Purchasing Division

Invitation for Bid

IFB-4628-19-DH

2019 South Downtown Water & Sanitary Sewer Replacement Project

Responses Due:

May 8, 2019 prior to 3:30 pm

Accepting Electronic Responses Only

Responses Only Submitted Through the Rocky Mountain E-Purchasing System (RMEPS)

https://www.rockymountainbidsystem.com/default.asp

(Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor MUST contact RMEPS to resolve issue prior to the response deadline. 800-835-4603)

Purchasing Representative:

Duane Hoff, Senior Buyer

duaneh@gjcity.org

970-244-1545

This document has been developed specifically to solicit competitive responses for this solicitation, and may not be the same as previous City of Grand Junction solicitations. All vendors are urged to thoroughly review this solicitation prior to responding. Submittal by **FAX, EMAIL or HARD COPY IS NOT ACCEPTABLE** for this solicitation.

Invitation for Bids

Table of Contents

1. Instructions to Bidders

1.1. **Purpose:** The City of Grand Junction is soliciting competitive bids from qualified and interested companies for all labor, equipment, and materials required 2019 South Downtown Water and Sanitary Sewer Replacement Project. All dimensions and scope of work should be verified by Contractors prior to submission of bids.

IFB Questions:
Duane Hoff, Senior Buyer
duaneh@gjcity.org

The City would like to remind all Contractors, Sub-Contractors, Vendors, Suppliers, Manufacturers, Service Providers, etc. that (with the exception of Pre-Bid or Site Visit Meetings) all questions, inquiries, comments, or communication pertaining to any formal solicitation (whether process, specifications, scope, etc.) must be directed (in writing) to the Purchasing Agent assigned to the project, or Purchasing Division. Direct communication with the City assigned Project Managers/Engineers is not appropriate for public procurement, and may result in disqualification.

1.2. **Mandatory Pre-Bid Meeting:** **Prospective bidders are required to attend a mandatory pre-bid meeting on April 16th at 10:30 am**. Meeting location shall be in the City Council Auditorium, located at 250 North 5th Street. The purpose of this visit will be to inspect and to clarify the contents of this Invitation for Bids (IFB).

1.3. **The Owner:** The Owner is the City of Grand Junction, Colorado and is referred to throughout this Solicitation. The term Owner means the Owner or his authorized representative.

1.4. **Submission:** ***Each bid shall be submitted in electronic format only, and only through the Rocky Mountain E-Purchasing website (https://www.rockymountainbidsystem.com/default.asp).*** *This site offers both "free" and "paying" registration options that allow for full access of the Owner's documents and for electronic submission of proposals. (Note: "free" registration may take up to 24 hours to process. Please Plan accordingly.)* Please view our "**Electronic Vendor Registration Guide"** at http://www.gjcity.org/business-and-economic-development/bids/ for details. (Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline. **800-835-4603**)

1.5. **Modification and Withdrawal of Bids Before Opening.** Bids may be modified or withdrawn by an appropriate document stating such, duly executed and submitted to the place where Bids are to be submitted at any time prior to Bid Opening.

1.6. **Printed Form for Price Bid:** All Price Bids must be made upon the Price Bid Schedule attached, and should give the amounts both in words and in figures, and must be signed and acknowledged by the bidder.

The Offeror shall specify a unit price in figures for each pay item for which a quantity is given and shall provide the products (in numbers) of the respective unit prices and quantities in the Extended Amount column. The total Bid price shall be equal to the sum of all extended amount prices. When an item in the Price Bid Schedule provides a choice to be made by the Offeror, Offeror's choice shall be indicated in accordance with the specifications for that particular item and thereafter no further choice shall be permitted.

Where the unit of a pay item is lump sum, the lump sum amount shall be shown in the "extended amount" column and included in the summation of the total Bid.

All blank spaces in the Price Bid Schedule must be properly filled out.

Bids by corporations must be executed in the corporate name by the president or vice president or other corporate office accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown below the signature.

Bids by partnerships must be executed in the partnership name and signed by a partner whose title must appear under the signature and the official address of the partnership must be shown below the signature.

All names must be typed or printed below the signature.

The Offeror's Bid shall contain an acknowledgement of receipt of all Addenda, the numbers of which shall be filled in on the Contractor's Bid Form.

The contact information to which communications regarding the Bid are to be directed must be shown.

1.7. Exclusions: No oral, telephonic, emailed, or facsimile bid will be considered

1.8. Contract Documents: The complete IFB and bidder's response compose the Contract Documents. Copies of bid documents can be obtained from the City Purchasing website, http://www.gjcity.org/business-and-economic-development/bids/ .

1.9. Additional Documents: The July 2010 edition of the "City Standard Contract Documents for Capital Improvements Construction", Plans, Specifications and other Bid Documents are available for review or download on the Public Works & Planning/Engineering page at www.gjcity.org. Electronic copies may be obtained on a CD format at the Department of Public Works and Planning at City Hall.

1.10. Definitions and Terms: See Article I, Section 3 of the General Contract Conditions in the *Standard Contract Documents for Capital Improvements Construction*.

1.11. Examination of Specifications: Bidders shall thoroughly examine and be familiar with the project Statement of Work. The failure or omission of any Offeror to receive or examine any form, addendum, or other document shall in no way relieve any Offeror from any obligation with respect to his bid. The submission of a bid shall be taken as evidence of compliance with this section. Prior to submitting a bid, each Offeror shall, at a minimum:

a. Examine the *Contract Documents* thoroughly;

b. Visit the site to familiarize themselves with local conditions that may in any manner affect cost, progress, or performance of the Work;

c. Become familiar with federal, state, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress or performance of the Work;

d. Study and carefully correlate Bidder's observations with the *Contract Documents*, and;

e. Notify the Engineer of all conflicts, errors, ambiguities or discrepancies in or among the *Contract Documents*

On request, the Owner will provide each Offeror access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of a Bid. It shall be the Offeror's responsibility to make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (including without limitation, surface, subsurface and underground utilities) at or contiguous to the site or otherwise which may affect cost, progress or performance of the work and which the Offeror deems necessary to determine its Bid for performing the work in accordance with the time, price and other terms and conditions of the Contract Documents. Location of any excavation or boring made by Offeror shall be subject to prior approval of Owner and applicable agencies. Offeror shall fill all holes, restore all pavements to match the existing structural section and shall clean up and restore the site to its former condition upon completion of such exploration. The Owner reserves the right to require the Offeror to execute an access agreement with the Owner prior to accessing the site.

The lands upon which the Work is to be performed, rights of way, and access thereto, and other lands designated for use by Contractor in performing the Work, are identified on the Drawings.

Information and data reflected in the *Contract Documents* with respect to underground utilities at or contiguous to the site are based upon information and data furnished to the Owner and the Engineer by the owners of such underground utilities or others, and the Owner does not assume responsibility for the accuracy or completeness thereof, unless it is expressly provided otherwise in the *Contract Documents*.

By submission of a Bid, the Offeror shall be conclusively presumed to represent that the Offeror has complied with every requirement of these Instructions to Bidders, that the *Contract Documents* are not ambiguous and are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

1.12. Questions Regarding Statement of Work: Any information relative to interpretation of Scope of Work or specifications shall be requested of the Purchasing Representative, in writing, in ample time prior to the response time.

1.13. Addenda & Interpretations: If it becomes necessary to revise any part of this solicitation, a written addendum will be posted electronically on the City's website at http://www.gjcity.org/business-and-economic-development/bids/ . The Owner is not bound by any oral representations, clarifications, or changes made in the written specifications by Owner, unless such clarification or change is provided in written addendum form from the City Purchasing Representative.

1.14. Taxes: The Owner is exempt from State retail and Federal tax. The bid price must be net, exclusive of taxes.

1.15. Sales and Use Taxes: The Contractor and all Subcontractors are required to obtain exemption certificates from the Colorado Department of Revenue for sales and use taxes in accordance with the provisions of the General Contract Conditions. Bids shall reflect this method of accounting for sales and use taxes on materials, fixtures and equipment.

1.16. Offers Binding 60 Days: Unless additional time is required by the Owner, or otherwise specified, all formal offers submitted shall be binding for sixty (60) calendar days following opening date, unless the Bidder, upon request of the Purchasing Representative, agrees to an extension.

1.17. Collusion Clause: Each bidder by submitting a bid certifies that it is not party to any collusive action or any action that may be in violation of the Sherman Antitrust Act. Any and all bids shall be rejected if there is evidence or reason for believing that collusion exists among bidders. The Owner may, or may not, accept future bids for the same services or commodities from participants in such collusion.

1.18. Disqualification of Bidders: A Bid will not be accepted from, nor shall a Contract be awarded to, any person, firm, or corporation that is in arrears to the Owner, upon debt or contract, or that has defaulted, as surety or otherwise, upon any obligation to the Owner, or that is deemed irresponsible or unreliable.

Bidders may be required to submit satisfactory evidence that they are responsible, have a practical knowledge of the project bid upon and that they have the necessary financial and other resources to complete the proposed Work.

Either of the following reasons, without limitation, shall be considered sufficient to disqualify a Bidder and Bid:

a. More than one Bid is submitted for the same Work from an individual, firm, or corporation under the same or different name; and

b. Evidence of collusion among Bidders. Any participant in such collusion shall not receive recognition as a Bidder for any future work of the Owner until such participant has been reinstated as a qualified bidder.

1.19. Public Disclosure Record: If the bidder has knowledge of their employee(s) or sub-contractors having an immediate family relationship with a City/County employee or elected official, the bidder must provide the Purchasing Representative with the name(s) of these individuals. These individuals are required to file an acceptable "Public Disclosure Record", a statement of financial interest, before conducting business with the City/County.

2. General Contract Conditions for Construction Projects

2.1. The Contract: This Invitation for Bid, submitted documents, and any negotiations, when properly accepted by the City/County, shall constitute a contract equally binding between the City/County and Contractor. The contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The contract may be amended or modified with Change Orders, Field Orders, or Addendums.

2.2. The Work: The term Work includes all labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such construction.

2.3. Execution, Correlation, Intent, and Interpretations: The Contract Documents shall be signed in not less than triplicate by the Owner (City) and Contractor. City will provide the contract. By executing the contract, the Contractor represents that he/she has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents. The Contract Documents are complementary, and what is required by any one, shall be as binding as if required by all. The intention of the documents is to include all labor, materials, equipment and other items necessary for the proper execution and completion of the scope of work as defined in the technical specifications and drawings contained herein. All drawings, specifications and copies furnished by the City are, and shall remain, City property. They are not to be used on any other project, and with the exception of one contract set for each party to the contract, are to be returned to the owner on request at the completion of the work.

2.4. The Owner: The Owner is the City of Grand Junction, Colorado and is referred to throughout the Contract Documents. The term Owner means the Owner or his authorized representative. The Owner shall, at all times, have access to the work wherever it is in preparation and progress. The Contractor shall provide facilities for such access. The Owner will make periodic visits to the site to familiarize himself generally with the progress and quality of work and to determine, in general, if the work is proceeding in accordance with the contract documents. Based on such observations and the Contractor's Application for Payment, the Owner will determine the amounts owing to the Contractor and will issue Certificates for Payment in such amounts, as provided in the contract. The Owner will have authority to reject work which does not conform to the Contract documents. Whenever, in his reasonable opinion, he considers it necessary or advisable to insure the proper implementation of the intent of the Contract Documents, he will have authority to require the Contractor to stop the work or any portion, or to require special inspection or testing of the work, whether or not such work

can be then be fabricated, installed, or completed. The Owner will not be responsible for the acts or omissions of the Contractor, and sub-Contractor, or any of their agents or employees, or any other persons performing any of the work.

2.5. Contractor: The Contractor is the person or organization identified as such in the Agreement and is referred to throughout the Contract Documents. The term Contractor means the Contractor or his authorized representative. The Contractor shall carefully study and compare the General Contract Conditions of the Contract, Specification and Drawings, Scope of Work, Addenda and Modifications and shall at once report to the Owner any error, inconsistency or omission he may discover. Contractor shall not be liable to the Owner for any damage resulting from such errors, inconsistencies or omissions. The Contractor shall not commence work without clarifying Drawings, Specifications, or Interpretations.

2.6. Sub-Contractors: A sub-contractor is a person or organization who has a direct contract with the Contractor to perform any of the work at the site. The term sub-contractor is referred to throughout the contract documents and means a sub-contractor or his authorized representative.

2.7. Award of Sub-Contractors & Other Contracts for Portions of the Work: Contractor shall submit with their bid response to the Owner, in writing for acceptance, a list of the names of the sub-contractors or other persons or organizations proposed for such portions of the work as may be designated in the proposal requirements, or, if none is so designated, the names of the sub-contractors proposed for the principal portions of the work. Prior to the award of the contract, the Owner shall notify the successful Contractor in writing if, after due investigation, has reasonable objection to any person or organization on such list. If, prior to the award of the contract, the Owner has a reasonable and substantial objection to any person or organization on such list, and refuses in writing to accept such person or organization, the successful Contractor may, prior to the award, withdraw their proposal without forfeiture of proposal security. If the successful Contractor submits an acceptable substitute with an increase in the proposed price to cover the difference in cost occasioned by the substitution, the Owner may, at their discretion, accept the increased proposal or may disqualify the Contractor. If, after the award, the Owner refuses to accept any person or organization on such list, the Contractor shall submit an acceptable substitute and the contract sum shall be increased or decreased by the difference in cost occasioned by such substitution and an appropriate Change Order shall be issued. However, no increase in the contract sum shall be allowed for any such substitution unless the Contractor has acted promptly and responsively in submitting a name with respect thereto prior to the award.

2.8. Quantities of Work and Unit Price: Materials or quantities stated as unit price items in the Bid are supplied only to give an indication of the general scope of the Work, and are as such, estimates only. The Owner does not expressly or by implication agree that the actual amount of Work or material will correspond therewith, and reserves the right after award to increase or decrease the quantity of any unit item of the Work without a change in the unit price except as set forth in Article VIII, Section 70 of the *General Contract Conditions*. The City also reserves the right to make changes in the Work (including the right to delete any bid item in its entirety or add additional bid items) as set forth in Article VIII, Sections 69 through 71 of the *General Contract Conditions*.

2.9. Substitutions: The materials, products and equipment described in the *Solicitation Documents* shall be regarded as establishing a standard of required performance, function, dimension, appearance, or quality to be met by any proposed substitution. No substitution will be considered prior to receipt of Bids unless the Offeror submits a written request for approval to the City Purchasing Division at least ten (10) days prior to the date for receipt of Bids. Such requests for approval shall include the name of the material or equipment for which substitution is sought and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for evaluation, including samples if requested. The Offeror shall set forth changes in other materials, equipment, or other portions of the Work including changes of the work of other contracts, which incorporation of the proposed substitution would require to be included. The Owner's decision of approval or disapproval of a proposed substitution shall be final. If the Owner approves a proposed substitution before receipt of Bids, such approval will be set forth in an Addendum. Offerors shall not rely upon approvals made in any other manner.

