthetic fabric (e.g., Geotex non-woven 401 or other approved

equivalent) should be installed around the pipeline bedding ("burrito") to limit fines migration into the bedding material.

Recent research (primarily for rigid pipe) has shown placement of pipe bedding in a looser state (for example 85 percent Proctor) will result in a more uniform stress distribution along the bottom of the pipe. The looser bedding appears to allow enough movement of the pipe to develop support pressure in the haunch area. Typically, this results in a reduction of stress concentrations and damage to the pipe. However, not all municipal guidelines allow this method.

Pipe Cover

Appropriate cushion zone above the pipe should be provided with proper maximum particle sizes to limit damage to the pipe from backfill compaction. Typically, 6 inches of material is placed below the pipe and a minimum of 12 inches of soil cover should be provided above pipes prior to initiating compaction efforts. Thin wall or flexible pipes may require thicker cover.

THRUST RESTRAINT

Thrust restraint at bends, valves and other discontinuities in the pipeline can be provided by either thrust blocks or by frictional restraint of the pipe in the soil. Frictional restraint requires the use of restrained joints for the length of pipe necessary to obtain the necessary friction force and sufficient pipe and fitting strength to support the thrust forces. The friction developed between piping and soil is dependent on soil type, or embedment soil type, if different, and pipe material type. The coefficient of friction of a pipe in soil is typically 0.25 to 0.5 for most soil conditions. We recommend the use of a coefficient of friction of 0.45 for the native soils at this site. If embedment soils are imported, an appropriate value should be used. This value should be further reduced for smooth pipe (ex. PVC), for smooth corrosion coatings or if the pipe is encased in polyethylene.

Thrust blocks should bear against undisturbed soil at least 3 feet below the ground surface. For thrust restraint, passive earth pressure theory is applicable. We suggest assuming an equivalent fluid density of 250 pcf and an allowable soil bearing pressure of 1,000 psf to calculate soils resistance for the "passive" earth pressure condition.

TRENCH BACKFILL

Trench backfill placed at the site should be placed in thin lifts and observed by a representative of CTL|Thompson, Inc. All compacted fill should be expected to undergo some amount of future settlement. Deeper areas of fill should be expected to exhibit higher amounts of settlement. Increased compactive effort will help to reduce the potential amount of settlement below pavements and structures. Guidelines for compaction of deeper fill is presented below in Table 1.

TABLE 1
FILL COMPACTION AND MOISTURE REQUIREMENTS

Soil Type	Depth from Final Grade	Moisture Requirement (% from optimum)	Density Requirement
Clay	0 to 15 feet	0 to +3	95% of ASTM D 698
Granular		-2 to +2	95% of ASTM D 698

Compaction of trench backfill can have a significant effect on the life and serviceability of pavements, flatwork, or other structures sensitive to movement that are constructed above the pipeline. We recommend trench backfill below paved areas be placed in thin, loose lifts, moisture conditioned to between plus or minus 2 percent of optimum moisture content and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698). On-site soils that are free of organics, debris, and rock fragments larger than 3 inches in diameter are suitable for placement as trench backfill.

Fill placed at the site in non-paved areas, should be compacted to at least 90 percent of standard Proctor maximum dry density (ASTM D 698) at a moisture content plus or minus 2 percent of optimum for granular soils and 0 to 3 percent for silts and clays. Fill not meeting the moisture requirement should be considered unacceptable. Addition of water may be required depending on the source of the fill material. On-site soils that are free of organics, debris, and rock fragments larger than 3 inches in diameter are suitable for placement as trench backfill.

RESTORATION

Any pavements, sidewalks, curb and gutter, or other structures disturbed during construction should be replaced in accordance with City of Evans requirements. Pavement repairs should meet, or exceed, existing pavement thickness in the area of construction. Areas outside pavements should be graded following backfill to follow the contours and merge with adjacent terrain without noticeable breaks. Grading should be arranged to produce a reasonably smooth, well-drained finish with minimal erosion. Drainage flow should be directed away from and off of fill areas.

WATER-SOLUBLE SULFATES

Concrete that comes into contact with soils can be subject to sulfate attack. We measured water-soluble sulfate concentrations in ten samples during two previous investigations (FC09827.001-125, dated August 17, 2021, & FC09827.002-125, dated August 23, 2021). Concentrations measured were less than 0.01 percent to 0.03 percent. Sulfate concentrations less than 0.1 percent indicate Class 0 exposure to sulfate attack for concrete that comes into contact with the subsoils, according to the American Concrete Institute (ACI). For this level of sulfate concentration, ACI indicates there are no special requirements for sulfate resistance.

Superficial damage may occur to the exposed surfaces of highly permeable concrete, even though sulfate levels are relatively low. To control this risk and to resist freeze-thaw deterioration, the water-to-cementitious materials ratio should not exceed 0.50 for concrete in contact with soils that are likely to stay moist due to surface drainage or high water tables. Concrete should have a total air content of 6 percent ± 1.5 percent.

CONSTRUCTION OBSERVATIONS

We recommend that CTL | Thompson, Inc. provide construction observation services to allow us the opportunity to verify whether soil conditions are consistent with those found during this investigation. Other observations are recommended to review general conformance with design plans. If others perform these observations, they must accept responsibility to judge whether the recommendations in this report remain appropriate.

GEOTECHNICAL RISK

The concept of risk is an important aspect with any geotechnical evaluation primarily because the methods used to develop geotechnical recommendations do not comprise an exact science. We never have complete knowledge of subsurface conditions. Our analysis must be tempered with engineering judgment and experience. Therefore, the recommendations presented in any geotechnical evaluation should not be considered risk-free. Our recommendations represent our judgment of those measures that are necessary to increase the chances that the structures will perform satisfactorily. It is critical that all recommendations in this report are followed during construction. Owners must assume responsibility for maintaining the structures and use appropriate practices regarding drainage and landscaping. Improvements performed by owners after construction, such as construction of additions, retaining walls, landscaping and exterior flatwork, should be completed in accordance with recommendations in this report.

LIMITATIONS

This report has been prepared for the exclusive use of Ditesco for the purpose of providing geotechnical design and construction criteria for the proposed project. The information, conclusions, and recommendations presented herein are based upon consideration of many factors including, but not limited to, the type of construction proposed, the geologic setting, and the subsurface conditions encountered. The conclusions and recommendations contained in the report are not valid for use by others. Standards of practice evolve in the area of geotechnical engineering. The recommendations provided are appropriate for about three years. If the proposed construction is not constructed within about three years, we should be contacted to determine if we should update this report.

Two borings were drilled during this investigation to obtain a reasonably accurate picture of the subsurface conditions. Variations in the subsurface conditions not indicated by our borings are possible.

We believe this investigation was conducted with that level of skill and care ordinarily used by geotechnical engineers practicing under similar conditions. No warranty, express or implied, is made. If we can be of further service in discussing the contents of this report or in the analysis of the influence of subsurface conditions on design of the structures, please call.

CTL | THOMPSON, INC.

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LEGEND:

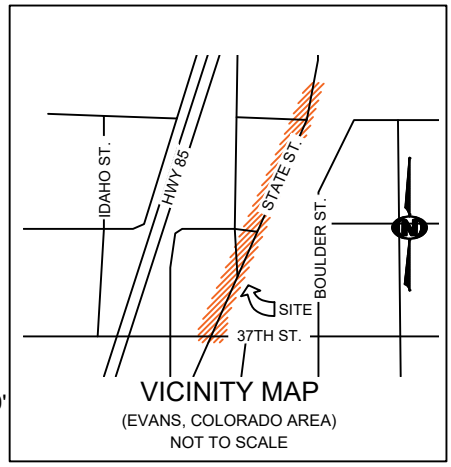
TH-1 — INDICATES APPROXIMATE LOCATION OF EXPLORATORY BORING DRILLED DURING THIS INVESTIGATION

TH-1 — INDICATES APPROXIMATE LOCATION OF BORING DRILLED DURING PREVIOUS INVESTIGATION (FC09827.001-125 COEWLP2)

INDICATES APPROXIMATE AREA WHERE THE PROPOSED SEWER IS TO BE INSTALLED

APPROXIMATE SCALE: 1" = 200'

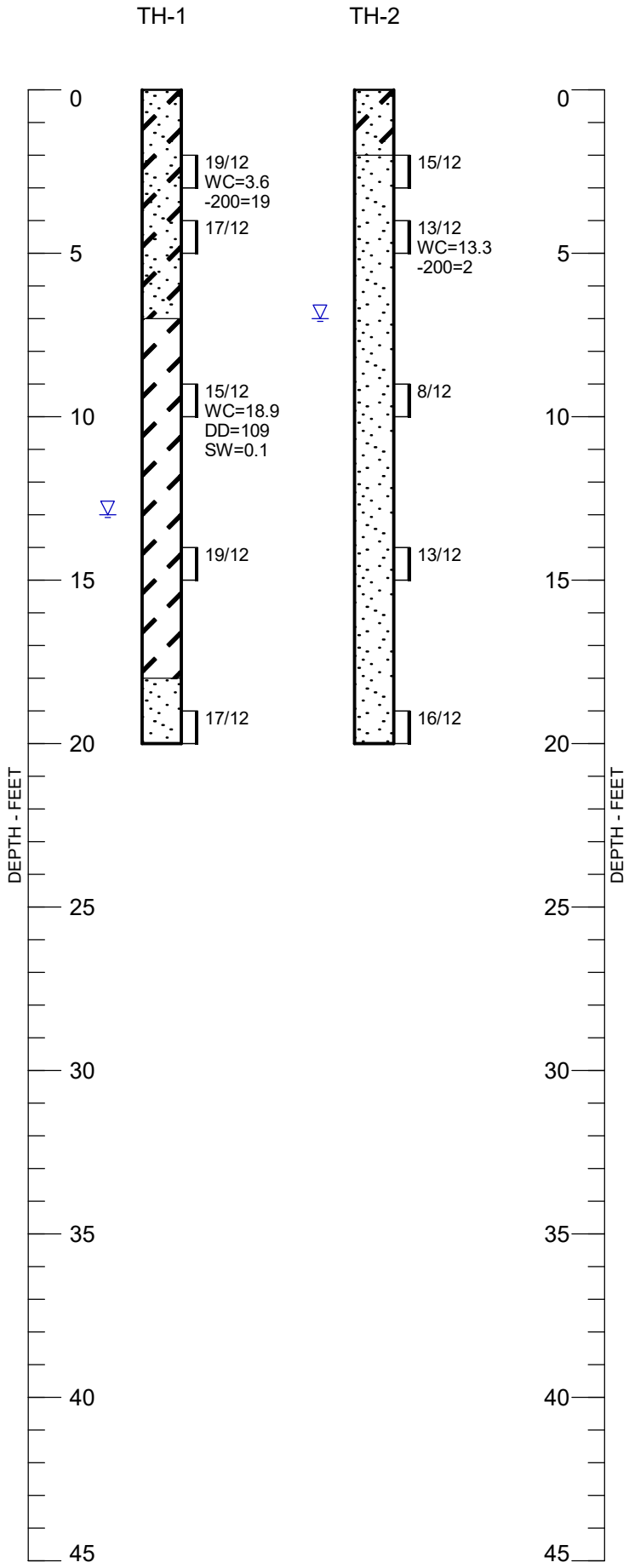
0' 100' 200'



Locations of Exploratory Borings

FIGURE 1

DITESCO
CITY OF EVANS WATERLINE IMPROVEMENTS PROJECT 2 STATE STREET SEWER
CTL I T PROJECT NO. FC09827.001-125 R2



LEGEND:

SAND, CLAYEY, SLIGHTLY GRAVELLY IN AREAS, MOIST, MEDIUM DENSE, BROWN (SC)

SAND, GRAVELLY, MOIST, LOOSE TO MEDIUM DENSE, BROWN (SP)

CLAY, SANDY, MOIST, VERY STIFF, BROWN (CL)

DRIVE SAMPLE. THE SYMBOL 19/12 INDICATES 19 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. SAMPLER 12 INCHES.

WATER LEVEL MEASURED AT TIME OF DRILLING.

NOTES:

1. THE BORINGS WERE DRILLED ON AUGUST 26, 2021 USING 4-INCH DIAMETER CONTINUOUS-FLIGHT AUGERS AND A TRUCK-MOUNTED DRILL RIG.

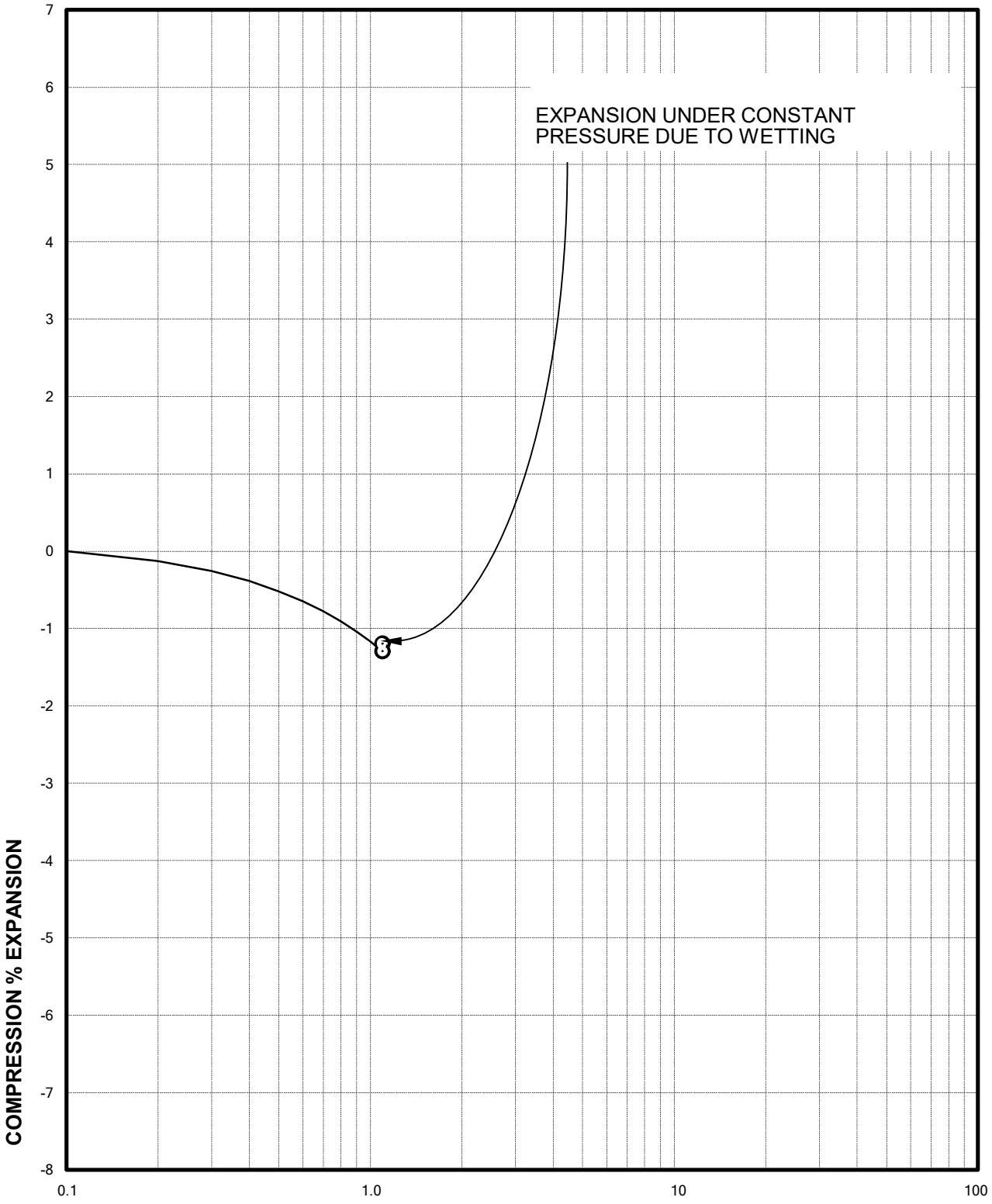
2. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS AND CONCLUSIONS IN THIS REPORT.

3. WC - INDICATES MOISTURE CONTENT (%).
   DD - INDICATES DRY DENSITY (PCF).
   SW - INDICATES SWELL WHEN WETTED UNDER APPROXIMATE OVERBURDEN PRESSURE (%).
   -200 - INDICATES PASSING NO. 200 SIEVE (%).
   LL - INDICATES LIQUID LIMIT.
   PI - INDICATES PLASTICITY INDEX.
   UC - INDICATES UNCONFINED COMPRESSIVE STRENGTH (psf).
   SS - INDICATES SOLUBLE SULFATE CONTENT (%).

Summary Logs of Exploratory Borings

DITESCO
CITY OF EVANS WATERLINE IMPROVEMENTS PROJECT 2 STATE STREET SEWER
CTL | T PROJECT NO. FC09827.001-125 R2

FIGURE 2



Sample of CLAY, SANDY (CL)

From TH - 1 AT 9 FEET

DRY UNIT WEIGHT= 109 PCF

MOISTURE CONTENT= 18.9 %

Swell Consolidation Test Results

FIGURE 3

DITESCO

CITY OF EVANS WATERLINE IMPROVEMENTS PROJECT 2 STATE STREET SEWER

CTL | T PROJECT NO. FC09827.001-125 R2

TABLE I

SUMMARY OF LABORATORY TESTING

BORING	DEPTH (FEET)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	SWELL TEST RESULTS*		PASSING NO. 200 SIEVE (%)	DESCRIPTION
				SWELL* (%)	APPLIED PRESSURE (PSF)		
TH-1	9	18.9	109	0.1	1,100		CLAY, SANDY (CL)
TH-1	2	3.6				19	SAND, CLAYEY, SLIGHTLY GRAVELLY (SC)
TH-2	4	13.3				2	SAND, GRAVELLY (SP)

* NEGATIVE VALUE INDICATES COMPRESSION.

APPENDIX A

SAMPLE SITE GRADING SPECIFICATIONS

SAMPLE SITE GRADING SPECIFICATIONS

1. DESCRIPTION

This item shall consist of the excavation, transportation, placement, and compaction of materials from locations indicated on the plans, or staked by the Engineer, as necessary to achieve building site elevations.

2. GENERAL

The Geotechnical Engineer shall be the Owner's representative. The Geotechnical Engineer shall approve fill materials, method of placement, moisture contents and percent compaction, and shall give written approval of the completed fill.

3. CLEARING JOB SITE

The Contractor shall remove all trees, brush and rubbish before excavation or fill placement is begun. The Contractor shall dispose of the cleared material to provide the Owner with a clean, neat appearing job site. Cleared material shall not be placed in areas to receive fill or where the material will support structures of any kind.

4. SCARIFYING AREA TO BE FILLED

All topsoil and vegetable matter shall be removed from the ground surface upon which fill is to be placed. The surface shall then be plowed or scarified to a depth of 8 inches until the surface is free from ruts, hummocks or other uneven features, which would prevent uniform compaction by the equipment to be used.

5. COMPACTING AREA TO BE FILLED

After the excavation for the fill has been cleared and scarified, it shall be disked or bladed until it is free from large clods, brought to the proper moisture content and compacted to not less than 95 percent of maximum dry density as determined in accordance with ASTM D 698 or AASHTO T 99.

6. FILL MATERIALS

On-site materials classifying as CL, SC, SM, SW, SP, GP, GC and GM are acceptable. Fill soils shall be free from organic matter, debris, or other deleterious substances, and shall not contain rocks or lumps having a diameter greater than three (3) inches. Fill materials shall be obtained from the existing fill and other approved sources.

7. MOISTURE CONTENT

Fill materials shall be moisture treated. Clay soils placed below the building envelope should be moisture-treated to between optimum and 3 percent above optimum moisture content as determined from Standard Proctor compaction tests. Clay soil placed exterior to the building should be moisture treated between optimum and 3 percent above optimum moisture content.

Sand soils can be moistened to within 2 percent of optimum moisture content. Sufficient laboratory compaction tests shall be performed to determine the optimum moisture content for the various soils encountered in borrow areas.

The Contractor may be required to add moisture to the excavation materials in the borrow area if, in the opinion of the Geotechnical Engineer, it is not possible to obtain uniform moisture content by adding water on the fill surface. The Contractor may be required to rake or disk the fill soils to provide uniform moisture content through the soils.

The application of water to embankment materials shall be made with any type of watering equipment approved by the Geotechnical Engineer, which will give the desired results. Water jets from the spreader shall not be directed at the embankment with such force that fill materials are washed out.

Should too much water be added to any part of the fill, such that the material is too wet to permit the desired compaction from being obtained, rolling and all work on that section of the fill shall be delayed until the material has been allowed to dry to the required moisture content. The Contractor will be permitted to rework wet material in an approved manner to hasten its drying.

8. COMPACTION OF FILL AREAS

Selected fill material shall be placed and mixed in evenly spread layers. After each fill layer has been placed, it shall be uniformly compacted to not less than the specified percentage of maximum dry density. Fill materials shall be placed such that the thickness of loose material does not exceed 8 inches and the compacted lift thickness does not exceed 6 inches. Fill placed under structures and pavements should be compacted to a minimum of 95 percent of maximum standard Proctor dry density (ASTM D698).

Compaction, as specified above, shall be obtained by the use of sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other equipment approved by the Engineer. Compaction shall be accomplished while the fill material is at the specified moisture content. Compaction of each layer shall be continuous over the entire area. Compaction equipment shall make sufficient trips to insure that the required dry density is obtained.

9. COMPACTION OF SLOPES

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compaction operations shall be continued until slopes are stable, but not too dense for planting, and there is no appreciable amount of loose soil on the slopes. Compaction of slopes may be done progressively in increments of three to five feet (3' to 5') in height or after the fill is brought to its total height. Permanent fill slopes shall not exceed 3:1 (horizontal to vertical).

10. DENSITY TESTS

Field density tests shall be made by the Geotechnical Engineer at locations and depths of his choosing. Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several

inches. Density tests shall be taken in compacted material below the disturbed surface. When density tests indicate that the dry density or moisture content of any layer of fill or portion thereof is below that required, the particular layer or portion shall be reworked until the required dry density or moisture content has been achieved.

11. SEASONAL LIMITS

No fill material shall be placed, spread or rolled while it is frozen, thawing, or during unfavorable weather conditions. When work is interrupted by heavy precipitation, fill operations shall not be resumed until the Geotechnical Engineer indicates that the moisture content and dry density of previously placed materials are as specified.

12. NOTICE REGARDING START OF GRADING

The contractor shall submit notification to the Geotechnical Engineer and Owner advising them of the start of grading operations at least three (3) days in advance of the starting date. Notification shall also be submitted at least 3 days in advance of any resumption dates when grading operations have been stopped for any reason other than adverse weather conditions.

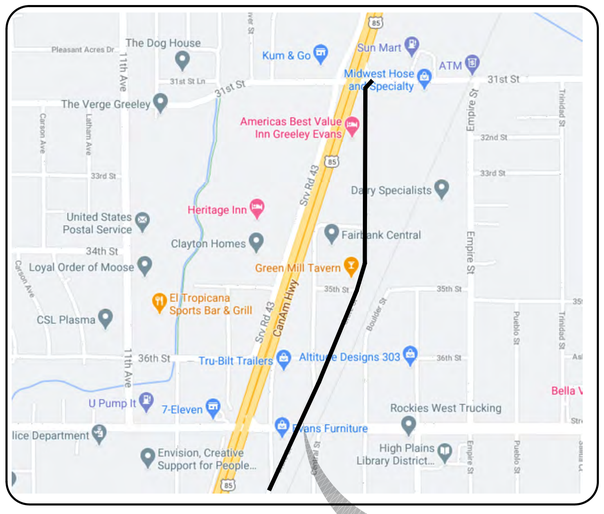
13. REPORTING OF FIELD DENSITY TESTS

Density tests performed by the Geotechnical Engineer, as specified under "Density Tests" above, shall be submitted progressively to the Owner. Dry density, moisture content and percent compaction shall be reported for each test taken.

UTILITY PLANS FOR

CITY OF EVANS
STATE STREET
SANITARY SEWER REPLACEMENT

June, 2023



PROJECT LOCATION

VICINITY MAP

NOT TO SCALE

CALL UTILITY NOTIFICATION CENTER OF COLORADO

811

Know what's **below.**
Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

CONTACT INFORMATION

OWNER
City of Evans
Mark Oberschmidt, P.E.
1100 37th Street
Evans, Colorado 80620-2036
(970) 475-1110

CIVIL ENGINEER
Ditesco
Jill Burrell, P.E.
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
(970) 632-5068

SURVEYOR
King Surveyors, Inc.
650 East Garden Dr.
Windsor, Colorado 80550
(970) 686-5011

GEOTECHNICAL
CTL Thompson
400 North Link Lane
Fort Collins, Colorado 80524
(970) 206-9455

BENCHMARKS

Coordinate Control

VERTICAL DATUM:
PROJECT DATUM: NAVD88

BENCHMARK #KSI-12: A 2" ALUMINUM CAP, STAMPED "KSI" AND "BM-12" SET IN THE NORTHWESTERLY CORNER OF AN IRRIGATION STRUCTURE IN EVANS, COLORADO. THIS MARK IS LOCATED NEAR THE SOUTHEAST INTERSECTION OF 42ND STREET AND THE UNION PACIFIC RAILROAD, ± 19.4' SOUTH OF THE SOUTHERLY TOP BACK OF CURB LINE AND ± 20.3' EAST OF THE NEAR-RAIL.

ELEVATION: 4960.60 (NAVD88)

HORIZONTAL DATUM:
COLORADO STATE PLANE NORTH ZONE 0501 (GRID) COORDINATES NAD 83(2011) DATUM. HORIZONTAL CONTROL BASED UPON TRIMBLE VRS NETWORK SOLUTION.

THIS DRAWING IS AT COLORADO STATE PLANE NORTH ZONE 0501 (GRID) COORDINATES NAD 83(2011) DATUM.

SHEET INDEX

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COLORADO LICENSED
53283
PROFESSIONAL ENGINEER
6/9/23

Sheet Revisions

No.	Revisions:	By	Date:

COVER SHEET

DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell

DATE: June 9, 2023
SCALE: NTS
FILE NAME: COE State Street Sewer Cover.dwg

CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER
C001

SHEET INDEX: 1

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sewer Cover.dwg Thursday, June 08, 2023 4:15 PM By: Rhonda Bunner

GENERAL CONSTRUCTION NOTES:

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL HAVE A SET OF APPROVED CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.
2. THE GENERAL CONTRACTOR SHALL CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-(800)-922-1987, OR THE NATIONWIDE UTILITY CONTACT NUMBER (811), TO REQUEST LOCATES OF ALL UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITY.
3. ALL VERTICAL AND HORIZONTAL DATUM INFORMATION SHOULD BE OBTAINED USING THE EVANS GEODETIC SURVEY CONDUCTED BY ALBERS, DREXEL & POHLY, INC. JANUARY 9, 1998. A COPY OF FINAL COORDINATES, ELEVATIONS, AND MONUMENT DESCRIPTIONS CAN BE OBTAINED BY CONTACTING THE CITY OF EVANS ENGINEERING DIVISION AT (970) 475 1160.
4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATIONS AND PROTECTION OF ALL EXISTING UTILITIES SHOWN, ALL EXISTING UTILITIES NOT SHOWN, AND ALL PROPOSED UTILITIES ON THESE PLANS.
5. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ADJACENT IMPROVEMENTS FROM DAMAGE AND EROSION. ANY ADJACENT IMPROVEMENT DAMAGED DURING CONSTRUCTION SHALL, AT A MINIMUM, BE RESTORED TO A STATE EQUAL TO ITS PRECONSTRUCTION STATE.
6. THE GENERAL CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE WORK, AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
7. IDENTIFYING THE NEED FOR A PERMIT, PREPARING THE APPLICATION, AND PAYING THE SUBMITTAL AND REVIEW FEES NECESSARY TO SECURE PERMITS WILL BE THE TOTAL RESPONSIBILITY OF THE GENERAL CONTRACTOR. A COPY OF ALL PERMITS MUST BE ON SITE AT ALL TIMES.
8. ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR STORM WATER DISCHARGE, 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) 692-3500. THE
9. WATER QUALITY PERMITTING PAGE CAN BE ACCESSED AT www.cdphe.state.co.us/wq/permitsunit/wqcdpmt.html .
10. IF DEWATERING IS TO BE USED, THEN A STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT IS REQUIRED IF DISCHARGE IS INTO A STORM SEWER, CHANNEL, IRRIGATION DITCH, OR ANY WATERS OF THE UNITED STATES.
11. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL SOILS REPORT AND PAVEMENT DESIGN REPORT, PRODUCED, OR REFERENCED FOR THIS PROJECT.
12. THE GENERAL CONTRACTOR SHALL PERFORM THE WORK ACCORDING TO ALL CITY, COUNTY, STATE, AND FEDERAL SAFETY AND HEALTH REGULATIONS. IN PARTICULAR, THE "TRENCHING" AND "OPEN EXCAVATION" OPERATIONS SHALL COMPLY WITH ALL CURRENT O.S.H.A. REGULATORY REQUIREMENTS.
13. ALL WATER LINE, SANITARY SEWER, AND STORM WATER CONSTRUCTION SHALL CONFORM TO THE CITY OF EVANS STANDARDS AND SPECIFICATIONS LATEST REVISION THEREOF. A CURRENT COPY CAN BE DOWNLOADED FROM THE CITY OF EVANS WEBSITE AT www.evanscolorado.gov .
14. THE CITY OF EVANS FOLLOWS ALL TRAFFIC CONTROL STANDARDS SET FORTH IN THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).
15. A TRAFFIC CONTROL PLAN MUST BE SUBMITTED AND APPROVED FOR ANY AND ALL UTILITY WORK PERFORMED WITH THE CITY OF EVANS RIGHT-OF-WAY. TRAFFIC CONTROL PLANS CAN BE EMAILED TO THE ENGINEERING DIVISION ATTENTION MARK OBERSCHMIDT AT moberschmidt@evanscolorado.gov ALL STREET LIGHTING SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS SET FORTH IN THE CITY OF EVANS RESIDENTIAL NEIGHBORHOOD DESIGN STANDARDS.
16. ALL PLANTINGS SHALL UTILIZE THE CITY OF EVANS PARKS AND RECREATION APPROVED LANDSCAPING PLANTING LIST.
17. ALL SEEDING SHALL UTILIZE THE CITY OF EVANS IRRIGATION DESIGN GUIDELINES AND THE LAWN AND GRASS SPECIFICATIONS SECTION 02930.
18. ALL WORK INCLUDING WARRANTY WORK, SHALL BE INSPECTED BY A CITY REPRESENTATIVE WHO SHALL HAVE AUTHORITY TO HALT CONSTRUCTION WHEN PROPER CONSTRUCTION PRACTICES ARE NOT BEING ADHERED TO.
19. THERE SHALL BE NO WORK PERFORMED ON THE WEEKENDS, OR HOLIDAYS EXCEPT BY APPROVAL OF THE CITY OF EVANS WITH A MINIMUM OF 24 HOURS NOTICE.
20. THE GENERAL CONTRACTOR SHALL NOTIFY ALL RESIDENTS IN WRITING PRIOR TO ANY DISRUPTION IN SERVICE. THE NOTICES MUST HAVE THE GENERAL CONTRACTORS PHONE NUMBER AND THE NAME OF A CONTACT PERSON, AND EMERGENCY PHONE NUMBER FOR AFTER HOUR CALLS. NOTICES SHALL NOT BE LEFT IN MAILBOXES UNLESS PROPERLY SENT THROUGH THE U.S. POST OFFICE.
21. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THEIR OWN DISPOSAL SITE FOR ALL DISPOSED MATERIALS.
22. THE ENGINEER WHO HAS PREPARED THESE PLANS, BY EXECUTION AND/ OR SEAL HEAROF DOES HEREBY AFFIRM RESPONSIBILITY TO THE CITY OF EVANS, AS A BENEFICIARY OF SAID ENGINEER'S WORK, FOR ANY ERRORS OR OMISSIONS CONTAINED IN THESE PLANS. ACCEPTANCE OF THESE PLANS BY THE CITY OF EVANS SHALL NOT RELIEVE THE ENGINEER WHO HAS PREPARED THESE PLANS OF SUCH RESPONSIBILITY.

GENERAL UTILITY NOTES:

1. BEFORE YOU DIG, GRADE, OR EXCAVATE CALL THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1 (800) 922-1987, OR THE NATIONWIDE UTILITY CONTACT NUMBER (811), FOR ALL EXISTING UNDERGROUND UTILITIES.
2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATIONS AND PROTECTION OF ALL EXISTING UTILITIES SHOWN, ALL EXISTING UTILITIES NOT SHOWN, AND ALL PROPOSED UTILITIES ON THESE PLANS.
3. THE GENERAL CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE THE PROPOSED WORK, AND SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
4. A TRAFFIC CONTROL PLAN MUST BE SUBMITTED AND APPROVED FOR ANY AND ALL UTILITY WORK PERFORMED WITHIN THE CITY OF EVANS RIGHT-OF-WAY. TRAFFIC CONTROL PLANS CAN BE EMAILED TO THE ENGINEERING DIVISION ATTENTION MARK OBERSCHMIDT AT moberschmidt@evanscolorado.gov
5. IT IS THE GENERAL CONTRACTORS RESPONSIBILITY TO MAINTAIN ANY TEMPORARY ROADWAY PATCHES THAT MAY OCCUR IN ORDER TO REOPEN A ROADWAY WHILE CONSTRUCTION ACTIVITY PROGRESSES, UNTIL SUCH TIME A PERMANENT PATCH CAN BE INSTALLED.
6. THE GENERAL CONTRACTOR SHALL PERFORM THE WORK ACCORDING TO ALL CITY, COUNTY, STATE, AND FEDERAL SAFETY AND HEALTH REGULATIONS. IN PARTICULAR, THE "TRENCHING" AND "OPEN EXCAVATION" OPERATIONS SHALL COMPLY WITH ALL CURRENT O.S.H.A. REGULATORY REQUIREMENTS.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE LATEST REVISION OF THE CITY OF EVANS STANDARDS AND SPECIFICATIONS. A CURRENT COPY CAN BE DOWNLOADED FROM THE CITY OF EVANS WEBSITE AT www.evanscolorado.gov.
8. ALL WORK INCLUDING WARRANTY WORK, SHALL BE INSPECTED BY A CITY REPRESENTATIVE WHO SHALL HAVE AUTHORITY TO HALT CONSTRUCTION WHEN STANDARD CONSTRUCTION PRACTICES ARE NOT BEING ADHERED TO.
9. DURING CONSTRUCTION WHENEVER ANY PIPELINE IS LEFT UNATTENDED, TEMPORARY PLUGS SHALL BE INSTALLED AT ALL OPENINGS.
10. TEMPORARY PLUGS SHALL BE WATER TIGHT, AND OF SUCH DESIGN AS TO PREVENT CHILDREN AND ANIMALS FROM ENTERING THE PIPE.
11. THERE SHALL BE NO WORK PERFORMED ON THE WEEKENDS, OR HOLIDAYS EXCEPT BY APPROVAL OF THE CITY OF EVANS WITH 24 HOURS PRIOR NOTICE.
12. THE GENERAL CONTRACTOR SHALL NOTIFY ALL RESIDENTS IN WRITING PRIOR TO ANY DISRUPTION IN SERVICE. THE NOTICES MUST HAVE THE GENERAL CONTRACTORS PHONE NUMBER, THE NAME OF A CONTACT PERSON, AND AN EMERGENCY PHONE NUMBER FOR AFTER HOUR CALLS. NOTICES SHALL NOT BE LEFT IN MAILBOXES UNLESS PROPERLY SENT THROUGH THE U.S. POST OFFICE.
13. PIPE SHALL BE LAID UPSTREAM WITH THE SPIGOT ENDS POINTING DOWNSTREAM. ALL PIPES SHALL BE PLACED TRUE TO LINE AND GRADE WITH ENDS ABUTTING, CAREFULLY CENTERED, AND WITH A SMOOTH INVERT AT THE JOINT.
14. COMPACTION OF ALL UTILITY TRENCHES INCLUDING DRY UTILITIES SHALL BE 95% DENSITY.
15. THE CONTRACTOR SHALL PROVIDE 4" PVC SLEEVES FOR DRY UTILITIES CROSSING THE ROADWAY RIGHT-OF-WAY. THE LOCATIONS AND AMOUNTS SHALL BE DETERMINED BY THE INDIVIDUAL UTILITY COMPANIES, BUT SHALL APPEAR ON THE MASTER UTILITY PLAN OF THE NEW DEVELOPMENT. VERIFY LOCATIONS WITH ALL UTILITY COMPANIES SUPPLYING SERVICES TO THE DEVELOPMENT.
16. ALL CURB STOP BOXES (MUELLER VALVES) SHALL BE PLACED WITHIN UTILITY EASEMENTS IN FRONT YARDS LOCATED AT THE PROPERTY LINE.
17. ALL POTABLE WATER, NON-POTABLE WATER, AND SANITARY SEWER SERVICES SHALL HAVE THEIR APPROXIMATE LOCATIONS STAMPED IN THE CONCRETE CURB AND GUTTER WITH THE INITIALS "W", "NP", AND "S" RESPECTIVELY. ADDITIONAL STAMPS FOR GAS "G" AND ELECTRIC "E" MAY ALSO BE NECESSARY AND ARE AT THE DISCRETION OF THE CONTRACTOR TO PERFORM.

SANITARY SEWER NOTES:

1. ALL SANITARY SEWER PIPE SHALL MEET THE EXTRA STRENGTH MINIMUM REQUIREMENTS OF ASTM D- 3034, SDR-35, OR LATEST REVISION THEREOF. ALL SANITARY SEWER PIPE JOINTS SHALL BE INTEGRAL BELL AND SPIGOT WITH RUBBER O-RING TYPE GASKETS PER ASTM C-443.
2. REFER TO THE GEOTECHNICAL REPORT PERTAINING TO THIS PROJECT TO DETERMINE WHETHER OR NOT UNDERDRAINS WILL BE REQUIRED. IF UNDERDRAINS ARE REQUIRED INSTALLATION SHALL CONFORM TO THE CITY OF EVANS STANDARDS AND SPECIFICATIONS.
3. MANHOLES SHALL BE CONSTRUCTED OF PRE-CAST CONCRETE. CONCRETE BASES SHALL BE POURED IN PLACE, CLASS A CONCRETE. AND HAVE A MINIMUM THICKNESS OF 8 INCHES. PRE-CAST BASES MAY BE USED IN PLACE OF POURED IN PLACE BASES.
4. SANITARY SEWER MANHOLES SHALL HAVE A MINIMUM 48 INCH INSIDE DIAMETER. ALL CONES SHALL BE ECCENTRIC. PRE-CAST MANHOLE RISERS AND CONES SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM DESIGNATION C-478.
5. WHEN AN INSIDE DROP MANHOLE IS UTILIZED, THE INSIDE DIAMETER OF THE MANHOLES SHALL BE INCREASED 12 INCHES FROM THE REQUIRED MANHOLE SIZE.
6. A DROP MANHOLE SHALL BE CONSTRUCTED AT ALL MANHOLES WHERE THE INCOMING PIPE INVERT IS MORE THAN TWO FEET ABOVE THE MANHOLE INVERT.
7. THE MANHOLE BARRELS SHALL BE WATERTIGHT AT ALL JOINTS AND RISER SECTIONS. THE PREFERRED JOINT SEALING COMPOUND SHALL BE "RAMNEK" OR AN APPROVED EQUAL.
8. MANHOLE STEPS SHALL BE ALUMINUM, OR PLASTIC-COATED STEEL, AND SHALL BE PLACED 16 INCHES ON CENTER, ALIGNED AWAY FROM THE INVERT. THE FIRST STEP SHALL BE A MAXIMUM DISTANCE OF 24 INCHES FROM THE FINAL GRADE.
9. MANHOLE INVERTS SHALL BE FORMED AS INDICATED IN THE SANITARY SEWER FLOW LINE CHANNEL DETAIL WW-9 TO ENSURE SMOOTH FLOW THROUGH THE MANHOLE.
10. THE MAXIMUM DISTANCE BETWEEN MANHOLES SHALL BE 500 FEET.
11. ALL PIPES ENTERING THE MANHOLE SHALL BE COMPLETELY GROUTED AROUND THE OUTSIDE DIAMETER OF THE PIPE AND THE MANHOLE WALLS.
12. ALL SANITARY SEWER MANHOLE LIDS SHALL BE CAST DUCTILE IRON AND LABELED WITH THE WORDS "SANITARY SEWER".
13. ALL SANITARY SEWER PIPE AND APPURTENANCES SHALL BE CLEANED AND TESTED AFTER BACKFILL OPERATIONS HAVE BEEN COMPLETED.
14. SANITARY SEWER TESTING DOCUMENTS ARE REQUIRED TO BE SUBMITTED TO THE CITY OF EVANS IN A TIMELY MANNER. TYPICAL TESTING DATA INCLUDES BUT ARE NOT LIMITED TO THIRD PARTY PRESSURE TESTING, TRENCH COMPACTION TESTING, TV VIDEO INSPECTION, AND VACUUM MANHOLE TESTING.
15. MANHOLE ELEVATIONS ARE APPROXIMATE AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. THE PAVING CONTRACTOR SHALL USE NO MORE THAN FOUR CONCRETE ADJUSTMENT RINGS, OR AN APPROVED EQUAL TO MATCH FINAL PAVEMENT ELEVATIONS.
16. ALL BENDS, TEES, PLUGS, DEAD-ENDS, WET TAPS, FIRE HYDRANTS, AND BLOWOFF ASSEMBLIES SHALL BE DESIGNED AND CONSTRUCTED WITH CONCRETE THRUST BLOCKS.
17. THE STANDARD FIRE HYDRANT ASSEMBLY SHALL INCLUDE A SWIVEL TEE WITH GATE VALVE, RESTRAINED JOINTS, THRUST BLOCKS, AND USE 6 INCH PVC PIPE TO THE HYDRANT.
18. THE MAXIMUM DISTANCE BETWEEN FIRE HYDRANTS SHALL BE 500 FEET IN RESIDENTIAL AREAS, AND 300 FEET IN BUSINESS AREAS.
19. FIRE HYDRANT BRANCH LINES SHALL BE INSTALLED AT 90 DEGREES TO THE STREET MAINS. THE HYDRANT SHALL BE SET AT THE END OF THE BRANCH LINE AND SHALL FACE THE BRANCH LINE. FIRE HYDRANTS SHALL BE SET SO THAT THE MAIN PUMPER VALVE NUT IS BETWEEN 21 INCHES TO 25 INCHES ABOVE FINISHED GRADE.
20. ALL RESIDENTIAL WATER SERVICES SHALL BE 3/4 INCH TYPE "K" COPPER AND USE COMPRESSION FITTINGS ONLY. UNLESS OTHERWISE NOTED, OR APPROVED.
21. WATER LINE TESTING DOCUMENTS ARE REQUIRED TO BE SUBMITTED TO THE CITY OF EVANS IN A TIMELY MANNER. TYPICAL TESTING DATA INCLUDES BUT ARE NOT LIMITED TO THIRD PARTY PRESSURE TESTING, BACTERIAL TESTING, HIGH AND LOW CHLORINE TESTING, AND TRENCH COMPACTION TESTING.
22. THE CITY OF EVANS IS RESPONSIBLE FOR COLLECTING AND SENDING THE BACTERIAL WATER SAMPLE TO THE WELD COUNTY HEALTH DEPARTMENT FOR TESTING. THE CITY OF EVANS ALSO CONDUCTS THE HIGH AND LOW CHLORINE TESTING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO SCHEDULE ALL TESTING.
23. ALL NEW WATER LINES ARE TO BE ISOLATED, TESTED, AND APPROVED BY THE CITY OF EVANS PRIOR TO OPENING THE NEW LINE TO THE EXISTING WATER SYSTEM.
24. WATER VALVE ELEVATIONS ARE APPROXIMATE AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS.

ROADWAY IMPROVEMENT NOTES:

1. THE GENERAL CONTRACTOR SHALL CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-(800)-922-1987, OR THE NATIONWIDE UTILITY CONTACT NUMBER (811), TO REQUEST LOCATES OF ALL UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITY.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL SOILS REPORT AND PAVEMENT DESIGN REPORT, PRODUCED, OR REFERENCED FOR THIS PROJECT.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF EVANS, AND THE APPROVED PROJECT DOCUMENTS.
4. IMPROVEMENT PROJECTS WHICH DO NOT HAVE A DEVELOPER'S AGREEMENT SHALL BE REQUIRED BY THE CITY OF EVANS TO EXECUTE AN APPLICATION AND PERMIT FOR EXCAVATION / CONSTRUCTION IN PUBLIC RIGHT OF WAY.
5. CONCRETE AND ASPHALTIC MIX DESIGN SHALL BE SUBMITTED BY THE SUPPLIER AND APPROVED BY THE CITY OF EVANS PRIOR TO ROADWAY CONSTRUCTION.
6. ALL EXISTING CURB AND GUTTER, SIDEWALK, AND ADA RAMPS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE GENERAL CONTRACTOR'S EXPENSE, PRIOR TO ACCEPTANCE OF COMPLETED IMPROVEMENTS.
7. WHEN AN EXISTING STREET IS TO BE CUT, THE STREET MUST BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. SAW CUTS SHOULD BE A CLEAN STRAIGHT VERTICAL LINE PARALLEL OR PERPENDICULAR TO THE FLOW OF TRAFFIC. PATCHES SHALL BE 1 INCH GREATER IN DEPTH THAN THE EXISTING ASPHALT MATERIAL THAT WAS REMOVED.
8. ALL LARGE PATCHES (GREATER THAN 10' WIDE AND 20' LONG) SHALL BE PAVED WITH BY AN ASPHALT LAY-DOWN MACHINE. IN STREETS WHERE MORE THAN ONE CUT IS MADE, AN OVERLAY OF THE ENTIRE STREET WIDTH, INCLUDING THE PATCHED AREA MAY BE REQUIRED.
9. STREET SUBGRADES SHALL BE SCARIFIED THE TOP 12 INCHES AND RECOMPACTED PRIOR TO SUB-BASE INSTALLATION. NO BASE MATERIAL SHALL BE LAID UNTIL THE SUBGRADE HAS BEEN INSPECTED BY SCHEDULING A PROOF ROLL WITH THE CITY OF EVANS, AND APPROVED BY THE CITY OF EVANS ENGINEERING DIVISION.
10. PRIOR TO PAVEMENT INSTALLATION BASE MATERIAL SHALL BE INSPECTED BY A PROOF ROLL SCHEDULED WITH THE CITY OF EVANS, AND APPROVED BY THE CITY OF EVANS ENGINEERING DIVISION. VALVE BOXES, MANHOLES, CLEANOUTS, AND SURVEY MONUMENT BOXES ARE REQUIRED TO BE BROUGHT UP TO THE SUBGRADE LEVEL PRIOR TO PAVEMENT INSTALLATION. ALL LOCATIONS AND DISTANCES OF THE VALVE BOXES AND MANHOLES SHOULD BE CLEARLY LABELED ON THE CURB AND GUTTER IN WHITE PAINT. ONCE THE PAVEMENT IS INSTALLED ALL VALVE BOXES, MANHOLES, CLEANOUTS, AND SURVEY MONUMENT BOXES SHALL BE RAISED TO ¼" BELOW ASPHALT GRADE AND HAVE A ONE FOOT CONCRETE COLLAR INSTALLED AROUND THE OUTER DIAMETER OF THE FITTINGS.
11. NUCLEAR GAUGE TESTING DATA BY A THIRD PARTY TESTING COMPANY FOR COMPACTION AND MOISTURE CONTENT OF ALL UTILITY TRENCHES, SUBGRADE, AND BASE MATERIAL IS TO BE SUBMITTED TO THE CITY OF EVANS IN A TIMELY MANNER. EMAIL REPORTS TO THE ENGINEERING DIVISION ATTENTION MARK OBERSCHMIDT AT moberschmidt@evanscolorado.gov.
12. CONCRETE CURB AND GUTTER, SIDEWALKS, AND STREET PAVING SHALL NOT BEGIN UNTIL ALL TESTING DATA HAS BEEN RECEIVED BY THE CITY OF EVANS, AND SUBGRADE PROOF ROLLS BY THE CITY OF EVANS ENGINEERING DIVISION HAS BEEN COMPLETED.
13. NUCLEAR GAUGE TESTING DATA BY A THIRD PARTY TESTING COMPANY FOR COMPACTION, VOIDS, AND SEGREGATION OF THE ASPHALT MAT IS TO BE SUBMITTED TO THE CITY OF EVANS IN A TIMELY MANNER. EMAIL REPORTS TO THE ENGINEERING DIVISION ATTENTION MARK OBERSCHMIDT AT moberschmidt@evanscolorado.gov
14. THE GENERAL CONTRACTOR SHALL MAINTAIN ALL NECESSARY BARRICADES, PERMANENT SIGNS, TEMPORARY SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES DAILY DURING CONSTRUCTION AND BETWEEN PHASES OF CONSTRUCTION.
15. THE ROADWAY AND RELATED WORK AREAS SHALL BE LEFT WITH A CLEAN AND FINISHED APPEARANCE. IN NO CASE SHALL MATERIAL REMOVED FROM THE RIGHT-OF-WAY BE STOCKPILED AND LEFT IN SUCH A MANNER AS TO POSE A HAZARD TO THE PUBLIC. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SIDEWALKS, CURB AND GUTTERS, PANS, AND DRIVEWAYS AT THE CONSTRUCTION SITE AND DISPOSE OF THE DEBRIS IN AN APPRIOPRIATE LOCATION.

CALL UTILITY NOTIFICATION CENTER OF COLORADO

811 Know what's below. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

ditesco
Project & Construction Services
2133 S. Timberline Road, Suite 110
Fort Collins, Colorado 80525
Phone: 970.632.5068
www.ditescoservices.com

Sheet Revisions

No.	Revisions:	By	Date:

GENERAL NOTES

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	NTS
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sewer Cover.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER C002

SHEET INDEX: 2

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sewer Cover.dwg Thursday, June 08, 2023 4:15 PM By: Rhonda Bunner

GRADING NOTES:

1. GRADES SHOWN ON PLANS ARE FINISHED GRADES. FOR SUBGRADE ELEVATIONS, REFER TO THE PAVING SECTIONS AND DETAILS.
2. THE GENERAL CONTRACTOR SHALL CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-(800)-922-1987, OR THE NATIONWIDE UTILITY CONTACT NUMBER (811), TO LOCATE ALL UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITY.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PRODUCED, OR REFERENCED FOR THIS PROJECT.
4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE STORM WATER DISCHARGE PERMIT ISSUED FOR THIS PROJECT.
5. EROSION CONTROL MEASURES OUTLINED ON THE EROSION CONTROL/GRADING PLAN MUST BE IN PLACE PRIOR TO COMMENCEMENT OF ANY LAND DISTURBING ACTIVITY. (STOCKPILING, STRIPPING, GRADING, ETC.)
6. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF EVANS, AND THE APPROVED PROJECT CONSTRUCTION DOCUMENTS.
7. A VEHICLE TRACKING CONTROL STRIP 20'X 50'X 6"WITH 1 ½"TO 3"ROCK IS TO BE PLACED AND MAINTAINED BY THE GENERAL CONTRACTOR AT ALL ACCESS POINTS TO THE CONSTRUCTION SITE.
8. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EROSION CONTROL MEASURES AND SHALL BE RESPONSIBLE FOR ANY AND ALL FINES ASSOCIATED WITH THE DISCHARGE OF SEDIMENTS, EROSION, OR POLLUTANTS LEAVING THE SITE AS A RESULT OF CONSTRUCTION ACTIVITY.
9. NO SOIL STOCKPILE SHALL EXCEED 10 FEET IN HEIGHT. ALL SOIL STOCKPILES SHALL BE PROTECTED FROM SEDIMENT TRANSPORT BY SURFACE ROUGHENING, WATERING, AND PERIMETER SILT FENCING OR EARTHEN BERM. ANY SOIL STOCKPILES REMAINING AFTER THREE MONTHS FROM THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES SHALL BE SEEDED WITH A TEMPORARY COVER CROP, OR REMOVED FROM THE SITE.
10. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE PLAN ALIGNMENT AND GRADE IN ALL ROADWAYS, PARCELS/LOTS, OPEN SPACES, DITCHES, SWALES, DETENTION PONDS, AND FOREBAYS SO THAT ALL DRAINAGE IS DIRECTED IN A POSITIVE FLOW TO ALL DRAINAGE STRUCTURES INDICATED ON THE CONSTRUCTION PLANS AT THE COMPLETION OF CONSTRUCTION.
11. ALL UTILITIES (NON-POTABLE WATER LINES, POTABLE WATER LINES, SANITARY SEWER LINES, STORM DRAINAGE, DRY UTILITY CROSSINGS (GAS, ELECTRIC, TELEPHONE, AND CABLE T.V.), MANHOLES, AND INLETS) WITHIN THE ROAD RIGHT-OF-WAY SHALL BE INSTALLED PRIOR TO ROADWAY SUBGRADE PREPARATION.
12. SUBGRADE SHALL BE RIPPED, COMPACTED, AND SHAPED PER CITY STANDARDS AND SPECIFICATIONS. THE CITY OF EVANS ENGINEERING DIVISION SHALL BE NOTIFIED 24 HOURS IN ADVANCE TO SCHEDULE A PROOF ROLL OF ALL SUBGRADE WHERE ROADWAYS, SIDEWALKS, PANS, APRONS, CURB AND GUTTER, AND OTHER PUBLIC IMPROVEMENTS WILL BE PLACED.
13. ALL PARKWAYS, AND PROPERTIES ADJACENT TO SIDEWALKS, SHALL BE BACKFILLED AND COMPACTED IN A TIMELY MANNER TO PREVENT WEATHER RELATED STANDING WATER FROM ENTERING THE ROADWAY SUBGRADE. THE GENERAL CONTRACTOR SHALL BE HELD LIABLE FOR ANY AND ALL DAMAGE CAUSED BY FAILURE TO BACKFILL THESE AREAS IN A TIMELY MANNER.
14. TESTING DATA BY A THIRD PARTY TESTING COMPANY FOR COMPACTION OF ALL UTILITY TRENCHES, SUBGRADE, AND BASE MATERIAL IS TO BE SUBMITTED TO THE CITY OF EVANS IN A TIMELY MANNER. EMAIL REPORTS TO THE ENGINEERING DIVISION ATTENTION MARK OBERSCHMIDT AT moberschmidt@evanscolorado.gov

EROSION CONTROL NOTES:

1. EROSION CONTROL MEASURES MUST BE IN PLACE PRIOR TO ANY LAND DISTURBING ACTIVITY COMMENCES.
2. A VEHICLE TRACKING CONTROL STRIP 25'X 50'X 6"WITH 1 ½"TO 3"ROCK IS TO BE PLACED AND MAINTAINED BY THE GENERAL CONTRACTOR AT ALL ACCESS POINTS INTO THE CONSTRUCTION SITE.
3. A 20'X 20'CONCRETE WASH OUT AREA OR APPROVED EQUAL SHALL BE ESTABLISHED NEAR THE EXIT TO THE SITE. THE AREA SHALL BE FENCED WITH ORANGE SAFETY FENCING ON THREE SIDES AND HAVE AN EARTHEN BERM, OR DEPRESSION CUT INTO THE GRADE TO CONTAIN WATER AND CONCRETE FROM LEAVING THE AREA. A SIGN DIRECTING ALL CONCRETE TRUCKS TO THE WASHOUT MUST BE ERECTED AT ALL ENTRANCES TO THE SITE. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE WASHOUT AREA PRIOR TO LEAVING THE SITE ONCE INITIAL SITE CONSTRUCTION IS COMPLETE. BURYING OF THE DEBRIS IS STRICTLY PROHIBITED.
4. SILT FENCE OR APPROVED EQUAL SHALL BE PLACED ALONG THE DOWNGRADIENT PERIMETER OF SITE.
5. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EROSION CONTROL MEASURES AND SHALL BE RESPONSIBLE FOR ANY AND ALL FINES ASSOCIATED WITH THE DISCHARGE OF SEDIMENTS, EROSION, OR POLLUTANTS LEAVING THE SITE AS A RESULT OF CONSTRUCTION ACTIVITY.
6. NO SOIL STOCKPILE SHALL EXCEED 10 FEET IN HEIGHT. ALL SOIL STOCKPILES SHALL BE PROTECTED FROM SEDIMENT TRANSPORT BY SURFACE ROUGHENING, WATERING, AND PERIMETER SILT FENCING OR EARTHEN BERM. ANY SOIL STOCKPILES REMAINING AFTER THREE MONTHS FROM THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES SHALL BE SEEDED WITH A TEMPORARY COVER CROP, OR REMOVED FROM THE SITE.
7. ONCE FINAL GRADING IS COMPLETE, ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RIPPED BY A GRADER IN CORN FURROW FASHION, OR SEEDED. THE FURROWS SHALL BE PERPENDICULAR TO THE GRADE OF THE LAND. IT IS THE RESPONSIBILITY OF THE DEVELOPER/OWNER TO MAINTAIN THIS EROSION CONTROL MEASURE FOR THE DURATION OF THE 2 YEAR WARRANTY PERIOD.
8. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES THAT WILL REMAIN AS OUTLOTS, OPEN SPACE, DETENTION PONDS, FOREBAYS, OR TRAILS SHALL RECEIVE 4 INCHES OF TOP SOIL AND SHALL BE SEEDED. SOIL PREPARATION, FERTILIZER, COMPOST, SEEDING, AND MULCHING WILL BE REQUIRED. SEED TAGS WILL BE COLLECTED BY THE CITY OF EVANS.
9. ALL SEEDING REQUIRED BY EITHER THE CITY OF EVANS ENGINEERING DIVISION, OR PLANNING DIVISION SHALL UTILIZE THE CITY OF EVANS IRRIGATION DESIGN GUIDELINES, LAWN AND GRASS SPECIFICATIONS SECTION 02930.
10. GRASS SEED SHALL BE PLANTED WITH A GRASS SEED DRILL (NOT A GRAIN DRILL) AT A DEPTH OF 1/2"TO 3/4". BROADCAST SEEDING OF GRASS SEED IS NOT ACCEPTABLE. STRAW MULCH SHALL BE SPREAD AND CRIMPED INTO THE SOIL AT A RATE OF 4,000 LBS/ACRE. HYDROSEEDING AND HYDROMULCHING IS ACCEPTABLE IN LIEU OF DRILL SEEDING AND CRIMPING OF MULCH STRAW, ONLY IN AREAS THAT ARE INACCESSABLE TO LANDSCAPING EQUIPMENT, AND MUST BE APPROVED BY THE CITY OF EVANS PRIOR TO USE.
11. THE DEVELOPER/OWNER IS RESPONSIBLE FOR HIRING A CONTRACTOR TO REMOVE ALL TEMPORARY EROSION CONTROL MEASURES ONCE CONSTRUCTION IS COMPLETE AND ALL OPEN SPACE AREAS, OUTLOTS, DETENTION PONDS, FOREBAYS, AND TRAIL CORRIDORS ARE STABILIZED WITH AT LEAST 80 PERCENT GROWTH OF SEEDED GROUND COVER.

CALL UTILITY NOTIFICATION CENTER OF COLORADO

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

GENERAL NOTES

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	NTS
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sewer Cover.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

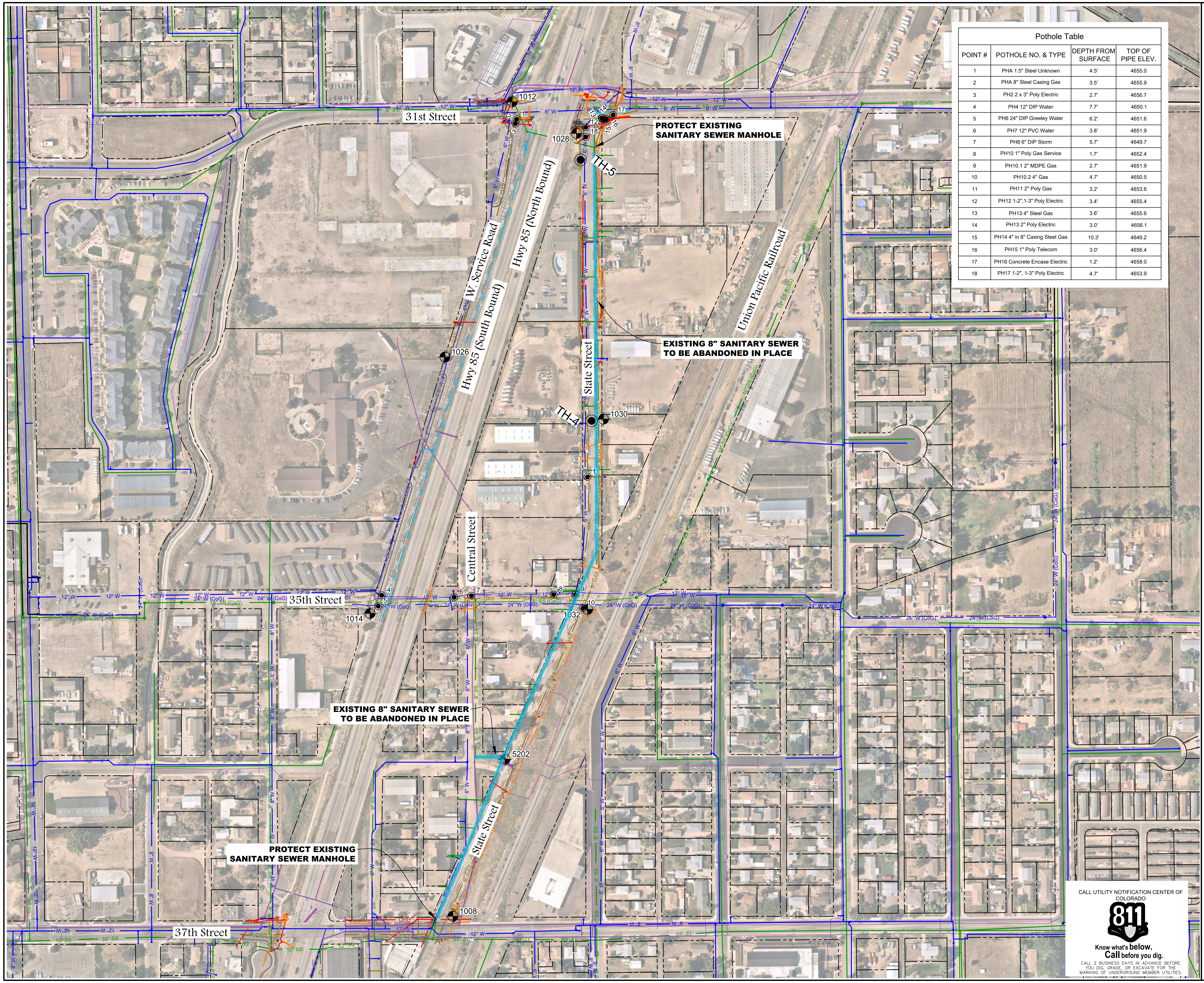
PROJECT NUMBER: XXXX

SHEET NUMBER

C003

SHEET INDEX: 3

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sewer Existing.dwg Thursday, June 08, 2023 4:16 PM By: Rhonda Bunner



Pothole Table			
POINT #	POTHOLE NO. & TYPE	DEPTH FROM SURFACE	TOP OF PIPE ELEV.
1	PHA 1.5" Steel Unknown	4.5'	4655.0
2	PHA 8" Steel Casing Gas	3.5'	4655.9
3	PH2 2 x 3" Poly Electric	2.7'	4656.7
4	PH4 12" DIP Water	7.7'	4650.1
5	PH6 24" DIP Greeley Water	6.2'	4651.6
6	PH7 12" PVC Water	3.8'	4651.9
7	PH8 6" DIP Storm	5.7'	4649.7
8	PH10 1" Poly Gas Service	1.7'	4652.4
9	PH10.1 2" MDPE Gas	2.7'	4651.9
10	PH10.2 4" Gas	4.7'	4650.5
11	PH11 2" Poly Gas	3.2'	4653.6
12	PH12 1-2",1-3" Poly Electric	3.4'	4655.4
13	PH13 4" Steel Gas	3.6'	4655.6
14	PH13 2" Poly Electric	3.0'	4656.1
15	PH14 4" in 8" Casing Steel Gas	10.3'	4649.2
16	PH15 1" Poly Telecom	3.0'	4656.4
17	PH16 Concrete Encase Electric	1.2'	4658.0
18	PH17 1-2", 1-3" Poly Electric	4.7'	4653.9

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150' 0 150' 300' 450'

SCALE: 1" =150'
(True scale for 22x34 sheet size)

LEGEND:

EXISTING CONTOURS	4987
EXISTING WATER	W
EXISTING SANITARY SEWER	SS
EXISTING SANITARY TO BE ABANDONED	X-SS-X
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	WV
EXISTING FIRE HYDRANT	HYD
EXISTING WATER SERVICE SHUT-OFF	WSO
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20
BORE HOLES	TH-2
CONTROL POINT	100

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: August 27, 2021 & April 21, 2022

GEOTECHNICAL EXPLORATION BY:

CTL Thompson
WATERLINE IMPROVEMENTS PROJECT 2
PROJECT NO. FC09827.001–125
DATE: May 12, 2021 and July 30, 2021

NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. SEE SUBSURFACE UTILITY ENGINEERING SHEETS SU01 – SU07.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DEMOLITION, REMOVAL, REPLACEMENT AND DISPOSAL OF ALL FACILITIES AND MATERIAL.
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SURVEY CONTROL POINTS				
POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
1000	CP-WOLF	1380637.3930	3223595.8590	4669.81
1008	CP-STATE	1381384.9190	3225130.5450	4651.36
1032	CP-MILL	1382367.8560	3225562.1320	4654.62
1004	KSI-12	1378651.5710	3224154.6280	4660.60
1012	CP-GO	1383993.3340	3225320.4890	4659.39
1028	CP-JAYWALK	1383891.9570	3225526.2790	4659.72
1014	CP-GOAT	1382354.8800	3224865.7790	4657.89
1030	CP-CACHE	1382977.0870	3225612.8860	4657.28
1026	CP-INN	1383175.7870	3225105.1350	4656.90
5202	CP-ROOT	1381888.0360	3225297.8010	4652.46

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 BURRELL 6/9/23

Sheet Revisions			
No.	Revisions:	By:	Date:

OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 150'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sewer Existing.dwg

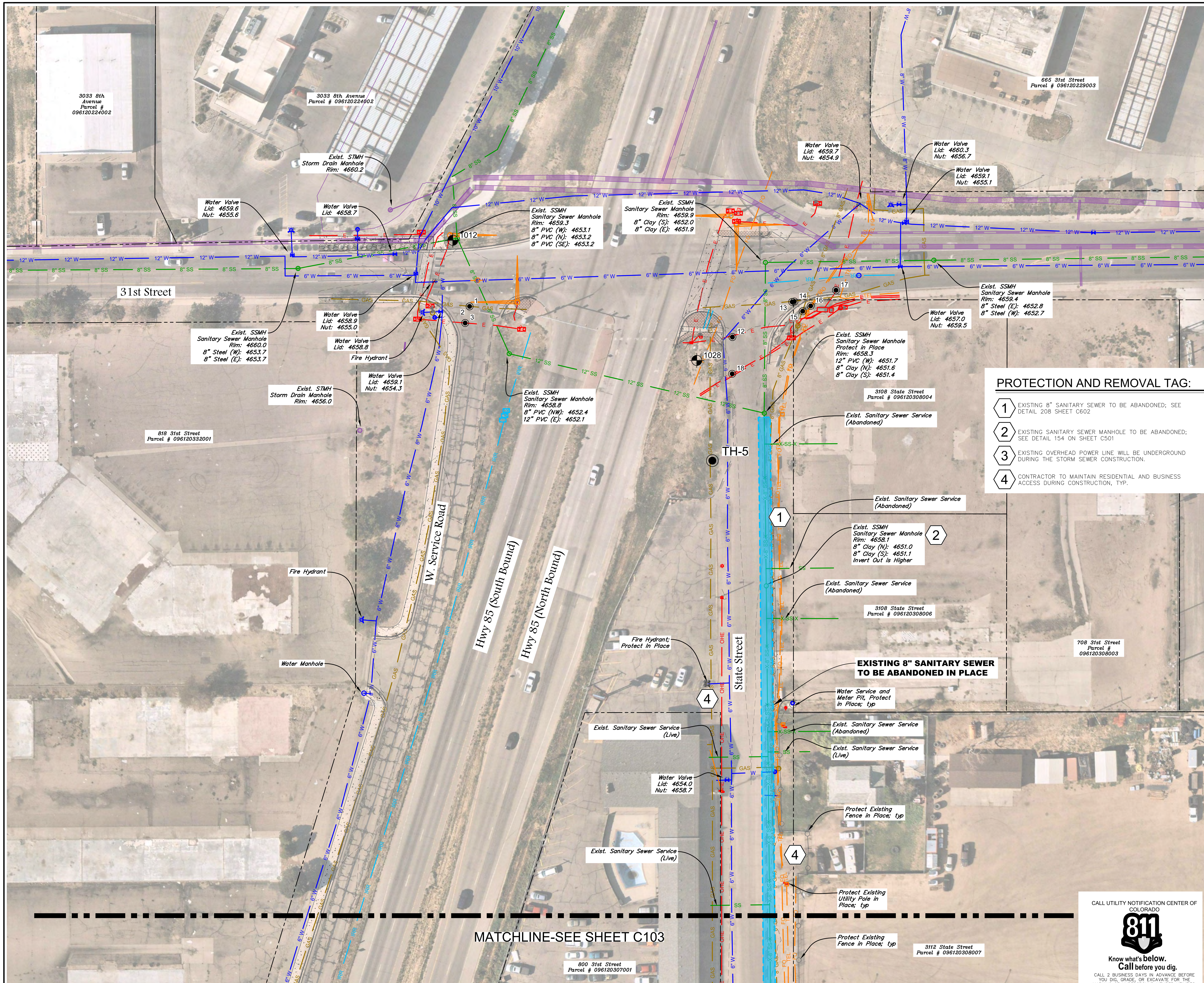
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER

C101

SHEET INDEX: 4



PROTECTION AND REMOVAL TAG:

1. EXISTING 8" SANITARY SEWER TO BE ABANDONED; SEE DETAIL 208 SHEET C602
2. EXISTING SANITARY SEWER MANHOLE TO BE ABANDONED; SEE DETAIL 154 ON SHEET C501
3. EXISTING OVERHEAD POWER LINE WILL BE UNDERGROUND DURING THE STORM SEWER CONSTRUCTION.
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40' 0 40' 80' 120'

SCALE: 1" =40'

(True scale for 22x34 sheet size)

LEGEND:

- EXISTING CONTOURS — 4987
- EXISTING WATER — W
- EXISTING SANITARY SEWER — SS
- EXISTING SANITARY TO BE ABANDONED — X-SS-X
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- EXISTING WATER SERVICE SHUT-OFF
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- EXISTING STORM DRAIN MANHOLE
- UTILITY POTHOLE — 20
- BORE HOLES — TH-2
- CONTROL POINT — 100

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: August 27, 2021 & April 21, 2022

GEOTECHNICAL EXPLORATION BY:

CTL Thompson
WATERLINE IMPROVEMENTS PROJECT 2
PROJECT NO. FC09827.001-125
DATE: May 12, 2021 and July 30, 2021

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283

No.	Sheet Revisions Revisions:	By	Date

EXISTING CONDITIONS AND DEMOLITION PLAN

DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 40'
FILE NAME: COE State Street Existing Area.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER C102

SHEET INDEX: 5

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Existing Area.dwg Thursday, June 08, 2023 4:17 PM By: Rhonda Bunner

PROTECTION AND REMOVAL TAG:

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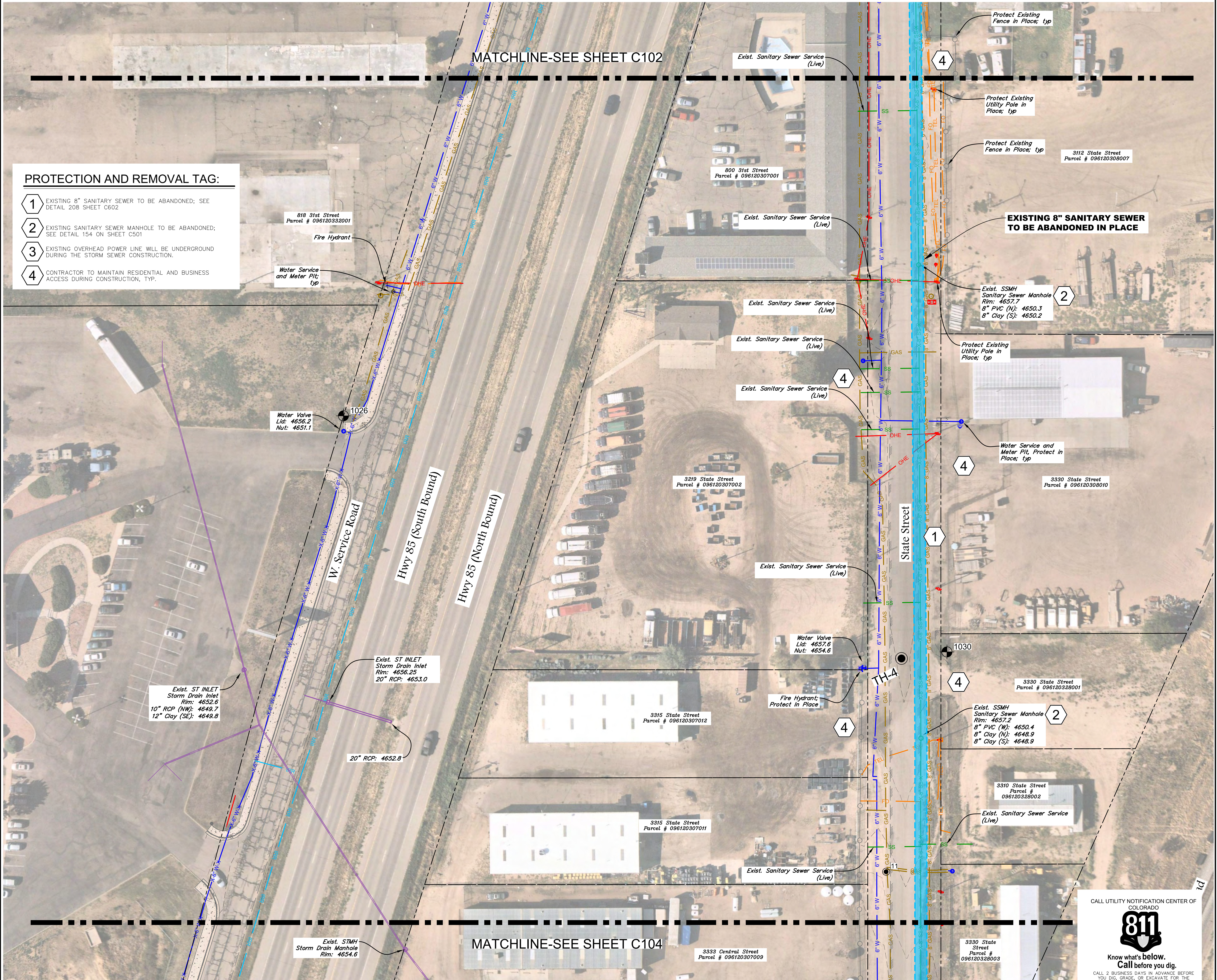

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(True scale for 22x34 sheet size)

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EXISTING SANITARY SEWER	SS
EXISTING SANITARY TO BE ABANDONED	X-SS-X
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	WV
EXISTING FIRE HYDRANT	HYD
EXISTING WATER SERVICE SHUT-OFF	WSO
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20
BORE HOLES	TH-2
CONTROL POINT	100

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: August 27, 2021 & April 21, 2022

GEOTECHNICAL EXPLORATION BY:

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WATERLINE IMPROVEMENTS PROJECT 2
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No.	Revisions:	By:	Date:

Sheet Revisions

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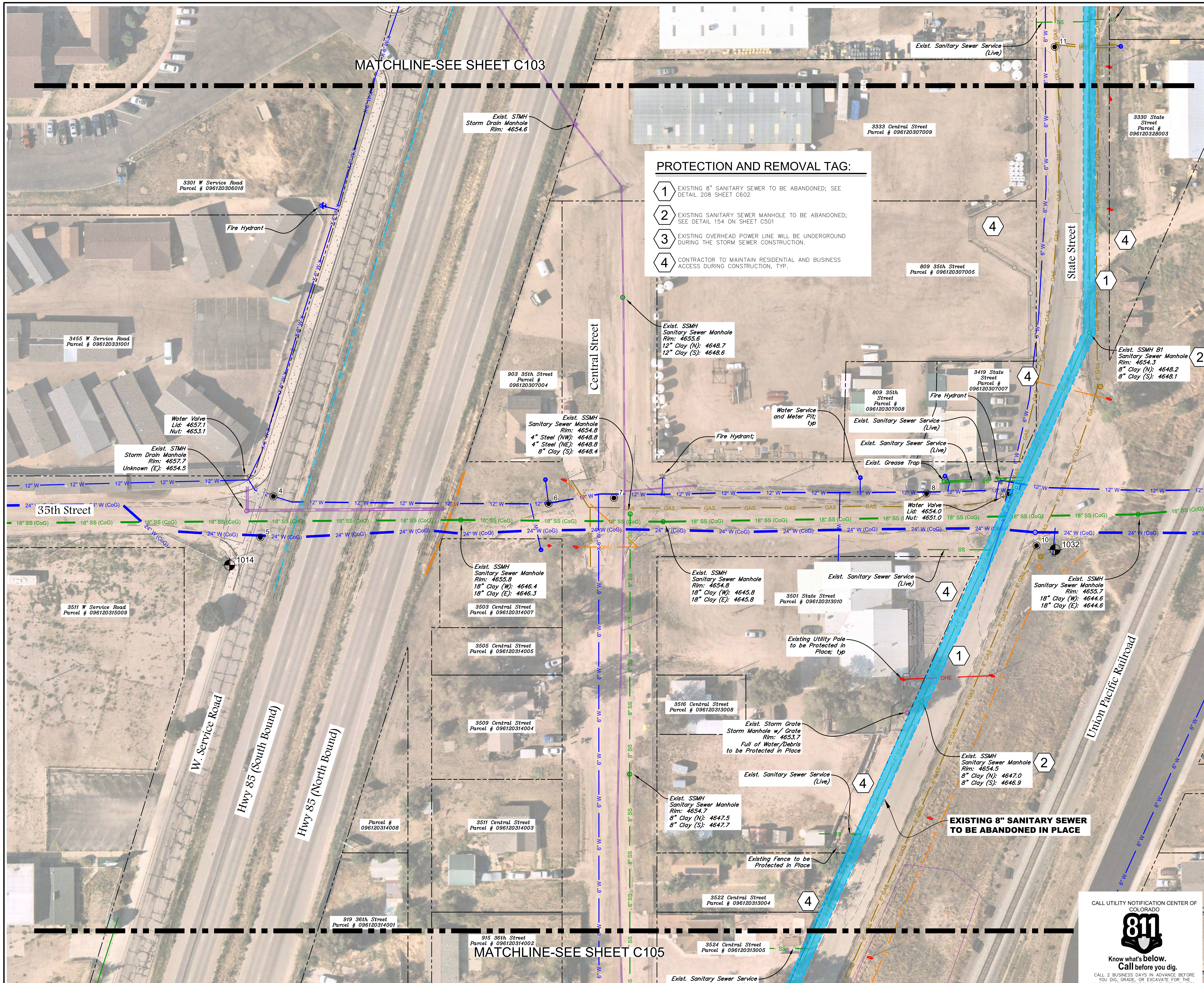
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 40'
FILE NAME: COE State Street Existing Area.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX
SHEET NUMBER
C103
SHEET INDEX: 6

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Existing Area.dwg Thursday, June 08, 2023 4:17 PM By: Rhonda Bunner

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Existing Area.dwg Thursday, June 08, 2023 4:17 PM By: Rhonda Bunner



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EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20
BORE HOLES	TH-2
CONTROL POINT	100

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: August 27, 2021 & April 21, 2022

GEOTECHNICAL EXPLORATION BY:

CTL Thompson
WATERLINE IMPROVEMENTS PROJECT 2
PROJECT NO. FC09827.001-125
DATE: May 12, 2021 and July 30, 2021

NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. SEE SUBSURFACE UTILITY ENGINEERING SHEETS SU01 – SU07.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DEMOLITION, REMOVAL, REPLACEMENT AND DISPOSAL OF ALL FACILITIES AND MATERIAL.
3. THE CONTRACTOR IS ENCOURAGED TO PERFORM DEMOLITION IN A MANNER THAT MAXIMIZES SALVAGE, RE-USE AND RECYCLING OF MATERIALS. THIS INCLUDES APPROPRIATE SORTING AND STORING. IN PARTICULAR, DEMOLITION CONCRETE, ASPHALT AND BASE COURSE SHOULD BE RECYCLED IF POSSIBLE.
4. ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
5. ALL EXISTING SEWER LINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG. EXISTING MANHOLE RIMS, COVERS AND CONE SECTIONS SHALL BE REMOVED AND THE BARREL SECTIONS SHALL BE FILLED WITH SAND. CAP THE EXISTING SEWER LINE ON BOTH SIDES OF EACH EXISTING MANHOLE.
6. CONTRACTOR TO PROTECT EXISTING INFRASTRUCTURE IN PLACE INCLUDING UTILITY POLES, PEDESTALS, WATER METERS, HYDRANTS, STORM DRAINS, MANHOLES, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR REPLACE ANY DAMAGED UTILITIES.
7. CONTRACTOR TO PROTECT IN PLACE EXISTING LANDSCAPING, TREES, FENCES, DRIVEWAYS, SIDEWALKS, AND OTHER SURFACE FEATURES. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR REPLACE ANY DAMAGED SURFACE FEATURES.
8. CONTRACTOR TO PROVIDE ACCESS TO ALL PRIVATE RESIDENCES AND BUSINESSES DURING CONSTRUCTION.

SURVEY CONTROL POINTS

POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
1000	CP-WOLF	1380637.3930	3223595.8590	4669.81
1008	CP-STATE	1381384.9190	3225130.5450	4651.36
1032	CP-MILL	1382367.8560	3225562.1320	4654.62
1004	KSI-12	1378651.5710	3224154.6280	4660.60
1012	CP-GO	1383993.3340	3225320.4890	4659.39
1028	CP-JAYWALK	1383891.9570	3225526.2790	4659.72
1014	CP-GOAT	1382354.8800	3224865.7790	4657.89
1030	CP-CACHE	1382977.0870	3225612.8860	4657.28
1026	CP-INN	1383175.7870	3225105.1350	4656.90
5202	CP-ROOT	1381888.0360	3225297.8010	4652.46

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

No.	Sheet Revisions	By:	Date:

EXISTING CONDITIONS AND DEMOLITION PLAN

DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 40'
FILE NAME: COE State Street Existing Area.dwg

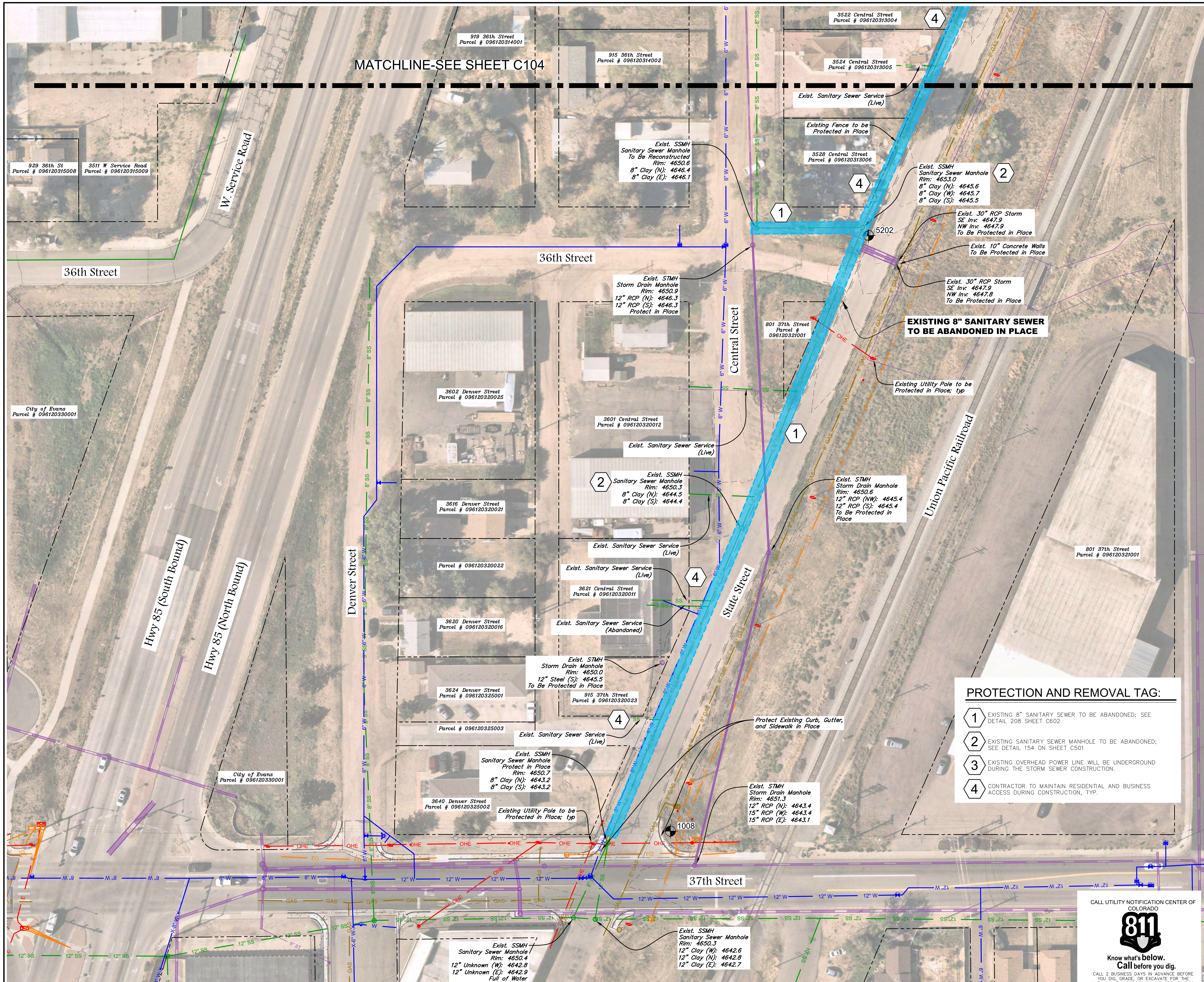
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER

C104

SHEET INDEX: 7



PROTECTION AND REMOVAL TAG:

1. EXISTING 8" SANITARY SEWER TO BE ABANDONED; SEE DETAIL 208 SHEET C602
2. EXISTING SANITARY SEWER MANHOLE TO BE ABANDONED; SEE DETAIL 154 ON SHEET C501
3. EXISTING OVERHEAD POWER LINE WILL BE UNDERGROUND DURING THE STORM SEWER CONSTRUCTION.
4. CONTRACTOR TO MAINTAIN RESIDENTIAL AND BUSINESS ACCESS DURING CONSTRUCTION, TYP.

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Existing Area.dwg Thursday, June 08, 2023 4:17 PM By: Rhonda Bunner

40' 0 40' 80' 120'

SCALE: 1" =40'
(True scale for 22x34 sheet size)

LEGEND:

EXISTING CONTOURS
EXISTING WATER
EXISTING SANITARY SEWER
EXISTING SANITARY TO BE ABANDONED
EXISTING STORM DRAIN
EXISTING ELECTRIC
EXISTING OVERHEAD UTILITY
EXISTING FIBER OPTIC
EXISTING FIBER OPTIC
EXISTING GAS
EXISTING ROAD CENTERLINE
EXISTING WATER VALVE
EXISTING FIRE HYDRANT
EXISTING WATER SERVICE SHUT-OFF
EXISTING SANITARY SEWER MANHOLE
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UTILITY POTHOLE
BORE HOLES
CONTROL POINT

FIELD SURVEY BY:

ORIGINAL FIELD SURVEY:
KING SURVEYORS
DATE: August 27, 2021 & April 21, 2022

GEOTECHNICAL EXPLORATION BY:

CTL Thompson
WATERLINE IMPROVEMENTS PROJECT 2
PROJECT NO. FC09827.001-125
DATE: May 12, 2021 and July 30, 2021

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

No.	Revisions:	By:	Date:

Sheet Revisions

EXISTING CONDITIONS AND DEMOLITION PLAN

DATE: June 9, 2023
SCALE: 1" = 40'
FILE NAME: COE State Street Existing Area.dwg
DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER

C105

SHEET INDEX: 8

150' 0 150' 300' 450'

SCALE: 1" =150'
(True scale for 22x34 sheet size)

LEGEND:

EXISTING CONTOURS	4987
EXISTING ROAD CENTERLINE	
EXISTING STORM DRAIN	
EXISTING STORM DRAIN MANHOLE	D
ROCK SOCKS PROTECTION	RS
INLET PROTECTION	IP

NOTES:

1. SEE EROSION CONTROL NOTES ON SHEET C003 AS WELL AS EROSION CONTROL DETAILS ON SHEET C202.
2. THIS EROSION CONTROL PLAN SERVES ONLY AS A GUIDELINE TO THE CONTRACTOR. STAGING / PHASING OF THE BMPs SHOWN ON THIS PLAN IS EXPECTED. ADDITIONAL AND / OR DIFFERENT BMPs FROM THOSE SHOWN MAY BE NECESSARY DURING CONSTRUCTION DUE TO CHANGING SITE CONDITIONS OR AS REQUIRED BY LOCAL AUTHORITIES. IN NO WAY SHALL THIS PLAN REPLACE THE CONTRACTOR'S OBLIGATIONS FOR PERMITTING (CITY, STATE DISCHARGE PERMIT, ETC.) OR COMPLIANCE WITH GOVERNING AUTHORITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR (OR PERMIT HOLDER) TO ENSURE EROSION CONTROL MEASURES ARE PROPERLY MAINTAINED AND FOLLOWED.
3. CONTRACTOR SHALL IMPLEMENT THE APPROPRIATE MEASURES ACCORDING TO THE CONSTRUCTION SEQUENCING AND LEVEL OF SITE STABILIZATION.
4. THE EROSION CONTROL PLAN IS SCHEMATIC IN NATURE. AS SUCH, GRAPHICAL SYMBOLS MAY NOT BE TO SCALE, NOR ARE THEY NECESSARILY SHOWN IN THEIR EXACT LOCATION.
5. CONTRACTOR SHALL IMPLEMENT APPROPRIATE INLET PROTECTION FOR ALL DRAINS UNTIL SITE IS FULLY STABILIZED.
6. INLET PROTECTION SHALL BE ADAPTED, AS NECESSARY, TO THE SURROUNDING SURFACE TYPE AND CONDITION (i.e, STAKE –DRIVEN WATTLES FOR BARE SOIL, SAND BAGS OR GRAVEL SOCKS FOR PAVEMENT, ETC.)

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 J. BURRELL 6/9/23

Sheet Revisions			
No.	Revisions:	By:	Date:

EROSION CONTROL PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 150'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sewer Erosion Control Plan.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

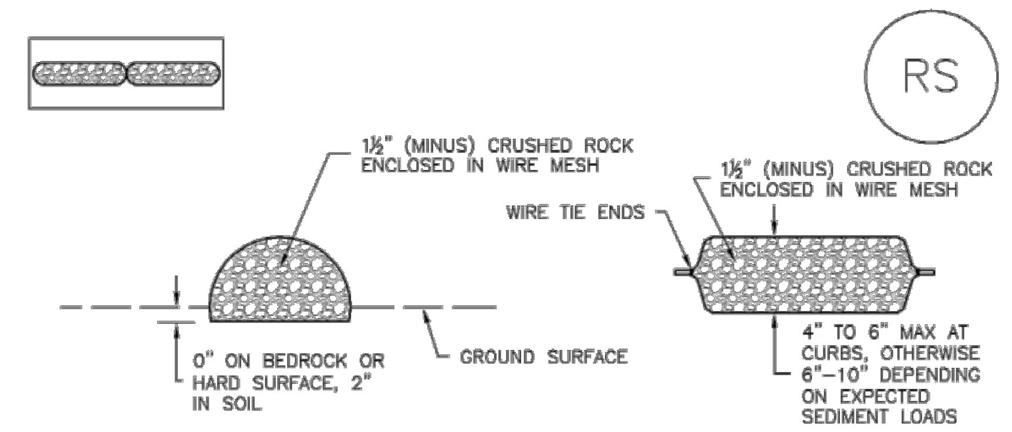
PROJECT NUMBER: XXXX

SHEET NUMBER

C201

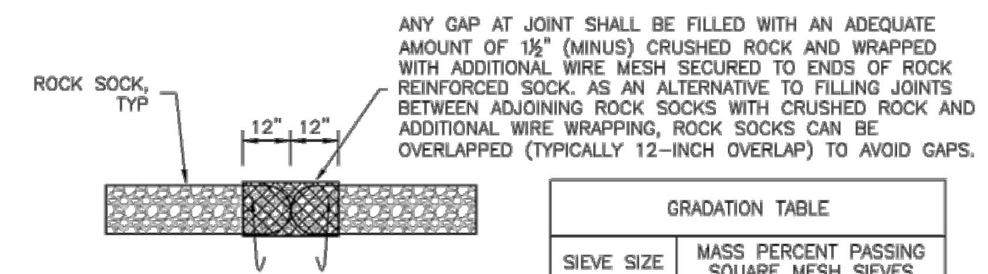
SHEET INDEX: 9

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sewer Erosion Control Plan.dwg Thursday, June 08, 2023 4:18 PM By: Rhonda Bunner



ROCK SOCK SECTION

ROCK SOCK PLAN



ROCK SOCK JOINTING

GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1½"	90 – 100
1"	20 – 55
¾"	0 – 15
⅜"	0 – 5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES.	

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION(S) OF ROCK SOCKS.
2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).
3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48"
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

RS–1. ROCK SOCK PERIMETER CONTROL

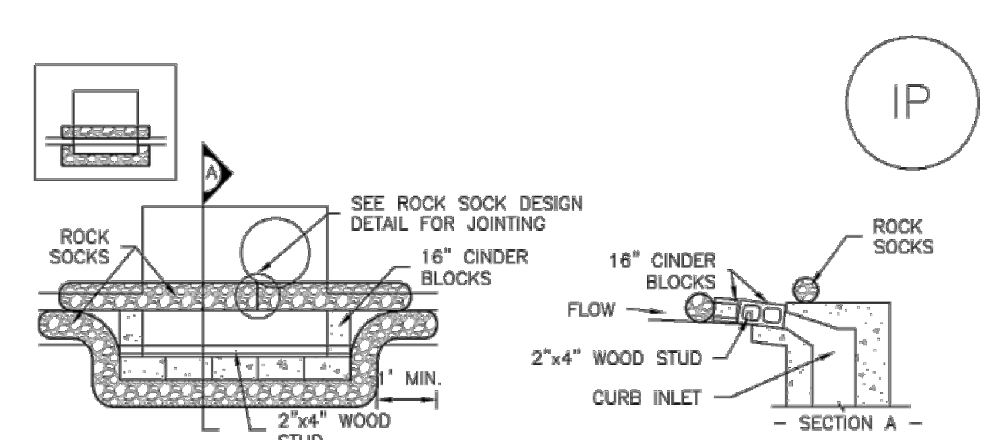
ROCK SOCK MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE ROCK SOCK.
6. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

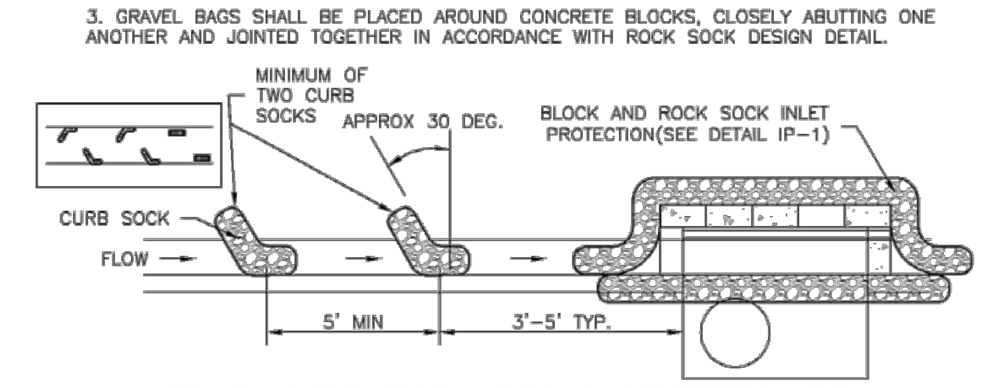
NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF ROCK SOCK INSTALLATION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY OTHER SIMILAR PROPRIETARY PRODUCTS ON THE MARKET. UDFCD NEITHER NDORSES NOR DISCOURAGES USE OF PROPRIETARY PROTECTION PRODUCTS; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.



IP–1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



IP–2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   –LOCATION OF INLET PROTECTION.
   –TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)
2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

INLET PROTECTION MAINTENANCE NOTES

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3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR ¼ OF THE HEIGHT FOR STRAW BALES.
5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

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NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

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Sheet Revisions			
No.	Revisions:	By:	Date:

EROSION CONTROL DETAILS

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	NTS
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Erosion Control Details.dwg

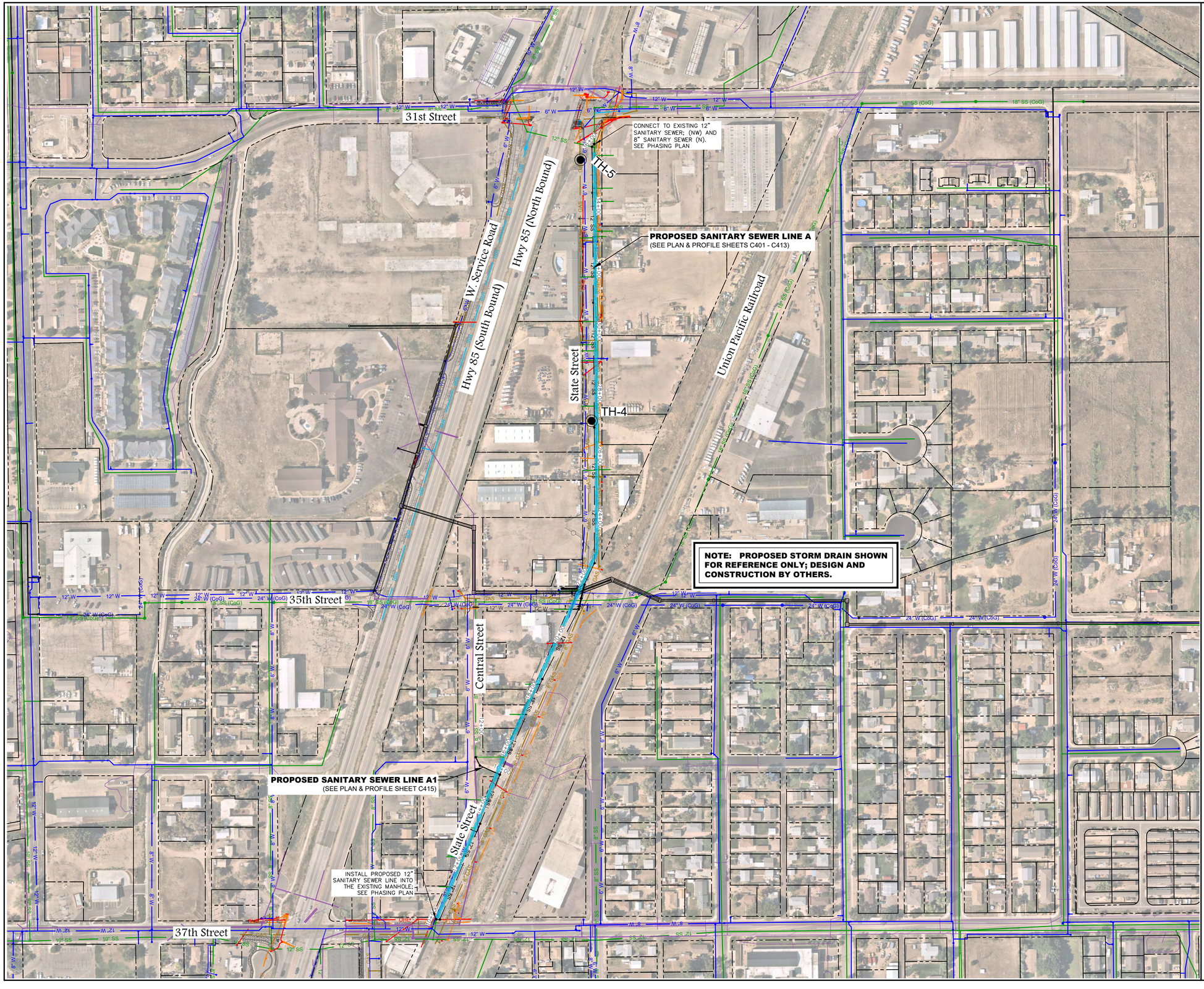
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER C202

SHEET INDEX: 10

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Erosion Control Details.dwg Thursday, June 08, 2023 4:18 PM By: Rhonda Bunner



150' 0 150' 300' 450'

SCALE: 1" =150'
(True scale for 22x34 sheet size)

LEGEND:

- PROPERTY OWNERS (GIS)
- EXISTING WATER
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY TO BE ABANDONED
- PROPOSED STORM DRAIN (by others)
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- EXISTING OVERHEAD UTILITY
- EXISTING FIBER OPTIC
- EXISTING FIBER OPTIC
- EXISTING GAS
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- UTILITY POTHOLE
- BORE HOLES
- CONTROL POINT

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2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES.
3. SEE SHEET C001 FOR PROJECT BENCHMARKS AND VERTICAL DATUM.
4. ALL TRENCHES SHALL BE REPAIRED PER CITY OF EVANS STANDARDS AND DE4TAILS WITHIN THIS DRAWING SET. CONTRACTOR SHALL COMPLETE UTILITY TRENCH PATCH FOR ENTIRE EXTENTS OF PROJECT. SEE DETAIL 200 SHEET C601 AND DETAIL 209 SHEET C602.
5. EXISTING MANHOLE TO BE ABANDONED IN PLACE. REMOVE RING AND COVER AND TOP CONE SECTION. PLUG ALL ABANDONED PIPELINES AT MANHOLE. FILL REMAINING MANHOLE WITH SAND. SEE DETAIL 154 SHEET C501.
6. THE ORIENTATION OF THE EXISTING SERVICE LINES IS APPROXIMATE AND IS BASED ON GIS AND CCTV. CONTRACTOR SHALL INSTALL A TRAFFIC-RATED CLEANOUT IF THE SERVICE CONNECTION REQUIRES A BEND.
7. THE EXISTING SERVICE LINES ARE CLAY. CONTRACTOR SHALL INSTALL PVC SERVICE LINE EXTENSIONS TO THE NEW MAIN. CONTRACTOR SHALL UTILIZE FERNCO FLEXIBLE COUPLINGS OR APPROVED EQUAL BETWEEN PVC AND CLAY SERVICE LINES. MAINTAIN MINIMUM 2% SLOPE ON ALL SERVICE LINES.

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PROFESSIONAL ENGINEER

Sheet Revisions

No.	Revisions:	By	Date:

OVERALL SITE AND UTILITY PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 150'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sewer Overall Site.dwg

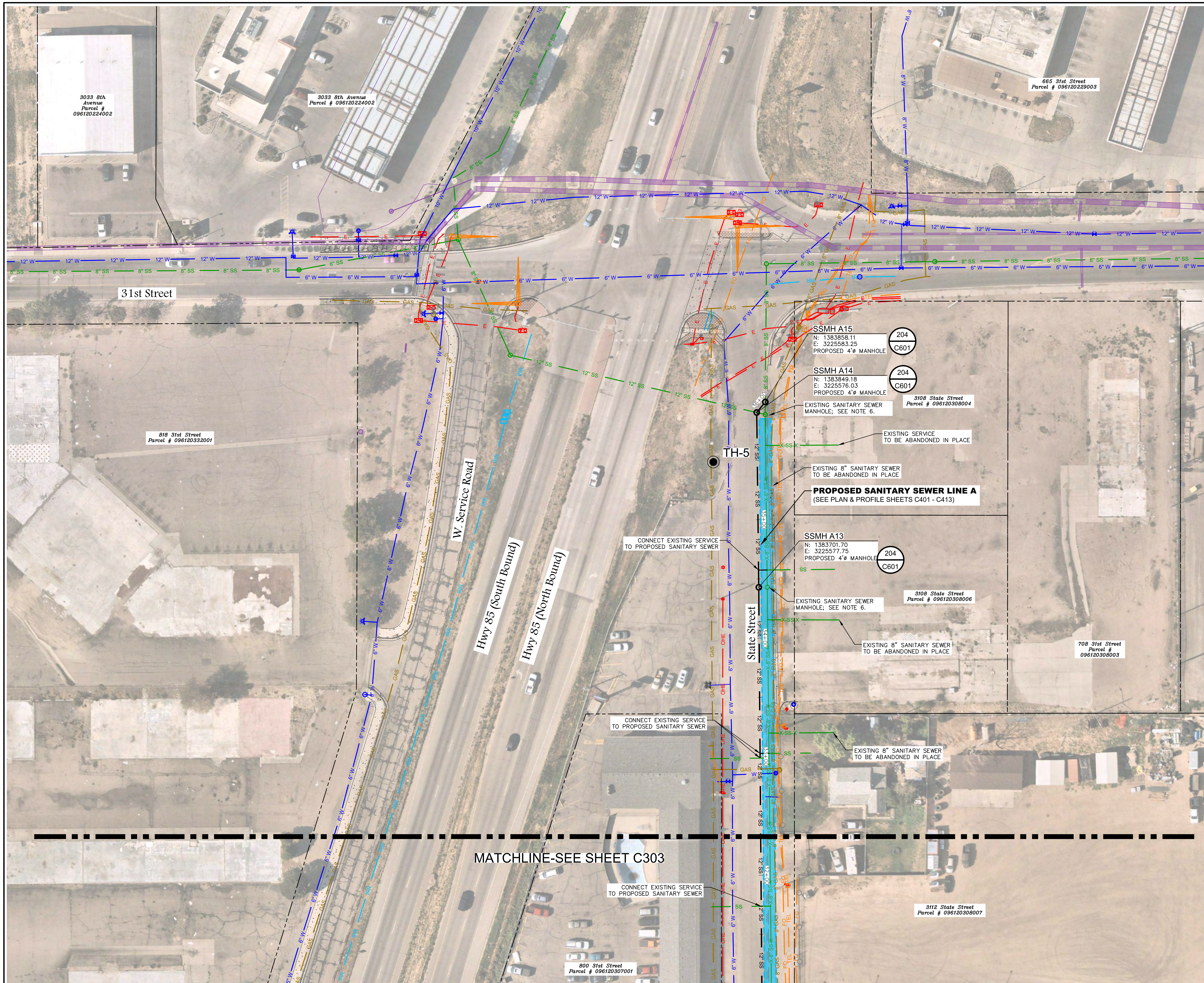
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER
C301

SHEET INDEX: 11

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sewer Overall Site.dwg Thursday, June 08, 2023 4:19 PM By: Rhonda Bunner



40' 0 40' 80' 120'

SCALE: 1" =40'

(True scale for 22x34 sheet size)

LEGEND:

PROPERTY OWNERS (GIS)	
EXISTING WATER	W
PROPOSED SANITARY SEWER	SS
EXISTING SANITARY SEWER	SS
EXISTING SANITARY TO BE ABANDONED	X-SS-X
PROPOSED STORM DRAIN (by others)	
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20
BORE HOLES	TH-2
CONTROL POINT	100

NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. SEE SUBSURFACE UTILITY ENGINEERING SHEETS SU01 – SU07.
2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES.
3. SEE SHEET C001 FOR PROJECT BENCHMARKS AND VERTICAL DATUM.
4. ALL TRENCHES SHALL BE REPAIRED PER CITY OF EVANS STANDARDS AND DE4TAILS WITHIN THIS DRAWING SET. CONTRACTOR SHALL COMPLETE UTILITY TRENCH PATCH FOR ENTIRE EXTENTS OF PROJECT. SEE DETAIL 200 SHEET C601 AND DETAIL 209 SHEET C602.
5. EXISTING MANHOLE TO BE ABANDONED IN PLACE. REMOVE RING AND COVER AND TOP CONE SECTION. PLUG ALL ABANDONED PIPELINES AT MANHOLE. FILL REMAINING MANHOLE WITH SAND. SEE DETAIL 154 SHEET C501.
6. THE ORIENTATION OF THE EXISTING SERVICE LINES IS APPROXIMATE AND IS BASED ON GIS AND CCTV. CONTRACTOR SHALL INSTALL A TRAFFIC–RATED CLEANOUT IF THE SERVICE CONNECTION REQUIRES A BEND.
7. THE EXISTING SERVICE LINES ARE CLAY. CONTRACTOR SHALL INSTALL PVC SERVICE LINE EXTENSIONS TO THE NEW MAIN. CONTRACTOR SHALL UTILIZE FERNCO FLEXIBLE COUPLINGS OR APPROVED EQUAL BETWEEN PVC AND CLAY SERVICE LINES. MAINTAIN MINIMUM 2% SLOPE ON ALL SERVICE LINES.