2.10. Supervision and Construction Procedures: The Contractor shall supervise and direct the work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract.

2.11. Warranty: The Contractor warrants to the Owner that all materials and equipment furnished under this contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these standards may be considered defective. If required by Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. If within ten (10) days after written notice to the Contractor requesting such repairs or replacement, the Contractor should neglect to make or undertake with due diligence to the same, the City may make such repairs or replacements. All indirect and direct costs of such correction or removal or replacement shall be at the Contractor's expense. The Contractor will also bear the expenses of making good all work of others destroyed or damaged by the correction, removal or replacement of his defective work.

2.12. Permits, Fees, & Notices: The Contractor shall secure and pay for all permits, governmental fees and licenses necessary for the proper execution and completion of the work. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the work. If the Contractor observes that any of the Contract Documents are at variance in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be adjusted by approximate modification. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall assume full responsibility and shall bear all costs attributable.

2.13. Responsibility for Those Performing the Work: The Contractor shall be responsible to the Owner for the acts and omissions of all his employees and all sub-contractors, their agents and employees, and all other persons performing any of the work under a contract with the Contractor.

2.14. Use of the Site: The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents, and shall not unreasonably encumber the site with any materials or equipment.

2.15. Cleanup: The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of work he shall remove all his waste materials and rubbish from and about the project, as well as all his tools, construction equipment, machinery and surplus materials.

2.16. Insurance: The Contractor shall secure and maintain such insurance policies as will provide the coverage and contain other provisions specified in the General Contract Conditions, or as modified in the Special Contract Conditions.

The Contractor shall file a copy of the policies or Certificates of Insurance acceptable to the City with the Engineer within ten (10) Calendar Days after issuance of the Notice of Award. These Certificates of Insurance shall contain a provision that coverage afforded under the policies shall not be canceled unless at least thirty (30) Calendar Days prior written notice has been given to the City.

2.17. Indemnification: The Contractor shall defend, indemnify and save harmless the Owner, and all its officers, employees, insurers, and self-insurance pool, from and against all liability, suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the Contractor, or of any Contractor's agent, employee, sub-contractor or supplier in the execution of, or performance under, any contract which may result from proposal award. Contractor shall pay any judgment with cost which may be obtained against the Owner growing out of such injury or damages.

2.18. Miscellaneous Conditions: Material Availability: Contractors must accept responsibility for verification of material availability, production schedules, and other pertinent data prior to submission of bid. It is the responsibility of the bidder to notify the Owner immediately if materials specified are discontinued, replaced, or not available for an extended period of time. OSHA Standards: All bidders agree and warrant that services performed in response to this invitation shall conform to the standards declared by the US Department of Labor under the Occupational Safety and Health Act of 1970 (OSHA). In the event the services do not conform to OSHA standards, the Owner may require the services to be redone at no additional expense to the Owner.

2.19. Time: Time is of the essence with respect to the time of completion of the Project and any other milestones or deadline which are part of the Contract. It will be necessary for each Bidder to satisfy the City of its ability to complete the Work within the Contract Time set forth in the Contract Documents. The Contract Time is the period of time allotted in the Contract Documents for completion of the work. The date of commencement of the work is the date established in a Notice to Proceed. If there is no Notice to Proceed, it shall be the date of the Contract or such other date as may be established therein, or as established as entered on the Bid Form. The Date of Substantial Completion of the work

or designated portions thereof is the date certified by the Owner when construction is sufficiently complete, in accordance with the Contract Documents.

2.20. Progress & Completion: The Contractor shall begin work on the date of commencement as defined in the Contract, and shall carry the work forward expeditiously with adequate forces and shall complete it within the contract time.

2.21. Payment & Completion: The Contract Sum is stated in the Contract and is the total amount payable by the Owner to the Contractor for the performance of the work under the Contract Documents. Upon receipt of written notice that the work is ready for final inspection and acceptance and upon receipt of application for payment, the Owner's Project Manager will promptly make such inspection and, when he finds the work acceptable under the Contract Documents and the Contract fully performed, the Owner shall make payment in the manner provided in the Contract Documents.

2.22. Bid Bond: Each Bid shall as a guaranty of good faith on the part of the Bidder be accompanied by a Bid Guaranty consisting of: a certified or cashier's check drawn on an approved national bank or trust company in the state of Colorado, and made payable without condition to the City; or a **Bid Bond** written by an approved corporate surety in favor of the City. The amount of the Bid Guaranty shall not be less than 5% of the total Bid amount. Once a Bid is accepted and a Contact is awarded, the apparent successful bidder has ten calendar days to enter into a contractor in the form prescribed and to furnish the bonds with a legally responsible and approved surety. Failure to do so will result I forfeiture of the Bid Guaranty to the City as Liquidated Damages.

Each bidder shall guaranty its total bid price for a period of sixty (60) Calendar Days from the date of the bid opening.

2.23. Performance & Payment Bonds: Contractor shall furnish a Performance and a Payment Bond, each in an amount at least equal to that specified for the contract amount as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These bonds shall remain in effect for the duration of the Warranty Period (as specified in the Special Conditions). Contractor shall also furnish other bonds that may be required by the Special Conditions. All bonds shall be in the forms prescribed by the Contract Documents and be executed by such sureties as (1) are licensed to conduct business in the State of Colorado and (2) are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Accounts, U.S. Treasury Department. All bonds singed by an agent must be accompanied by a certified copy of the Authority Act. If the surety on any bond furnished by the Contractor is declared bankrupt, or becomes insolvent, or its rights to do business in Colorado are terminated, or it ceases to meet the requirements of clauses (1) and (2) of this section, Contractor shall within five (5) days thereafter substitute another bond and surety, both of which shall be acceptable to the City.

2.24. Retention: The Owner will deduct money from the partial payments in amounts considered necessary to protect the interest of the Owner and will retain this money until after completion of the entire contract. The amount to be retained from partial payments will

be five (5) percent of the value of the completed work, and not greater than five (5) percent of the amount of the Contract. When the retainage has reached five (5) percent of the amount of the Contract no further retainage will be made and this amount will be retained until such time as final payment is made.

2.25. Liquidated Damages for Failure to Enter Into Contract: CITY ONLY Should the Successful Bidder fail or refuse to enter into the Contract within ten Calendar Days from the issuance of the Notice of Award, the City shall be entitled to collect the amount of such Bidder's Bid Guaranty as Liquidated Damages, not as a penalty but in consideration of the mutual release by the City and the Successful Bidder of all claims arising from the City's issuance of the Notice of Award and the Successful Bidder's failure to enter into the Contract and the costs to award the Contract to any other Bidder, to re-advertise, or otherwise dispose of the Work as the City may determine best serves its interest.

2.26. Liquidated Damages for Failure to Meet Project Completion Schedule: CITY ONLY If the Contractor does not achieve Final Completion by the required date, whether by neglect, refusal or any other reason, the parties agree and stipulate that the Contractor shall pay liquidated damages to the City for each such day that final completion is late. As provided elsewhere, this provision does not apply for delays caused by the City. The date for Final Completion may be extended in writing by the Owner.

The Contractor agrees that as a part of the consideration for the City's awarding of this Contract liquidated damages in the daily amount of **$500.00** is reasonable and necessary to pay for the actual damages resulting from such delay. The parties agree that the real costs and injury to the City for such delay include hard to quantify items such as: additional engineering, inspection and oversight by the City and its agents; additional contract administration; inability to apply the efforts of those employees to the other work of the City; perceived inefficiency of the City; citizens having to deal with the construction and the Work, rather than having the benefit of a completed Work, on time; inconvenience to the public; loss of reputation and community standing for the City during times when such things are very important and very difficult to maintain.

The Contractor must complete the Work and achieve final completion included under the Bid Schedule in the number of consecutive calendar days after the City gives is written Notice to Proceed. When the Contractor considers the entire Work ready for its intended use, Contractor shall certify in writing that the Work is substantially complete. In addition to the Work being substantially complete, Final Completion date is the date by which the Contractor shall have fully completed all clean-up, and all items that were identified by the City in the inspection for final completion. Unless otherwise stated in the Special Conditions, for purposes of this liquidated damages clause, the Work shall not be finished and the Contract time shall continue to accrue until the City gives its written Final Acceptance.

If the Contractor shall fail to pay said liquidated damages promptly upon demand thereof after having failed to achieve Final Completion on time, the City shall first look to any retainage or other funds from which to pay said liquidated damages; if retainage or other liquid funds are not available to pay said liquidated damages amounts, the Surety on the Contractor's Performance Bond and Payment Bond shall pay such liquidated damages.

In addition, the City may withhold all, or any part of, such liquidated damages from any payment otherwise due the Contractor.
Liquidated damages as provided do not include any sums to reimburse the City for extra costs which the City may become obligated to pay on other contracts which were delayed or extended because of the Contractor's failure to complete the Work within the Contract Time. Should the City incur additional costs because of delays or extensions to other contracts resulting from the Contractor's failure of timely performance, the Contractor agrees to pay these costs that the City incurs because of the Contractor's delay, and these payments are separate from and in addition to any liquidated damages.

The Contractor agrees that the City may use its own forces or hire other parties to obtain Substantial or Final Completion of the work if the time of completion has elapsed and the Contractor is not diligently pursuing completion. In addition to the Liquidated Damages provided for, the Contractor agrees to reimburse the City for all expenses thus incurred.

2.27. Contingency/Force Account: Contingency/Force Account work will be authorized by the Owner's Project Manager and is defined as minor expenses to cover miscellaneous or unforeseen expenses related to the project. The expenses are not included in the Drawings, Specifications, or Scope of Work and are necessary to accomplish the scope of this contract. Contingency/Force Account Authorization will be directed by the Owner through an approved form. Contingency/Force Account funds are the property of the Owner and any Contingency/Force Account funds, not required for project completion, shall remain the property of the Owner. Contractor is not entitled to any Contingency/Force Account funds, that are not authorized by Owner or Owner's Project Manager.

2.28. Protection of Persons & Property: The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. Contractor shall erect and maintain, as required by existing safeguards for safety and protection, and all reasonable precautions, including posting danger signs or other warnings against hazards promulgating safety regulations and notifying owners and users of adjacent utilities. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct by the Contractor in the execution of the work, or in consequence of the non-execution thereof by the Contractor, he shall restore, at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or it shall make good such damage or injury in an acceptable manner.

2.29. Changes in the Work: The Owner, without invalidating the contract, may order changes in the work within the general scope of the contract consisting of additions, deletions or other revisions, the contract sum and the contract time being adjusted accordingly. All such changes in the work shall be authorized by Change Order and shall be executed under the applicable conditions of the contract documents. A Change Order is a written order to the Contractor signed by the Owner issued after the execution of the contract, authorizing a change in the work or an adjustment in the contract sum or the contract time. The contract sum and the contract time may be changed only by Change Order.

2.30. Claims for Additional Cost or Time: If the Contractor wishes to make a claim for an increase in the contract sum or an extension in the contract time, he shall give the Owner written notice thereof within a reasonable time after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property in which case the Contractor shall precede in accordance with the regulations on safety. No such claim shall be valid unless so made. Any change in the contract sum or contract time resulting from such claim shall be authorized by Change Order.

2.31. Minor Changes in the Work: The Owner shall have authority to order minor changes in the work not involving an adjustment in the contract sum or an extension of the contract time and not inconsistent with the intent of the contract documents.

2.32. Field Orders: The Owner may issue written Field Orders which interpret the Contract Documents in accordance with the specifications, or which order minor changes in the work in accordance with the agreement, without change in the contract sum or time. The Contractor shall carry out such Field Orders promptly.

2.33. Uncovering & Correction of Work: The Contractor shall promptly correct all work rejected by the Owner as defective or as failing to conform to the contract documents whether observed before or after substantial completion and whether or not fabricated installed or competed. The Contractor shall bear all costs of correcting such rejected work, including the cost of the Owner's additional services thereby made necessary. If within one (1) year after the date of completion or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the contract documents, any of the work found to be defective or not in accordance with the contract documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discover of condition. All such defective or non-conforming work under the above paragraphs shall be removed from the site where necessary and the work shall be corrected to comply with the contract documents without cost to the Owner. The Contractor shall bear the cost of making good all work of separate Contractors destroyed or damaged by such removal or correction. If the Owner prefers to accept defective or non-conforming work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect an appropriate reduction in the payment or contract sum, or, if the amount is determined after final payment, it shall be paid by the Contractor.

2.30. Amendment: No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All amendments to the contract shall be made in writing by the Owner.

2.31. Assignment: The Contractor shall not sell, assign, transfer or convey any contract resulting from this IFB, in whole or in part, without the prior written approval from the Owner.

2.32. Compliance with Laws: Bids must comply with all Federal, State, County and local laws governing or covering this type of service and the fulfillment of all ADA (Americans with Disabilities Act) requirements.

2.33. Confidentiality: All information disclosed by the Owner to the Contractor for the purpose of the work to be done or information that comes to the attention of the Contractor during the course of performing such work is to be kept strictly confidential.

2.34. Conflict of Interest: No public official and/or City/County employee shall have interest in any contract resulting from this IFB.

2.35. Contract Termination: This contract shall remain in effect until any of the following occurs: (1) contract expires; (2) completion of services; (3) acceptance of services or, (4) for convenience terminated by either party with a written *Notice of Cancellation* stating therein the reasons for such cancellation and the effective date of cancellation.

2.36. Employment Discrimination: During the performance of any services per agreement with the Owner, the Contractor, by submitting a Bid, agrees to the following conditions:

2.36.1. The Contractor shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, handicap, or national origin except when such condition is a legitimate occupational qualification reasonably necessary for the normal operations of the Contractor. The Contractor agrees to post in conspicuous places, visible to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

2.36.2. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, shall state that such Contractor is an Equal Opportunity Employer.

2.36.3. Notices, advertisements, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

2.37. Affirmative Action: In executing a Contract with the City, the Contractor agrees to comply with Affirmative Action and Equal Employment Opportunity regulations presented in the General Contract Conditions.

2.38. Immigration Reform and Control Act of 1986 and Immigration Compliance: The Offeror certifies that it does not and will not during the performance of the contract employ illegal alien workers or otherwise violate the provisions of the Federal Immigration Reform and Control Act of 1986 and/or the immigration compliance requirements of State of Colorado C.R.S. § 8-17.5-101, *et.seq.* (House Bill 06-1343).