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COLORADO LICENSED PROFESSIONAL ENGINEER JEFFREY J. BURRELL 53283 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SITE AND UTILITY PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 40'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Site.dwg

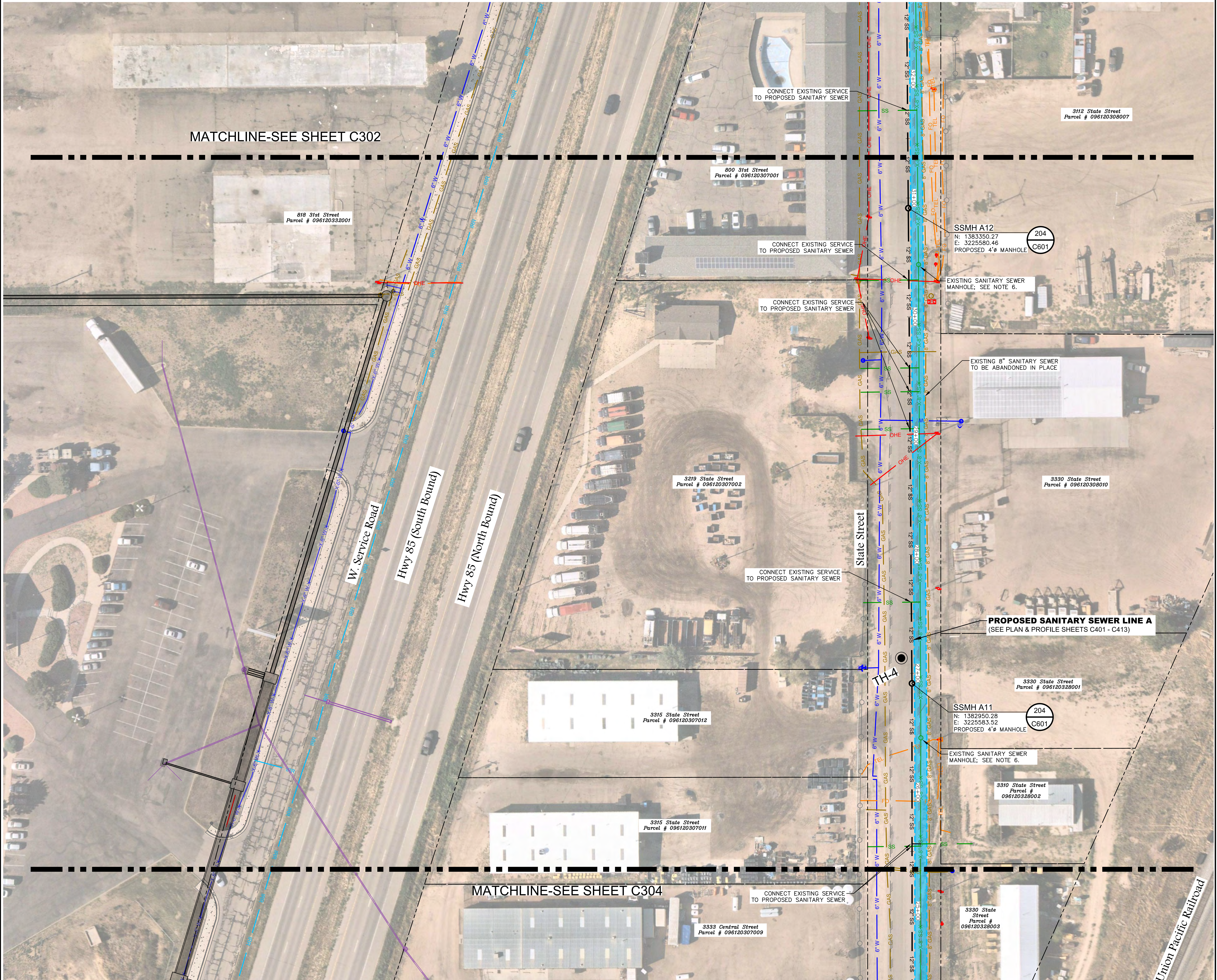
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER

C302

SHEET INDEX: 12



Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Site.dwg Thursday, June 08, 2023 4:19 PM By: Rhonda Bunner

40' 0 40' 80' 120'

SCALE: 1" =40'

(True scale for 22x34 sheet size)

LEGEND:

PROPERTY OWNERS (GIS)	
EXISTING WATER	W
PROPOSED SANITARY SEWER	SS
EXISTING SANITARY SEWER	SS
EXISTING SANITARY TO BE ABANDONED	X-SS-X
PROPOSED STORM DRAIN (by others)	
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20
BORE HOLES	TH-2
CONTROL POINT	100

NOTES:

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2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES.
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COLORADO LICENSED PROFESSIONAL ENGINEER J. BURRELL 53283 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SITE AND UTILITY PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 40'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Site.dwg

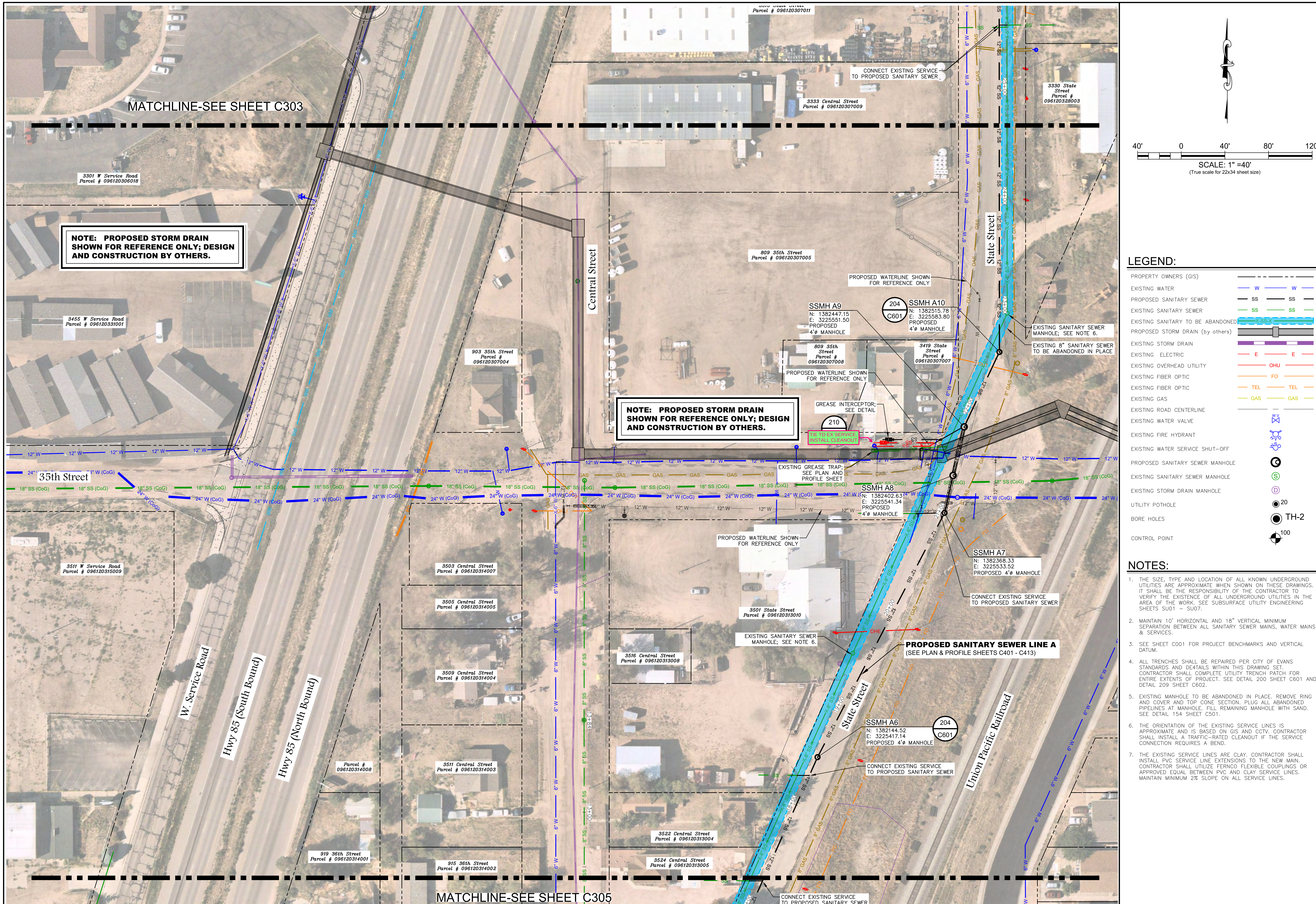
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER

C303

SHEET INDEX: 13



LEGEND:

PROPERTY OWNERS (GIS)	
EXISTING WATER	W W
PROPOSED SANITARY SEWER	SS SS
EXISTING SANITARY SEWER	SS SS
EXISTING SANITARY TO BE ABANDONED	X-SS-X
PROPOSED STORM DRAIN (by others)	
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL TEL
EXISTING GAS	GAS GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	WV
EXISTING FIRE HYDRANT	HYD
EXISTING WATER SERVICE SHUT-OFF	WSO
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20
BORE HOLES	TH-2
CONTROL POINT	100

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2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES.
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7. THE EXISTING SERVICE LINES ARE CLAY. CONTRACTOR SHALL INSTALL PVC SERVICE LINE EXTENSIONS TO THE NEW MAIN. CONTRACTOR SHALL UTILIZE FERNCO FLEXIBLE COUPLINGS OR APPROVED EQUAL BETWEEN PVC AND CLAY SERVICE LINES. MAINTAIN MINIMUM 2% SLOPE ON ALL SERVICE LINES.

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SITE AND UTILITY PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 40'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Site.dwg

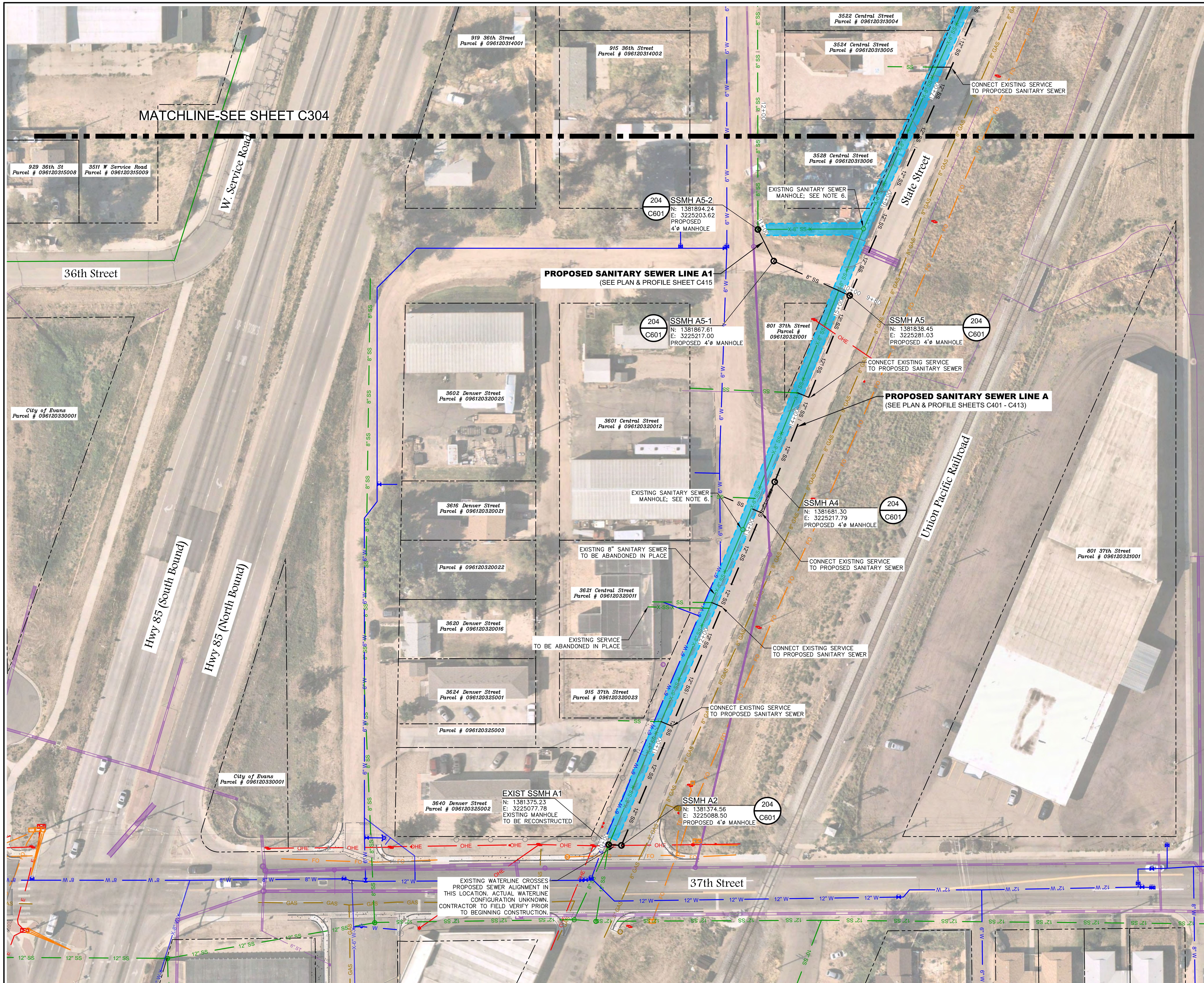
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER

C304

SHEET INDEX: 14



40' 0 40' 80' 120'

SCALE: 1" =40'
(True scale for 22x34 sheet size)

LEGEND:

PROPERTY OWNERS (GIS)	
EXISTING WATER	W
PROPOSED SANITARY SEWER	SS
EXISTING SANITARY SEWER	SS
EXISTING SANITARY TO BE ABANDONED	X-SS-X
PROPOSED STORM DRAIN (by others)	
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20
BORE HOLES	TH-2
CONTROL POINT	100

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 BURRELL 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SITE AND UTILITY PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 40'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Site.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

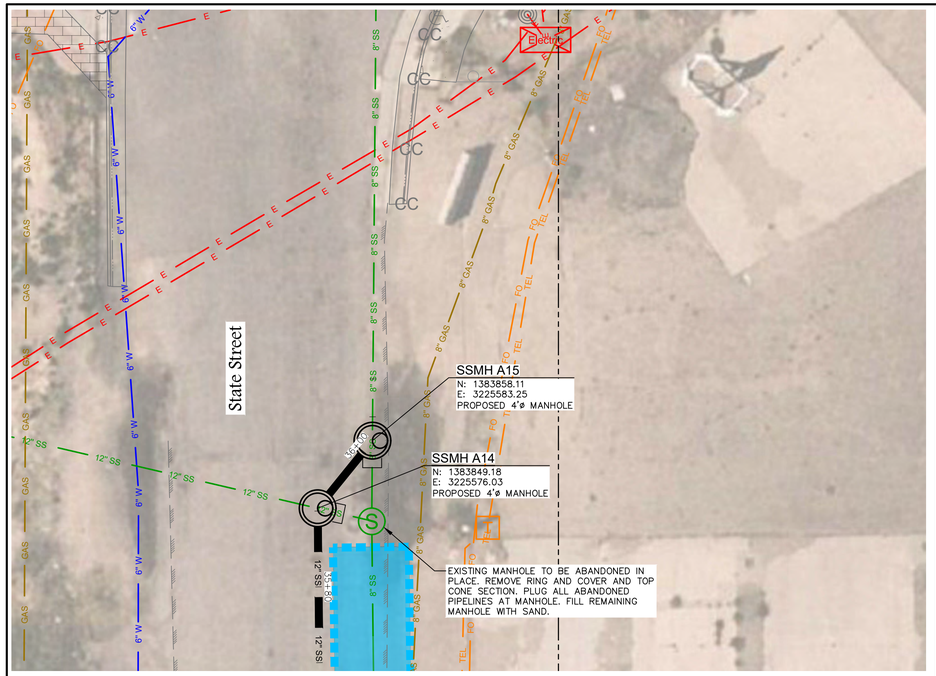
PROJECT NUMBER: XXXX

SHEET NUMBER

C305

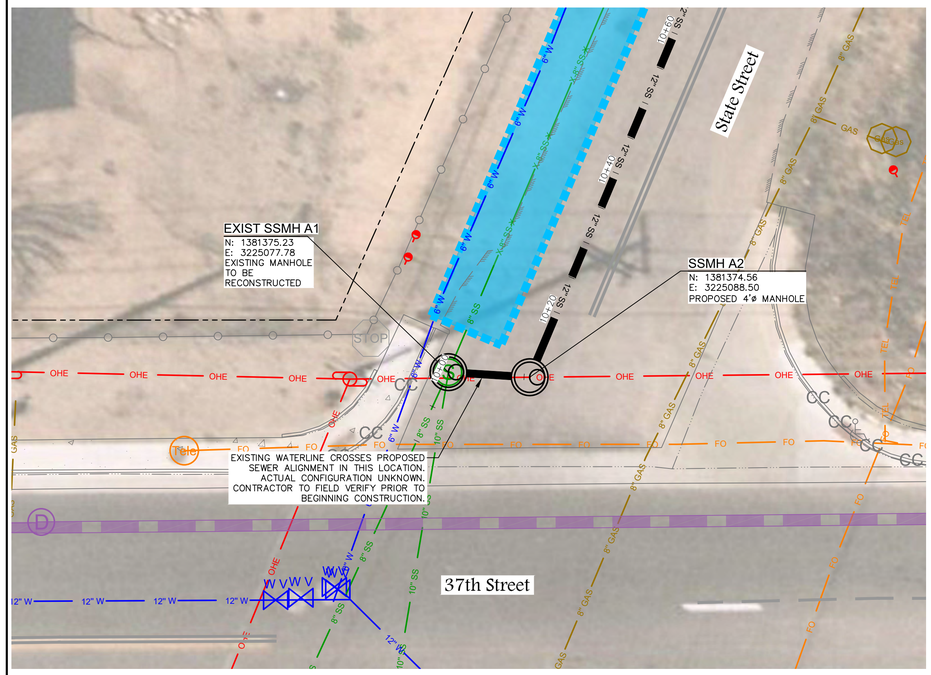
SHEET INDEX: 15

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Site.dwg Thursday, June 08, 2023 4:19 PM By: Rhonda Bunner



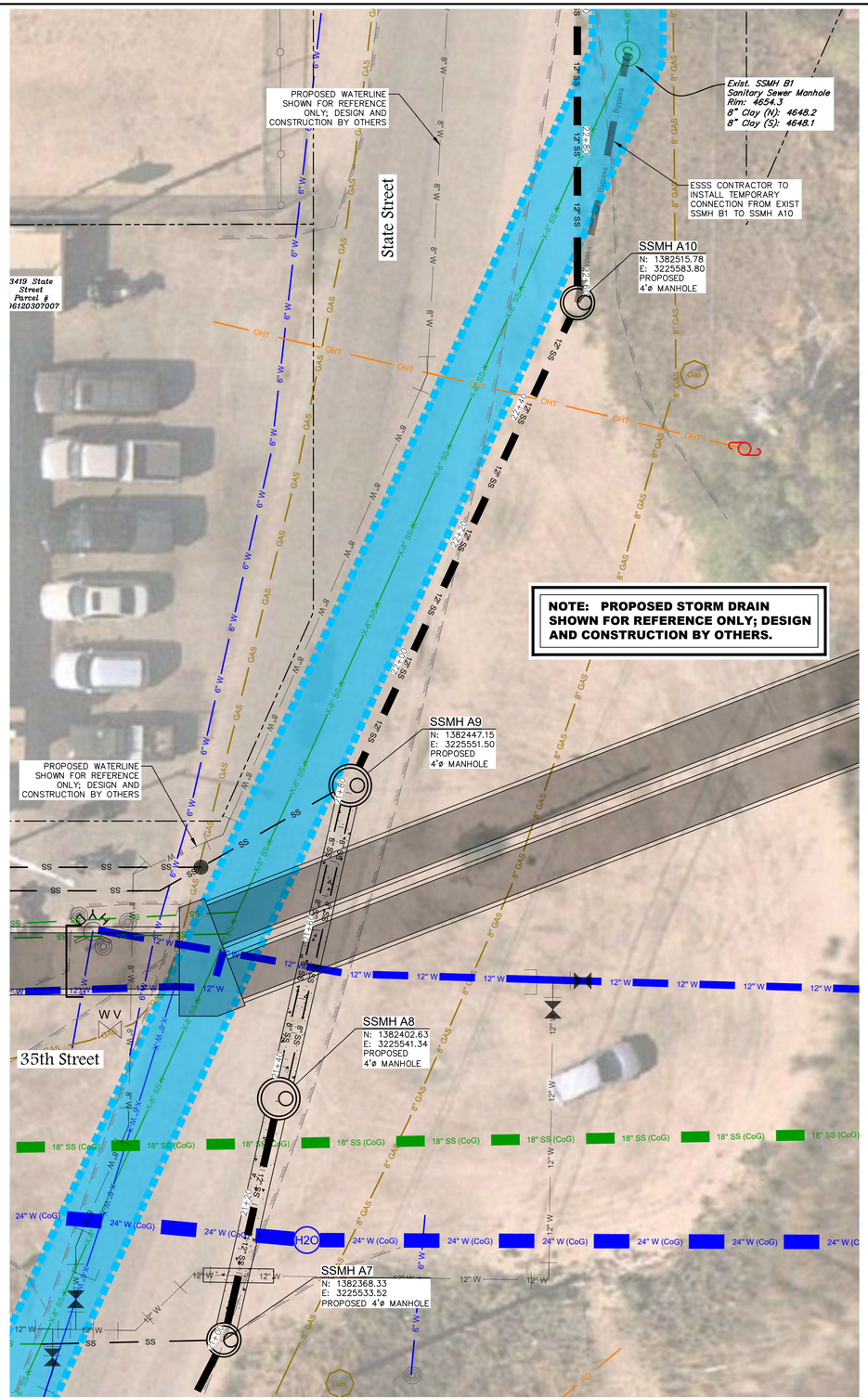
100 / C306 — UPSTREAM MANHOLE CONNECTION

SCALE: 1" =10'



101 / C306 — DOWNSTREAM MANHOLE CONNECTION

SCALE: 1" =10'



102 / C306 — ESSS INTERSECTION CONNECTIONS

SCALE: 1" =10'

10' 0 10' 20' 30'

SCALE: 1" =10'
(True scale for 22x34 sheet size)

LEGEND:

- PROPERTY OWNERS (GIS)
- EXISTING WATER
- PROPOSED SANITARY SEWER
- PROPOSED BYPASS
- EXISTING SANITARY SEWER
- EXISTING SANITARY TO BE ABANDONED
- PROPOSED STORM DRAIN (by others)
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- EXISTING OVERHEAD UTILITY
- EXISTING FIBER OPTIC
- EXISTING FIBER OPTIC
- EXISTING GAS
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- UTILITY POTHOLE
- BORE HOLES
- CONTROL POINT

NOTES:

1. REFERENCE THE "CITY OF EVANS EAST SIDE STORM SEWER 35TH STREET OUTFALL" PROJECT DRAWINGS BY WILSON & COMPANY, INC. FOR MORE INFORMATION REGARDING THE ESSS INTERSECTION CONSTRUCTION.
2. CONTRACTOR SHALL CONSTRUCT THE PROPOSED SANITARY SEWER IN THE FOLLOWING PHASES:
   a. CONSTRUCT PROPOSED SEWER PARALLEL TO THE EXISTING LINE FROM SSMH A2 TO SSMH A7. INSTALL CAST-IN-PLACE BASE OVER THE EXISTING LINE AT SSMH A2 AND CUT OUT THE EXISTING LINE. TIE SERVICES TO THE NEW LINE.
   b. INSTALL PROPOSED SEWER FROM SSMH A5 TO SSMH A5-2. UTILIZE FLOW-THROUGH PLUG DURING RECONSTRUCTION OF SSMH A5-2.
   c. COORDINATE WITH THE ESSS INTERSECTION CONSTRUCTION TO CONNECT TO PROPOSED SEWER FROM SSMH A7 TO SSMH A10.
   d. COORDINATE WITH ESSS CONSTRUCTION TO INSTALL TEMPORARY CONNECTION FROM EXISTING SSMH B1 TO SSMH A10 TO DIVERT FLOWS INTO THE NEW LINE.
   e. ABANDON EXISTING SEWER FROM SSMH A2 TO EXISTING SSMH B1. COORDINATE ABANDONMENT WITH ESSS CONTRACTOR.
   f. INSTALL PROPOSED SEWER PARALLEL TO THE EXISTING LINE FROM SSMH A10 TO A15. TIE SERVICES TO THE NEW LINE. INSTALL CAST-IN-PLACE BASE OVER THE EXISTING LINE AT SSMHS A14 & A15. CUT OUT THE EXISTING LINES AND DIVERT FLOWS INTO THE NEW LINE. REMOVE TEMPORARY CONNECTION FROM EXISTING SSMH B1 TO SSMH A10 AND COMPLETE ABANDONMENT OF THE EXISTING LINE.

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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions			
No.	Revisions:	By	Date:

PHASING PLAN

DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 10'
FILE NAME: COE State Street Phase.dwg

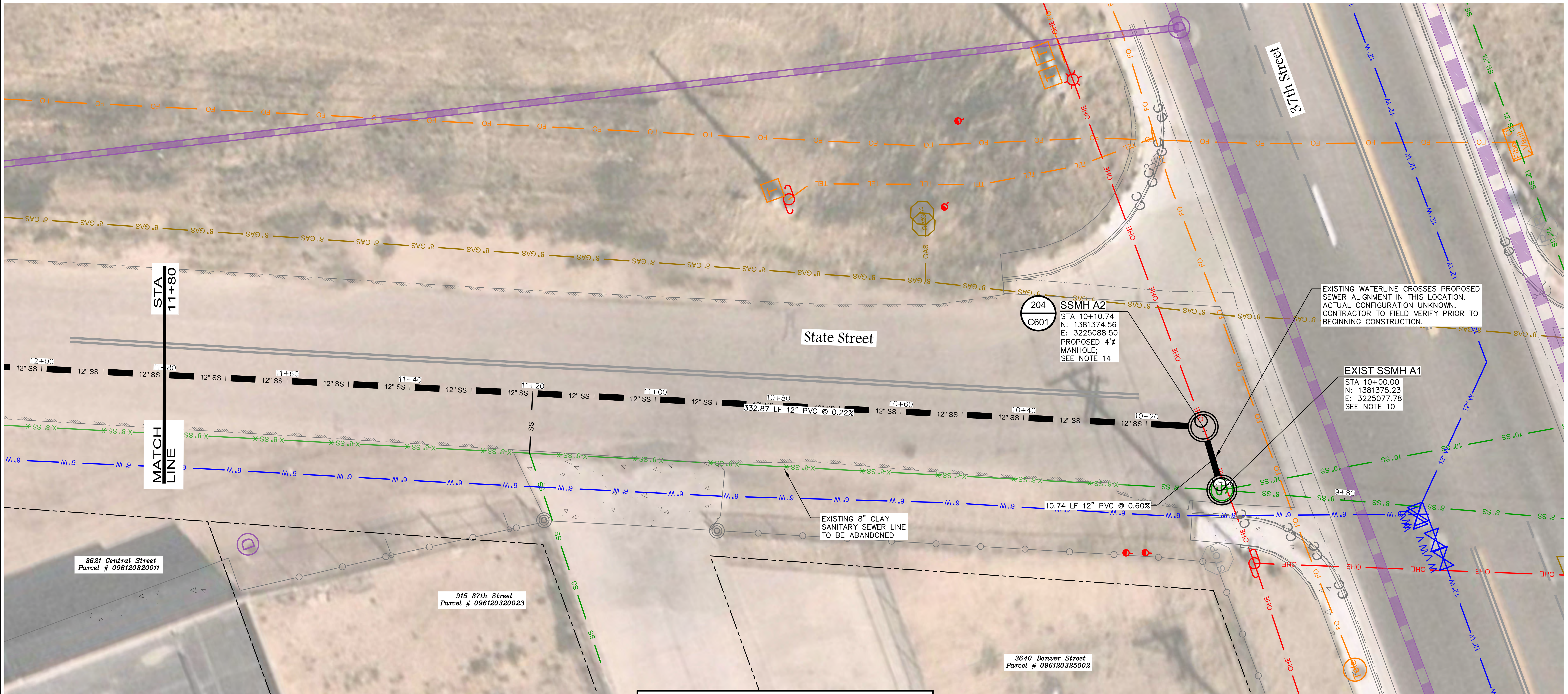
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER C306

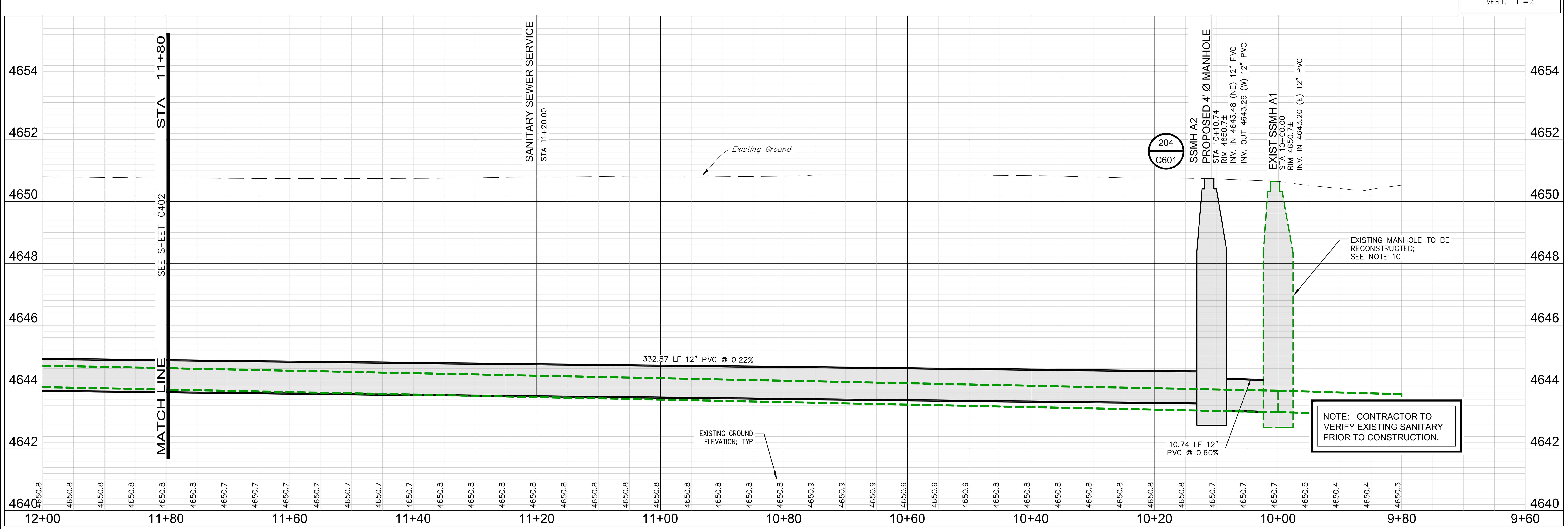
SHEET INDEX: 16

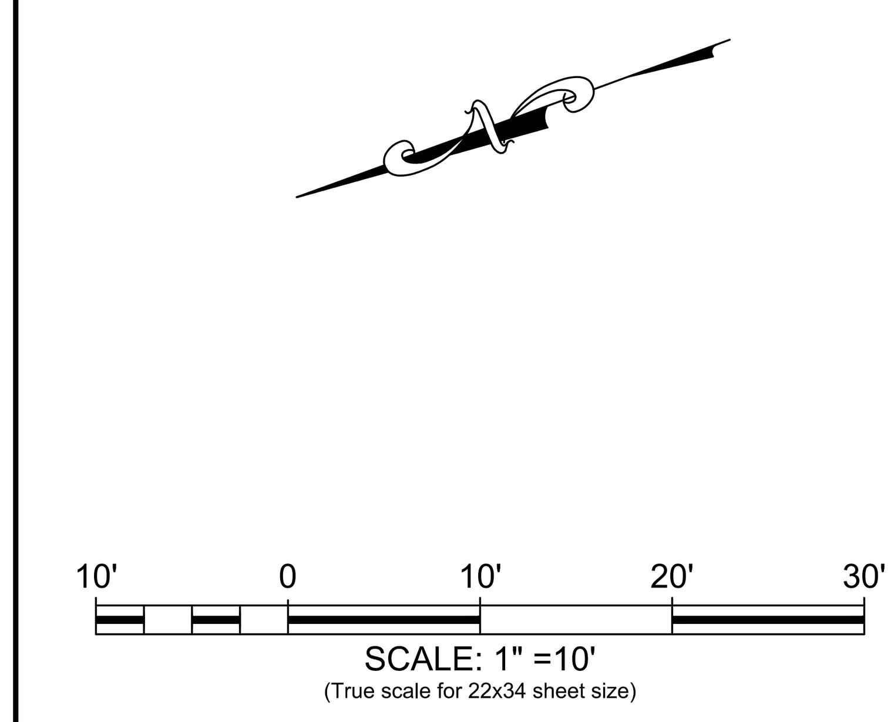
Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Phase.dwg Thursday, June 08, 2023 4:20 PM By: Rhonda Bunner



SANITARY SEWER A STA 10+00 TO STA 11+80

PROFILE SCALE:
HORIZ. 1"=10'
VERT. 1"=2'





LEGEND:

- PROPERTY OWNERS (GIS)
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM DRAIN (by others)
- EXISTING STORM DRAIN
- EXISTING ELECTRIC
- EXISTING OVERHEAD UTILITY
- EXISTING FIBER OPTIC
- EXISTING FIBER OPTIC
- EXISTING GAS
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- UTILITY POTHOLE

NOTES:

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2. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES; OR AS NOTED ON DRAWINGS.
3. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
4. SEE SHEET SU07 FOR POTHOLE TABLE AND NOTES.
5. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
6. ALL EXISTING SEWER LINE ABANDONMENTS SHALL BE CAPPED WITH CONCRETE / GROUT PLUG. EXISTING MANHOLE RIMS, COVERS AND CONE SECTIONS SHALL BE REMOVED AND THE BARREL SECTIONS SHALL BE FILLED WITH SAND. CAP THE EXISTING SEWER LINE ON BOTH SIDES OF EACH EXISTING MANHOLE.
7. RECONNECT EXISTING LIVE SERVICES TO THE NEW SEWER MAIN. MAINTAIN 2% SLOPE FOR ALL SERVICES.
8. CAP EXISTING ABANDONED SERVICES WITH CONCRETE / GROUT PLUG.
9. PIPE LENGTHS ARE CALCULATED FROM THE CENTER OF MANHOLES.
10. INSTALL PROPOSED 12-INCH SANITARY SEWER LINE INTO THE EXISTING MANHOLE (EXIST. SSMH A1). CORE THE EXISTING MANHOLE. DEMOLISH THE EXISTING MANHOLE BASE AND POUR CAST-IN-PLACE BASE.
11. REFERENCE THE "CITY OF EVANS EAST SIDE STORM SEWER 35TH STREET OUTFALL" PROJECT DRAWINGS BY WILSON & COMPANY, INC. FOR MORE INFORMATION REGARDING THE ESSS INTERSECTION CONSTRUCTION.
12. SSMHS A14 AND A15 INSTALL CAST-IN-PLACE BASE OVER THE EXISTING SEWER LINE. CUT OUT THE EXISTING PIPE FOLLOWING THE COMPLETION OF THE PROPOSED SEWER INSTALLATION AND PLUG THE EXISTING DOWNSTREAM INVERTS. SEE PHASING PLAN FOR MORE INFORMATION.
13. EXISTING MANHOLE TO BE ABANDONED IN PLACE. REMOVE RING AND COVER AND TOP CONE SECTION. PLUG ALL ABANDONED PIPELINES AT MANHOLE. FILL REMAINING MANHOLE WITH SAND; TYP. CONTRACTOR TO COORDINATE ACCESS FOR MANHOLE ABANDONMENT WITH PROPERTY OWNER. CONTRACTOR RESPONSIBLE FOR ALL SITE RESTORATION ASSOCIATED WITH ABANDONMENT OF MANHOLE.
14. SSMH A2 SHALL BE INSTALLED AS A CAST-IN-PLACE MANHOLE.
15. THE ORIENTATION OF THE EXISTING SERVICE LINES IS APPROXIMATE AND IS BASE ON GIS AND CCTV. CONTRACTOR SHALL INSTALL A CLEANOUT IF THE SERVICE CONNECTION REQUIRES A BEND. USE A TRAFFIC RATED CLEANOUT IF LOCATED IN THE ROADWAY.