2.39. Ethics: The Contractor shall not accept or offer gifts or anything of value nor enter into any business arrangement with any employee, official, or agent of the Owner.

2.40. Failure to Deliver: In the event of failure of the Contractor to deliver services in accordance with the contract terms and conditions, the Owner, after due oral or written notice, may procure the services from other sources and hold the Contractor responsible for any costs resulting in additional purchase and administrative services. This remedy shall be in addition to any other remedies that the Owner may have.

2.41. Failure to Enforce: Failure by the Owner at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the Owner to enforce any provision at any time in accordance with its terms.

2.42. Force Majeure: The Contractor shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions, and acts of God beyond the control of the Contractor, unless otherwise specified in the contract.

2.43. Independent Contractor: The Contractor shall be legally considered an Independent Contractor and neither the Contractor nor its employees shall, under any circumstances, be considered servants or agents of the Owner. The Owner shall be at no time legally responsible for any negligence or other wrongdoing by the Contractor, its servants, or agents. The Owner shall not withhold from the contract payments to the Contractor any federal or state unemployment taxes, federal or state income taxes, Social Security Tax or any other amounts for benefits to the Contractor. Further, the Owner shall not provide to the Contractor any insurance coverage or other benefits, including Workers' Compensation, normally provided by the Owner for its employees.

2.44. Nonconforming Terms and Conditions: A bid that includes terms and conditions that do not conform to the terms and conditions of this Invitation for Bid is subject to rejection as non-responsive. The Owner reserves the right to permit the Contractor to withdraw nonconforming terms and conditions from its bid prior to a determination by the Owner of non-responsiveness based on the submission of nonconforming terms and conditions.

Items for non-responsiveness may include, but not be limited to:

a. Submission of the Bid on forms other than those supplied by the City;

b. Alteration, interlineation, erasure, or partial detachment of any part of the forms which are supplied herein;

c. Inclusion of unauthorized additions conditional or alternate Bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite, or ambiguous as to its meaning;

d. Failure to acknowledge receipt of any or all issued Addenda;

e. Failure to provide a unit price or a lump sum price, as appropriate, for each pay item listed except in the case of authorized alternative pay items;

f. Failure to list the names of Subcontractors used in the Bid preparation as may be required in the Solicitation Documents;

g. Submission of a Bid that, in the opinion of the Owner, is unbalanced so that each item does not reasonably carry its own proportion of cost or which contains inadequate or unreasonable prices for any item;

h. Tying of the Bid with any other bid or contract; and

i. Failure to calculate Bid prices as described herein.

2.45. Evaluation of Bids and Offeors: The Owner reserves the right to:

- reject any and all Bids,
- waive any and all informalities,
- negotiate final terms with the Successful Bidder, and
- disregard any and all nonconforming, nonresponsive or conditional Bids.

Discrepancies between words and figures will be resolved in favor of words. Discrepancies between Unit Prices and Extended Prices will be resolved in favor of the Unit Prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. The corrected extensions and totals will be shown in the tabulation of Bids.

The Owner may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the work as to which the identity of Subcontractors and other persons and organizations must be submitted. Operating costs, maintenance considerations performance data, and guarantees of materials and equipment may also be considered by the Owner.

The Owner will conduct such investigations as deemed necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Offeror, proposed Subcontractors and other persons and organizations to do the Work in accordance with the *Contract Documents* to the City's satisfaction within the Contract Time.

The Offeror shall furnish the Owner all information and data requested by the Owner to determine the ability of the Offeror to perform the Work. The Owner reserves the right to reject the Bid if the evidence submitted by, or investigation of such Offeror fails to satisfy the Owner that such Offeror is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.

By submitting a Bid, each Offeror authorizes the Owner to perform such investigation of the Offeror as the Owner deems necessary to establish the responsibility, qualifications and financial ability of the Offeror and, by its signature thereon, authorizes the Owner to obtain reference information concerning the Offeror and releases the party providing such information and the Owner from any and all liability to the Offeror as a result of such reference information so provided.

The Owner reserves the right to reject the Bid of any Offeror who does not pass any evaluation to the Owner's satisfaction.

If the Contract is to be awarded, it will be awarded to the Offeror who, by evaluation, the Owner determines will best meet the Owner's interests.

The Owner reserves the right to accept or reject the Work contained in any of the Price Bid Schedules or alternates, either in whole or in part.

2.46. Award of Contract: Unless otherwise indicated, a single award will be made for all the bid items in an individual bid schedule. In the event that the Work is contained in more than one Bid Schedule, the City may award Schedules individually or in combination. In the case of two Bid Schedules which are alternative to each other, only one of such alternative Schedules will be awarded. Within forty-five (45) Calendar Days of Bid Opening, the City will issue a Notice of Award to the Successful Bidder which will be accompanied by four (4) unsigned copies of the Contract and the Performance and Payment Bond forms. Within ten (10) Calendar Days thereafter, the Successful Bidder shall sign and deliver four (4) copies of the Contract, Performance Bond, Payment Bond and Certificates of Insurance to the City. Within ten (10) Calendar Days thereafter, the City will deliver two (2) fully executed counterparts of the Contract to the Contractor. No contract shall exist between the Successful Bidder and the City and the Successful Bidder shall have no rights at law or in equity until the Contract has been duly executed by the City.

The Successful Bidder's failure to sign and submit a Contract and other documents set forth in this Paragraph within the prescribed time shall be just cause of annulment of the award, and forfeiture of the Bid Guaranty. The award of Contract may then be made to the next qualified Bidder in the same manner as previously prescribed.

2.47. Ownership: All plans, prints, designs, concepts, etc., shall become the property of the Owner.

2.48. Oral Statements: No oral statement of any person shall modify or otherwise affect the terms, conditions, or specifications stated in this document and/or resulting agreement. All modifications to this request and any agreement must be made in writing by the Owner.

2.49. Patents/Copyrights: The Contractor agrees to protect the Owner from any claims involving infringements of patents and/or copyrights. In no event shall the Owner be liable to the Contractor for any/all suits arising on the grounds of patent(s)/copyright(s) infringement. Patent/copyright infringement shall null and void any agreement resulting from response to this IFB.

2.50. Remedies: The Contractor and Owner agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

2.51. Venue: Any agreement as a result of responding to this IFB shall be deemed to have been made in, and shall be construed and interpreted in accordance with, the laws of the City of Grand Junction, Mesa County, Colorado.

2.52. Expenses: Expenses incurred in preparation, submission and presentation of this IFB are the responsibility of the company and cannot be charged to the Owner.

2.53. Sovereign Immunity: The Owner specifically reserves its right to sovereign immunity pursuant to Colorado State Law as a defense to any action arising in conjunction to this agreement.

2.54. Non-Appropriation of Funds: The contractual obligation of the Owner under this contract is contingent upon the availability of appropriated funds from this fiscal year budget as approved by the City Council or Board of County Commissioners from this fiscal year only. State of Colorado Statutes prohibit obligation of public funds beyond the fiscal year for which the budget was approved. Anticipated expenditures/obligations beyond the end of the current Owner's fiscal year budget shall be subject to budget approval. Any contract will be subject to and must contain a governmental non-appropriation of funds clause.

2.55. Cooperative Purchasing: Purchases as a result of this solicitation are primarily for the City/County. Other governmental entities may be extended the opportunity to utilize the resultant contract award with the agreement of the successful provider and the participating agencies. All participating entities will be required to abide by the specifications, terms, conditions and pricings established in this Bid. The quantities furnished in this bid document are for only the City/County. It does not include quantities for any other jurisdiction. The City or County will be responsible only for the award for its jurisdiction. Other participating entities will place their own awards on their respective Purchase Orders through their purchasing office or use their purchasing card for purchase/payment as authorized or agreed upon between the provider and the individual entity. The City/County accepts no liability for payment of orders placed by other participating jurisdictions that choose to piggy-back on our solicitation. Orders placed by participating jurisdictions under the terms of this solicitation will indicate their specific delivery and invoicing instructions.

2.56. Keep Jobs in Colorado Act: Contractor shall be responsible for ensuring compliance with Article 17 of Title 8, Colorado Revised Statutes requiring 80% Colorado labor to be employed on public works. Contractor shall, upon reasonable notice provided by the Owner, permit the Owner to inspect documentation of identification and residency required by C.R.S. §8-17-101(2)(a). If Contractor claims it is entitled to a waiver pursuant to C.R.S. §8-17-101(1), Contractor shall state that there is insufficient Colorado labor to perform the work such that compliance with Article 17 would create an undue burden that would substantially prevent a project from proceeding to completion, and shall include evidence demonstrating the insufficiency and undue burden in its response.

Unless expressly granted a waiver by the Owner pursuant to C.R.S. §8-17-101(1), Contractor shall be responsible for ensuring compliance with Article 17 of Title 8, Colorado Revised Statutes requiring 80% Colorado labor to be employed on public works. Contractor shall, upon reasonable notice provided by the Owner, permit the Owner to inspect documentation of identification and residency required by C.R.S. §8-17-101(2)(a).

2.56.1. "Public project" is defined as:

(a) any construction, alteration, repair, demolition, or improvement of any land, building, structure, facility, road, highway, bridge, or other public improvement suitable for and intended for use in the promotion of the public health, welfare, or safety and any maintenance programs for the upkeep of such projects

(b) for which appropriate or expenditure of moneys may be reasonably expected to be $500,000.00 or more in the aggregate for any fiscal year

(c) except any project that receives federal moneys.

3. Statement of Work

3.1. GENERAL: The City of Grand Junction is soliciting competitive bids from qualified and interested companies for all labor, equipment, and materials required for the **2019 South Downtown Water and Sanitary Sewer Replacement Project.** All dimensions and scope of work should be verified by Contractors prior to submission of bids.

NOTE: The descriptions of the pay items listed in the Price Bid Schedule for this Project may not agree with those listed in the Standard Specifications. Payment for all Work performed, as required in the Contract Documents, will be in accordance with the items and units listed in the Price Bid Schedule.

The performance of the Work for this Project shall conform to the General Contract conditions presented in the City of Grand Junction's Standard Contract Documents for Capital Improvements Construction, revised July 2010, except as specifically modified or supplemented herein or on the Construction Drawings.

3.2. PROJECT DESCRIPTION: The Project generally consists of: 4,530 L.F. of SDR-35 PVC sewer pipe (sizes 4" – 15"); 5,280 L.F. of C-900 PVC domestic water pipe (sizes 4" – 20"); 350 L.F. of 20" UV Cured CIPP Rehabilitation, Installation of cathodic protection systems, 13 48" I.D. sanitary sewer manholes, sanitary sewer manhole protective coating application, installation of water and sewer fittings, valves, fire hydrants, restoration of disturbed areas including, gravel and asphalt road surfaces, driveways, and concrete replacement. Work will also include restoration of disturbed landscape areas.

3.3. SPECIAL CONDITIONS & PROVISIONS:

3.3.1 **Mandatory Pre-Bid Meeting: Prospective bidders are required to attend a mandatory pre-bid meeting on April 16th at 10:30 am**. Meeting location shall be in the City Council Auditorium, located at 250 North 5th Street. The purpose of this visit will be to inspect and to clarify the contents of this Invitation for Bids (IFB).

3.3.2 **QUESTIONS REGUARDING SOLICIATION PROCESS/SCOPE OF WORK:**

Duane Hoff, Senior Buyer
City of Grand Junction
duaneh@gjcity.org
970-244-1545

3.3.3 **Project Manager:** The Project Manager for the Project is Lee Cooper, Project Engineer, who can be reached at (970) 256-4155. During Construction, all notices, letters, submittals, and other communications directed to the City shall be addressed and mailed or delivered to:

City of Grand Junction
Department of Public Works, Engineering
Attn: Lee Cooper, Project Manager
333 West Ave., Building C
Grand Junction, CO 81501

3.3.4 **Affirmative Action:** The Contractor is not required to submit a written Affirmative Action Program for the Project.

3.3.5 **Pricing:** Pricing shall be all inclusive to include but not be limited to: all labor, equipment, supplies, materials, freight (F.O.B. Destination – Freight Pre-paid and Allowed to each site), travel, mobilization costs, fuel, set-up and take down costs, and full-time inspection costs, and all other costs related to the successful completion of the project.

The Owner shall not pay nor be liable for any other additional costs including but not limited to: taxes, shipping charges, insurance, interest, penalties, termination payments, attorney fees, liquidated damages, etc.

3.3.6 **Freight/Shipping:** All freight/shipping shall be F.O.B. Destination – Freight Pre-Paid and Allowed to the project site(s), Grand Junction, CO.

Contractor must meet all federal, state, and local rules, regulations, and requirements for providing such services.

3.3.7 **Contract:** A binding contract shall consist of: (1) the IFB and any amendments thereto, (2) the bidder's response (bid) to the IFB, (3) clarification of the bid, if any, and (4) the City's Purchasing Department's acceptance of the bid by "Notice of Award" or by "Purchase Order". All Exhibits and Attachments included In the IFB shall be incorporated into the contract by reference.

A. The contract expresses the complete agreement of the parties and, performance shall be governed solely by the specifications and requirements contained therein.

B. Any change to the contract, whether by modification and/or supplementation, must be accomplished by a formal contract amendment signed and approved by and between the duly authorized representative of the bidder and the City Purchasing Division or by a modified Purchase Order prior to the effective date of such modification. The bidder expressly and explicitly understands and agrees that no other method and/or no other document, including acts and oral communications by or from any person, shall be used or construed as an amendment or modification to the contract.

3.3.8 **Time of Completion:** The scheduled time of Completion for the Project is **110** Calendar Days from the starting date specified in the Notice to Proceed.

Completion is achieved when site cleanup and all punch list items (resulting from the final inspection) have been completed. Completion shall have the meaning set forth in Article I, Section 3 (Definitions and Terms) of the General Contract Conditions.

3.3.9 **Working Days and Hours:** The working days and hours shall be as stated in the General Contract Conditions or as mutually agreed upon in the preconstruction meeting with the following exception:

- Night and/or weekend work will be required for sanitary sewer installation on 9th Street in front of ALSCO Textile Cleaning, as well as, the waterline crossings within CDOT right-of-way at Pitkin Ave. and Ute Ave.

3.3.10 **Licenses and Permits:** Contractor is responsible for obtaining all necessary licenses and permits required for Construction, at Contractors expense. See Section 2.10. Contractor shall supply to Owner all copies of finalized permits.

3.3.11 **Permits:** The following permits are required for the Project and will be obtained by the City at no cost to the Contractor:

- *Union Pacific Railroad Crossing Permit:* Permit needed for the UV cured CIPP crossing under the railroad tracks.