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Sheet Revisions

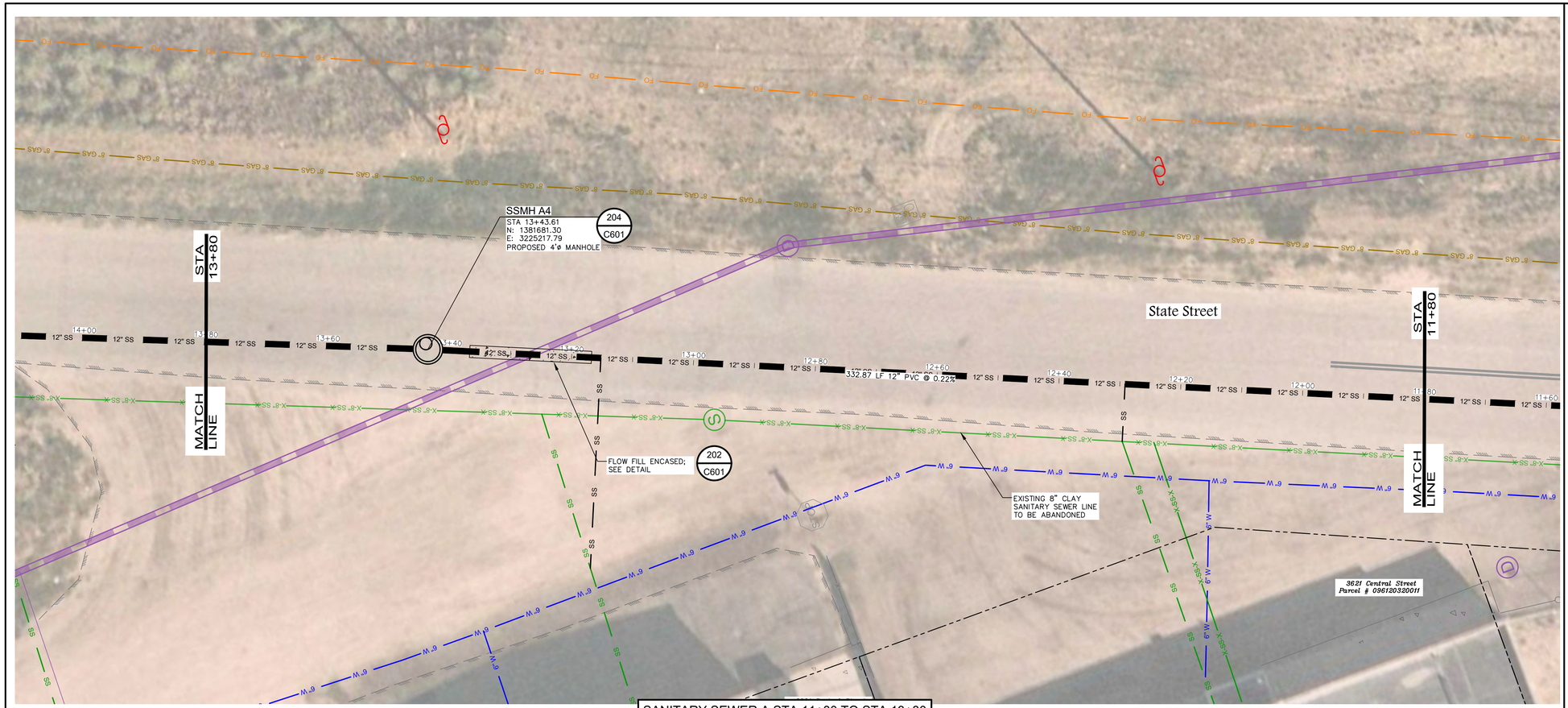
No.	Revisions:	By:	Date:

SANITARY SEWER STA 10+00 TO 11+80 PLAN AND PROFILE

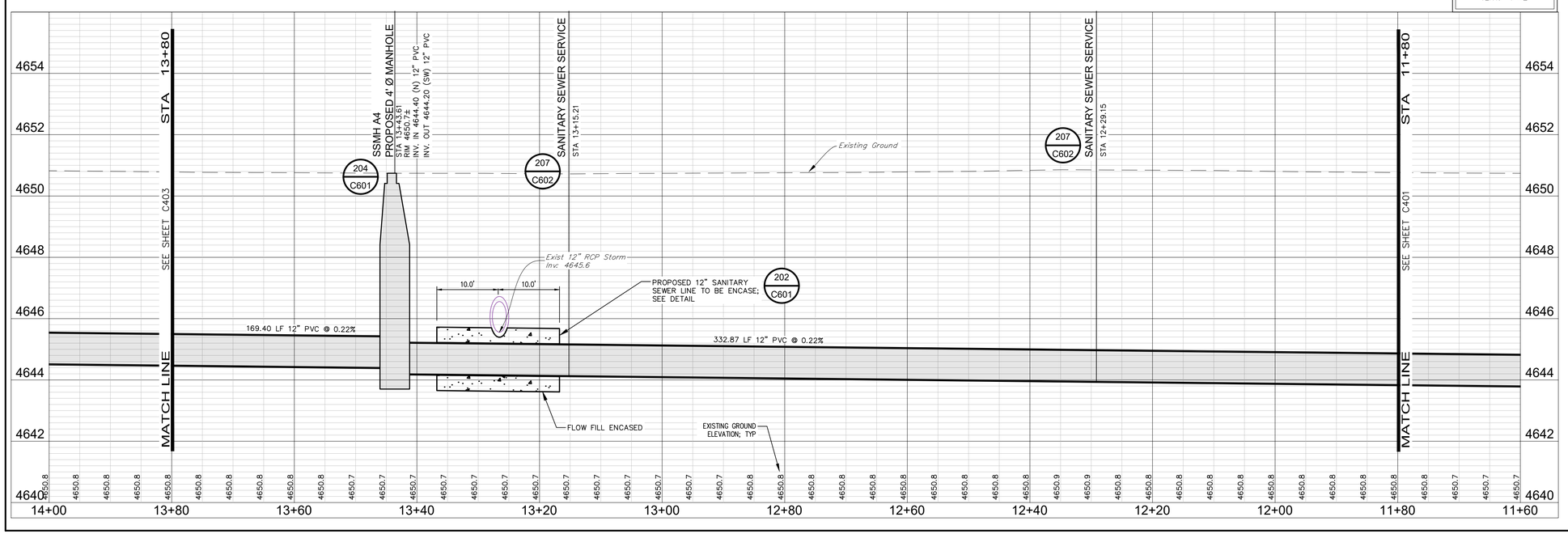
DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 10'
FILE NAME: COE State Street Sanitary A P&P.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX
SHEET NUMBER C401
SHEET INDEX: 17



SANITARY SEWER A STA 11+80 TO STA 13+80



10' 0 10' 20' 30'

SCALE: 1" =10'
(True scale for 22x34 sheet size)

LEGEND:

- PROPERTY OWNERS (GIS)
- PROPOSED SANITARY SEWER — SS
- EXISTING SANITARY SEWER — SS
- PROPOSED STORM DRAIN (by others)
- EXISTING STORM DRAIN
- EXISTING ELECTRIC — E
- EXISTING OVERHEAD UTILITY — OHU
- EXISTING FIBER OPTIC — FO
- EXISTING FIBER OPTIC — TEL
- EXISTING GAS — GAS
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE — W
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- PROPOSED SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE — S
- EXISTING STORM DRAIN MANHOLE — D
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COLORADO LICENSED
Rhonda Bunner
53283
PROFESSIONAL ENGINEER

Sheet Revisions

No.	Revisions:	By:	Date:

SANITARY SEWER STA 11+80 TO 13+80
PLAN AND PROFILE

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 10'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sanitary A P&P.dwg

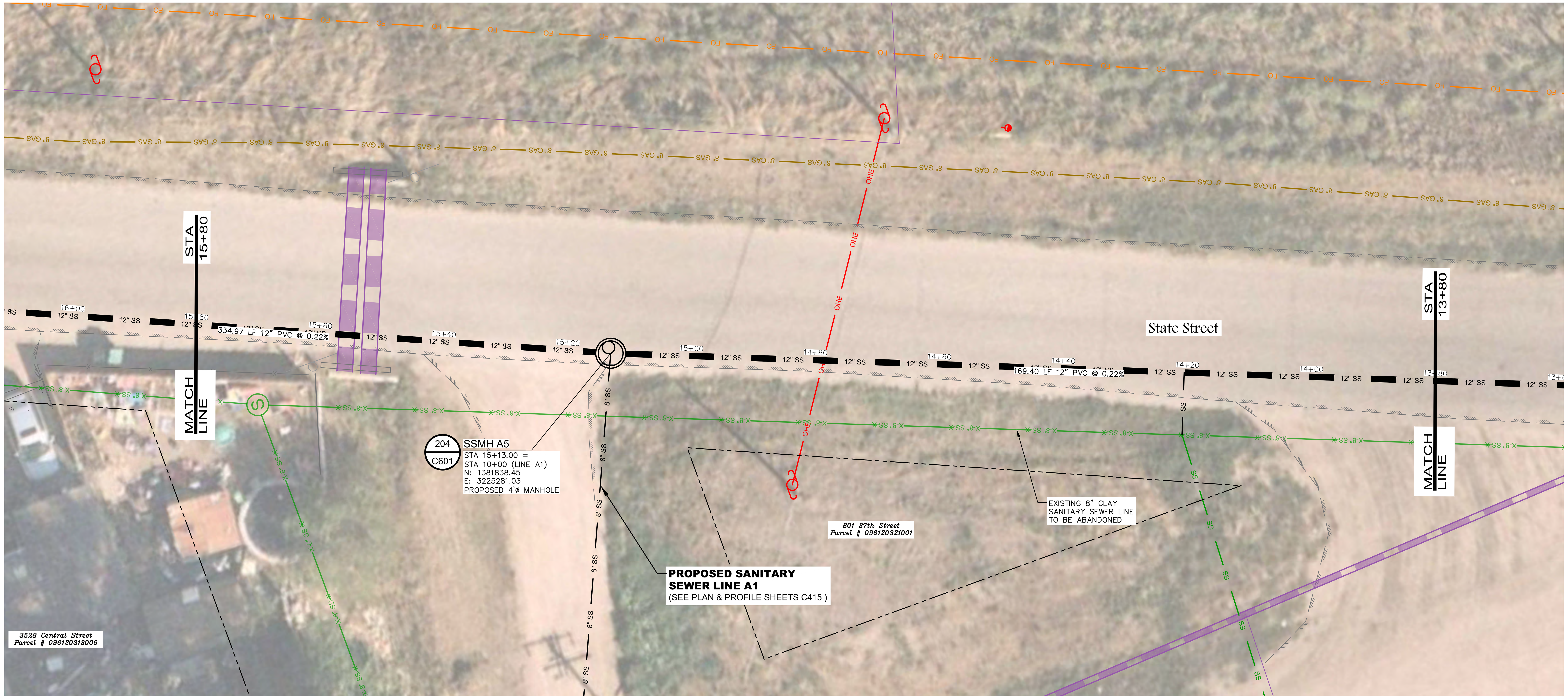
CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

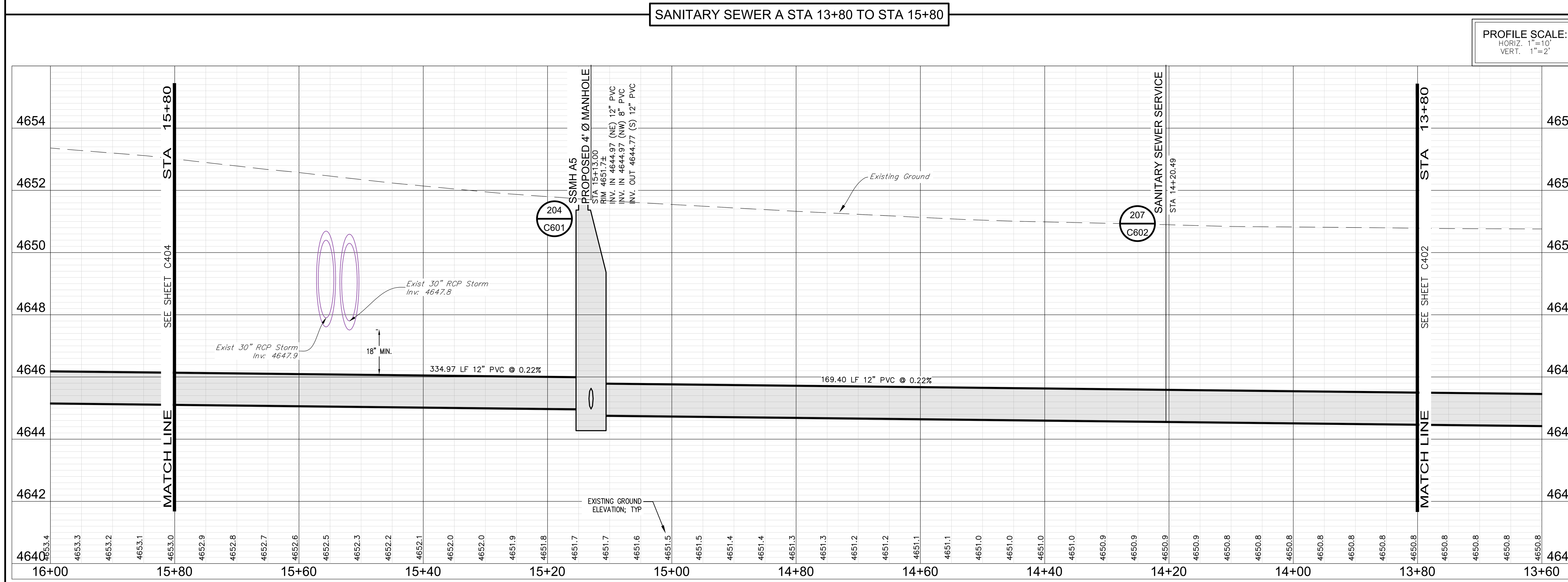
SHEET NUMBER
C402

SHEET INDEX: 18

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sanitary A P&P.dwg Tuesday, May 23, 2023 2:41 PM By: Rhonda Bunner



SANITARY SEWER A STA 13+80 TO STA 15+80



10' 0 10' 20' 30'

SCALE: 1" =10'

(True scale for 22x34 sheet size)

LEGEND:

- PROPERTY OWNERS (GIS)
- PROPOSED SANITARY SEWER — SS
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COLORADO LICENSED PROFESSIONAL ENGINEER 53283

No.	Sheet Revisions / Revisions:	By:	Date:

SANITARY SEWER STA 13+80 TO 15+80
PLAN AND PROFILE

DESIGNED BY:	D. Egger
DRAWN BY:	R. Bunner
APPROVED BY:	J. Burrell
DATE:	June 9, 2023
SCALE:	1" = 10'
FILE NAME:	COE State Street Sanitary A P&P.dwg

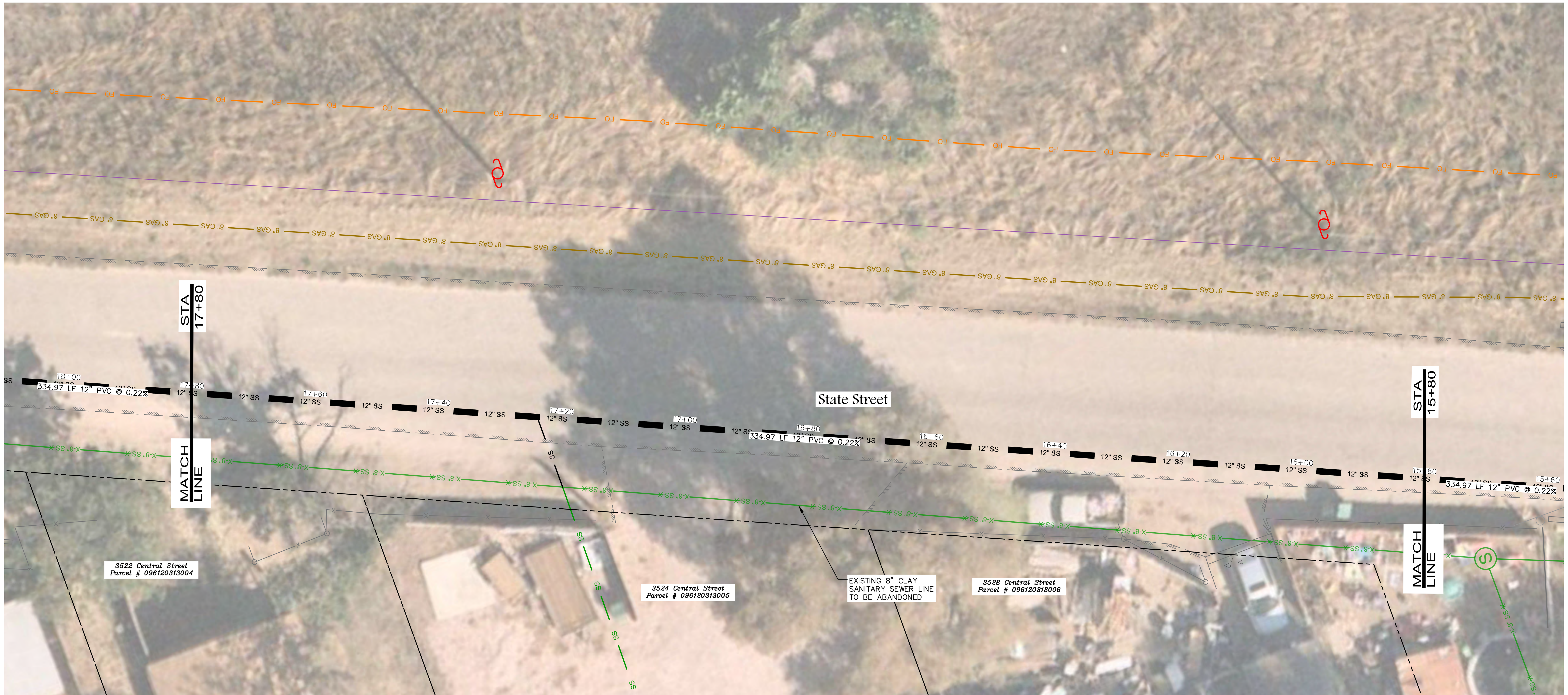
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

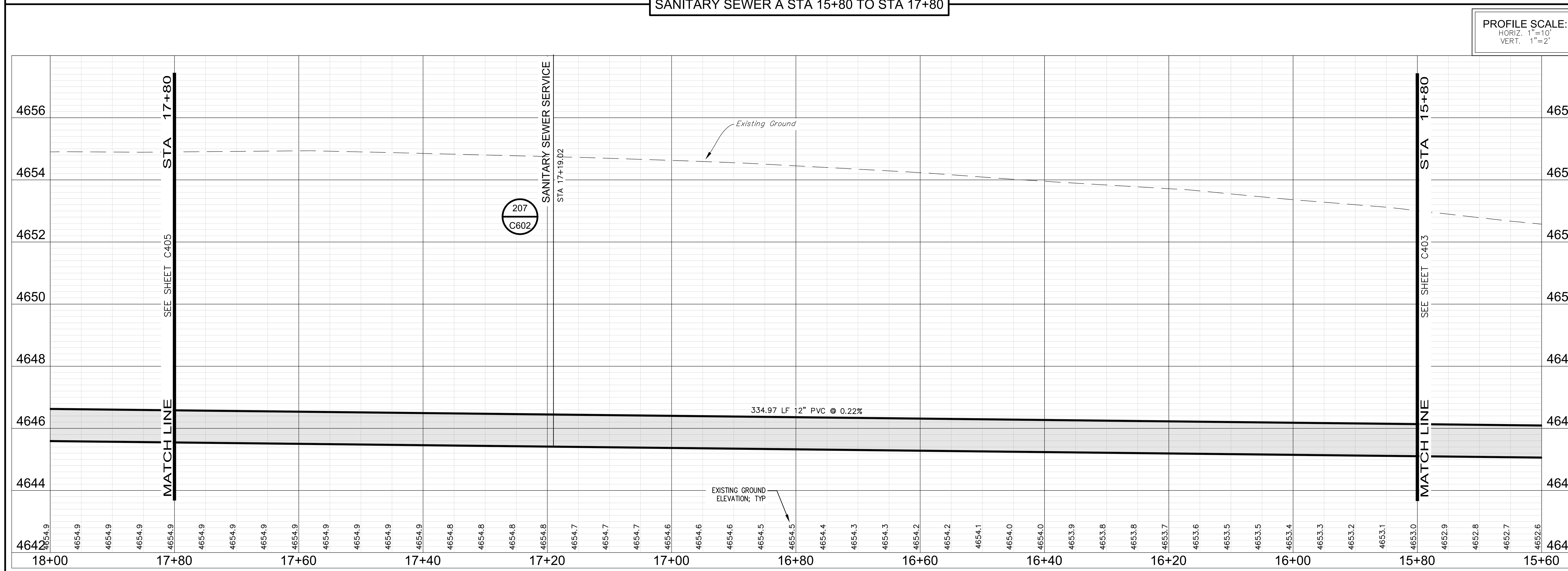
SHEET NUMBER C403

SHEET INDEX: 19

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sanitary A P&P.dwg Tuesday, May 23, 2023 2:41 PM By: Rhonda Bunner



SANITARY SEWER A STA 15+80 TO STA 17+80



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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

Sheet Revisions

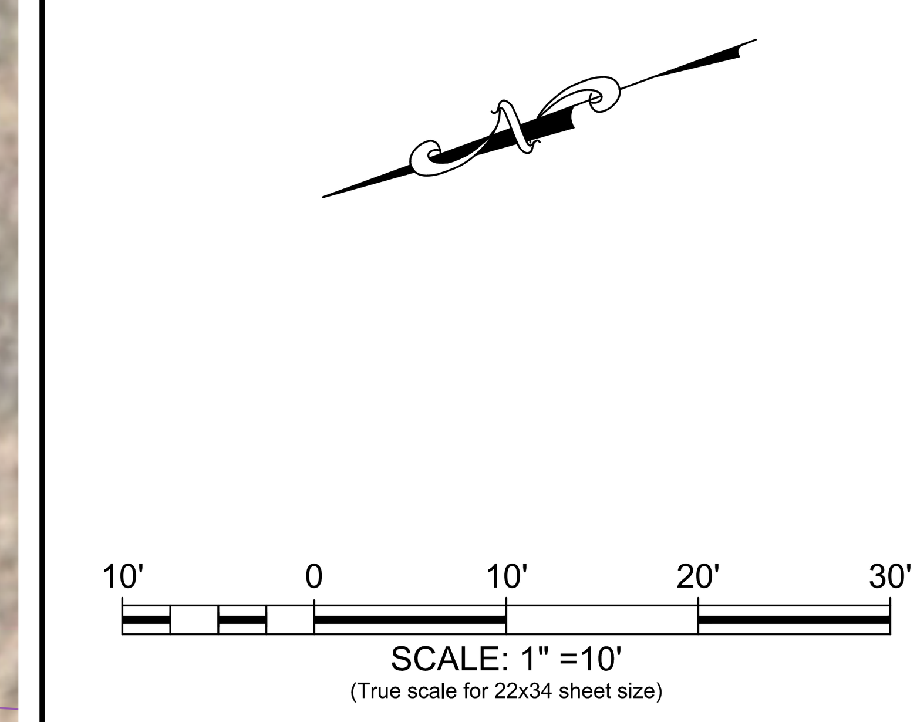
No.	Revisions:	By:	Date:

SANITARY SEWER STA 15+80 TO 17+80 PLAN AND PROFILE

DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 10'
FILE NAME: COE State Street Sanitary A P&P.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX
SHEET NUMBER C404
SHEET INDEX: 20



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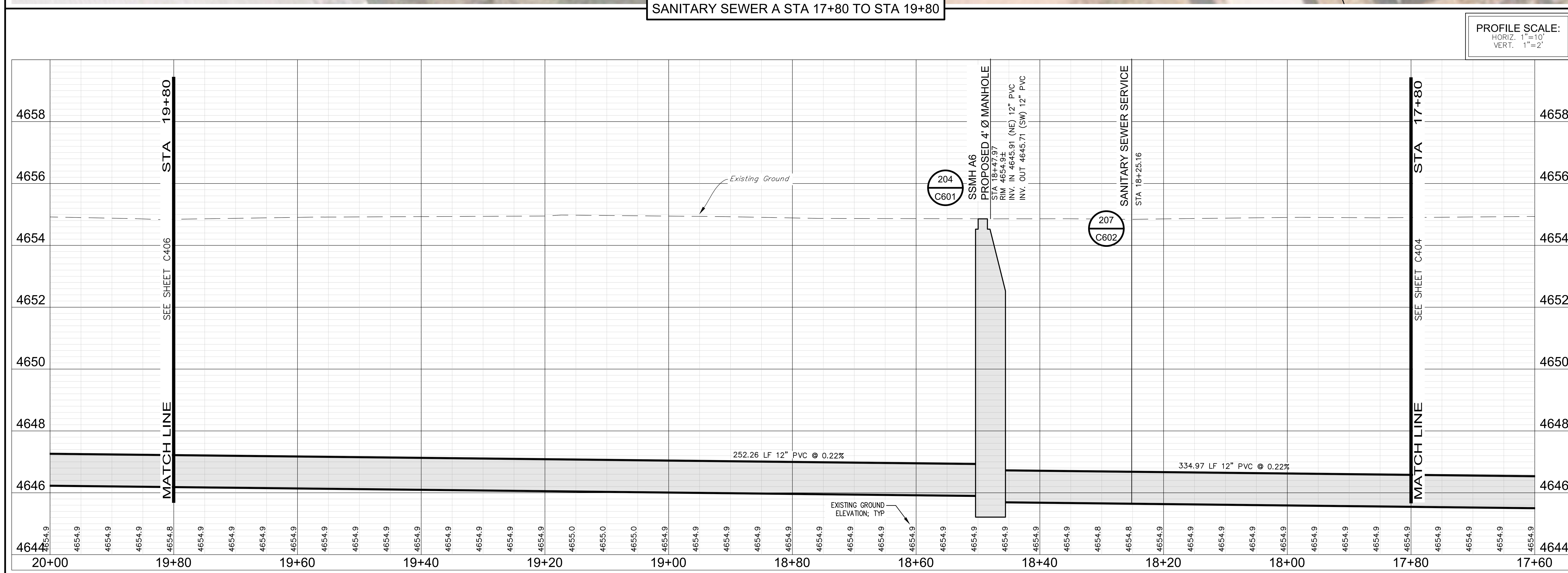
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	
EXISTING STORM DRAIN MANHOLE	
UTILITY POTHOLE	20

SANITARY SEWER A STA 17+80 TO STA 19+80



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Sheet Revisions

No.	Revisions:	By	Date:

SANITARY SEWER STA 17+80 TO 19+80 PLAN AND PROFILE

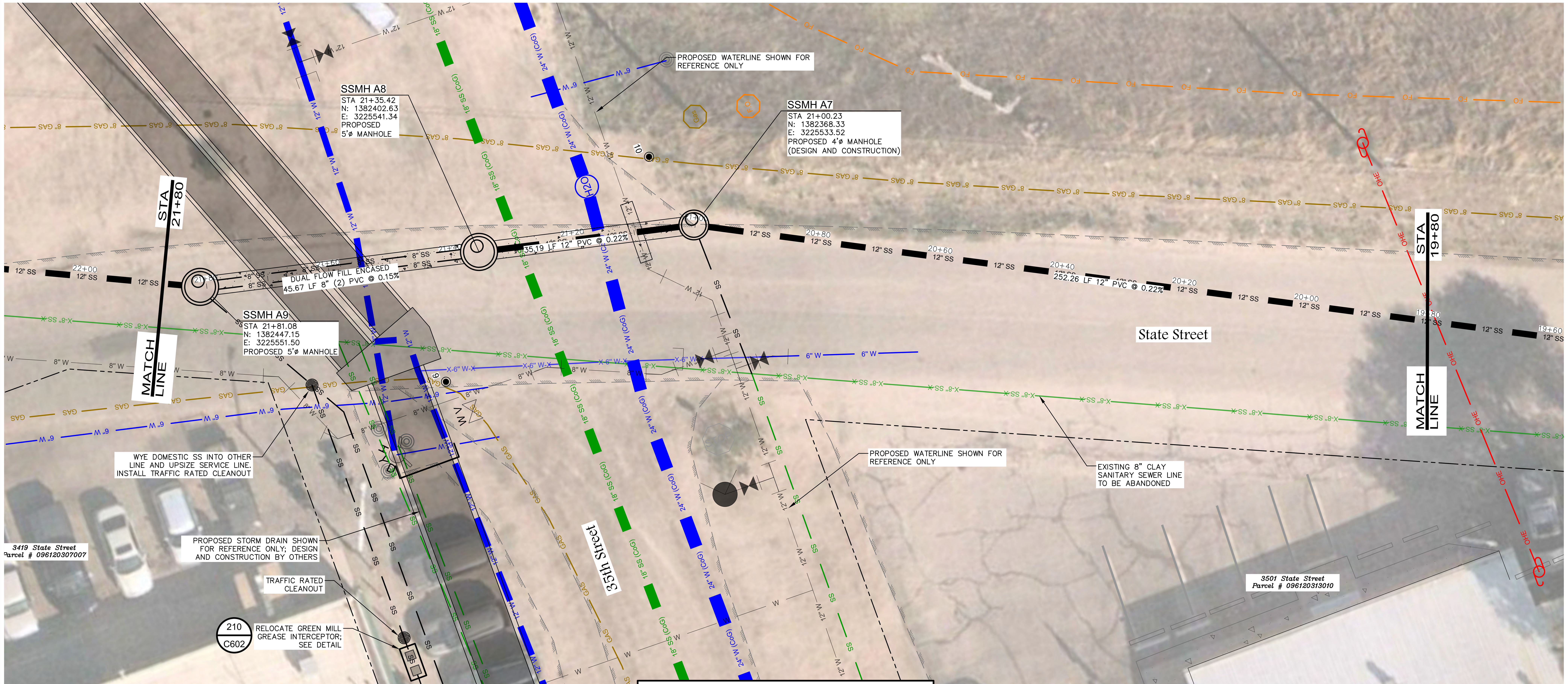
DESIGNED BY:	D. Egger
DRAWN BY:	R. Bunner
APPROVED BY:	J. Burrell
DATE:	June 9, 2023
SCALE:	1" = 10'
FILE NAME:	COE State Street Sanitary A P&P.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

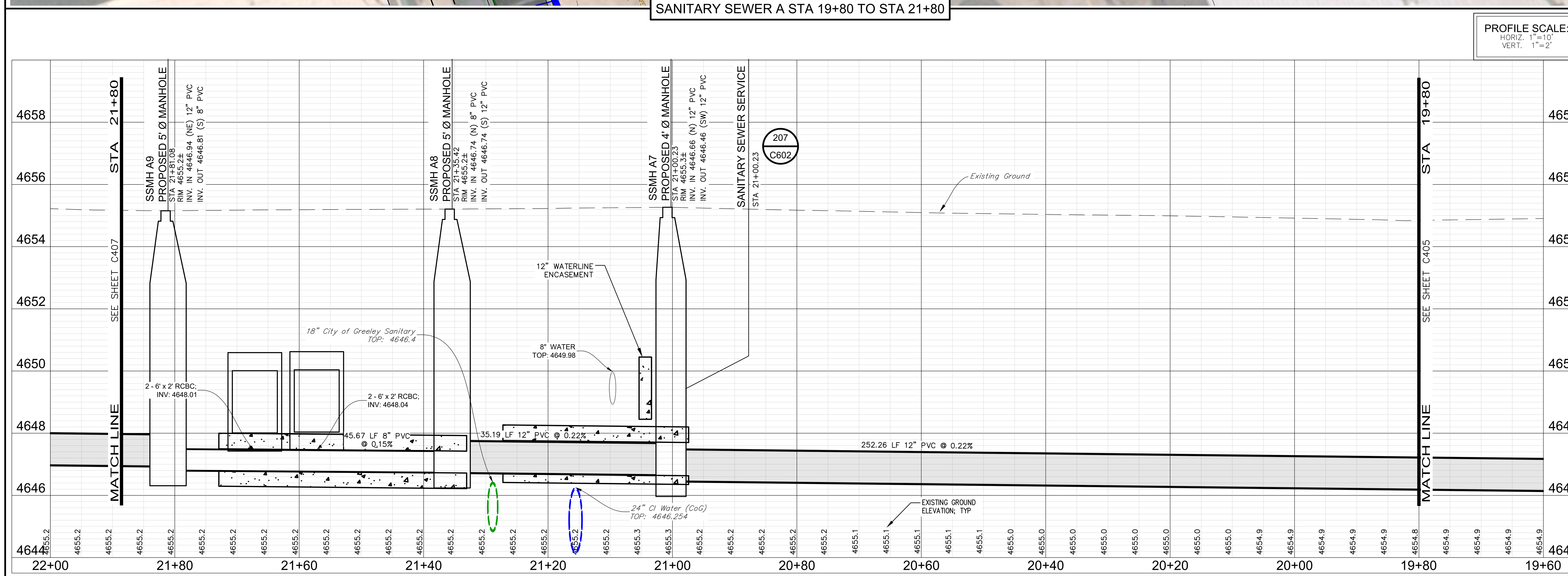
PROJECT NUMBER: XXXX

SHEET NUMBER C405

SHEET INDEX: 21



SANITARY SEWER A STA 19+80 TO STA 21+80



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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

Sheet Revisions
No.	Revisions:	By:	Date:

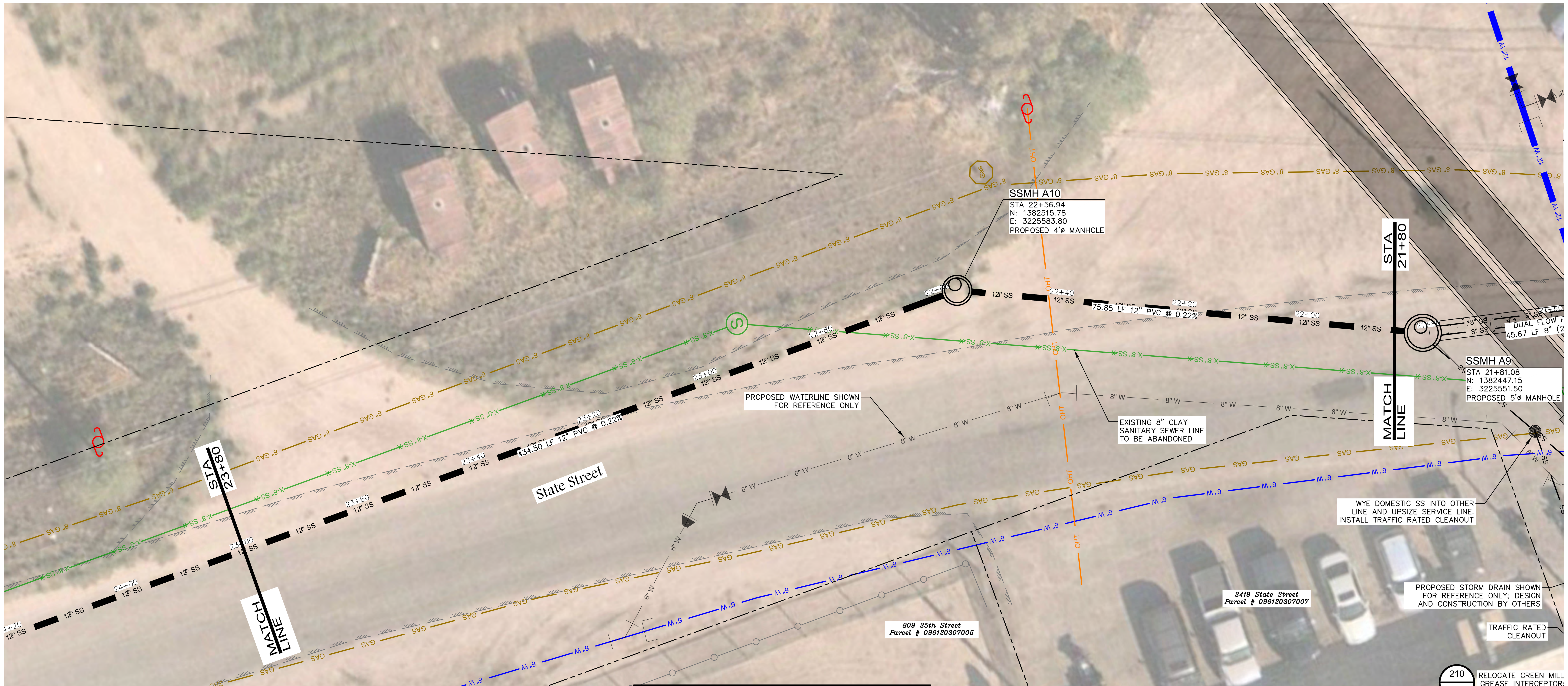
SANITARY SEWER STA 19+80 TO 21+80
PLAN AND PROFILE

DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 10'
FILE NAME: COE State Street Sanitary A P&P.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER
C406



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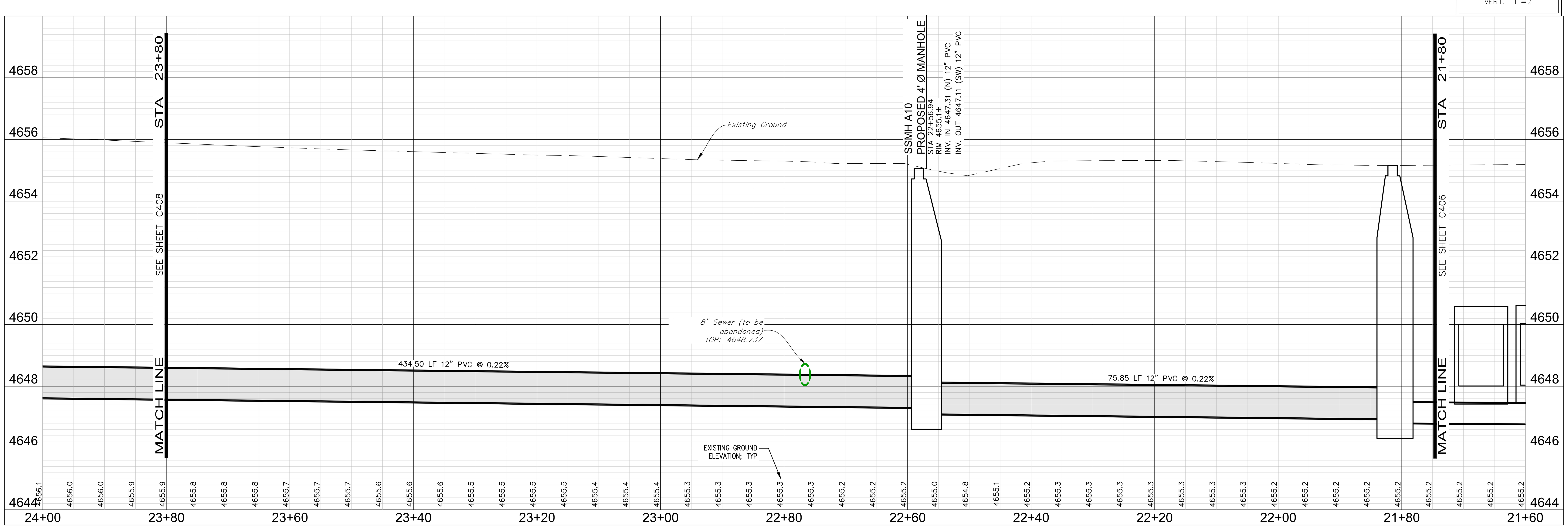
SANITARY SEWER A STA 21+80 TO STA 23+80

PROFILE SCALE:
HORIZ. 1"=10'
VERT. 1"=2'



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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 J. BURRELL 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SANITARY SEWER STA 21+80 TO 23+80
PLAN AND PROFILE

DATE: June 9, 2023
SCALE: 1" = 10'
FILE NAME: COE State Street Sanitary A P&P.dwg
DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell

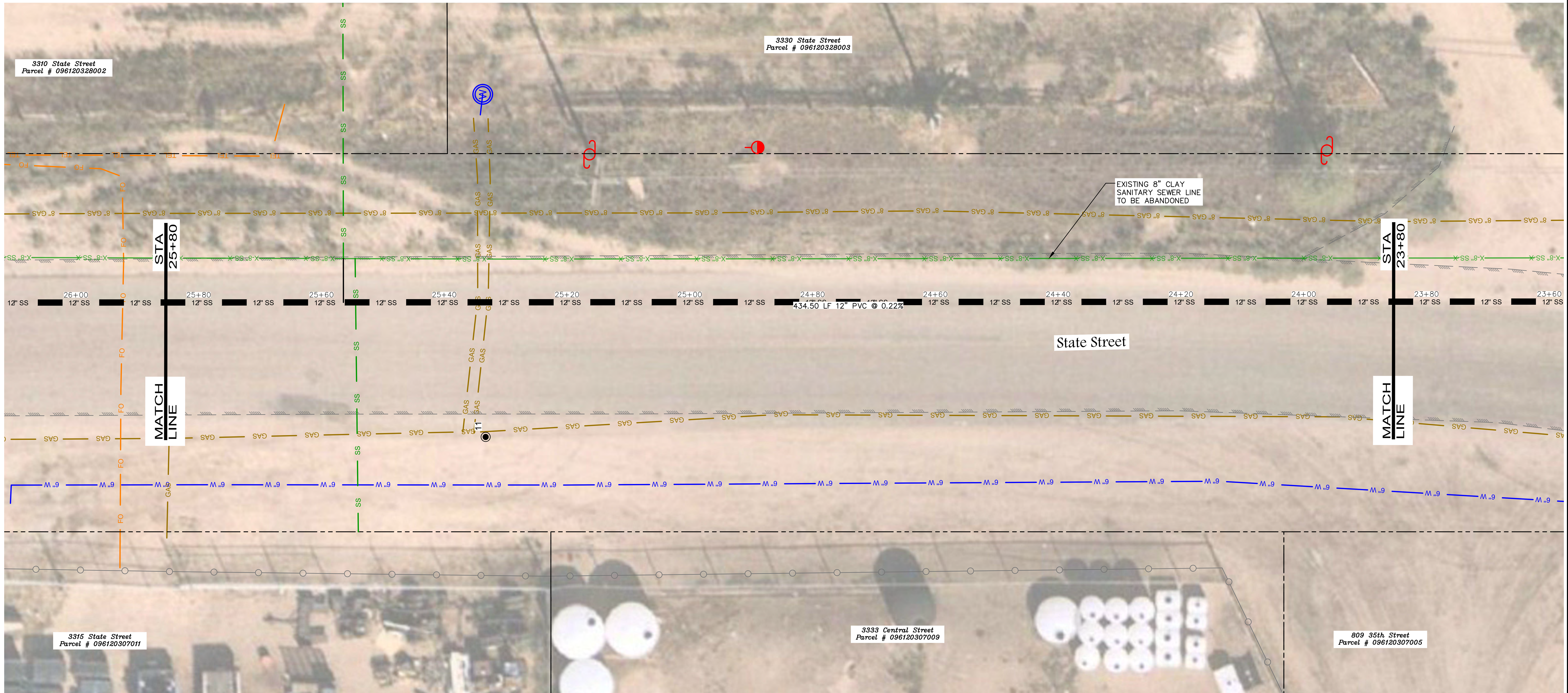
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