- *CDOT Special Use/Utility Permit:* Permit needed for the waterline crossings on Pitkin Ave. and Ute Ave.

The following permits are required for the Project and shall be obtained and paid for by the Contractor, with the costs included in the total bid price for the Project:

- *Colorado Department of Public Health and Environment Dewatering Permit*: (If necessary due to the presence of groundwater) For more information, contact the Colorado Dept. of Public Health and Environment: www.cdphe.state.co.us/wq/PermitsUnit/wqcdpmt.html Approximately 7 – 10 days is required for processing of the permit application. The Contractor should begin preparing the permit application immediately upon notice of award.

3.3.12 **City Furnished Materials:** The City will furnish the following materials for the Project:

- Door-hangers (as necessary)
- AutoCAD drawings for survey stake-out
- Variable message boards for upcoming construction locations

3.3.13 **Project Newsletters:** Project newsletter newsletters will not be required for this project. The City will handle notifying the public and residents of the project prior to construction starting. During construction, the City may require the help of the

Contractor in handing out door hangers and notifying property owners/residents/tenants of the construction schedule.

3.3.14 **Project Sign:** Project signs, if any, will be furnished and installed by the City.

3.3.15 **Authorized Representatives of the City:** Those authorized to represent the City shall include Purchasing Agent, Engineers, and Inspectors employed by the City, only.

3.3.16 **Stockpiling Materials and Equipment:** All stockpiling/storage shall be in accordance with General Contract Condition Section 51.

3.3.17 **Traffic Control:** The Contractor shall provide and maintain traffic control in accordance with the approved Traffic Control Plan and the *Manual on Uniform Traffic Control Devices (MUTCD)*. The traffic control plans shall be presented to the Project Engineer at or prior to the pre-construction meeting for review and approval. The following requirements and limitations shall apply to the traffic control:

No personal driveway and/or access point to a property shall be left inaccessible at the end of each work day or over a weekend; and no construction equipment shall be parked in front of a driveway and/or access point during Contractor's non-working hours. When a driveway and/or access point has to be closed off due to construction activity, the Contractor shall provide advanced notification to the affected resident(s) at least two-days prior to closure and arrange an alternative access point to the property. Refer to General Contract Condition 26 – Maintenance of Access and Services.

Special conditions for traffic control:

1. All trenches shall be backfilled or protected at the end of each working day and access restored to all driveways. If trenches are left open at night, the trenches will be limited to 30 feet in length. The entire perimeter of the excavation shall be barricaded with construction equipment and/or temporary construction fence.

2. At all times during the project, the contractor must ensure access is available for the U.S. Postal Service, trash collection trucks, school buses, emergency vehicles, etc., per the General Contract Conditions.

3. The Contractor shall adhere to all traffic control requirements when working within City right-of-way.

4. Detours shall be provided when a section of road is closed to through traffic for water and sewer construction. Residents, employees, property owners shall have access to their respected properties during construction.

3.3.18 **Clean-Up:** The Contractor is responsible for cleaning up all loose materials that

have been deposited or swept into gutters, and onto sidewalks and driveways as a result of sidewalk operations. The costs for all clean-up work shall be considered incidental and will not be paid for separately.

3.3.19 **Quality Control Testing:** As part of the project, the Contractor shall provide Quality Control testing per Table 1 in the Quality Control (QC) and Quality Assurance (QA) section within the City of Grand Junction's Standard Specifications for Road and Bridge Construction, and Table 101 within the Standard Specifications for the Construction of Underground Utilities. Table 1 and Table 101 provide the testing frequencies.

The Contractor shall provide test frequencies for Full-Time inspection. The testing agency shall meet the minimum requirements as stated in the Standard Specifications section. A submittal of qualified personnel shall be submitted at or before the preconstruction meeting. This submittal shall include all certifications held by the tester assigned to the project. The following items will require QC testing:

- Backfill compaction – (Compaction Tests) Backfill shall be placed in horizontal layers not to exceed 8-inches in loose lift thickness. If the Project Engineer allows the native material to be used for trench backfill, completion of a Proctor analysis will be required by the QC testing agency on the native backfill material.
- Aggregate Base Course (Class 6) – (Compaction Tests) (If necessary, completion of a Proctor analysis will be required by the QC testing agency)
- Hot Bituminous Pavement (Density Tests)
- Concrete (Compressive Tests)

Method of Measurement:

Testing for QC will not be measured, but will be paid for on a Lump Sum basis.

Basis of Payment:

Pay Item	*Pay Unit*
Quality Control Testing	Lump Sum

A report shall be generated by the testing firm that documents all tests including any re-tests results or failed tests. Included in the test reports shall be station locations of each test and the test results. All test results shall be presented to the Project Engineer prior to final payment and/or final acceptance of the project.

The City will perform and/or contract the Quality Assurance (QA) testing for this project.

3.3.20 **Schedule of Submittals:** Contractor shall deliver these submittals at least two days prior to the pre-construction meeting:

- Traffic Control Plans
- Construction Schedule
- Hourly rate table for labor & equipment to be used on this project
- Sewer Pipe – SDR-35 PVC
- Water Pipe – C900 & C905 PVC

- Sewer Fittings
- Manholes
- Ring & Covers
- Bedding Gradation, Type A
- Imported Trench Backfill gradation (Class 3)
- Granular Stabilization Material (Type B)
- Base Course Gradation & Proctor Curve (Class 6)
- Non-woven Geotextile Fabric

3.3.21 **Uranium Mill Tailings:** It is anticipated that radioactive mill tailings can possibly be encountered on this Project. They include:

- 9th Street
- D Road

If mill tailings are encountered, the Contractor will be required to remove the tailings from the trench and haul the millings to the mill tailings disposal site at City Shops located at 333 West Ave. Consult with Project Engineer prior to removing and hauling to disposal site.

3.3.22 **Fugitive Petroleum or Other Contamination:** It is anticipated that soil contamination from fugitive petroleum or other contaminants will not be encountered with the Project.

3.3.23 **Excess Material:** All excess materials shall be disposed in accordance with General Contract Condition Section 50.

3.3.24 **Existing Utilities and Structures:** The location of existing utilities and structures shown on the Plans are approximate. Not all underground utilities were potholed. It is the responsibility of the Contractor to locate and protect all structures and utilities in accordance with General Contract Condition Section 37. The Contractor and the City shall coordinate with the utility companies any necessary relocation of utilities and schedule work accordingly. Conflicts between water and gas lines and/or storm drain pipe may be encountered. At such conflicts, the Contractor shall relocate the waterlines and/or work with Xcel Energy on the relocation of gas line(s). Payment for waterline relocations will be paid for using the Minor Contract Revision line item assigned to the Project.

If the Contractor discovers a conflict with an existing utility (either horizontal or vertical), the Contractor shall contact the Project Engineer and the utility owner immediately to assist in resolving the conflict.

3.3.25 **Incidental Items:** Any item of work not specifically identified or paid for directly, but which is necessary for the satisfactory completion of any paid items of work, will be considered as incidental to those items, and will be included in the cost of those items.

3.3.26 **Existing Concrete Sidewalks, Pans, Fillets, Curbs and Gutters:** The existing sidewalks, pans, fillets, curb and gutter are in good serviceable condition. In most instances the installation of new sidewalk and pavement will be adjacent to existing concrete. The Contractor will need to protect all concrete adjacent to construction. If

the concrete is damaged during construction the Contractor will be responsible for its replacement at no cost to the City. The Contractor, the City Project Inspector, and/or the Project Engineer will walk and record any concrete that is deemed to be damaged before construction has started.

3.3.27 ACI Concrete and Flatwork Finisher and Technician: Hand finishing concrete will be permitted only when performed under the direct supervision of a craftsman holding the following certificate: ACI Concrete Flatwork Finisher and Technician (ACICFFT) or other Flatwork Finisher certification program approved by the City Engineering Manager.

3.3.28 Confined Space Entry: The Contractor is responsible for providing any and all confined space entry safety equipment; including, but not limited to: air testing equipment, fresh air blowers, tripods, harnesses, and SCBA equipment. The Contractor's air monitoring devices shall be calibrated and certified. The cost for all confined space entry equipment shall be incidental to the project cost, and will not be paid for separately.

3.3.29 Construction Dewatering: All construction dewatering must meet the requirements specified in the CDPHE Dewatering Permit. Construction dewatering will be considered incidental and will not be measured and paid for separately.

3.3.30 Temporary Steel Plating: If the Contractor chooses to use steel plates to protect an open trench section, the cost for supplying and securely placing the steel plates will not be paid for separately, but shall be included in the work.

3.3.31 Payment for Damage to Private Property beyond Easement Limits/ROW Limits: Easement and Right-of-Way (ROW) lines are indicated on the Construction Plans. Any and all damage to improvements outside of easements and ROW, and/or outside the Construction Limit lines shall be repaired at the Contractor's expense. There will be no additional payment made for restoration of sod, landscaping, gravel, concrete or asphalt driveways, irrigation systems, decorative borders, fences, etc. beyond the property line or the construction easements as shown on the plan set.

3.3.32 Interruption of Utilities and Services: The Contractor shall notify all property owners affected by the interruption of utilities and other services caused by his operation. Such notice shall be given at least 24 hours prior to the interruption. Notice shall be given for, but not limited to the interruption of domestic water, sanitary sewer, trash pickup, mail delivery and changes in access to the property.

3.3.33 Project Location Work Schedule: Due to the City's 2019 Asphalt Overlay Project schedule, the City wants the Contractor to start with the 15th Street sanitary sewer installation and have it completed first so the asphalt overlay contractor can then start scheduling the 15th Street overlay.

Once the 15th Street sewer is completed, the Contractor shall move over to 9th Street to start working on the domestic waterline installation and the short section of sewer replacement on 9th Street in front of ALSCO Textile Cleaning. 9th Street is schedule for an asphalt overlay in 2019.

NIGHT/WEEKEND WORK – Due to crossing CDOT right-of-way at Pitkin Ave. and Ute Ave. with the new domestic waterline, as well as, the large amount of wastewater ALSCO Textile Cleaning discharges into the sewer pipe on 9th Street, the following locations shall be done at night or on the weekends:

- Sewer replacement between C4-262-045 to C4-262-044 (South 9th Street in front of ALSCO Textile Cleaning)
- Waterline replacement crossings at Pitkin Ave. and Ute Ave.

ALSCO's discharge hours are typically between 5:00 am to 5:00 pm, Monday through Friday. ALSCO does not work weekends. Weekend work shall be completed during the daylight hours.

3.3.34 **City Asphalt Overlay Project:** The Contractor shall be aware that the City's 2019 Asphalt Overlay Project will be overlaying 9th Street and 15th Street in the south downtown area. Asphalt overlays on these two streets will begin in August 2019. The Contractor shall have the water and sewer lines on these two streets completed prior to August 2019.

3.3.35 **Utility Relocates:** It's anticipated that Xcel Energy will need to relocate a couple gas lines to accommodate the installation of the new 20-inch waterline. The location of these gas lines are located on 9th Street and 3rd Ave. The City is having these gas lines potholed the week of April 1, 2019. Once the City has exact elevations on these gas lines, it will be determined if Xcel will need to relocate these lines. If relocation is required, the City will be contacting Xcel Energy to request relocation. Pothole information will be provided to the Contractor.

3.3.36 **Construction Surveying & "As-Built" Drawings:** In addition to Items I and II in the General Contract Conditions, Section 54, As-Built record information will be provided to, and approved by City staff prior to Final Acceptance of the Project. Information to be provided must be in electronic format (e.g. AutoCAD and/or survey files) along with a PDF set of As-Built drawings. As-Built electronic files must contain information suitable for the City to maintain Utility records to the standards set forth in the new Colorado 811 One Call/Subsurface Utility Law (effective August 8, 2018) and standards as described in the American Society of Civil Engineers (ASCE) Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data (ASCE 38-02).

Electronic information for As-Built records shall include, but is not limited to, verification of all horizontal and vertical changes in pipe alignments, elbows, tees, manholes, valves, control structures, service taps, service pipe (horizontal and vertical deflections to ROW line, meter pits, or clean-outs, whichever is closer), beginning and ending of slip-lined segments, tie-in or connection to existing infrastructure, etc. Distance between As-Built data points along pipe alignment is dependent on the amount of deflection used to install the pipe in the field. There must be sufficient point data to create a plan and profile of all infrastructure accurate to within eighteen inches (18") of the physical structures anywhere along the project.

Sanitary Sewer Service Lines – The Contractor is responsible for providing to the City survey grade accuracy for As-Built locations for all sewer wye fittings, sewer service elbows, and sewer service clean-outs. The Contractor shall provide survey coordinates in the X,Y,Z dimensions for these fittings. The Contractor shall provide this survey information in electronic format (e.g. AutoCAD and/or survey files). The coordinates for this survey data shall be surveyed in the Mesa County Local System (MCLS). Accuracy on survey equipment shall be within 0.1 feet both vertically and horizontally. The Contractor will be required by the City to provide information on equipment being used and if the Contractor will be performing the as-built surveys or if a surveying subcontractor will be performing the as-built surveys.

The cost for all surveying the all fittings, both sewer and water, shall be incidental to the project cost, and will not be paid for separately.

3.3.37 **Meeting with Local Businesses:** Prior to construction starting, the Contractor shall meet with the local area businesses to present to the businesses the Contractor's proposed schedule and sequence of work. The City will assist the Contractor in notifying these companies and scheduling a meeting. This meeting will most likely be held in Munro Pumps conference room (808 South 9th Street). To help accommodate the local businesses in the areas of construction, the Contractor needs to be aware of local business operation schedules, shipment and delivery schedules, and any special conditions the businesses may have.

3.3.38 **UPRR Railroad Crossings:** The local contact for the Union Pacific Railroad is Justin Cordova at 970-628-6019. The Contractor shall provide at least one-weeks advance notice to Justin prior to crossing the railroad tracks with the new waterline installation.

3.4. **SCOPE OF WORK:** The Project generally consists of: 4,530 L.F. of SDR-35 PVC sewer pipe (sizes 4" – 15"); 5,280 L.F. of C-900 PVC domestic water pipe (sizes 4" – 20"); 350 L.F. of 20" UV Cured CIPP Rehabilitation, Installation of cathodic protection systems, 13 48" I.D. sanitary sewer manholes, sanitary sewer manhole protective coating application, installation of water and sewer fittings, valves, fire hydrants, restoration of disturbed areas including, gravel and asphalt road surfaces, driveways, and concrete replacement. Work will also include restoration of disturbed landscape areas.