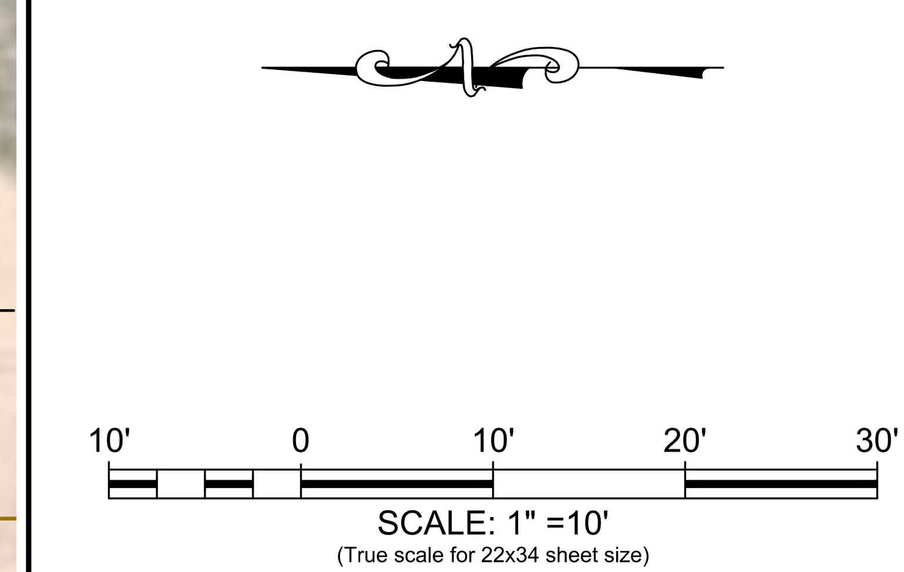
PROJECT NUMBER: XXXX

SHEET NUMBER C407

SHEET INDEX: 23

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sanitary A P&P.dwg Tuesday, May 23, 2023 2:41 PM By: Rhonda Bunner





LEGEND:

PROPERTY OWNERS (GIS)	
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EXISTING SANITARY SEWER	SS
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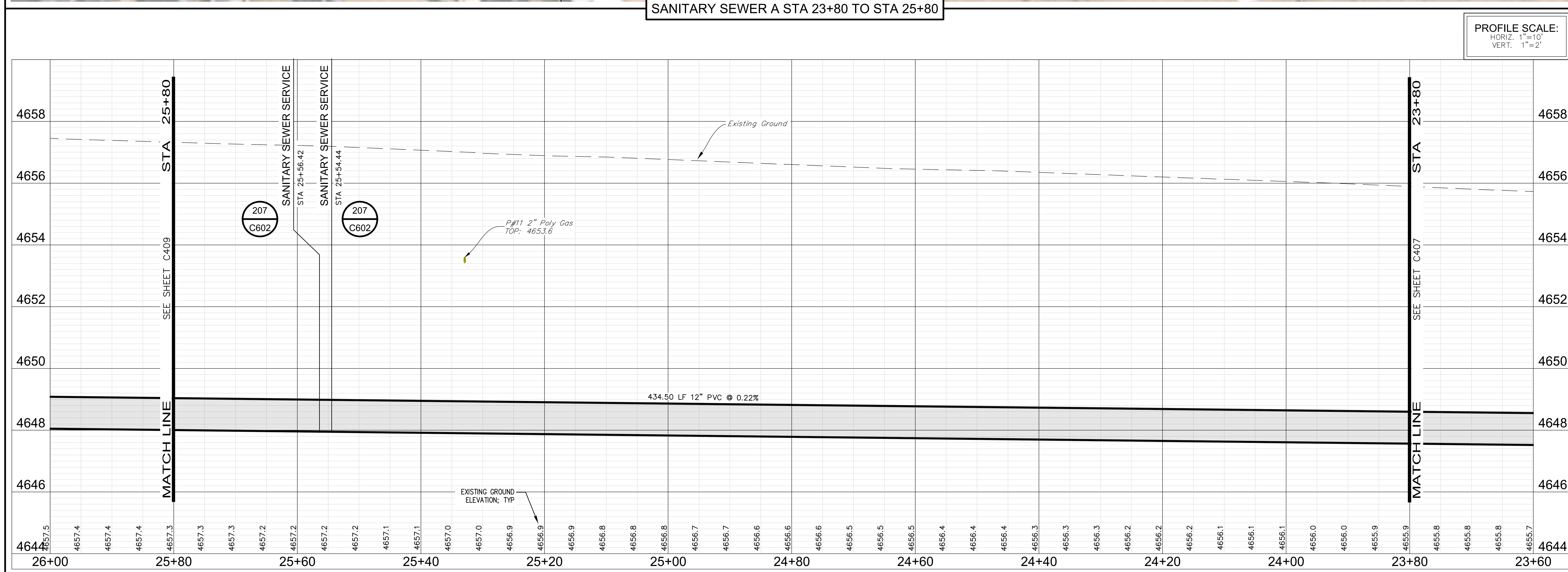
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20

SANITARY SEWER A STA 23+80 TO STA 25+80



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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SANITARY SEWER STA 23+80 TO 25+80 PLAN AND PROFILE

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 10'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sanitary A P&P.dwg

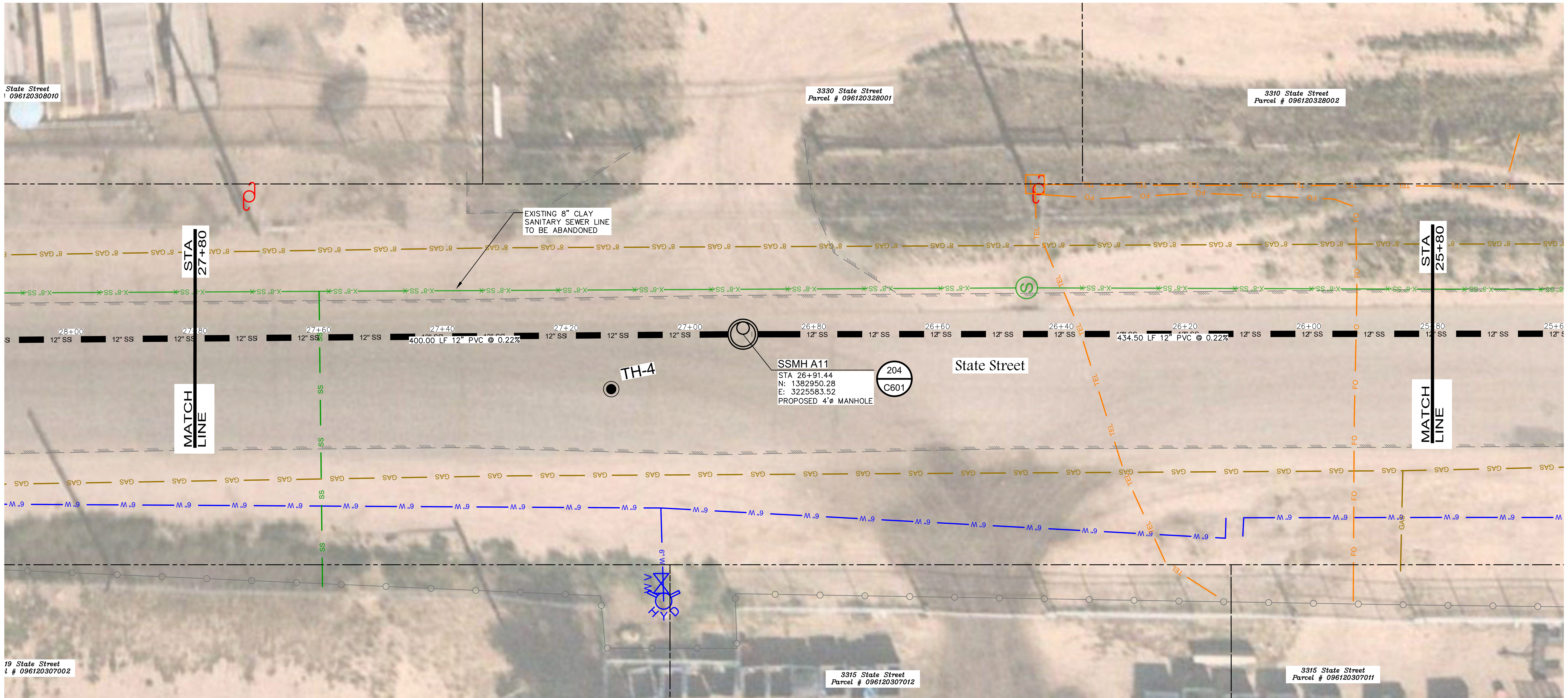
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

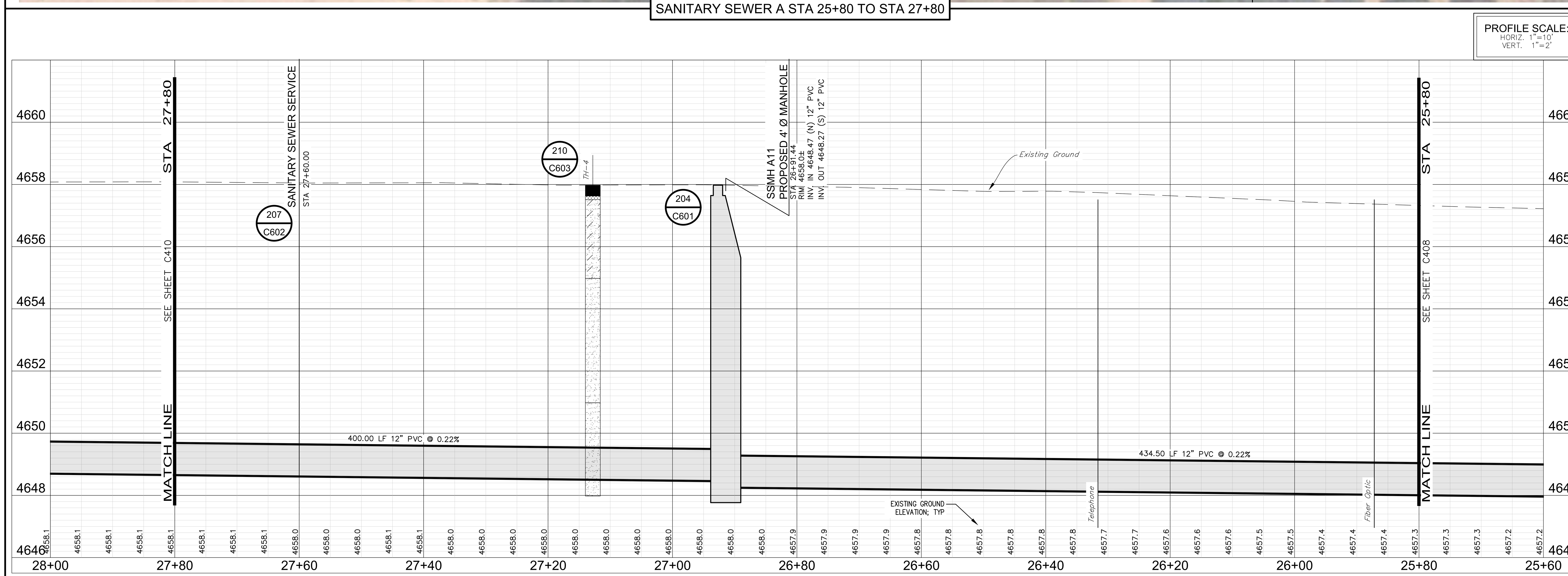
SHEET NUMBER C408

SHEET INDEX: 24

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sanitary A P&P.dwg Tuesday, May 23, 2023 2:41 PM By: Rhonda Bunner



SANITARY SEWER A STA 25+80 TO STA 27+80



10' 0 10' 20' 30'

SCALE: 1" =10'

(True scale for 22x34 sheet size)

LEGEND:

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- PROPOSED STORM DRAIN (by others)
- EXISTING STORM DRAIN
- EXISTING ELECTRIC — E
- EXISTING OVERHEAD UTILITY — OHU
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- EXISTING GAS — GAS
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
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- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- UTILITY POTHOLE — 20

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283

No.	Sheet Revisions / Revisions:	By	Date:

SANITARY SEWER STA 25+80 TO 27+80
PLAN AND PROFILE

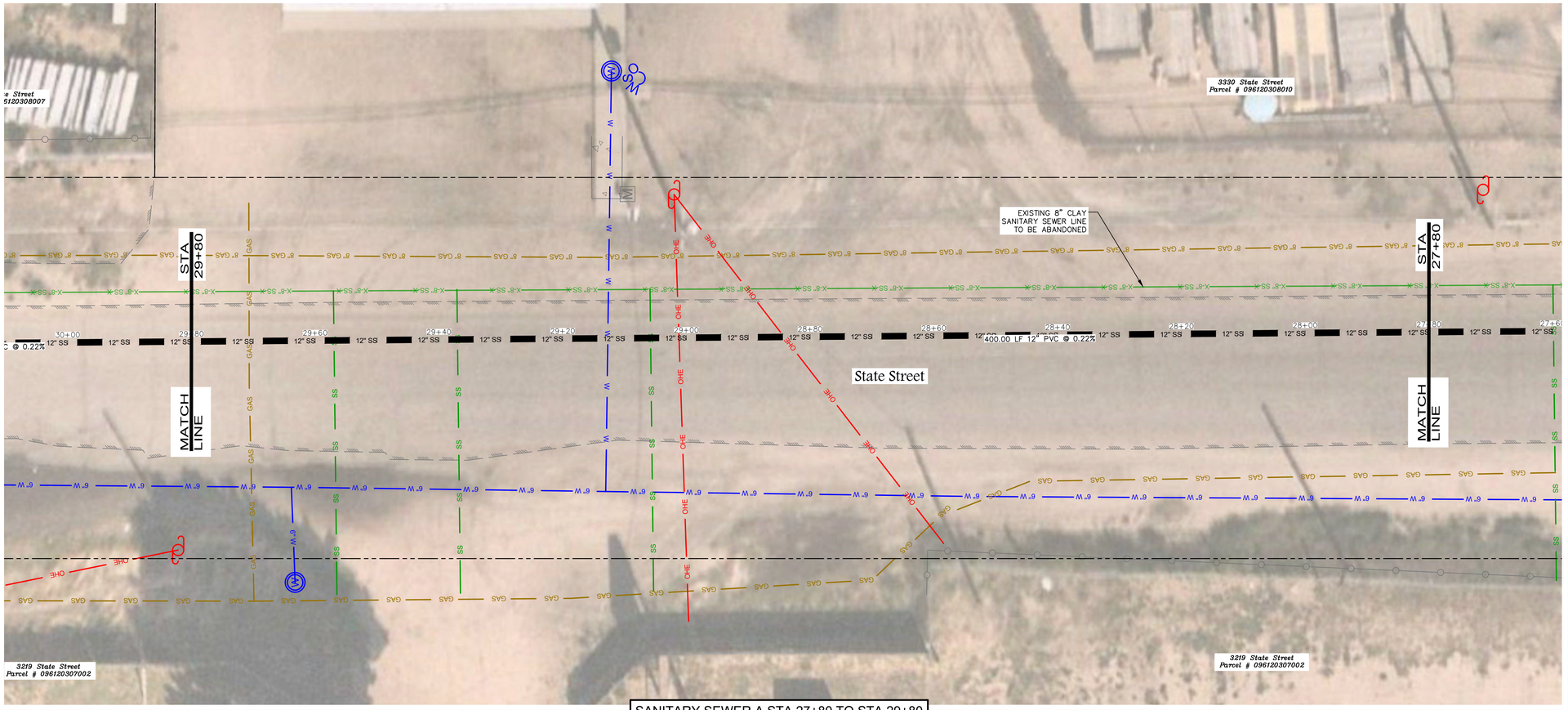
DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 10'
FILE NAME: COE State Street Sanitary A P&P.dwg

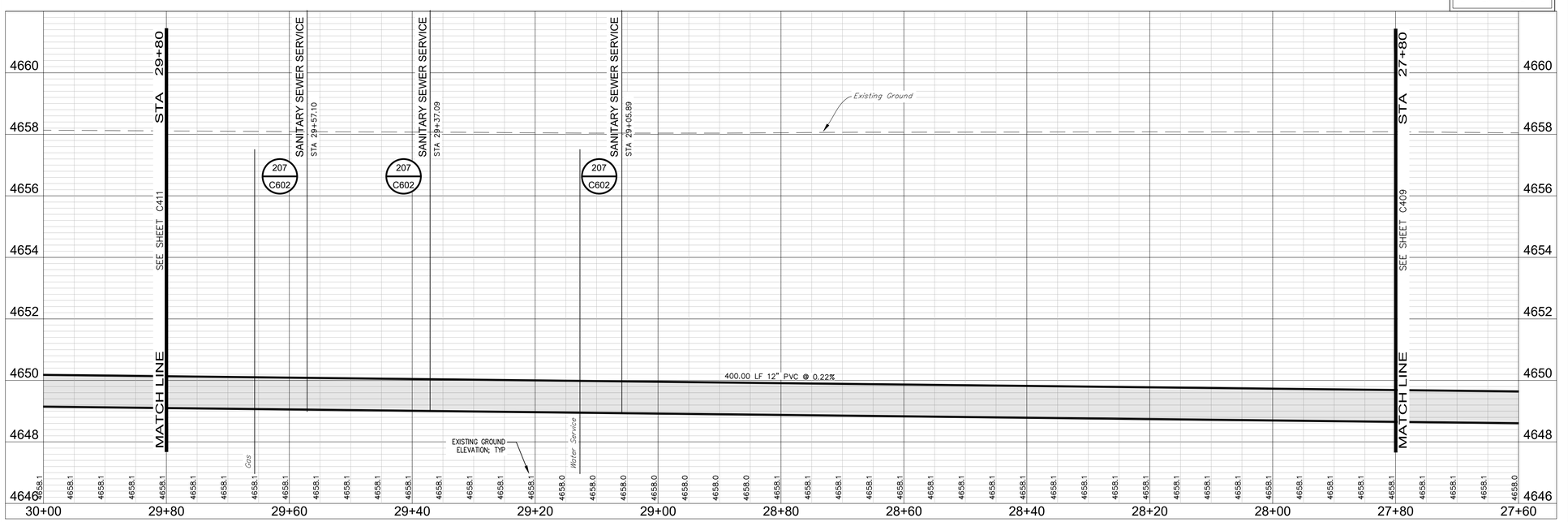
CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER C409

SHEET INDEX: 25





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- EXISTING SANITARY SEWER
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53283
PROFESSIONAL ENGINEER

Sheet Revisions			
No.	Revisions:	By	Date:

SANITARY SEWER STA 27+80 TO 29+80 PLAN AND PROFILE

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 10'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sanitary A P&P.dwg

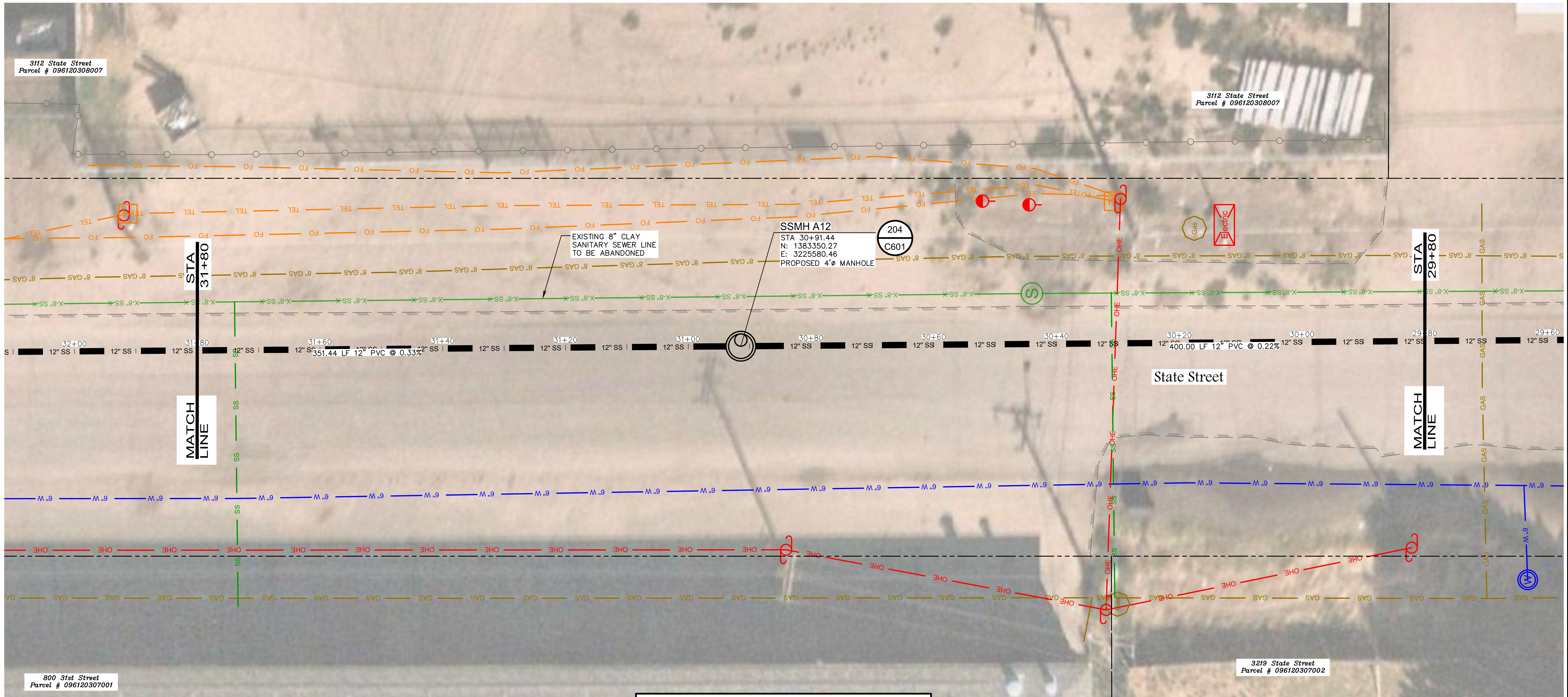
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER
C410

SHEET INDEX: 26

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sanitary A P&P.dwg Tuesday, May 23, 2023 2:41 PM By: Rhonda Bunner



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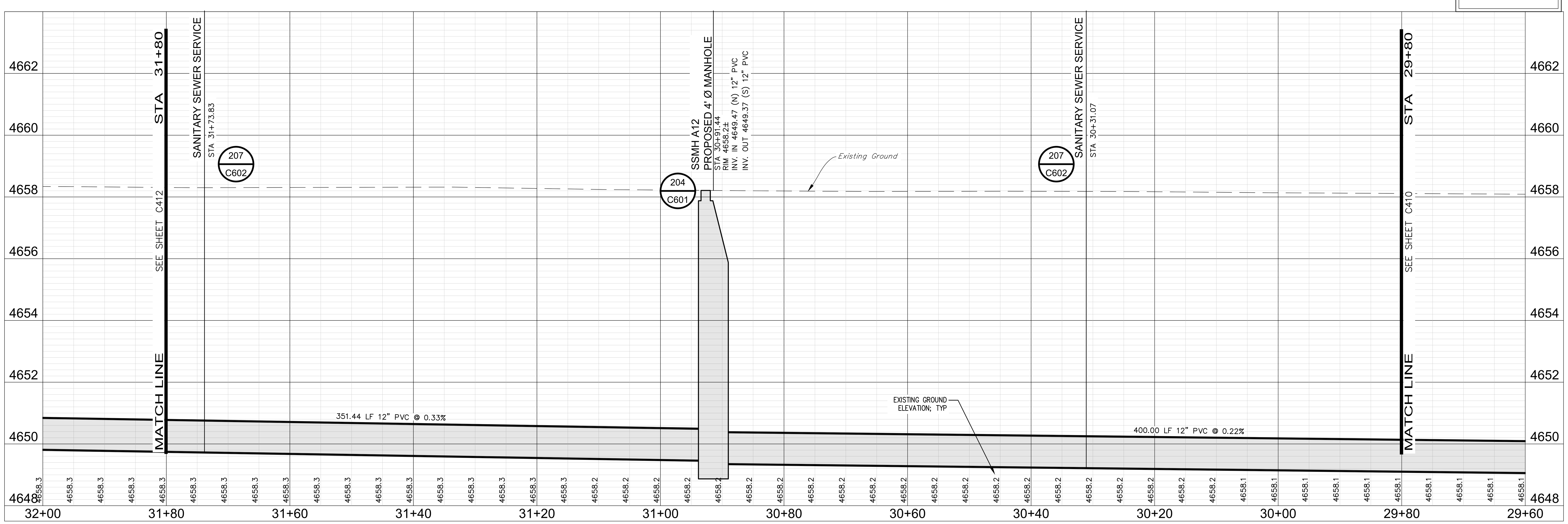
SANITARY SEWER A STA 29+80 TO STA 31+80

PROFILE SCALE:
HORIZ. 1"=10'
VERT. 1"=2'



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No.	Revisions:	By	Date

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DRAWN BY:	R. Bunner
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DATE:	June 9, 2023
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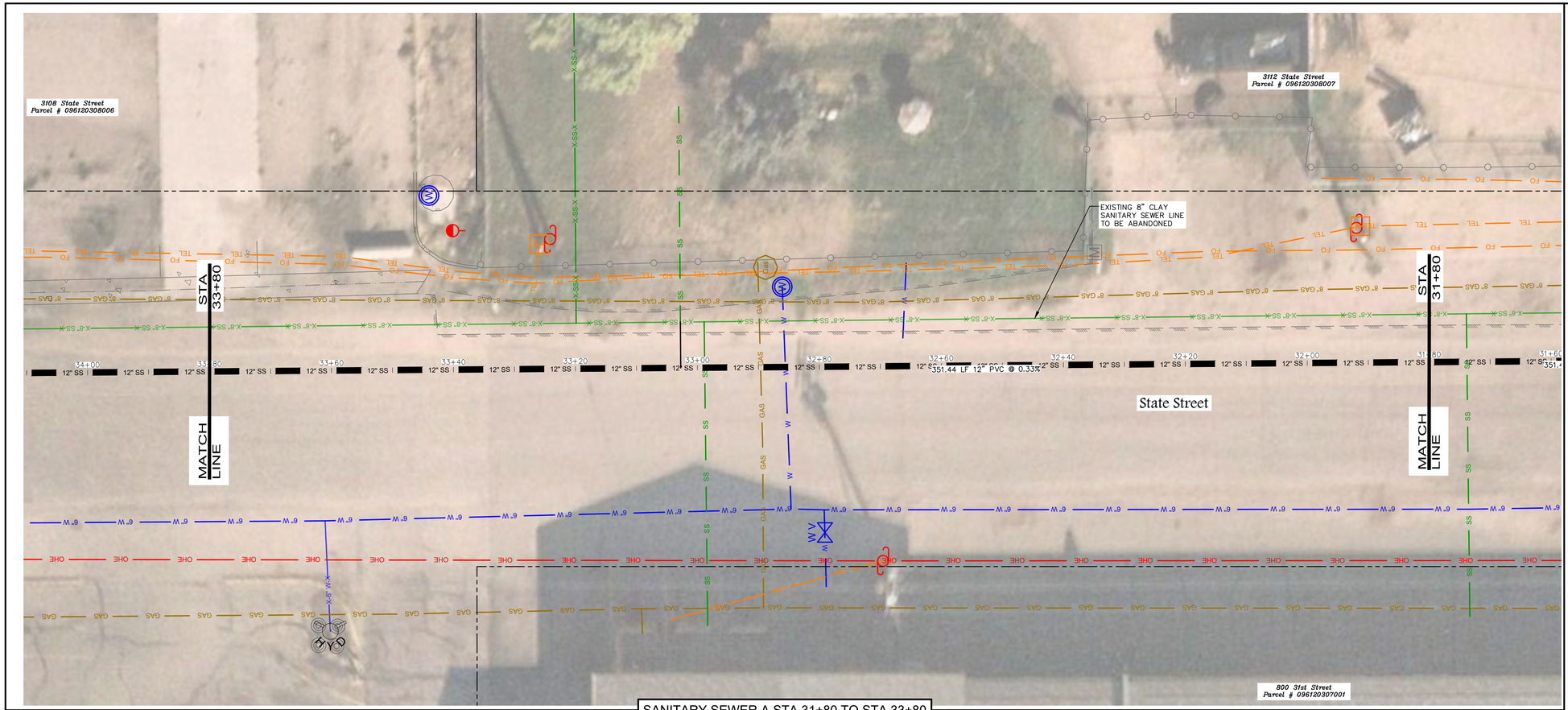
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER C411

SHEET INDEX: 27



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- UTILITY POTHOLE 20

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3. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
4. SEE SHEET SU07 FOR POTHOLE TABLE AND NOTES.
5. MAINTAIN 18" CLEARANCE OVER ALL UTILITY CROSSINGS.
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7. RECONNECT EXISTING LIVE SERVICES TO THE NEW SEWER MAIN. MAINTAIN 2% SLOPE FOR ALL SERVICES.
8. CAP EXISTING ABANDONED SERVICES WITH CONCRETE / GROUT PLUG.
9. PIPE LENGTHS ARE CALCULATED FROM THE CENTER OF MANHOLES.
10. INSTALL PROPOSED 12-INCH SANITARY SEWER LINE INTO THE EXISTING MANHOLE (EXIST. SSMH A1). CORE THE EXISTING MANHOLE. DEMOLISH THE EXISTING MANHOLE BASE AND POUR CAST-IN-PLACE BASE.
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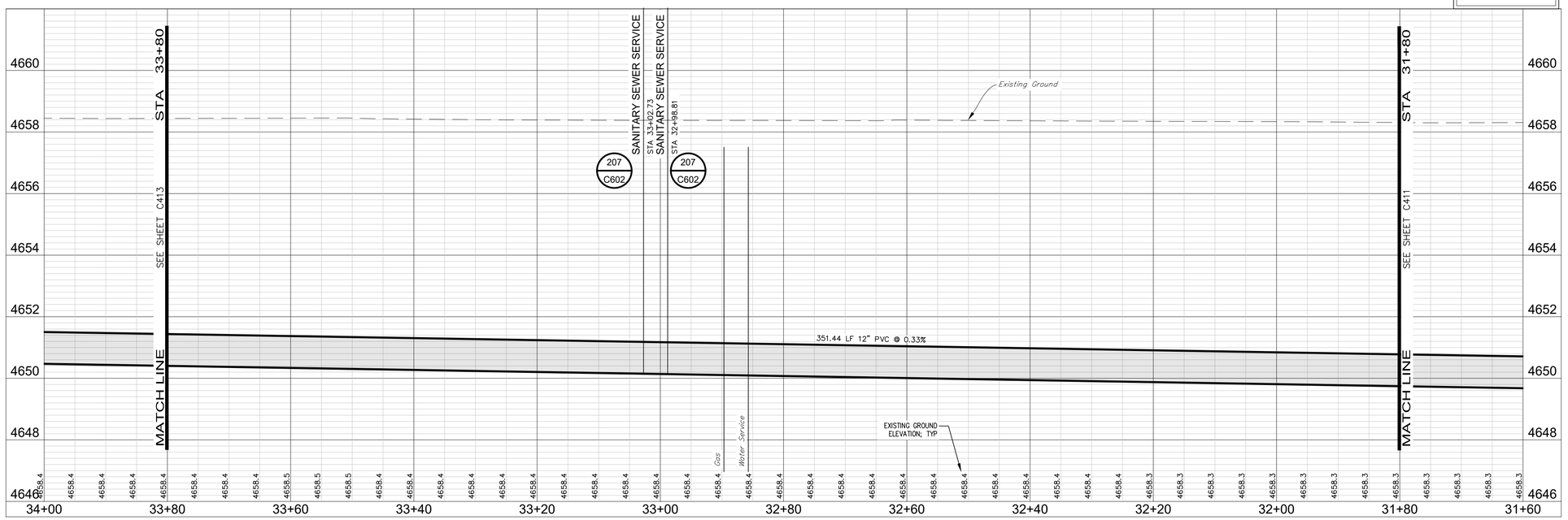
SANITARY SEWER A STA 31+80 TO STA 33+80

PROFILE SCALE:
HORIZ. 1"=10'
VERT. 1"=2'



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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions

No.	Revisions:	By	Date:

SANITARY SEWER STA 31+80 TO 33+80
PLAN AND PROFILE

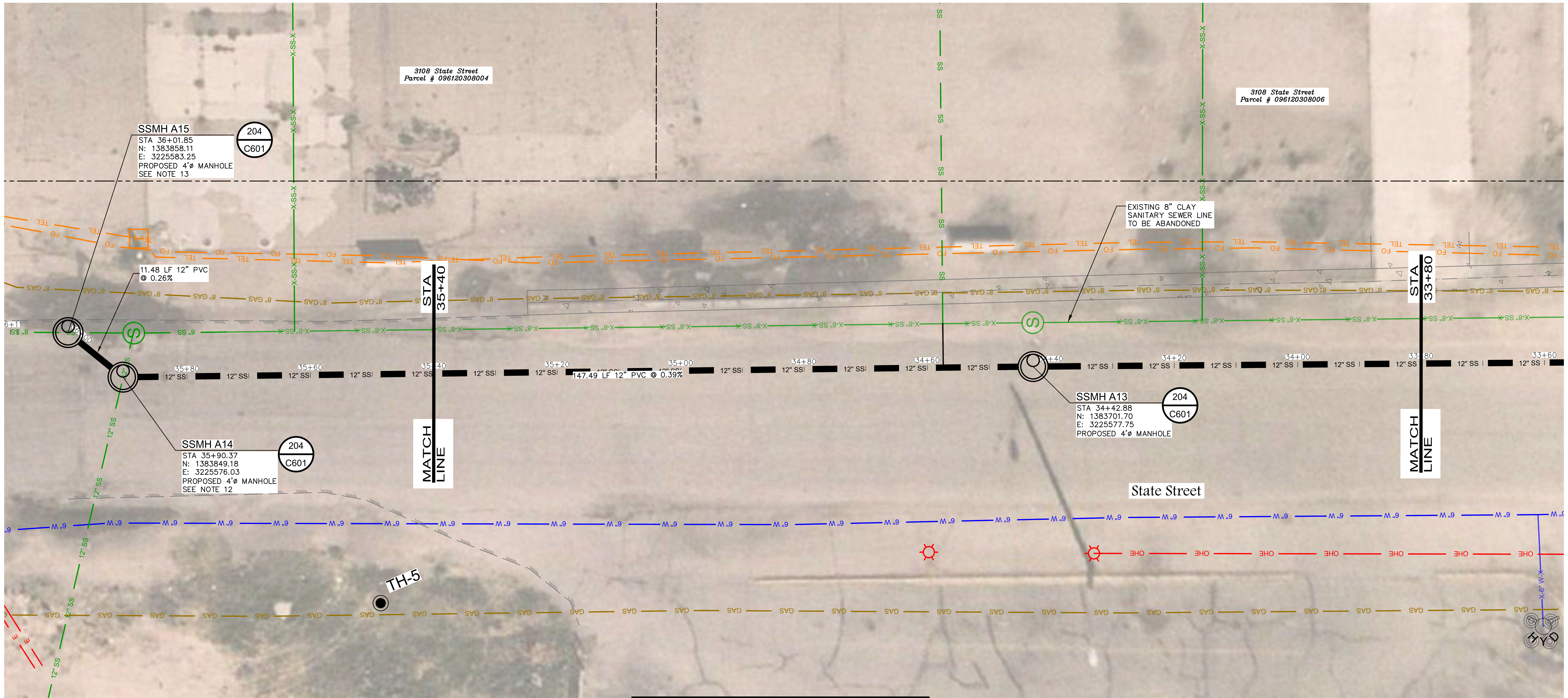
DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 10'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sanitary A P&P.dwg

CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

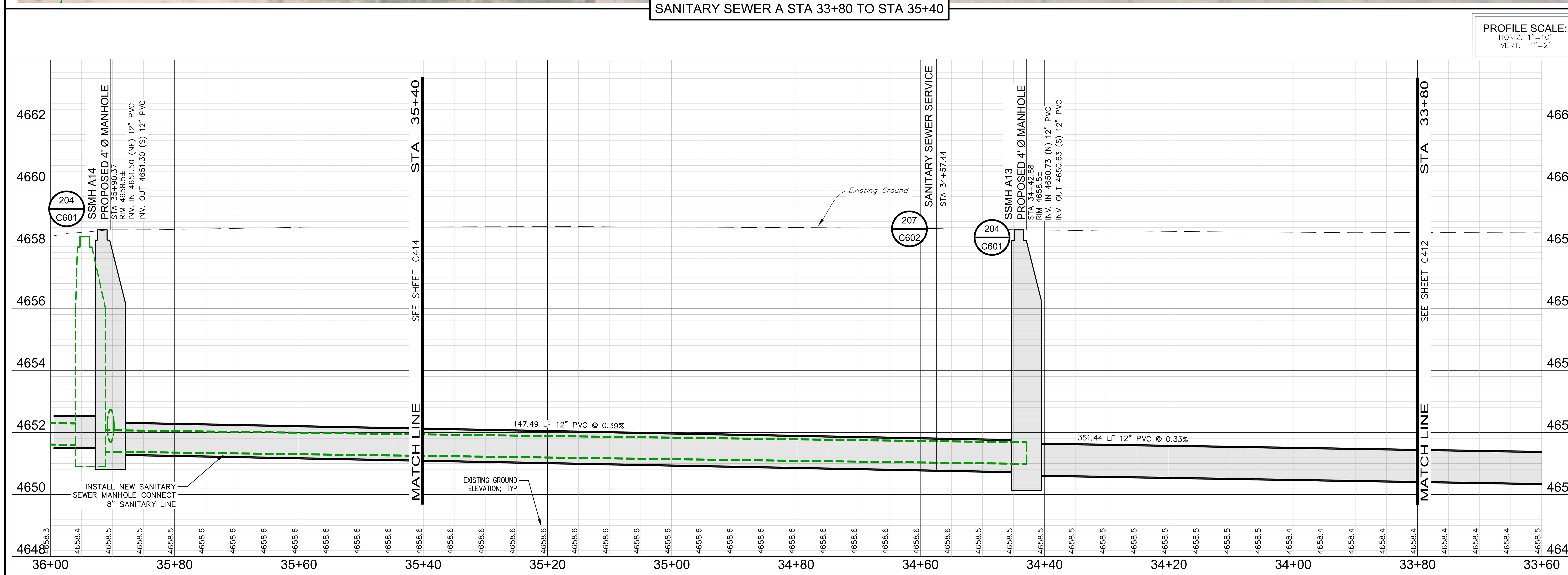
PROJECT NUMBER: XXXX

SHEET NUMBER
C412

SHEET INDEX: 28



SANITARY SEWER A STA 33+80 TO STA 35+40



SCALE: 1" =10'
(True scale for 22x34 sheet size)

LEGEND:

PROPERTY OWNERS (GIS)
PROPOSED SANITARY SEWER
EXISTING SANITARY SEWER
PROPOSED STORM DRAIN (by others)
EXISTING STORM DRAIN
EXISTING ELECTRIC
EXISTING OVERHEAD UTILITY
EXISTING FIBER OPTIC
EXISTING FIBER OPTIC
EXISTING GAS
EXISTING ROAD CENTERLINE
EXISTING WATER VALVE
EXISTING FIRE HYDRANT
EXISTING WATER SERVICE SHUT-OFF
PROPOSED SANITARY SEWER MANHOLE
EXISTING SANITARY SEWER MANHOLE
EXISTING STORM DRAIN MANHOLE
UTILITY POTHOLE

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

Sheet Revisions: No. | Revisions: | By: | Date:

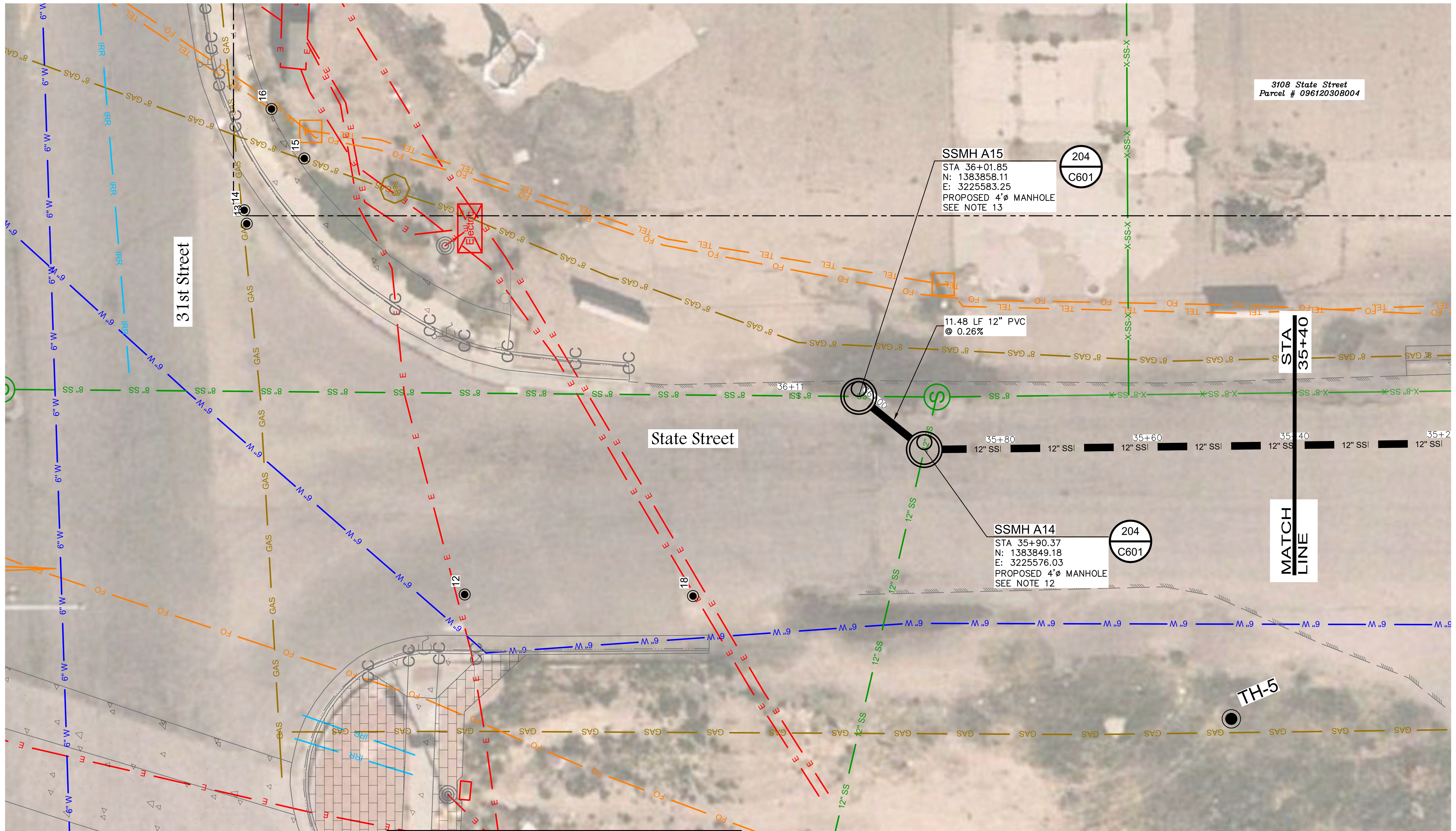
SANITARY SEWER STA 33+80 TO 35+40
PLAN AND PROFILE

DESIGNED BY: D. Egger
DRAWN BY: R. Bunner
APPROVED BY: J. Burrell
DATE: June 9, 2023
SCALE: 1" = 10'
FILE NAME: COE State Street Sanitary A P&P.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

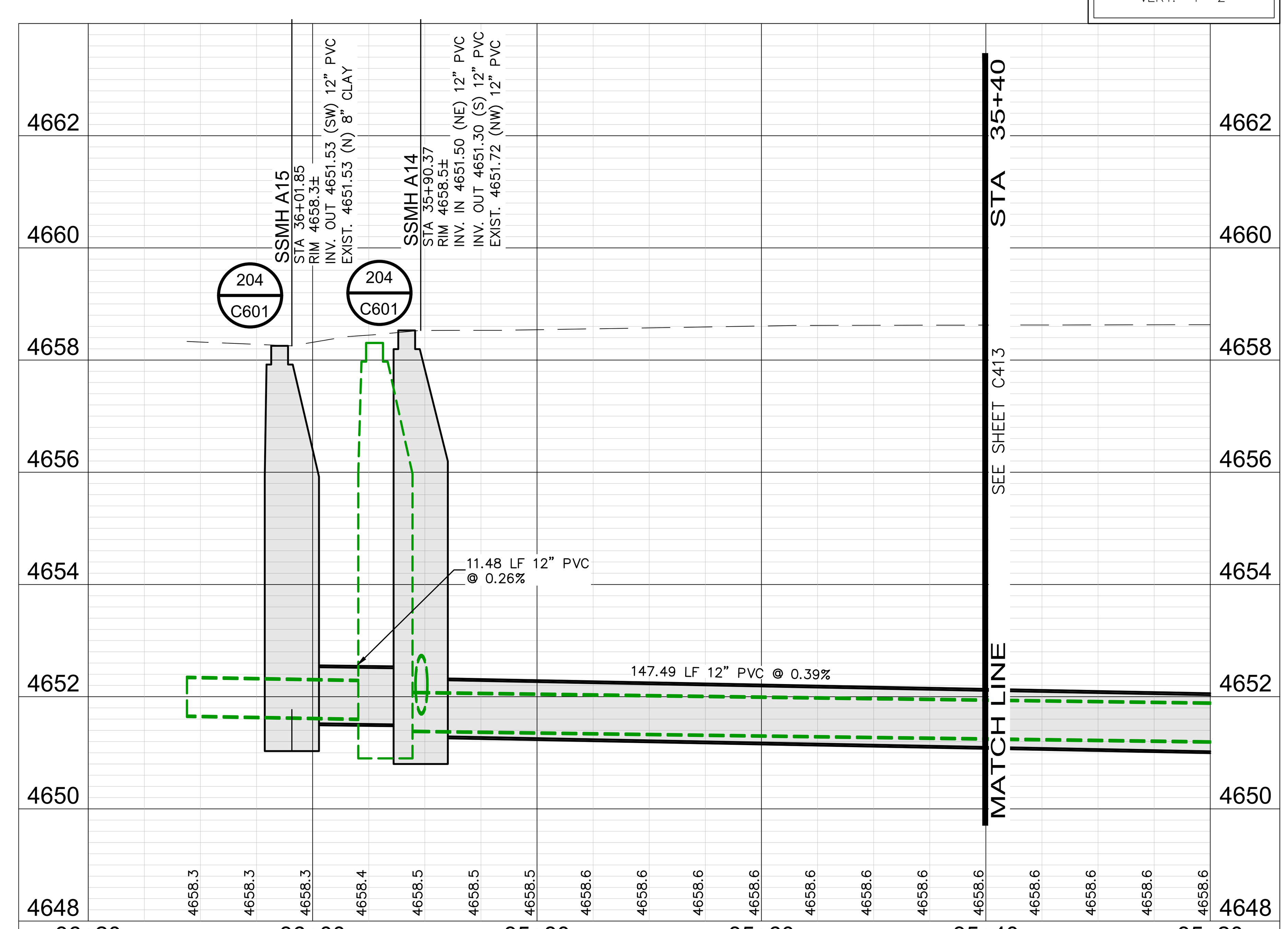
PROJECT NUMBER: XXXX
SHEET NUMBER: C413
SHEET INDEX: 29

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sanitary A P&P.dwg Tuesday, May 23, 2023 2:41 PM By: Rhonda Bunner



SANITARY SEWER A STA 35+40 TO END

PROFILE SCALE:
HORIZ. 1"=10'
VERT. 1"=2'



10' 0 10' 20' 30'

SCALE: 1" =10'
(True scale for 22x34 sheet size)

LEGEND:

PROPERTY OWNERS (GIS)	
PROPOSED SANITARY SEWER	SS
EXISTING SANITARY SEWER	SS
PROPOSED STORM DRAIN (by others)	
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING SANITARY SEWER MANHOLE	S
EXISTING STORM DRAIN MANHOLE	D
UTILITY POTHOLE	20

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SANITARY SEWER STA 35+40 TO END
PLAN AND PROFILE

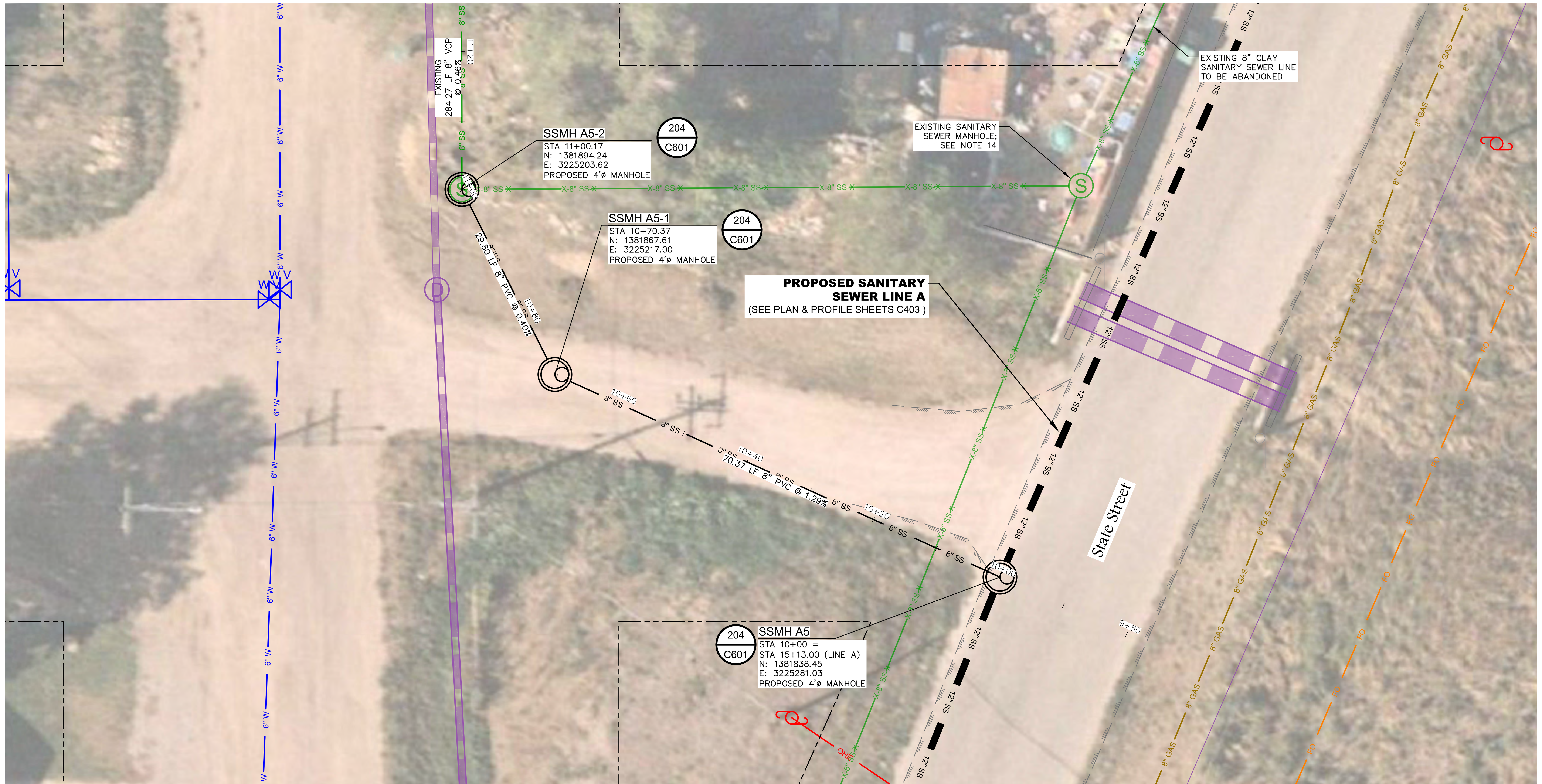
DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 10'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sanitary A P&P.dwg

CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

PROJECT NUMBER:
XXXX

SHEET NUMBER
C414

SHEET INDEX: 30

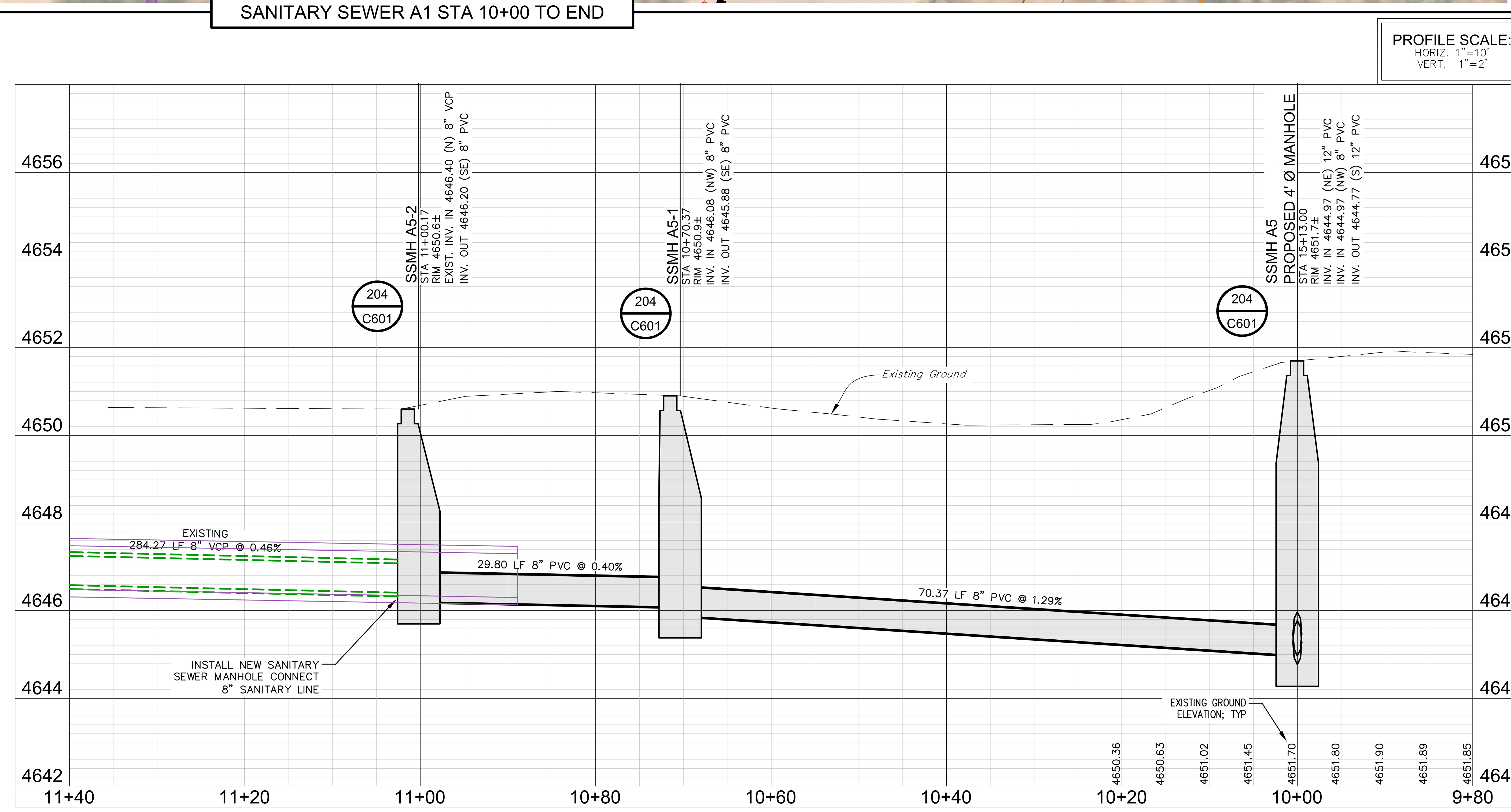


10' 0 10' 20' 30'

SCALE: 1" =10'

(True scale for 22x34 sheet size)

SANITARY SEWER A1 STA 10+00 TO END



LEGEND:

PROPERTY OWNERS (GIS)	— - — - —
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PROPOSED STORM DRAIN (by others)	
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EXISTING ELECTRIC	— E — E —
EXISTING OVERHEAD UTILITY	— OHU —
EXISTING FIBER OPTIC	— FO —
EXISTING FIBER OPTIC	— TEL — TEL —
EXISTING GAS	— GAS — GAS —
EXISTING ROAD CENTERLINE	
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EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
PROPOSED SANITARY SEWER MANHOLE	
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UTILITY POTHOLE	◉ 20

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Sheet Revisions

No.	Revisions:	By:	Date:

SANITARY SEWER A1 STA 10+00.00 TO END
PLAN AND PROFILE

DESIGNED BY:	D. Egger
DRAWN BY:	R. Bunner
APPROVED BY:	J. Burrell
DATE:	June 9, 2023
SCALE:	1" = 10'
FILE NAME:	COE State Street Sanitary A P&P.dwg

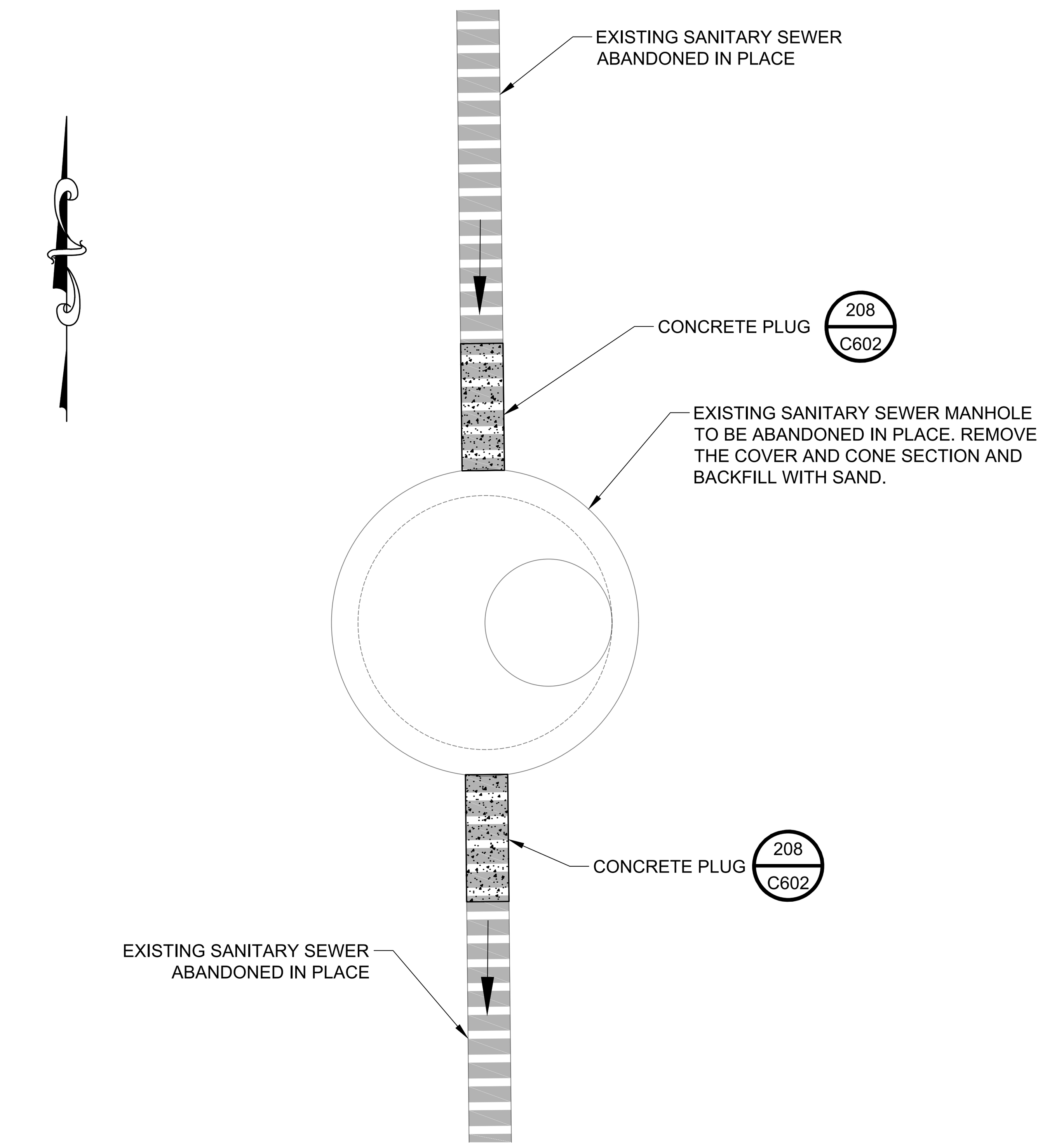
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER

C415

SHEET INDEX: 31



154
C501

TYPICAL SANITARY MANHOLE & PIPE ABANDONMENT

SCALE: 1"=2'-0" (22x34)
1"=4'-0" (11x17)

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53283
BURRELL
6/9/23

Sheet Revisions

No.	Revisions:	By:	Date:

SANITARY SEWER CONNECTION MANHOLE DETAILS

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 2'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Sanitary Det.dwg

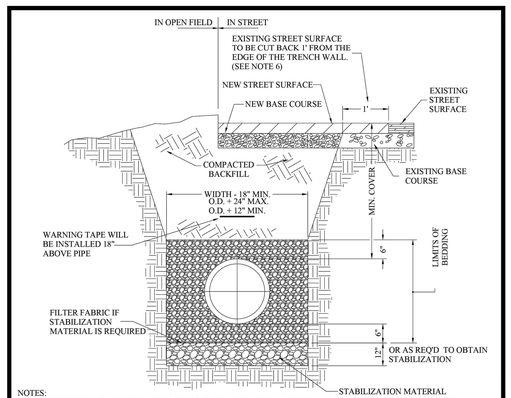
CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER:
XXXX

SHEET NUMBER
C501

SHEET INDEX: 32

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Sanitary Det.dwg Tuesday, April 25, 2023 7:08 AM By: Rhonda Bunner



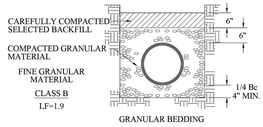
NOTES:
1. RIGHT OF WAY & EASEMENT AREAS SHALL BE GRADED (CUT & FILL) TO SUBGRADE AT UTILITY LOCATIONS INCLUDING SERVICES, PRIOR TO UTILITY INSTALLATION.
2. BACKFILL TO BE COMPACTED TO 95% WITH IN ±2% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY A.S.T.M. D-698 DENSITY IN ALL AREAS UNLESS OTHERWISE NOTED. ALL TRENCHES SHALL BE COMPACTED BY A METHOD APPROVED BY THE CITY.
3. TRENCH EXCAVATION SHALL COMPLY WITH ALL OSHA STANDARDS.
4. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.
5. IF NOT SPECIFIED BY APPLICABLE UTILITY, AN APPROVED GRADE OF SAND BEDDING SHALL BE INSTALLED TO SPRINGLINE.
6. A 1-FOOT CUT BACK IS NOT REQUIRED IF FLOW FILL IS USED FOR BACKFILL.
7. SEE WATER LINE TRENCH DETAIL CROSS-SECTION DETAIL IN THE SPECIFICATIONS FOR WATER AND SANITARY SEWER SYSTEMS FOR ADDITIONAL INFORMATION.

City of Evans, Colorado
Public Works Department

TRENCH EXCAVATION & BACKFILL DETAIL

Scale: N.T.S | Detail No. S-32 | May 2019

200 / C601 — TRENCH EXCAVATION & BACKFILL DETAIL — NTS



GRANULAR BEDDING

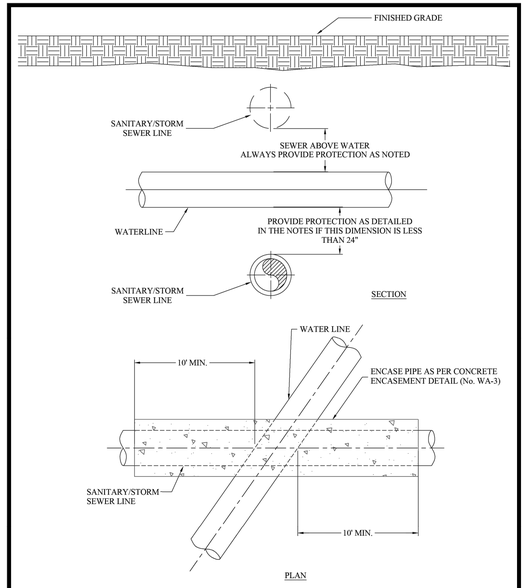
NOTES:
1. MINIMUM DENSITY FOR CAREFULLY COMPACTED SELECT BACKFILL SHALL BE 95% OF MAXIMUM OR AS SPECIFIED FOR THE TRENCH BACKFILL - WHICHEVER IS GREATER
2. COMPACT GRANULAR MATERIAL BY SLICING WITH A SHOVEL AROUND PIPE. WHEN BEDDING IS 6" OVER PIPE, COMPACT WITH VIBRATING COMPACTOR

City of Evans, Colorado
Public Works Department

SANITARY SEWER BEDDING DETAIL

Scale: N.T.S. | WW-6 | May 2019

201 / C601 — SANITARY SEWER BEDDING DETAIL — NTS

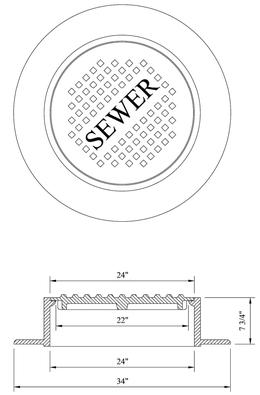


City of Evans, Colorado
Public Works Department

UTILITY CROSSING DETAIL

Scale: N.T.S. | WA-15 | May 2019

202 / C601 — UTILITY CROSSING DETAIL — NTS



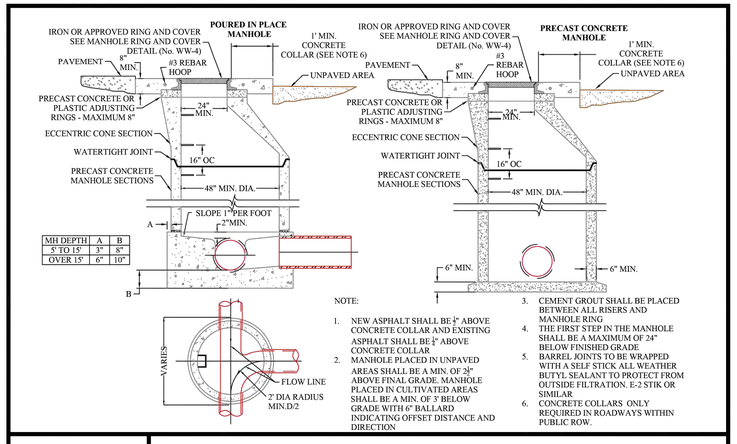
NOTES:
1. RING AND COVER SHALL BE IRON (AS MANUFACTURED FOR CURRENT AWWA STANDARD) AND AS APPROVED BY THE PUBLIC WORKS DEPARTMENT
2. COVER SHALL BE NON-PERFORATED WITH "SEWER" CAST ON THE TOP OF THE LID FOR SANITARY SEWER MANHOLES
3. COVER SHALL BE BOLTED, WATER RESISTANT IF LOCATED IN 100 YEAR FLOOD PLAIN

City of Evans, Colorado
Public Works Department

MANHOLE RING AND COVER DETAIL
SANITARY SEWER

Scale: N.T.S. | WW-4 | May 2019

203 / C601 — MANHOLE RING AND COVER DETAIL — NTS



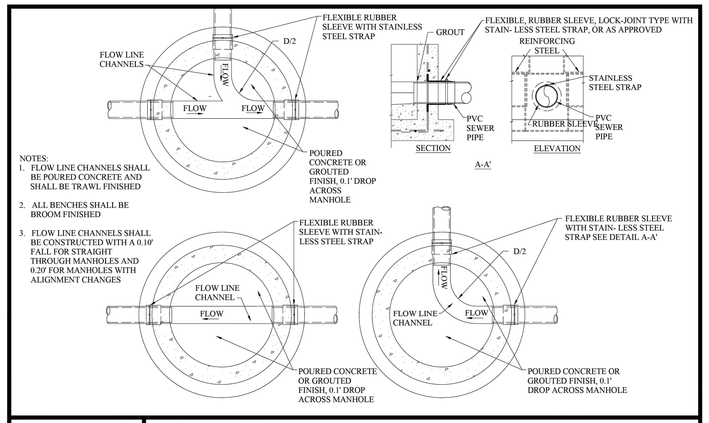
NOTE:
1. NEW ASPHALT SHALL BE ½" ABOVE CONCRETE COLLAR AND EXISTING ASPHALT SHALL BE ¼" ABOVE CONCRETE COLLAR
2. MANHOLE PLACED IN UNPAVED AREAS SHALL BE A MIN. OF 2½" ABOVE FINAL GRADE. MANHOLE PLACED IN CULTIVATED AREAS SHALL BE A MIN. OF 3' BELOW GRADE WITH 6" BALLARD INDICATING OFFSET DISTANCE AND DIRECTION
3. CEMENT GROUT SHALL BE PLACED BETWEEN ALL RISERS AND MANHOLE RING
4. THE FIRST STEP IN THE MANHOLE SHALL BE A MAXIMUM OF 24" BELOW FINISHED GRADE.
5. BARREL JOINTS TO BE WRAPPED WITH A SELF STICK ALL WEATHER BUTYL SEALANT TO PROTECT FROM OUTSIDE FILTRATION. E-2 STIK OR SIMILAR
6. CONCRETE COLLARS ONLY REQUIRED IN ROADWAYS WITHIN PUBLIC ROW.

City of Evans, Colorado
Public Works Department

MANHOLE DETAIL

Scale: N.T.S. | WW-5 | August 2019

204 / C601 — MANHOLE DETAIL — NTS



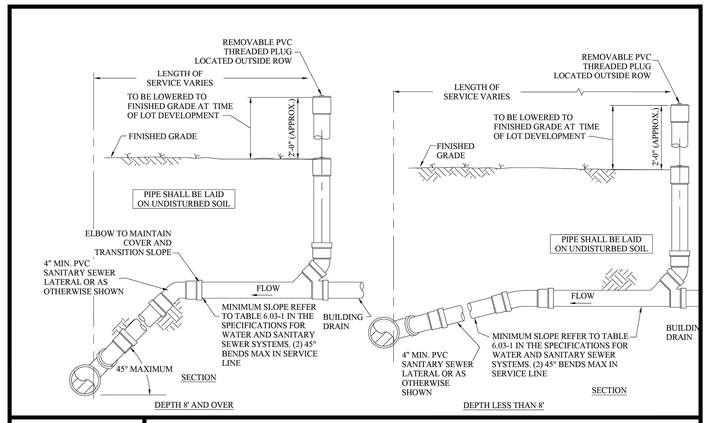
NOTES:
1. FLOW LINE CHANNELS SHALL BE POURED CONCRETE AND SHALL BE TRAWL FINISHED
2. ALL BENCHES SHALL BE BROOM FINISHED
3. FLOW LINE CHANNELS SHALL BE CONSTRUCTED WITH A 0.10' FALL FOR STRAIGHT THROUGH MANHOLES AND 0.20' FOR MANHOLES WITH ALIGNMENT CHANGES

City of Evans, Colorado
Public Works Department

SANITARY SEWER FLOW LINE CHANNEL DETAIL

Scale: N.T.S. | WW-9 | May 2019

205 / C601 — SANITARY SEWER FLOW LINE CHANNEL DETAIL — NTS



City of Evans, Colorado
Public Works Department

SANITARY SEWER SERVICE CONNECTION DETAIL

Scale: N.T.S. | WW-7 | May 2019

206 / C601 — SANITARY SEWER SERVICE CONNECTION DETAIL — NTS

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Fort Collins, Colorado 80525
Phone: 970.226.0861
www.dtescoservices.com

COLORADO LICENSED
53283
PROFESSIONAL ENGINEER

Sheet Revisions

No.	Revisions:	By:	Date:

GENERAL SITE DETAILS

DESIGNED BY:	D. Egger
DRAWN BY:	R. Bunner
APPROVED BY:	J. Burrell
DATE:	June 9, 2023
SCALE:	As Noted
FILE NAME:	COE State Street Details.dwg

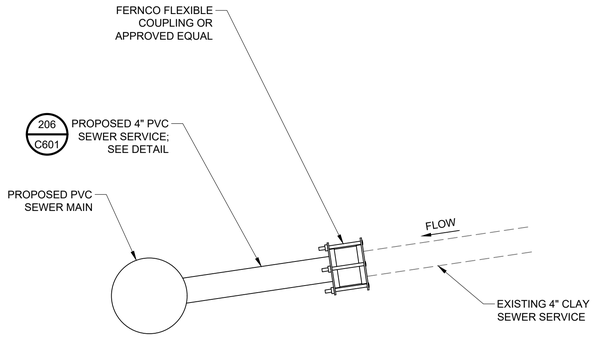
CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER
C601

SHEET INDEX: 33

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Details.dwg Thursday, June 08, 2023 4:21 PM By: Rhonda Bunner

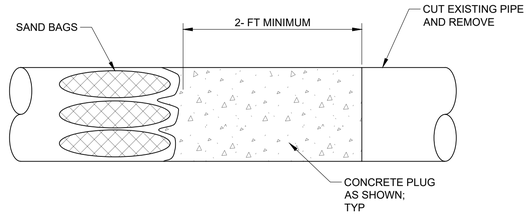


NOTES:

1. MAINTAIN MINIMUM 2% SLOPE ON SERVICE CONNECTIONS

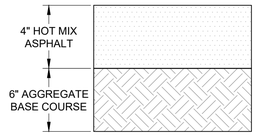
207 C602 SERVICE CONNECTION DETAIL

NTS



208 C602 PIPE ABANDONMENT DETAIL

NTS

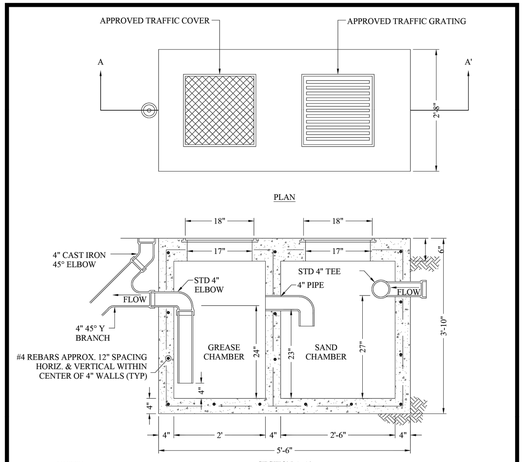


NOTES:

1. ASPHALT PAVEMENT SHALL BE REPAIRED ACROSS ENTIRE TRENCH.
2. COORDINATE LIMITS OF RESTORATION IN FIELD WITH OWNER.
3. CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ROADWAY ABOVE ALL TRENCH PER CITY OF EVANS STANDARDS.
4. REFERENCE DETAIL 200 ON SHEET C601.