3.5. **Attachments:**

- Appendix A: Project Submittal Form
- Appendix B: Project Special Provisions
- Appendix C: Castagra Ecodur 201 Protective Coating Specification
- Appendix D: Saertex-Liner H2O UV Cured CIPP Specification
- Appendix E: Cathodic Protection for Pipelines Specification
- Appendix E.1: Corrosion Control Test Stations Specification
- Appendix F: Geotechnical Soils Report
- Appendix G: CDPHE's Construction Dewatering Permit **APPLICATION ONLY**
- Construction Plans

3.6. **Contractor Bid Documents:** For Contractor's convenience, the following is a list of forms/items to be submitted with the Contractor's bid response. However, should a

form/item not be listed in this section, but required in the solicitation documents, it is the Contractor's responsibility to ensure all forms/items are submitted.

- **Contractor's Bid Form**
- **Price Bid Schedule**
- **Sub-Contractors Form**
- **References**

3.7. IFB TENTATIVE TIME SCHEDULE:

Invitation for Bids available:	April 4, 2019
Mandatory Pre-Bid Meeting:	April 16, 2019
Inquiry deadline, no questions after this date:	April 19, 2019
Addendum Posted:	April 23, 2019
Submittal deadline for proposals	May 8, 2019
City Council Approval:	June 5, 2019
Notice of Award & Contract execution:	June 6, 2019
Bonding & Insurance Cert. due:	June 13, 2019
Preconstruction meeting:	June 13, 2019
Work begins no later than:	Upon Receipt of Notice to Proceed
Final Completion:	110 Calendar Days from Notice to Proceed
Holidays:	Independence Day & Labor Day

4. Contractor's Bid Form

Bid Date: _____

Project: IFB-4628-19-DH "2019 South Downtown Water & Sanitary Sewer Replacement Project"

Bidding Company: _____

Name of Authorized Agent: _____

Email _____

Telephone_____ Address_____

City_____State_____Zip_____

The undersigned Bidder, in compliance with the Invitation for Bids, having examined the Instruction to Bidders, General Contract Conditions, Statement of Work, Specifications, and any and all Addenda thereto, having investigated the location of, and conditions affecting the proposed work, hereby proposes to furnish all labor, materials and supplies, and to perform all work for the Project in accordance with Contract Documents, within the time set forth and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this Contractor's Bid Form is a part.

The undersigned Contractor does hereby declare and stipulate that this offer is made in good faith without collusion or connection to any person(s) providing an offer for the same work, and that it is made in pursuance of, and subject to, all terms and conditions of the Instructions to Bidders, the Specifications, and all other Solicitation Documents, all of which have been examined by the undersigned.

The Contractor also agrees that if awarded the Contract, to provide insurance certificates within ten (10) working days of the date of Notification of Award. Submittal of this offer will be taken by the Owner as a binding covenant that the Contractor will be prepared to complete the project in its entirety.

The Owner reserves the right to make the award on the basis of the offer deemed most favorable, to waive any formalities or technicalities and to reject any or all offers. It is further agreed that this offer may not be withdrawn for a period of sixty (60) calendar days after closing time. Submission of clarifications and revised offers automatically establish a new thirty day (30) period.

Prices in the bid proposal have not knowingly been disclosed with another provider and will not be prior to award.

- Prices in this bid proposal have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.
- No attempt has been made nor will be to induce any other person or firm to submit a bid proposal for the purpose of restricting competition.
- The individual signing this bid proposal certifies they are a legal agent of the offeror, authorized to represent the offeror and is legally responsible for the offer with regard to supporting documentation and prices provided.
- Direct purchases by the City of Grand Junction are tax exempt from Colorado Sales or Use Tax. Tax exempt No. 98-903544. The undersigned certifies that no Federal, State, County or Municipal tax will be added to the above quoted prices.
- City of Grand Junction payment terms shall be Net 30 days.
- Prompt payment discount of _____ percent of the net dollar will be offered to the Owner if the invoice is paid within _____ days after the receipt of the invoice.

RECEIPT OF ADDENDA: the undersigned Contractor acknowledges receipt of Addenda to the Solicitation, Specifications, and other Contract Documents.

State number of Addenda received: _____.

It is the responsibility of the Bidder to ensure all Addenda have been received and acknowledged.

By signing below, the Undersigned agree to comply with all terms and conditions contained herein.

Company: _____

Authorized Signature: _____

Title: _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
1	108.2	4" Sewer Pipe Service (SDR-35 PVC) (Includes cost of connection to the existing sewer service line)	570.	Lin. Ft.	$ _____	$ _____
2	108.2	6" Gravity Sewer Pipe (SDR-35 PVC) (Includes cost of connection to the existing sewer pipe and/or manhole)	170.	Lin. Ft.	$ _____	$ _____
3	108.2	8" Gravity Sewer Pipe (SDR-35 PVC) (Includes cost of connection to the existing sewer pipe and/or manhole)	1,330.	Lin. Ft.	$ _____	$ _____
4	108.2	10" Gravity Sewer Pipe (SDR-35 PVC) (Includes cost of connection to the existing sewer pipe and/or manhole)	326.	Lin. Ft.	$ _____	$ _____
5	108.2	15" Gravity Sewer Pipe (SDR-35 PVC) (Includes cost of connection to the existing sewer pipe and/or manhole)	2,141.	Lin. Ft.	$ _____	$ _____
6	108.2	Water Main (4") (C-900 PVC, DR-18) (Includes cost of restrained connection to existing pipe)	5.	Lin. Ft.	$ _____	$ _____
7	108.2	Water Main (6") (C-900 PVC, DR-18) (Includes cost of restrained connection to existing pipe)	168.	Lin. Ft.	$ _____	$ _____
8	108.2	Water Main (8") (C-900 PVC, DR-18) (Includes cost of restrained connection to existing pipe)	223.	Lin. Ft.	$ _____	$ _____
9	108.2	Water Main (12") (C-900 PVC, DR-18) (Includes cost of restrained connection to existing pipe)	144.	Lin. Ft.	$ _____	$ _____
10	108.2	Water Main (18") (C-905 PVC, DR-25) (Includes cost of restrained connection to existing pipe)	1,170.	Lin. Ft.	$ _____	$ _____
11	108.2	Water Main (20") (C-905 PVC, DR-25) (Includes cost of restrained connection to existing pipe)	4,120.	Lin. Ft.	$ _____	$ _____
12	108.2	Storm Drain Pipe (18") (ADS Corrugated HDPE Pipe)	50.	Lin. Ft.	$ _____	$ _____
13	108.2	Imported Trench Backfill (Class 3) (Includes haul and disposal of unsuitable excavated material) (Assumed material unit weight = 133 lbs/cu . Yd.)	13,500.	Ton	$ _____	$ _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
14	108.3	8" x 4" Sewer Service Tap (Full Body Wye w/ Street 45-deg.) (Includes full body wye, cleanout, and all fittings required to align and connect into the existing sewer service pipe at the locations shown on the plans) (See City Std. Detail SS-06)	7.	Each	$ _____	$ _____
15	108.3	8" x 6" Sewer Service Tap (Full Body Wye w/ Street 45-deg.) (Includes full body wye, cleanout, and all fittings required to align and connect into the existing sewer service pipe at the locations shown on the plans) (See City Std. Detail SS-06)	1.	Each	$ _____	$ _____
16	108.3	10" x 4" Sewer Service Tap (Full Body Wye w/ Street 45-deg.) (Includes full body wye, cleanout, and all fittings required to align and connect into the existing sewer service pipe at the locations shown on the plans) (See City Std. Detail SS-06)	3.	Each	$ _____	$ _____
17	108.3	10" x 6" Sewer Service Tap (Full Body Wye w/ Street 45-deg.) (Includes full body wye, cleanout, and all fittings required to align and connect into the existing sewer service pipe at the locations shown on the plans) (See City Std. Detail SS-06)	1.	Each	$ _____	$ _____
18	108.3	15" x 4" Sewer Service Tap (Full Body Wye w/ Street 45-deg.) (Includes full body wye, cleanout, and all fittings required to align and connect into the existing sewer service pipe at the locations shown on the plans) (See City Std. Detail SS-06)	5.	Each	$ _____	$ _____
19	108.3	15" x 6" Sewer Service Tap (Full Body Wye w/ Street 45-deg.) (Includes full body wye, cleanout, and all fittings required to align and connect into the existing sewer service pipe at the locations shown on the plans) (See City Std. Detail SS-06)	3.	Each	$ _____	$ _____
20	108.3	Sewer Service Clean-out Ring and Cover (Castings Inc. CO-8030-CI or Approved Equal) (Includes concrete collar in unpaved areas per City Std. Detail SS-07)	20.	Each	$ _____	$ _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
21	108.3	Gate Valve (4")	1.	Each	$ _____	$ _____
22	108.3	Gate Valve (6")	11.	Each	$ _____	$ _____
23	108.3	Gate Valve (8")	8.	Each	$ _____	$ _____
24	108.3	Gate Valve (12")	3.	Each	$ _____	$ _____
25	108.3	Butterfly Valve (18")	3.	Each	$ _____	$ _____
26	108.3	Butterfly Valve (20")	6.	Each	$ _____	$ _____
27	108.3	Tee (6" x 6") MJ Swivel Tee (Epoxy Coated)	1.	Each	$ _____	$ _____
28	108.3	Tee (8" x 4") MJ Swivel Tee (Epoxy Coated)	1.	Each	$ _____	$ _____
29	108.3	Tee (8" x 6") MJ Swivel Tee (Epoxy Coated)	4.	Each	$ _____	$ _____
30	108.3	Tee (12" x 6") MJ Swivel Tee (Epoxy Coated)	1.	Each	$ _____	$ _____
31	108.3	Tee (12" x 12") (Epoxy Coated)	1.	Each	$ _____	$ _____
32	108.3	Tee (18" x 18") (Epoxy Coated)	1.	Each	$ _____	$ _____
33	108.3	Tee (20" x 6") MJ Swivel Tee (Epoxy Coated)	5.	Each	$ _____	$ _____
34	108.3	Tee (20" x 8") MJ Swivel Tee (Epoxy Coated)	6.	Each	$ _____	$ _____
35	108.3	Tee (20" x 18") (Epoxy Coated)	2.	Each	$ _____	$ _____
36	108.3	Tee (20" x 20") (Epoxy Coated)	1.	Each	$ _____	$ _____
37	108.3	Elbow (6" x 45 deg) (Epoxy Coated)	2.	Each	$ _____	$ _____
38	108.3	Elbow (8" x 45 deg) (Epoxy Coated)	8.	Each	$ _____	$ _____
39	108.3	Elbow (8" x 22.5 deg) (Epoxy Coated)	1.	Each	$ _____	$ _____
40	108.3	Elbow (8" x 11.25 deg) (Epoxy Coated)	1.	Each	$ _____	$ _____
41	108.3	Elbow (12" x 45 deg) (Epoxy Coated)	2.	Each	$ _____	$ _____
42	108.3	Elbow (18" x 45 deg) (Epoxy Coated)	7.	Each	$ _____	$ _____
43	108.3	Elbow (18" x 22.5 deg) (Epoxy Coated)	1.	Each	$ _____	$ _____
44	108.3	Elbow (20" x 45 deg) (Epoxy Coated)	15.	Each	$ _____	$ _____
45	108.3	Elbow (20" x 11.25 deg) (Epoxy Coated)	5.	Each	$ _____	$ _____
46	108.3	Reducer (20" x 12") (Epoxy Coated)	2.	Each	$ _____	$ _____
47	108.3	Cross Fitting (12" x 8") (Epoxy Coated)	1.	Each	$ _____	$ _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
48	108.3	End Cap/Plug (20") (Includes Concrete Thurstblock per City Std Detail W-07 & W-08)	1.	Each	$ _____	$ _____
49	108.3	Fire Hydrant Assembly	9.	Each	$ _____	$ _____
50	108.3	8" Welded Flange or Hy-Max Solid Sleeve Restrained Coupling with Stiffener for connection to existing HDPE pipe (8" HDPE Pipe)	1.	Each	$ _____	$ _____
51	108.3	20" Welded Flange or Hy-Max Solid Sleeve Restrained Coupling with Stiffener for connection to existing HDPE pipe (20" HDPE Pipe)	2.	Each	$ _____	$ _____
52	108.4	Water Service Line (3/4") (Type K Copper) (If Lead or Poly service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	316.	Lin. Ft.	$ _____	$ _____
53	108.4	Water Service Line (1") (Type K Copper) (If Lead or Poly service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	80.	Lin. Ft.	$ _____	$ _____
54	108.4	Water Service Line (1-1/2") (Type K Copper or HDPE 3408) (If lead service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	161.	Lin. Ft.	$ _____	$ _____
55	108.4	Water Service Line (2") (Type K Copper or HDPE 3408) (If lead service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	20.	Lin. Ft.	$ _____	$ _____
56	108.4	Tapping Saddle (20" x 3/4")	12.	Each	$ _____	$ _____
57	108.4	Tapping Saddle (20" x 1")	3.	Each	$ _____	$ _____
58	108.4	Tapping Saddle (20" x 1-1/2")	1.	Each	$ _____	$ _____
59	108.4	Tapping Saddle (20" x 2")	2.	Each	$ _____	$ _____
60	108.4	Corporation Stop (3/4")	12.	Each	$ _____	$ _____
61	108.4	Corporation Stop (1")	3.	Each	$ _____	$ _____
62	108.4	Corporation Stop (1-1/2")	1.	Each	$ _____	$ _____
63	108.4	Corporation Stop (2")	2.	Each	$ _____	$ _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
64	108.5	Sanitary Sewer Basic Manhole (48" I.D.) (Includes connection of adjacent sewer line, forming inverts and adjusting to final grade. (See City Std. Detail SS-02) (No steps required in sewer manholes)	13.	Each	$ _____	$ _____
65	108.5	Manhole Barrel Section (D>5') (48" I.D.)	51.	Vert. Ft.	$ _____	$ _____
66	108.5	Connect to Existing Manhole (15" pipe) (Doug Jones Sawmill Property manhole)	1.	Each	$ _____	$ _____
67	108.5	Storm Sewer Basic Manhole (48" I.D.) (Includes connection to adjacent storm sewer lines and adjusting to final grade) (See City Std. Detail D-03)	1.	Each	$ _____	$ _____
68	108.5	Manhole Coating (Castagra Ecodur 201 or Engineer Approved Equal)	72.	Vert. Ft.	$ _____	$ _____
69	108.7	Granular Stabilization Material (Type B) (Crushed Rock) (18" Thick Min.) (Includes haul and disposal of unsuitable excavated material) (Assumed Unit Weight = 138 lbs/ft^3)	4,000.	Ton	$ _____	$ _____
70	202	Abandon Pipe (Abandon pipe by plugging ends with concrete)	44.	Each	$ _____	$ _____
71	202	Abandon Existing Water Valve (Close valve, remove top half of existing valve box, fill cavity to finished subgrade with flow-fill material)	9.	Each	$ _____	$ _____
72	202	Abandon Manhole (Remove cone section, ring & cover, and fill remaining barrel sections with flow-fill material)	5.	Each	$ _____	$ _____
73	202	Remove Existing Fire Hydrant (Return Hydrant to City Shops)	9.	Each	$ _____	$ _____
74	202	Removal of Existing Pipe (Size & type as shown on plans)	3,645.	Lin. Ft.	$ _____	$ _____
75	202	Removal of Asphalt Mat (Full Depth)	4,068.	Sq. Yd.	$ _____	$ _____
76	202	Removal of Asphalt Mat (Planing) (2" Thick for T-Top Section)	4,540.	Sq. Yd.	$ _____	$ _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
77	202	Removal of Concrete (Includes, but not limited to, curb, gutter, sidewalk, driveway, slabs, V-pans, curb ramps, intersection corners, aprons, landscape borders, and concrete walls)	1,145.	Sq. Ft.	$ _____	$ _____
78	202	Removal of Sod	1,280.	Sq. Ft.	$ _____	$ _____
79	202	Removal of Manhole (Price to include plugging existing abandoned pipes, if any, and removal and disposal of concrete sections)	8.	Each	$ _____	$ _____
80	202	Remove Bollard	2.	Each	$ _____	$ _____
81	202	Removal of Tree (2" dia.)	1.	Each	$ _____	$ _____
82	203	Disposal of Radioactive Material (Dispose at City Shops, 333 West Ave.)	75.	Cu. Yd.	$ _____	$ _____
83	206	Structure Backfill (Flow-Fill) (Use at CDOT Right-of-Way road crossing and as required on the Project)	100.	Cu. Yd.	$ _____	$ _____
84	208	Storm Drain Inlet Protection (Gravel Filter at Curb Inlet) (Includes Maintenance & Removal of Debris, & Removal of Inlet Protection)	24.	Each	$ _____	$ _____
85	208	Concrete Washout Facility	1.	Lump Sum	- - -	$ _____
86	210	Reset Landscape Ground Cover (Match in Kind) (Contractor shall remove ground cover and underlying weed barrier as needed and stockpile materials. Contractor shall reset these materials and provide additional materials as needed)	550.	Sq. Ft.	$ _____	$ _____
87	210	Reset Sprinkler System (Complete in Place)	1.	Lump Sum	- - -	$ _____
88	210	Reset Fence (4' High Barbed Wire Fence)	20.	Lin. Ft.	$ _____	$ _____
89	210	Reset Fence (5' High Chain-Link)	30.	Lin. Ft.	$ _____	$ _____
90	210	Reset Fence (6' High Chain-Link w/ Barbed Wire Top)	160.	Lin. Ft.	$ _____	$ _____
91	210	Reset Sign	3.	Each	$ _____	$ _____
92	212	Re-Sod Area as Shown (Includes 6" Thick Imported Topsoil placed prior to sod placement)	1,280.	Sq. Ft.	$ _____	$ _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
93	304	Aggregate Base Course (Class 6) (4" thick) (Shoulder Base)	420.	Sq. Yd.	$ _____	$ _____
94	304	Aggregate Base Course (Class 6) (15" thick)	4,250.	Sq. Yd.	$ _____	$ _____
95	401	Hot Bituminous Pavement (2" Thick) (Grading SX, PG 64-22, GYR.=75) (Mill & Fill Overlay) (3rd Ave. & 10th Street)	2,060.	Sq. Yd.	$ _____	$ _____
96	401	Hot Bituminous Pavement (Patching) (3 " Thick) (Grading SX, PG 64-22) (GYR.=75) (One 3" Lift Bottom Mat)	3,000.	Sq. Yd.	$ _____	$ _____
97	401	Hot Bituminous Pavement (Patching) (2" Thick) (Grading SX, PG 64-22) (GYR.=75) (One 2" Top Mat) **(T-Top)**	2,600.	Sq. Yd.	$ _____	$ _____
98	401	Hot Bituminous Pavement (Patching) (5 " Thick) (Grading SX, PG 64-22) (GYR.=75) (3" Bottom Mat, 2" Top Mat) (9th Street & 15th Street)	1,250.	Sq. Yd.	$ _____	$ _____
99	407	Emulsified Asphalt (Tack Coat)	900.	Gallon	$ _____	$ _____
100	420	Geotextile (Separator) (Non-Woven) (Wrap stabilization material with fabric) (Minimum Overlap = 24") (As Needed)	1,900.	Sq. Yd.	$ _____	$ _____
101	608	Concrete Drainage Pan (3' Wide) (Match in Kind)	8.	Sq. Yd.	$ _____	$ _____
102	608	Concrete Drainage Pan (4' Wide) (Match in Kind)	15.	Sq. Yd.	$ _____	$ _____
103	608	Concrete Curb and Gutter (2' Wide) (Match in Kind)	200.	Lin. Ft.	$ _____	$ _____
104	608	Concrete Valley Gutter (2' Wide) (Match in Kind)	60.	Lin. Ft.	$ _____	$ _____
105	608	Concrete Curb (6" Wide x 12" High) (Match in Kind)	20.	Lin. Ft.	$ _____	$ _____
106	608	Concrete Sidewalk (4" Thick) (Match in Kind)	38.	Sq. Yd.	$ _____	$ _____
107	608	Concrete Pavement (6" Thick) (CDOT Class D, 4500 psi Mix)	34.	Sq. Yd.	$ _____	$ _____
108	608	Cap Top Half of Sewer Pipe in Concrete per City Std. Detail GU-04 (20' long) (If necessary)	2.	Each	$ _____	$ _____

Bid Schedule: 2019 South Downtown Water & Sewer Replacement Project

Item No.	CDOT, City Ref.	Description	Quantity	Units	Unit Price	Total Price
109	608	Encase Sewer Pipe in Concrete per City Std. Detail GU-04 (20' long) (If necessary)	1.	Each	$ _____	$ _____
110	620	Portable Sanitary Facility	1.	Each	$ _____	$ _____
111	625	Construction Surveying (Includes As-Built Drawings)	1.	Lump Sum	- - -	$ _____
112	626	Mobilization	1.	Lump Sum	- - -	$ _____
113	630	Traffic Control Plan	1.	Lump Sum	- - -	$ _____
114	630	Traffic Control (Complete in Place)	1.	Lump Sum	- - -	$ _____
115	630	Flagging	1,400.	Hour	$ _____	$ _____
116	SP	UV Cured CIPP Rehabilitation	350.	Lin. Ft.	$ _____	$ _____
117	SP	Cathodic Protection System	1.	Lump Sum	- - -	$ _____
118	SP	Reconfigure Manhole Bench (C3-271-031)	1.	Lump Sum	- - -	$ _____
119	SP	Coordination with Doug Jones Sawmill Property (Temporarily relocate lumber for sewer installation and then place back lumber in same location)	1.	Lump Sum	- - -	$ _____
120	SC 3.3.18	Quality Control Testing	1.	Lump Sum	- - -	$ _____
121	Pump	Bypass Sewage Pumping (At Contractors Discretion)	1.	Lump Sum	- - -	$ _____
MCR		Minor Contract Revisions	- - -	- - -	- - -	$ 100,000.00
				Bid Amount:		**$** _____

Bid Amount:

_____ **dollars**

Contractor Name:
Contractor Address:
Contractor Phone #:

Sub-Contractors Form

The undersigned Bidder proposes to subcontract the following portion of Work:

Name & address of Sub-Contractor	Description of work to be performed	% of Contract

The undersigned Bidder acknowledges the right of the City to reject any and all Bids submitted and to waive informalities and irregularities therein in the City's sole discretion.

By submission of the Bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies as to his own organization, that this Bid has been arrived at independently, without collusion, consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.

Appendix A

Project Submittal Form

PROJECT SUBMITTAL FORM

PROJECT: **2019 South Downtown Water & Sanitary Sewer Replacement Project**

CONTRACTOR:

PROJECT ENGINEER: Lee Cooper

Description	Date Received	Resubmittal Requested	Resubmittal Received	Date Accepted
CONSTRUCTION				
Pipe – Gravity Sewer Pipe (SDR-35 PVC)				
Pipe – Domestic Water Pipe (C-900 & C-905 PVC)				
Pipe – HDPE Water Service Pipe				
Service Line – ¾" & 1" Copper Tubing				
Valves – 4", 6", 8", 12" Gate Valves				
Valves – 18" & 20" Butterfly Valves				
Tracing Wire & Splices				
Fittings – Elbows, Tees, Tapping Saddles, Corp. Stops, Crosses, Couplings, Curb Stops				
Imported Trench Backfill (Class 3)				
Granular Stabilization Material (Type B)				
Sewer Pipe Fittings – Wye Fittings, Elbows, Clean-outs				
48" I.D. Sewer Manhole and barrel sections				
Manhole Ring and Covers				
Water Valve Boxes				
Fire Hydrant Assembly				
Geotextile Fabric (Non-woven)				
Flow-Fill				
Pipe Bedding Gradation, Type A				
Aggregate Base Course, Class 6 (Include Proctor Curve Results)				
Concrete Mix Design, Class D				

Description	Date Received	Resubmittal Requested	Resubmittal Received	Date Accepted
Hot Bituminous Pavement Mix Design (PG 64-22, SX, Gyr. = 75)				
Concrete Washout Structure				
Inlet Basin Protection				
Quality Control Testing Agency and Certifications				
Construction Schedule				
Traffic Control Plan(s)				
Labor and Equipment hourly rate table				
CDPHE Dewatering Permit (If Necessary)				

Appendix B

Project Special Provisions

2019 South Downtown Water & Sanitary Sewer Replacement Project

SPECIAL PROVISIONS

GENERAL:

The descriptions of the pay items listed in the Bid Schedule for this Project may not agree with those listed in the Standard Specifications. Payment for all Work performed, as required in the Contract Documents, will be in accordance with the items and units listed in the Bid Schedule.

STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION:

The ***City of Grand Junction Standard Specifications for Road and Bridge Construction*** are hereby modified or supplemented for this Project by the following modifications to ***The Standard Specifications for Road and Bridge Construction***, State Department of Highways, Division of Highways, State of Colorado:

SP-1 SECTION 208 – EROSION CONTROL

Section 208 of the Standard Specifications is hereby revised for this project as follows:

Subsection 208.04 shall include the following:

If groundwater within the new water line trenches is encountered and requires dewatering, the dewatering pump shall have a filter sock attached to the end of the discharge hose. This will prevent sediment in the discharge water from entering into the City's storm drainage system. The contractor will be responsible for monitoring the levels of sediment within the filter sock and replacing the filter sock when it reaches 50% of its holding capacity. It will also be the responsibility of the contractor to obtain the Dewatering Permit from the Colorado Department of Public Health and Environment if necessary.

Any of the materials to be installed or used for the installation of the sewer line shall be stored within the construction area where the Contractor is working unless permission is granted to store materials elsewhere. Any glues and/or adhesives necessary shall be contained at all times within a spill proof and waterproof container when not being used.

All vehicle and equipment maintenance and fueling shall be performed in a designated area within the construction area that will not interfere with roadway traffic operations unless traffic control is provided. The fueling area shall exhibit Best Management Practices in order to minimize and/or eliminate the potential of fuel spillage. Any spillage of fuel onto the ground shall be immediately cleaned up and any contaminated soil disposed of properly at the Mesa County Landfill. Documentation of spills, leaks and overflows that result in the discharge of pollutants, including logging and reporting of the spill is required to the Water

Quality Control Division at their toll-free 24-hour environmental emergency spill reporting line – 1-877-518-5608.

The Contractor shall clear the site of all on-site waste daily, including scrap from construction materials.

Concrete trucks will be required to wash out in a portable concrete washout pool supplied by the Contractor or the concrete truck can wait to washout back at the concrete batching facility. The Contractor will be responsible for maintaining the washout pool. The washout pool shall be cleaned out and/or replaced when the washout pool reaches 50% of total capacity. The concrete washout pool needs to be dynamic and durable in its ability to be moved with the progress of construction.

The Contractor shall clear the site of all trash and litter daily. Portable toilets will be maintained (cleaned and emptied) by a local supplier.

SP-2 SECTION 420 – GEOSYNTHETICS

Section 420 of the Standard Specification is hereby revised for this project as follows:

Subsection 420.02 in the City of Grand Junction's Standard Specifications shall include the following:

> The materials supplied for the "Geotextile (Non-Woven Separator for use with Type B Granular Stabilization Material)" shall be Contech C-60NW or Nilex NW60, or approved equal. Where specified by the Engineer, Geotextile shall be installed per Std. Detail GU-03.

SP-3 SECTION 601 – STRUCTURAL CONCRETE

Section 601 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 601.02 from the City of Grand Junction Standard Specifications and replace with the following:

Concrete for construction of curbs, gutters, sidewalks, irrigation structures, curb ramps, driveway approaches, corner fillets, drainage pans, median cover, and trails shall be CDOT Class D concrete per the 2017 CDOT Standard Specifications for Road and Bridge Construction (Red Book).

- Minimum field compressive strength: 4,500 psi at 28 days
- Air Content: 6% +/- 1.5%
- Maximum water cement ratio: 0.45
- Maximum slump at delivery shall be 4-inches. In the event that the concrete slump from the first truck of the day exceeds 5-inches the load will be rejected. Subsequent batches shall be adjusted so that the slump at delivery does not exceed 4-inches.

STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATER LINES, SANITARY SEWERS, STORM DRAINS, UNDERDRAINS AND IRRIGATION SYSTEMS

The City of Grand Junction ***Standard Specifications for Construction of Water Lines, Sanitary Sewers, Storm Drains, Underdrains and Irrigation Systems*** are hereby modified for this Project as follows:

SP-4 SECTION 102.11 – MANHOLES FOR SANITARY SEWER AND STORM DRAINS

Section 102.11 of the Standard Specifications shall include the following:

Both existing and proposed manholes along 15th Street are to be lined using Castagra Ecodur 201 coating (or Engineer Approved Equal). Application requirements for Ecodur 201 may be found in Appendix C. Prior to manhole lining, proposed manholes shall receive pressure water or abrasive blast cleaning to remove any factory applied coating and achieve surface roughness of NACE 6/SSPC SP 13. New proposed manholes shall be coated prior to delivery to the construction site.

Surface preparation for existing manholes shall also meet NACE 6/SSPC SP 13 requirements, including ensuring no bug holes or voids exist in manhole wall surfaces prior to application of coating. If voids cannot be sufficiently removed by pressure water or abrasive blast cleaning, or if additional cleaning will affect the structural integrity of the concrete, fill voids prior to application using coating manufacturer's recommended process.