209 C602 ASPHALT PAVEMENT SECTION

NTS



NOTES:

1. DIMENSIONS SHOWN ARE MINIMUM. PROPER SIZING TO BE DETERMINED BY CALCULATION, SUBJECT TO APPROVAL OF CITY ENGINEER
2. RESPONSIBILITY FOR CLEANING & MAINTENANCE BELONGS TO THE PROPERTY OWNER
3. AN ALTERNATE GREASE INTERCEPTOR DEVICE OF STANDARD MANUFACTURE MAY BE SUBSTITUTED FOR THAT SHOWN ABOVE, SUBJECT TO APPROVAL OF THE CITY CHIEF BUILDING OFFICIAL

THIS STANDARD APPLIES TO:

1. RESTAURANTS
2. AUTOMOTIVE GARAGES
3. CAR WASHES
4. OTHER, AS DETERMINED BY THE CITY ENGINEER

City of Evans, Colorado
Public Works Department

GREASE AND SAND INTERCEPTOR DETAIL

Scale: N.T.S. WW-3 May 2019

210 C602 GREASE AND SAND INTERCEPTOR DETAIL

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COLORADO LICENSED
53283
PROFESSIONAL ENGINEER
6/9/23

Sheet Revisions

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GENERAL SITE DETAILS

DESIGNED BY:	D. Egger
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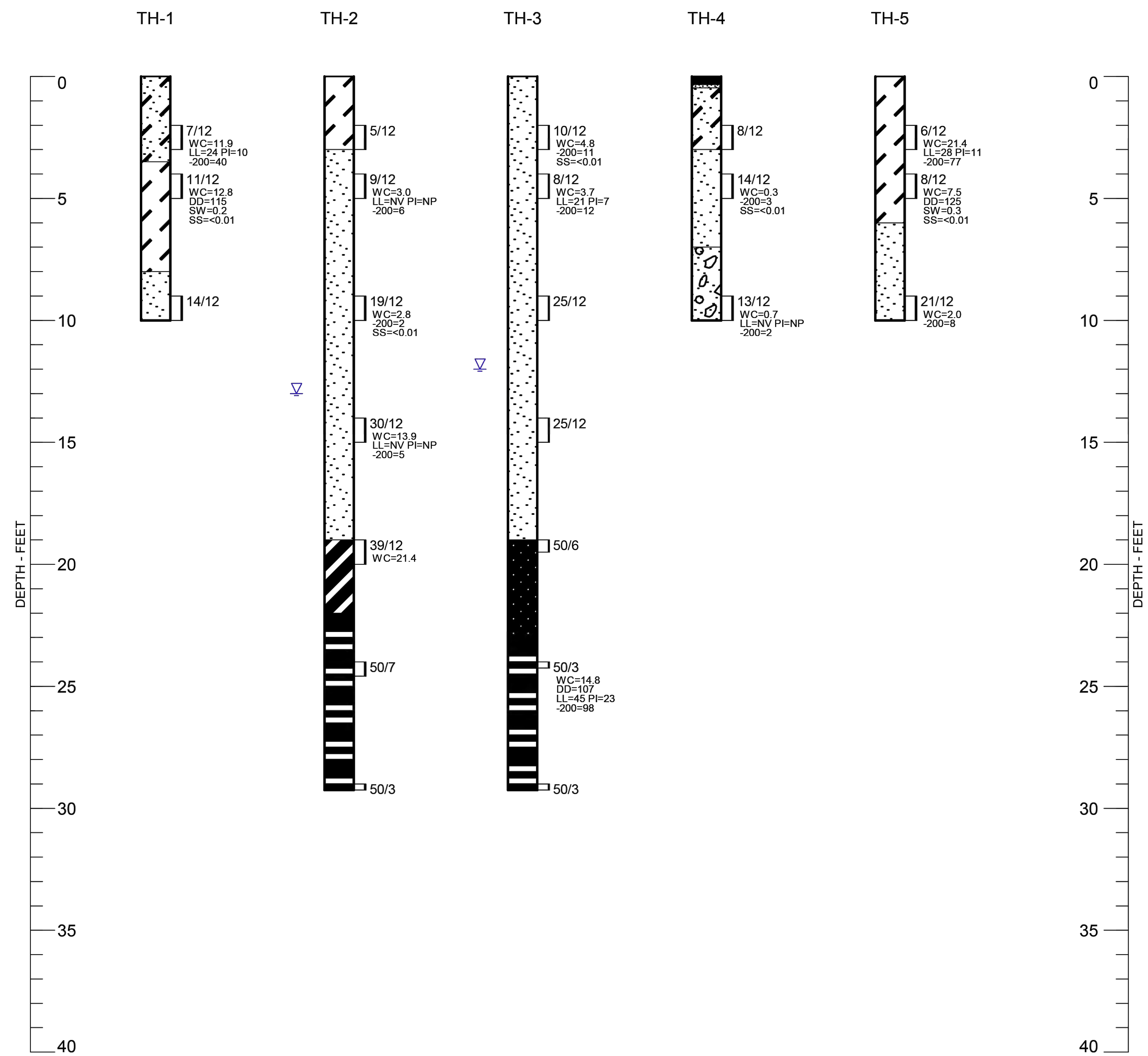
SCALE:	As Noted
FILE NAME:	COE State Street Details.dwg

CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER
C602

SHEET INDEX: 34



LEGEND:

- ASPHALT
- CONCRETE
- CLAY, SANDY, MOIST, MEDIUM STIFF TO STIFF, DARK BROWN, BROWN (CL)
- SAND, CLAYEY, MOIST, LOOSE, BROWN (SC)
- SAND, CLEAN TO GRAVELLY, MOIST TO WET, LOOSE TO MEDIUM DENSE, LIGHT BROWN, WHITE, REDDISH BROWN, BROWN (SP, SW)
- GRAVEL, SANDY, MOIST, MEDIUM DENSE, BROWN, REDDISH BROWN, WHITE (GW)
- WEATHERED SANDSTONE, CLAYEY, VERY MOIST, MEDIUM HARD, YELLOWISH BROWN
- SANDSTONE, CLAYEY, MOIST, HARD, BROWN, RUST
- CLAYSTONE, SANDY, MOIST, HARD TO VERY HARD, BROWN, GREY
- DRIVE SAMPLE. THE SYMBOL 7/12 INDICATES 7 BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2.5-INCH O.D. SAMPLER 12 INCHES.
- WATER LEVEL MEASURED AT TIME OF DRILLING.

NOTES:

1. THE BORINGS WERE DRILLED ON JULY 30 & MAY 12, 2021 USING 4-INCH DIAMETER CONTINUOUS-FLIGHT AUGERS AND A TRUCK-MOUNTED DRILL RIG.
2. THESE LOGS ARE SUBJECT TO THE EXPLANATIONS, LIMITATIONS AND CONCLUSIONS IN THIS REPORT.
3. WC - INDICATES MOISTURE CONTENT (%).
   DD - INDICATES DRY DENSITY (PCF).
   SW - INDICATES SWELL WHEN WETTED UNDER OVERBURDEN PRESSURE (%).
   -200 - INDICATES PASSING NO. 200 SIEVE (%).
   LL - INDICATES LIQUID LIMIT.
   PI - INDICATES PLASTICITY INDEX.
   SS - INDICATES SOLUBLE SULFATE CONTENT (%).

DITESCO
CITY OF EVANS WATERLINE IMPROVEMENTS PROJECT 2
CTL | T PROJECT NO. FC09827.001-125

Summary Logs of Exploratory Borings

FIGURE 2

210 / C603 TEST HOLES 4 & 5
NTS

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 BURRELL 6/9/23

Sheet Revisions			
No.	Revisions:	By:	Date:

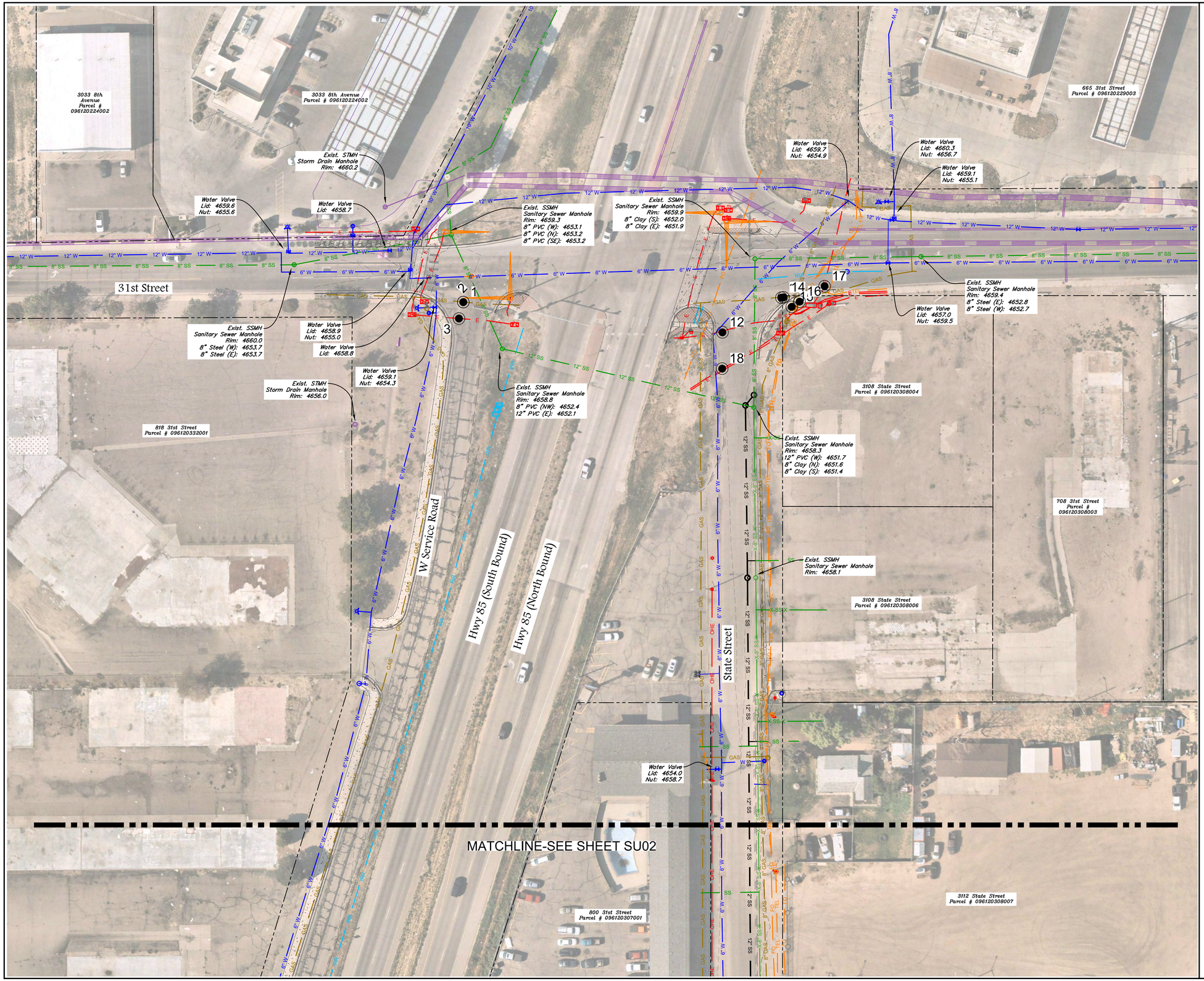
SUMMARY LOGS OF EXPLORATORY BORINGS

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	NTS
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street Details.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX
SHEET NUMBER C603
SHEET INDEX: 35

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street Details.dwg Thursday, June 08, 2023 4:21 PM By: Rhonda Bunner



40' 0 40' 80' 120'

SCALE: 1" =40'
(True scale for 22x34 sheet size)

SUBSURFACE UTILITY ENGINEERING PLAN

QUALITY LEVEL C

NOT FOR CONSTRUCTION

LEGEND:

- EXISTING WATER — W — W
- ABANDONED WATER — X-W-X
- EXISTING SANITARY SEWER — SS — SS
- PROPOSED SANITARY SEWER — SS — SS
- EXISTING STORM DRAIN
- EXISTING ELECTRIC — E — E
- EXISTING OVERHEAD UTILITY — OHU
- EXISTING FIBER OPTIC — FO
- EXISTING FIBER OPTIC — TEL — TEL
- EXISTING GAS — GAS — GAS
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- POTHOLE LOCATION POINTS — 33

NOTES:

1. THIS SUBSURFACE UTILITY ENGINEERING (SUE) PLAN WAS DEVELOPED TO QUALITY LEVEL A UTILIZING POTHOLING TECHNOLOGIES AND THE UTILITY BASE DESIGN GENERATED BY DITESCO PROJECT & CONSTRUCTION SERVICES.
2. THE SUE INVESTIGATION WAS COMPLETED PER REQUIREMENTS OF COLORADO SENATE BILL 18-167.
3. IN COMPLIANCE WITH SENATE BILL 18-167 AND ASCE 38-02, AN ENGINEER HAS VISUALLY INSPECTED ALL POTHOLES. A SEPARATE PHOTOGRAPHIC RECORD OF ALL POTHOLE HAS BEEN CREATED FOR REFERENCE. SEE SHEET SU06 & SU07.
4. CREATION OF THIS PLAN DOES NOT ALLEVIATE THE CONTRACTOR FROM DUE DILIGENCE WHEN EXCAVATING. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND VERIFY UTILITY LOCATION PRIOR TO CROSSING.
5. CALL BEFORE YOU DIG – CALL COLORADO 811 A MINIMUM OF TWO BUSINESS DAYS PRIOR TO BEGINNING EXCAVATION. THE CONTRACTOR MUST RECEIVE POSITIVE CONFIRMATION FROM ALL UTILITY PROVIDERS THAT LOCATES HAVE BEEN COMPLETED PRIOR TO BEGINNING EXCAVATION.
6. ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
7. POTHOLING WAS COMPLETED BY xxx FROM xx xx,2021 TO xx sxs, 2021.

CALL UTILITY NOTIFICATION CENTER OF COLORADO

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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions	No.	By	Date:
Revisions:			

SUSURFACE UTILITY ENGINEERING PLAN

DESIGNED BY:	D. Egger
DRAWN BY:	R. Bunner
APPROVED BY:	J. Burrell
DATE:	June 9, 2023
SCALE:	1" = 40'
FILE NAME:	COE State Street SUE Plan.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

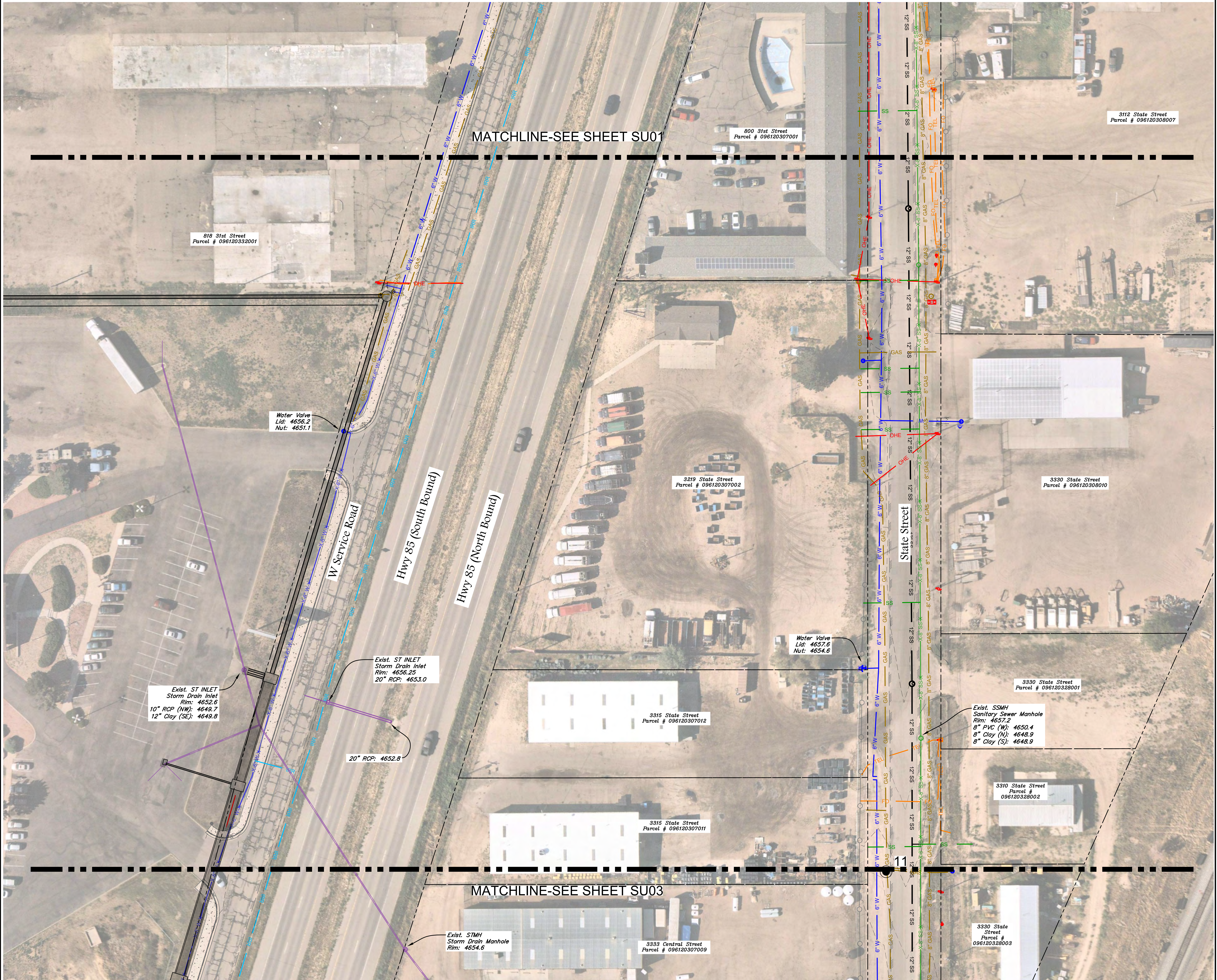
PROJECT NUMBER: XXXX

SHEET NUMBER

SU01

SHEET INDEX: 36

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street SUE Plan.dwg Thursday, June 08, 2023 4:22 PM By: Rhonda Bunner



40' 0 40' 80' 120'

SCALE: 1" =40'
(True scale for 22x34 sheet size)

SUBSURFACE UTILITY ENGINEERING PLAN

QUALITY LEVEL C

NOT FOR CONSTRUCTION

LEGEND:

EXISTING WATER	— W — W —
ABANDONED WATER	—X-W-X—
EXISTING SANITARY SEWER	— SS — SS —
PROPOSED SANITARY SEWER	— SS — SS —
EXISTING STORM DRAIN	
EXISTING ELECTRIC	— E — E —
EXISTING OVERHEAD UTILITY	— OHU —
EXISTING FIBER OPTIC	— FO —
EXISTING FIBER OPTIC	— TEL — TEL —
EXISTING GAS	— GAS — GAS —
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
EXISTING SANITARY SEWER MANHOLE	
EXISTING STORM DRAIN MANHOLE	33
POTHOLE LOCATION POINTS	

NOTES:

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 J. BURRELL 6/9/23

Sheet Revisions			
No.	Revisions:	By:	Date:

SUSURFACE UTILITY ENGINEERING PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 40'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street SUE Plan.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER: SU02

SHEET INDEX: 37

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street SUE Plan.dwg Thursday, June 08, 2023 4:22 PM By: Rhonda Bunner

MATCHLINE-SEE SHEET SU02

MATCHLINE-SEE SHEET SU04

35th Street

State Street

Central Street

W Service Road

Hwy 85 (South Bound)

Hwy 85 (North Bound)

Service Road

3301 W Service Road
Parcel # 096120306018

3455 W Service Road
Parcel # 096120331001

3511 W Service Road
Parcel # 096120315009

903 35th Street
Parcel # 096120307004

809 35th Street
Parcel # 096120307005

809 35th Street
Parcel # 096120307008

3333 Central Street
Parcel # 096120307009

3330 State Street
Parcel # 096120328003

3419 State Street
Parcel # 096120307007

3503 Central Street
Parcel # 096120314007

3505 Central Street
Parcel # 096120314005

3509 Central Street
Parcel # 096120314004

3511 Central Street
Parcel # 096120314003

3501 State Street
Parcel # 096120313010

3516 Central Street
Parcel # 096120313008

3522 Central Street
Parcel # 096120313004

3524 Central Street
Parcel # 096120313005

Parcel # 096120314008

919 36th Street
Parcel # 096120314001

915 36th Street
Parcel # 096120314002

Exist. STMH
Storm Drain Manhole
Rim: 4654.6

Water Valve
Lid: 4657.1
Nut: 4653.1

Exist. STMH
Storm Drain Manhole
Rim: 4657.7
Unknown (E): 4654.5

verify – Exist. SSMH
Sanitary Sewer Manhole
Rim: 4655.6
12" Clay (N): 4648.7
12" Clay (S): 4648.6

Exist. SSMH
Sanitary Sewer Manhole
Rim: 4654.8
4" Steel (NW): 4648.8
4" Steel (NE): 4648.8
8" Clay (S): 4648.4

Exist. SSMH
Sanitary Sewer Manhole
Rim: 4655.8
18" Clay (W): 4646.4
18" Clay (E): 4646.3

Exist. SSMH
Sanitary Sewer Manhole
Rim: 4654.8
18" Clay (W): 4645.8
18" Clay (E): 4645.8

Exist. SSMH
Sanitary Sewer Manhole
Rim: 4654.7
8" Clay (N): 4647.5
8" Clay (S): 4647.7

Exist. Storm Grate
Storm Manhole w/ Grate
Rim: 4653.7
Full of Water/Debris

Exist. SSMH
Sanitary Sewer Manhole
Rim: 4654.3
8" Clay (N): 4648.2
8" Clay (S): 4648.1

Water Valve
Lid: 4654.0
Nut: 4651.0

Exist. SSMH
Sanitary Sewer Manhole
Rim: 4654.5
8" Clay (N): 4647.0
8" Clay (S): 4646.9

Exist. SSMH
Sanitary Sewer Manhole
Rim: 4655.7
18" Clay (W): 4644.6
18" Clay (E): 4644.6

NOTE: PROPOSED STORM DRAIN SHOWN FOR REFERENCE ONLY; DESIGN BY OTHERS.

40' 0 40' 80' 120'

SCALE: 1" =40'
(True scale for 22x34 sheet size)

SUBSURFACE UTILITY ENGINEERING PLAN

QUALITY LEVEL C

NOT FOR CONSTRUCTION

LEGEND:

- EXISTING WATER — W — W
- ABANDONED WATER — X-W-X
- EXISTING SANITARY SEWER — SS — SS
- PROPOSED SANITARY SEWER — SS — SS
- EXISTING STORM DRAIN
- EXISTING ELECTRIC — E — E
- EXISTING OVERHEAD UTILITY — OHU
- EXISTING FIBER OPTIC — FO
- EXISTING FIBER OPTIC — TEL — TEL
- EXISTING GAS — GAS — GAS
- EXISTING ROAD CENTERLINE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER SERVICE SHUT-OFF
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- POTHOLE LOCATION POINTS

NOTES:

1. THIS SUBSURFACE UTILITY ENGINEERING (SUE) PLAN WAS DEVELOPED TO QUALITY LEVEL A UTILIZING POTHOLING TECHNOLOGIES AND THE UTILITY BASE DESIGN GENERATED BY DITESCO PROJECT & CONSTRUCTION SERVICES.
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STATE OF COLORADO

Sheet Revisions			
No.	Revisions:	By	Date:

CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

SUBSURFACE UTILITY ENGINEERING PLAN

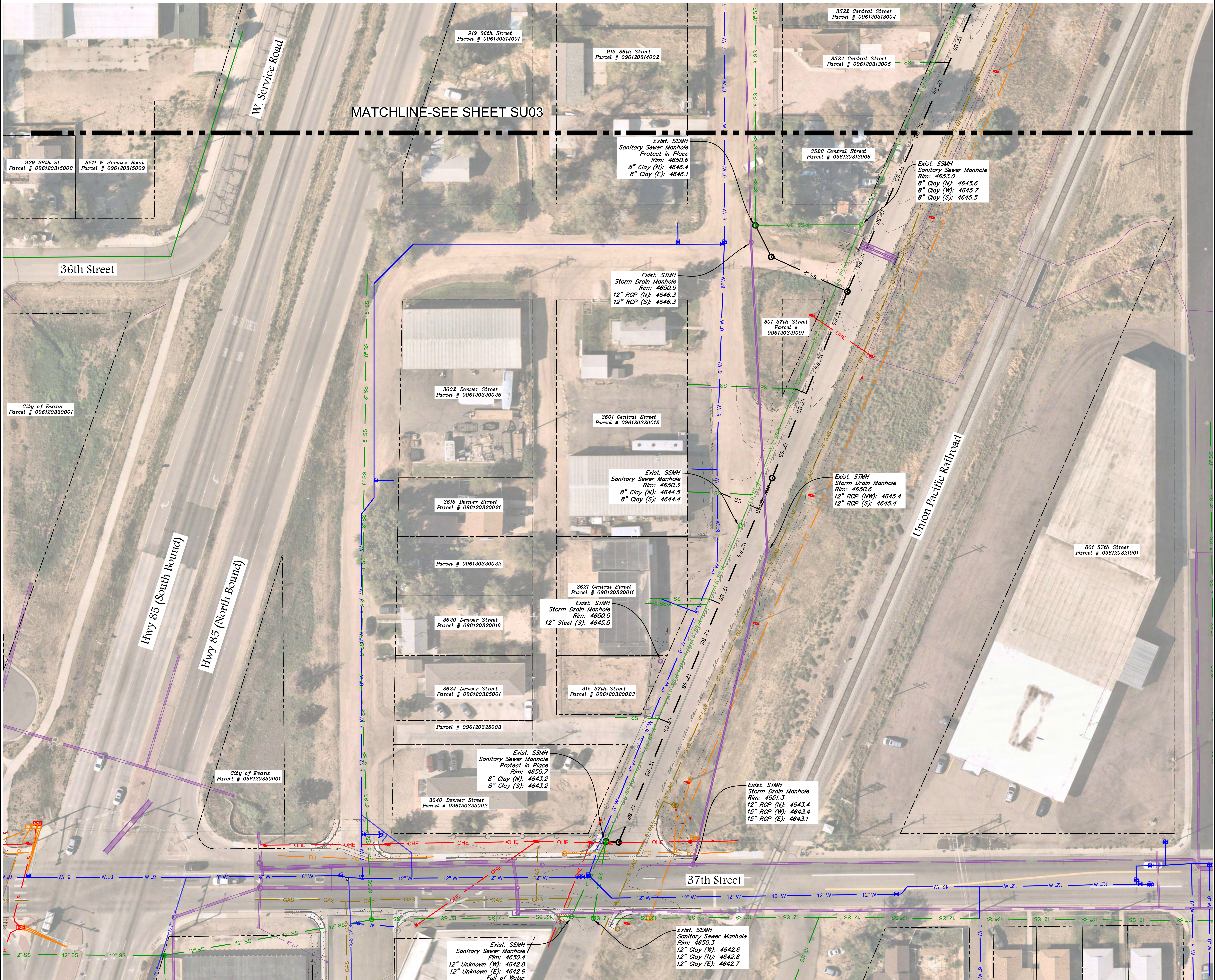
DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 40'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street SUE Plan.dwg

PROJECT NUMBER: XXXX

SHEET NUMBER
SU03

SHEET INDEX: 38

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street SUE Plan.dwg Thursday, June 08, 2023 4:22 PM By: Rhonda Bunner



40' 0 40' 80' 120'

SCALE: 1" =40'

(True scale for 22x34 sheet size)

SUBSURFACE UTILITY ENGINEERING PLAN

QUALITY LEVEL C

NOT FOR CONSTRUCTION

LEGEND:

EXISTING WATER	W
ABANDONED WATER	X-W-X
EXISTING SANITARY SEWER	SS
PROPOSED SANITARY SEWER	SS
EXISTING STORM DRAIN	
EXISTING ELECTRIC	E
EXISTING OVERHEAD UTILITY	OHU
EXISTING FIBER OPTIC	FO
EXISTING FIBER OPTIC	TEL
EXISTING GAS	GAS
EXISTING ROAD CENTERLINE	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
EXISTING WATER SERVICE SHUT-OFF	
EXISTING SANITARY SEWER MANHOLE	
EXISTING STORM DRAIN MANHOLE	33
POTHOLE LOCATION POINTS	

NOTES:

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COLORADO LICENSED PROFESSIONAL ENGINEER 53283 6/9/23

No.	Sheet Revisions / Revisions:	By:	Date:

SUSURFACE UTILITY ENGINEERING PLAN

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	1" = 40'
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street SUE Plan.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER SU04

SHEET INDEX: 39

Subsurface Utility Engineering Pothole Table

Civil 3D Point No.	Pothole No.	Detail No.	Utility Type	Utility Size	Material Type	Depth from Surface	Surface Elevation	Northing	Easting	Notes
1	A	100	Unknown	1.5"		54"	4659.364	1383937.559	3225334.647	Pothole not Completed yet
2	A	100	Gas	8"		42"	4659.364	1383937.559	3225334.647	
3	2	101	Electric	2 x 3"		32"	4659.290	1383923.539	3225330.915	
4	4	102	Water	12"		92"	4657.848	1382412.858	3224902.779	
5	6	103	Water (Greeley)	24"		74"	4657.769	1382378.192	3224891.794	
6	7	104	Water	12"		45"	4655.566	1382406.710	3225134.867	
7	8	105	Storm	6"		68"	4655.313	1382411.549	3225189.968	Unsure if this is Storm
8	10	106	Gas Service	1"		20"	4654.116	1382415.248	3225453.629	
9	10.1	107	Gas	2"		31.80"	4654.808	1382414.892	3225523.340	
10	10.2	108	Gas	4"		56.4"	4655.038	1382371.381	3225546.428	
11	11	109	Gas	2"		38"	4656.687	1382792.100	3225561.693	
12	12	110	Electric	1-2",1-3"		40.8"	4658.849	1383911.700	3225556.319	
13	13	111	Gas	4"		42.60"	4659.161	1383941.335	3225606.734	
14	13	111	Electric	2"		36.0"	4659.151	1383941.673	3225608.563	
15	14	112	Gas	4" in 8" Casing		123.6"	4659.493	1383933.507	3225615.602	Concrete Encased
16	15	113	Telecom	1"		35.40"	4659.532	1383937.969	3225622.328	
17	16	No Photo	Electric			14.40"	4659.234	1383951.194	3225643.708	Concrete Encased Duct Bank, Measure 1.2' to Top
18	17	114	Electric	1-2",1-3"		56.40"	4658.654	1383880.644	3225556.106	Black / Red

SUBSURFACE UTILITY ENGINEERING PLAN

QUALITY LEVEL C

NOT FOR CONSTRUCTION

CALL UTILITY NOTIFICATION CENTER OF COLORADO

811

Know what's **below.**
Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

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Fort Collins, Colorado 80525
Phone: 970.226.0861
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COLORADO LICENSED
53283
PROFESSIONAL ENGINEER
6/9/23

Sheet Revisions

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SUBSURFACE UTILITY ENGINEERING
POTHOLE TABLE

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
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CITY OF EVANS STATE STREET
SANITARY SEWER REPLACEMENT

PROJECT NUMBER:
XXXX

SHEET NUMBER
SU05

SHEET INDEX: 40

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street SUE Plan.dwg Thursday, June 08, 2023 4:22 PM By: Rhonda Bunner

SUBSURFACE UTILITY ENGINEERING PLAN

QUALITY LEVEL C

NOT FOR CONSTRUCTION

100 / SU06 PHOTO OF C3D POINT #1 & #2 (POTHOLE A)

101 / SU06 PHOTO OF C3D POINT #3 (POTHOLE 2)

102 / SU06 PHOTO OF C3D POINT #4 (POTHOLE 4)

103 / SU06 PHOTO OF C3D POINT #5 (POTHOLE 6)

104 / SU06 PHOTO OF C3D POINT #6 (POTHOLE 7)

105 / SU06 PHOTO OF C3D POINT #7 (POTHOLE 8)

106 / SU06 PHOTO OF C3D POINT #8 (POTHOLE 10)

107 / SU06 PHOTO OF C3D POINT #9 (POTHOLE 10.1)

108 / SU06 PHOTO OF C3D POINT #10 (POTHOLE 10.2)

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SUBSURFACE UTILITY ENGINEERING PHOTOS

DESIGNED BY:	D. Egger	DATE:	June 9, 2023
DRAWN BY:	R. Bunner	SCALE:	NTS
APPROVED BY:	J. Burrell	FILE NAME:	COE State Street SUE Photos.dwg

CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER SU06

SHEET INDEX: 41

Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street SUE Photos.dwg Thursday, June 08, 2023 4:22 PM By: Rhonda Bunner

109 SU07 PHOTO OF C3D POINT #11 (POTHOLE 11)

110 SU07 PHOTO OF C3D POINT #12 (POTHOLE 12)

111 SU07 PHOTO OF C3D POINT #13 & #14 (POTHOLE 13)

112 SU07 PHOTO OF C3D POINT #15 (POTHOLE 14)

113 SU07 PHOTO OF C3D POINT #16 (POTHOLE 15)

114 SU07 PHOTO OF C3D POINT #18 (POTHOLE 17)

SUBSURFACE UTILITY ENGINEERING PLAN

QUALITY LEVEL C

NOT FOR CONSTRUCTION

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COLORADO LICENSED 53283 PROFESSIONAL ENGINEER

Sheet Revisions

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CITY OF EVANS STATE STREET SANITARY SEWER REPLACEMENT

PROJECT NUMBER: XXXX

SHEET NUMBER SU07

SHEET INDEX: 42

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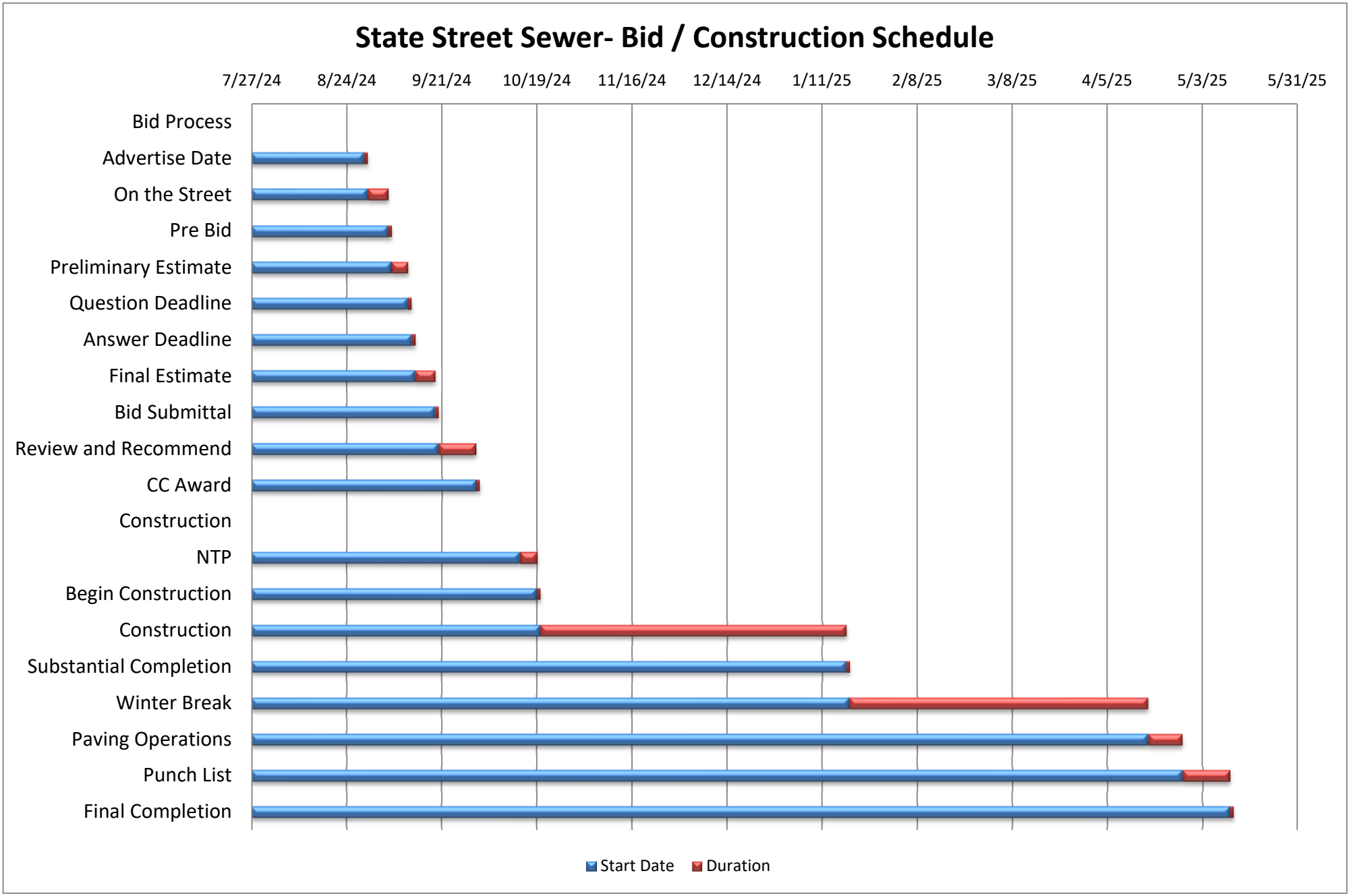
Drawing Name: D:\Projects\City Of Evans Waterline\Dwg\Sheets\State Street Sewer\COE State Street SUE Photos.dwg Thursday, June 08, 2023 4:22 PM By: Rhonda Bunner

State Street Sewer Design Bid / Construction Schedule			
Task	**Start Date**	**Duration (days)**	**Net Work Days**
Bid Process			
Advertise Date	Thursday, August 29, 2024	1	
On the Street	**Friday, August 30, 2024**	6	
Pre Bid	**Thursday, September 5, 2024**	1	
Preliminary Estimate	**Friday, September 6, 2024**	5	
Question Deadline	**Wednesday, September 11, 2024**	1	
Answer Deadline	**Thursday, September 12, 2024**	1	
Final Estimate	**Friday, September 13, 2024**	6	
Bid Submittal	**Thursday, September 19, 2024**	1	**15**
Review and Recommend	**Friday, September 20, 2024**	11	
CC Award	**Tuesday, October 1, 2024**	1	**23**
Construction			
NTP	Monday, October 14, 2024	5	
Begin Construction	**Saturday, October 19, 2024**	1	
Construction	**Sunday, October 20, 2024**	90	
Substantial Completion	**Saturday, January 18, 2025**	1	**63**
Winter Break	**Sunday, January 19, 2025**	88	
Paving Operations	**Thursday, April 17, 2025**	10	
Punch List	**Sunday, April 27, 2025**	14	
Final Completion	**Sunday, May 11, 2025**	1	**17**


State Street Sewer- Bid / Construction Schedule
7/27/24
8/24/24
9/21/24
10/19/24
11/16/24
12/14/24
1/11/25
2/8/25
3/8/25
4/5/25
5/3/25
5/31/25
Bid Process
Advertise Date
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