NACE 6/SSPC SP 13 requirements can be found in Appendix C.

All interior surfaces of manholes shall be coated on 15th Street only, including but not limited to pipe invert, manhole walls, and base. To ensure coating product and concrete waste is not introduced into sanitary sewer flows of existing manholes, plugs must be placed into pipeline prior to surface preparation or coating application. Flow bypass pumping required to allow for plugging is incidental to the manhole rehabilitation and will not be paid for separately.

Method of Measurement: Manhole coating, as described above for 15th Street, will be measured by the vertical lineal foot from manhole invert at centerline of the manhole to the top of the cast iron ring and cover.

Method of Payment: Vertical lineal foot

SP-5 SECTION 102.11 – MANHOLES FOR SANITARY SEWER AND STORM DRAINS

Addition to Contract – Clarification:

Section 102.11 of the Standard Specifications shall include the following:

New straight through manholes as identified on the plan sheets are to have the pipe laid through the manhole providing a PVC invert through the manhole with no joints located within the manhole. Pipe shall be installed at the proposed grade through the manholes, the invert below the PVC pipe and the manhole bench shall be field poured around the pipe. The top of the pipe shall be removed to spring line for manhole access to the pipe for future maintenance. The pipe shall be cut providing clean neat lines. Coating of the poured concrete bench shall be accomplished prior to removal of the top of pipe to spring line. The poured concrete bench shall have a minimum of 7-days cure time prior to protective coating being applied.

SP-6 SECTION 103 – REMOVALS, EXCAVATION, BACKFILLING AND RESTORATION

Section 103 of the Standard Specifications is hereby revised for this project as follows:

Subsection 103.10, Cutoff Walls, shall include the following:

Payment for this work will not be measured or paid for separately and will be considered incidental to the installation of Gravity Sewer Pipe. Refer to Section 108.13 for list of Incidental Construction items.

Subsection 103.16, Earth Backfill Material, shall include the following:

Native material excavated on site shall be used for backfill on all pipelines and appurtenances above the bedding and haunching material unless the native material is too wet, soft, rocky or otherwise unsuitable for backfill as determined by the Engineer or their representative. In such case, imported trench backfill material, or other approved material, shall be used and paid for per ton of material supplied, placed and compacted. The Contractor will be required to salvage useable materials from the project excavations and mix the useable material with imported trench backfill prior to placing backfill in the trench. The contract price for “Imported Trench Backfill” shall include the disposal of the unsuitable material.

SP-7 CLEARING AND GRUBBING

Addition to Contract - Clarification:

Clearing and grubbing for this project shall be considered incidental to the cost of construction. Clearing and grubbing will not be paid for separately.

SP-8 SECTION 103.3 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Addition to Contract:

Section 103.3 of the Standard Specifications shall include the following:

The contractor shall provide temporary security fencing at locations where fencing has been removed to facilitate construction. Temporary security fencing shall be in place whenever work activities are not ongoing near or through the fenced area and at the end of each working day. The temporary fencing shall be securely fastened to the existing fence with wire and/or zip-ties.

Measurement and Payment: Temporary security fencing shall not be measured or paid for separately but shall be incidental to the Reset Fence pay item.

SP-9 PROTECTION OF PROPERTY ADJACENT TO EASEMENTS

Addition to Contract - Clarification:

The contractor shall be responsible for protecting surface or other features located adjacent to and outside any easement procured for this project. This includes pavement, gravel, fencing, structures, etc. located outside easements. Damage as a result of construction activity to objects as described above shall be repaired and/or replaced at the Contractors expense and shall not be the responsibility of the City.

SP-10 UV CURED CIPP REHABILITATION

Addition to Contract:

Project scope includes installation of 20” CIPP at two separate railroad crossings. Installation of CIPP to be performed within existing 20” DIP carrier pipe, and to be performed using UV cured CIPP. CIPP work is contingent upon the receipt of the UPRR permit, anticipated approximately June 1, 2019.

Requirements specific to the installation of the CIPP may be found in Appendix D.

Method of Payment: Lineal foot

SP-11 CATHODIC PROTECTION SYSTEMS

Addition to Contract:

Project scope includes the installation of a cathodic protection system on the existing 20” ductile iron pipe and 42” CMP crossing the UPRR railroad. Specifications specific to the installation of the cathodic protection system may be found in Appendix E.

Method of Payment: Lump Sum

SP-12 RECONFIGURATION OF MANHOLE BENCH

Addition to Contract:

At existing sanitary sewer manhole C3-271-031 (Sta. 1+00, Doug Jones Property), no excavation of this manhole is anticipated. All work to reconfigure the invert shall be completed in place. Bypass pumping and/or flow through plugs may be utilized to control flow while completing invert reconfiguration.

The existing manhole bench is to be cored/jackhammered to allow for the connection of the proposed 15-inch sanitary sewer to the northwest.

Surface preparation shall include removal of all latent material, and bush hammering of the existing concrete surfaces where non-shrink grout materials will be placed. A polymer adhesive shall be applied to all bush hammered surfaces immediately prior to placing non-shrink grout. All concrete and grout materials utilized in the reconfiguration of the invert shall be in accordance with Section 102.11 of the City of Grand Junction Standard Specifications for the Construction of Underground Utilities.

The complete reconfigured interior of the manhole shall be coated with Castagra Ecodur 201 in accordance with this project specification and paid for separately under pay item "Manhole Coatings".

Method of Payment: Lump Sum

SP-13 COORDINATION WITH DOUG JONES SAWMILL PROPERTY

Addition to Contract:

Coordination with Doug Jones Sawmill property managers will be necessary to move and reset their lumber stock in the same location along the 15-inch sanitary sewer alignment to facilitate construction. Additional payment will not be made for moving this stock multiple times.

The Contractor is responsible for all coordination.

Method of Payment: Lump Sum

SP-14 SECTION 105 – PIPELINE TESTING

Delete **Section 105.2**. The City of Grand Junction will not require the new sanitary sewer main to be pressure or leakage tested.

All sanitary sewer mains shall be deflection tested using a Mandrel and will be closed captioned (CCTV) inspected prior to final acceptance.

Appendix C

Castagra Ecodur 201 Protective Coating Specification

Ecodur 201 Coating, Potable Water – Concrete

PART 1 - GENERAL

1.1 Scope
1.1.1 Specification includes requirements for preparation and installation of a coating installed to concrete substrate.
1.1.2 Standard system – average minimum thickness of 40 mils.

1.2 Definitions
1.2.1 Ecodur 201: A two-component modified urethane coating / lining.

1.3 Reference Organizations
1.3.1 ASTM: American Society for Testing and Materials
1.3.2 SSPC: Society for Protective Coatings
1.3.3 NACE: National Association of Corrosion Engineers
1.3.4 ISO: International Organization for Standardization

1.4. Reference Standards
1.4.1 The below listed standards are incorporated into specification by reference and are a part of requirements for the Work.

ASTM C 627 Robinson type Floor Tester
ASTM D 412 Standard Test Methods for Vulcanized Rubber
ASTM D 6677 Standard Test Method for Evaluating Adhesion by Knife
ISO 16773-2; 2007 Paints and varnishes - Electrochemical Impedance Spectroscopy (EIS) on high-impedance coated specimens
ASTM 4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
ASTM D 570-98 Standard Test Method for Water Absorption of Plastics
ASTM C 1202 Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration
NACE 6/SSPC-SP 13 Surface Preparation of Concrete

1.5 Submittals
1.5.1 Submit project name and description, Owner's name and address, and name of installing Contractor to Castagra Products, Inc.
1.5.2 Submit product data sheets for material incorporated in Work and this Guide Specification to Owner's Representative.
1.5.3 Submit shop drawings, samples, certifications, project field reports, and warranties as directed.
1.5.4 Submit MSDS sheets for material used in the Work.

1.6 Quality Assurance
1.6.1 Contractor. Employ lead person holding a current certificate from Castagra Products, Inc.
Employ experienced superintendents and installers.
1.6.2 Schedule pre-installation conference to review installation schedule, shut down and restricted access procedures. Indicate Owner's Representative and Contractor's Superintendent.
1.6.3 Schedule post-installation conference for punch list items, Owner check-off on completed work, and submittal of warranty.

1.7 Delivery, Storage, and Handling
1.7.1 Deliver material in manufacturer's original containers.
1.7.2 Store material indoors if possible.

Part A: Storage Temperature: No less than 32°F (0°C). Storage: Recommend storing product upside down for ease of mixing when used and flip over several days before use. Shelf Life: 1 year. Lot numbers indicate date of manufacture are on the labels in YYYYMMDD format.

Part B: Storage Temperature: 75° to 105°F (24° to 41°C). Moisture: Product must be kept free of moisture. Keep container closed because the product absorbs moisture from the air over time. Moisture in the product causes it to produce CO2 gas which may cause pressure build-up inside a sealed container. Shelf Life: 1 year. Once opened, must be used right away. Lot numbers indicate date of manufacture are on the labels in YYYYMMDD format.
1.7.3 Replace material damaged by shipment, weather or job conditions.

1.8 Project Conditions
1.8.1 Assure Owner's material, equipment, and personal possessions are removed to Owner's satisfaction.
1.8.2 Sign removal exception list and retain record copy. List Owner's property to remain in place during preparation and installation of coating system.
1.8.3 Dew point temperature 5°C or 10°F below the substrate temperature. Clean, Dry, Tight.
1.8.4 Assure ventilation of enclosed spaces and illumination is adequate for installation. Submit plan if required.
1.8.5 Assure no personal property is within spray fly pattern during installation of spray components.

1.9 Scheduling
1.9.1 Maintain approved installation schedule. Notify Owner's Representative of changes to the Work.

PART 2 - PRODUCTS
2.1 Manufacturer: Castagra Products, Inc.
5605 Riggins Court, Suite 200
Reno, Nevada, USA 89502
1 (888) 388-2935

2.2. Materials (Physical Properties)
2.2.1 Ecodur 201: A two-component 100% solid modified urethane coating / lining. Certified NSF/ANSI-61 compliant by CSA INTERNATIONAL for use in potable water storage tanks. Install by plural component spray at 40 mils. This is recommended average minimum thickness.

Durability - ASTM C627 (HBT AGRA)	16,000 passes of an average sized car] [No Debonding or Deterioration Occurred]
Estimated Tensile Strength - ASTM D412 (HBT AGRA)	900 psi (6 MPa)
Pull-off Strength from Steel (Charter) -ASTM D4541-09 AT 23°C / 73°F	1000 psi with 95-100% cohesive
Knife Adhesion Test (Charter) -PDO SP-2095 App B.2 / ASTM D6677	0 mm (2 mm allowed) Rating 10 (ASTM D6677)
Estimated Elongation (HBT AGRA) - ASTM D412	20 - 100 % (Equipment typically set up to 20 %-40 %)
Flexibility (Charter) -CSA Z245.20-10 Section 12.11m @-30°C / -22°F Shoe Radius 95mm, Chord 152mm, Arc 178mm	>4.07 degree bend/PD
Chemical Resistance Test (Attached Cell Method) (Charter) (40% MEG & 60% Oilfield formation water) for 7 days @ 93°C/200°F	No defects. No blisters, cracks, delamination. No adhesion loss.
Electrical Impedance Spectroscopy (EIS) (Charter) ISO 16773-2; 2007 96 hours @ 23°C with 5% NaCl followed by 7 day attached cell method chemical test	Log Z value at 0.1 Hz: 9.19 ohms·cm2 before chemical test and 9.46 ohms-cm2 after chemical test - results higher than 9, indicating good barrier and corrosion protection properties that remained excellent after chemical resistance test.

Cathodic Disbondment - EN 10288 (Charter) 48 hours @ 65°C / 149°F @ -1.5V in 3% NaCl electrolyte	6mm (avg. of 6 tests), 7mm allowable for oil & gas 12mm allowable for water
Abrasion Resistance (Polyhedron) ASTM 4060, CS-10, 1000 Cycles, 500g load	25.7 mg loss
Crack Bridging (HBT AGRA)	1/16" (1.6mm)
Estimated Impact Resistance (IZOD) (HBT AGRA) (DROPS SHARPLY AT -20°C) 2 FT-LBSf/INCH (11 Kgf-mm/mm)	2 FT-LBSf/INCH (11 Kgf-mm/mm)
Hardness – Shore Durometer (HBT AGRA)	D 50+/-10
Heat Resistance – Continuous	200°F (93°C)
Minimum Service Temperature	-20 TO -40°F (-30 TO -40°C)
Maximum Service Temperature	200°F (93°C)
Water Absorption ASTM D570 (1993) (HBT AGRA), ASTM D570-98 (2005) (Charter)	0.3 % 30 g/m2 @ 85°C or 185°F - 30 days
Rapid Chloride Permeability (AGRA) ASTM C1202	17 (NIL) COULOMBS [After 6 Hours]
Tensile Bond Strength to Concrete (HBT AGRA) 5 Cycles Freeze/Thaw & Water Immersion	200 - 300 psi (1.5 - 2.0 MPa)
Coefficient of Slip Resistance (HBT AGRA) Rubber Test Surface Wet/Dry Can/CGSB-75.1-M88	0.92 / 0.95

Some Liquid (un-cured) Product Properties for Ecodur 201:

Mix Ratio by Weight
83 Parts Catalyst (Part A)
17 Parts Resin (Part B) (or 5:1 PBW)

Mix Ratio by Volume ***
4.3:1 CAT-Part A to RES-Part B
*** Volume measurements are subject to variations during mixing and stirring that might entrain air.

Pot Life 100 grams at 23°C (easily varied)	Less than 45 minutes
Recommended Cure Cycle	36 hours at 23°C
Mixed Viscosity at 23°C	2000 - 3000 CPS
Resin Viscosity at 23°C	200 CPS
Catalyst Viscosity at 23°C	6000 - 10000 CPS

This information is from independently certified tests performed by HBT AGRA, Charter Coating Services, Polyhedron Laboratories and CSA International. Since conditions of use are beyond our control, we do not assume any liability except to replace that quantity, in containers, of the product which is defective and for which we are responsible.

2.3 Equipment
2.3.1 Provide spray equipment suitable for performance requirements of Ecodur 201 spray material.
2.3.2 Ensure daily maintenance conducted (Refer to daily maintenance worksheet)
2.3.3 Safety glasses and a respirator or a full face mask must be worn whenever working with any hazardous or high pressure equipment or products. Everyone must comply with OSHA regulations. No exceptions.
2.3.4 The user must review all product MSDS (supplied separately with Coating Materials) before using the Coating Materials.

All manufacturers' application and safety instructions must be strictly followed through all phases of the coating application. See Castagra Applicator Manual and PIDS Traffic Membrane for detailed application instructions.

2.4 Source Quality Control
2.4.1 List manufacturer's batch numbers for each unit of material used in Work.

PART 3 - EXECUTION
3.1 Examination
3.1.1 Assure Owner's property removals have been made prior to commencement of preparation and installation of coating.

3.2 Preparation
3.2.1 Perform a soluble salts test. Surface chlorides more than 10 ppm shall be deemed contaminated. Surface must be free of all containments.
3.2.2 Dew point temperature 5°C or 10°F below the substrate temperature.
3.2.3 Provide clean, sound and dry concrete surfaces. Free of any laitance. Free of any curing agents and sealers that have not been determined to be compatible with the coating material. Utilize appropriate controlled high pressure water cleaning or abrasive blasting to achieve a surface of NACE 6/SSPC SP 13. New concrete shall be cured a minimum of 28 days.
3.2.4 Fill bugholes prior to application of the coating system. For filling large holes or voids, simply trowel up to 2 inches thick of product into the holes/vids.
3.2.5 Key in necessary termination areas including penetrations to accept proper application of coating.

3.3 Installation
3.3.1 Spray coat of Ecodur 201 at 40 mils DFT nominal.
3.3.2 Spray additional material to achieve specified system thickness. Retouch as required (See Ecodur M-kit application instructions) product.
3.3.3 Minimize pinholing (see General pinhole tip sheet)

3.4 Field Quality Control
3.4.1 Maintain spray and other installation equipment in proper operating condition throughout installation.
3.4.2 Perform DTF film thickness tests.
3.4.3 Conduct Visual Inspection (pinholes, discoloration, delamination, blisters).
3.4.4 Conduct Spark Tester/Holiday Tester to verify quality of spray.
3.4.5 Conduct Ultra-violet light inspection to check for off-ratio and other defects. Use black light to check for and highlight visual defects. UV frequency range 365-400 nanometers. ASTM E2501 standard applies.
3.4.6 Complete Daily Coating Work Report log file.
3.4.7 Complete Post Spray Inspection Check sheet.
3.4.8 Provide free film cured samples for each spray shift for conformance and physical property testing. Hardness measurements Shore D 50 +/-10 (measured at room temp)
3.4.9 Retain records for quality assurance purposes.

3.5 Cleaning
3.5.1 Clean spills and over sprays as they occur.
3.5.2 Consult manufacturer's literature and MSDS sheets for proper cleaning materials and methods.
3.5.3 Clean site to Owner's satisfaction prior to final acceptance.

3.6 Testing
3.6.1 Conduct water testing if required.

3.7 Protection

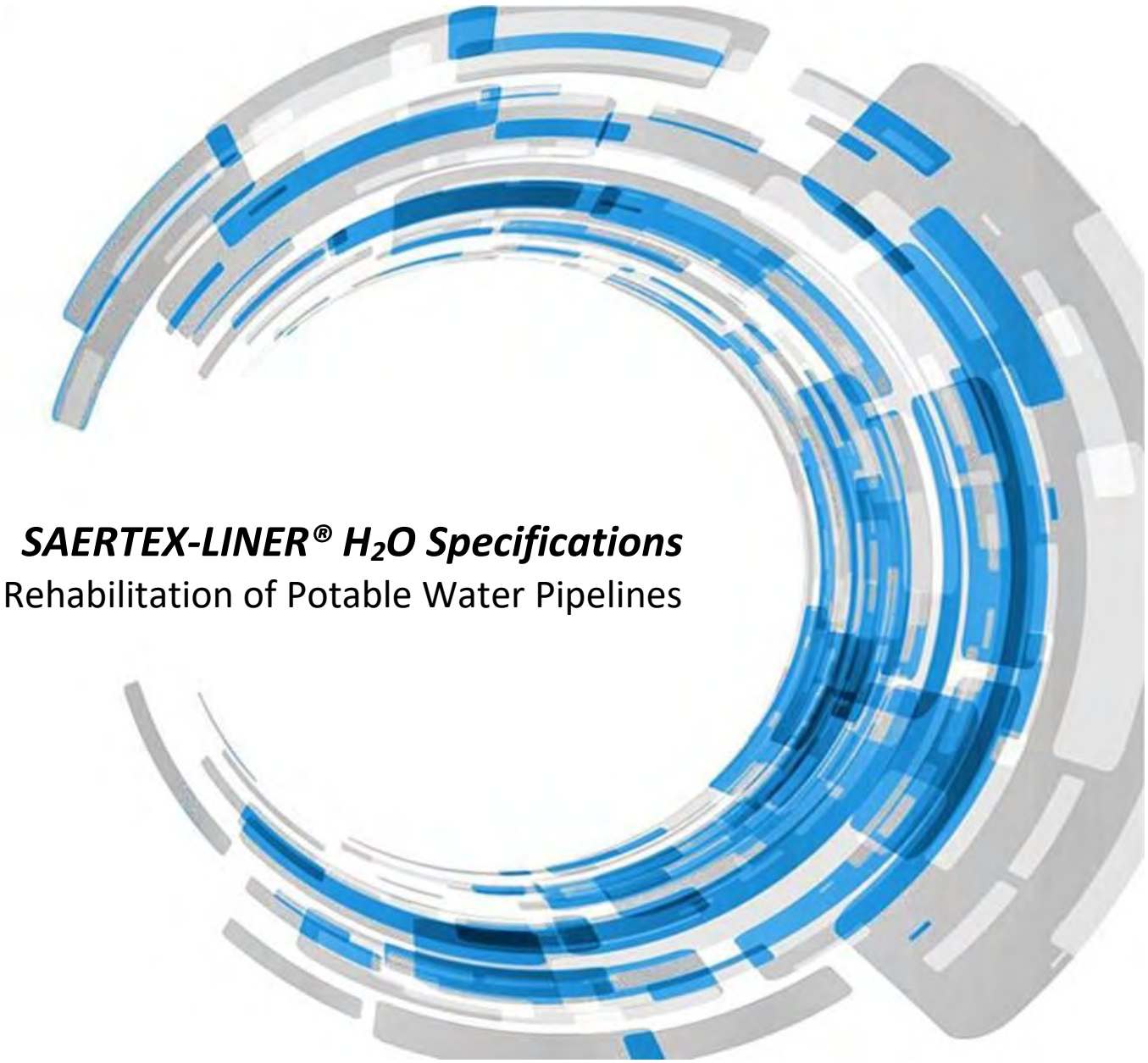
3.7.1 Protect installed work prior to acceptance by Owner.

3.8 Schedules
3.8.1 Submit maintenance schedule if required.

Appendix D

Saertex-Liner H_2O Specification
UV Cured GRP – CIPP Structural Lining

SAERTEX multiCom® H_2O



SAERTEX-LINER® H_2O Specifications

Rehabilitation of Potable Water Pipelines

Rehabilitation of Potable Water and Pressure Pipelines by UV Cured GRP Structural Lining

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall rehabilitate the deteriorated water pipelines using the trenchless method of glass-fiber reinforced cured-in-place pipe (GRP CIPP) by ultraviolet light cure in accordance with these Specifications.

The CIPP material shall consist of a resin-impregnated fiberglass material tube ("Liner") which when cured shall extend the full length of the original pipe and provide a fully structural, smooth, joint less and watertight pipe.

Only UV cured liners designed as Class IV fully structural liners in accordance with the AWWA M28 Manual of Rehabilitation of Water Mains will be acceptable.

Only liners that are certified by NSF and have NSF/ANSI Standard 61 for use in potable water pipelines and are listed on the NSF website of certified products are acceptable.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

The following documents form a part of this specification to the extent stated herein:

NSF/ANSI Standard 61 - Certification and Approval

AWWA M28 - Manual on Cleaning and Lining Water Mains

ASTM F2019 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Resin Pipe (CIPP)

ASTM F1216 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube

ASTM F1743 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pull In and Inflate and Curing of a Resin-Impregnated Tube.

ASTM D543 - Test Method for Resistance of Plastics to Chemical Reagents

ASTM D578 - Standard Specification Glass Fiber Strands

ASTM D638 - Standard Test Method for Tensile Properties of Plastics

ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM D5813 - Standard Specification for Cured-in Place Thermosetting Resin Sewer Pipe

PART 2 – PRODUCT

2.01 MANUFACTURER/INSTALLER REQUIREMENTS

a. The pipe lining product shall be SAERTEX LINER-H20 as manufactured and supplied by SAERTEX multiCom LP, or approved equal. Only Class IV fully structural pipe materials in conformance with the requirements of ASTM F2019 and F1216 shall be considered as an "or equal" for this item and must be submitted and approved by the Engineer at least 10 (ten) days prior to bid.

b. The "Manufacturer" must have a minimum 350,000 linear feet successfully installed. The installing contractor must be trained and certified by the UV GRP manufacturer and have documented experience with a fiberglass UV cured liner.

c. For each method of installation and curing used on this project, the CIPPL Work shall be supervised by a foreman having previously supervised a minimum of 50,000 linear feet of CIPPL using a similar resin and flexible tube and using the specific method of installation and curing method proposed.

d. The entity performing the wet-out of the CIPPL shall have been performing this type of work for a minimum of three years and previously wet-out at least 350,000 linear feet of CIPPL. If the Contractor does not have 350,000 linear feet of CIPPL experience with the UV curing system being used, then a manufacturer's onsite representative must be present during all installations of the CIPPL system. The Contractor is to provide the Engineer with the manufacturer representative's work experience for approval. Work shall not begin prior to the Engineer's approval of the manufacturer's onsite representative.

e. The Contractor shall provide five (5) references of completed UV cured projects.

2.02 MATERIALS

At the time of manufacture, each lot of glass fiber tube liner shall be inspected for defects. At the time of delivery, the liner shall be homogeneous throughout, uniform in color, free of cracks, holes, foreign materials, blisters, and deleterious faults.

The ENGINEER may at any time direct the manufacturer to obtain compound samples and prepare test specimens in accordance with the latest applicable ASTM standards.

2.03 TUBE

a. The fabric tube will consist of at least two separate tubes of corrosion resistant E-CR or equivalent glass fiber in accordance with ASTM F 2019. Standard felt lining systems are not acceptable.

b. The fabric tube shall be constructed with longitudinal unidirectional glass roving of sufficient strength to negotiate a pulling force at least equal to the weight of the liner.

c. The fabric tube shall include an exterior and interior film that protects and contains the styrene free vinyl ester resin used in the liner from the environment. The exterior film will be provided with a UV light blocker foil.

d. The wet out Tube shall have a uniform thickness that when compressed at installation pressures will meet or exceed the Design thickness.

e. The Tube shall be sized such that when installed, will tightly fit the internal circumference and length of the original pipe.

f. The glass fiber Tube shall be saturated with the appropriate resin using a resin bath system

g. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

h. The liner should be seamless in its cured state to insure homogenous physical properties around the circumference of the cured liner.

2.04 RESIN

a. The resin system shall be a styrene free vinyl ester, with a catalyst system that when properly cured within the tube composite meets the physical properties.

b. The resin used with this product is not cured with heat, but uses UV light to cure the pipe. Refrigeration of the wetted tube is not necessary, thus any distance limitation between the wet out facility and the job site is not applicable. The liquid UV resin shall saturate the tube and produce a properly cured liner which is resistant to abrasion due to solids, grit, and sand.

c. Styrene free vinyl ester and catalyst system shall comply with the following requirements and that when properly cured meets the requirements of ASTM F1216. Resins created from recycled materials are not allowed.

d. The fabric tube shall be totally impregnated with resin in the manufacture's ISO 9001 facility. Certification documents with date, type of resin, resin volume, mixing ration, liner thickness, temperature, type of glass fiber, liner type, manufacturing date shall be attached to the impregnated tube or be provided by the CIPP manufacturer in accordance to ASTM F2019.

e. The resin for raw or non-potable water applications must meet applicable corrosion resistance requirements consistent with 6.4.1 and 6.4.2 of Specifications D5813.

f. The resin for potable water applications must be NSF/ANSI 61 Certification.

2.05 PRESSURE RATING

a. The pressure rating of installed GRP-CIPP system shall meet the application requirements per the pressure pipe design mode in ASTM F1216, Appendix X1, Section X1.3.

2.06 STRUCTUAL REQUIREMENTS

a. The CIPP shall be designed as per ASTM F1216, Appendix X1, Section X1.3. The design shall assume no bonding to the host pipe wall.

b. The cured CIPP product shall have at least the initial structural properties given in Table 1. These physical properties should be determined in accordance with ASTM F2019 Section 7.

2.07 DESIGN PARAMETERS

a. The cured-in-place pipe (CIPP) shall be signed and sealed by professional engineer and designed in accordance to ASTM F1216, Appendix X1.3 Pressure Pipe Design Considerations with the following parameters.

Diameter of Host Pipe	20” nominal ID
Minimum Service Life	50 years
Design Condition of Deterioration	Fully Deteriorated /AWWA Class IV
Internal Operating Pressure	100 psi
Negative/Vacuum Pressure	0 psi
Safety Factor	2
Operating temperature	50˚F
Soil Depth (above top of pipe)	6-8ft
Soil Modulus	800 psi
Ground Water Depth (above invert)	6ft
Live Loads	AASHTO E80 under railroads

b. The CIPP design will assume no bonding to the original host pipe.

TABLE 1
MINIMUM INITIAL STRUCTURAL PROPERTIES AS PER ASTM F2019-11

Property	Test Method Value, psi	Minimum	(MPA)
Flexural Strength	D790	6,500	45
Flexural Modulus	D790	725,000	5,000
Tensile Strength	D3039/D3039M	9,000	62
	D638	9,000	62

2.08 DELIVERY, STORAGE, AND HANDLING

a. Care shall be taken in shipping, handling and storage to avoid damaging the liner. Any liner damaged in shipment shall be replaced as directed by the OWNER at no additional cost to OWNER.

b. While stored, the CIPP liner shall be adequately supported and protected. The UV Cure GRP CIPPL shall be stored in a manner as recommended by the manufacturer and as approved by the ENGINEER.

2.09 QUALITY CONTROL

a. No change of material, design values, or procedures as developed before bidding the contract may be made during the course of the Work without the prior written approval of the ENGINEER.

b. All liner to be installed under this Work may be inspected at the manufacturer's plant(s) and wet-out facility for compliance with these Specifications by OWNER or ENGINEER. The CONTRACTOR shall require the wet-out facility's cooperation in these inspections. The cost of inspection will be the responsibility of the OWNER.

c. At the time of manufacture, inspect each lot of liner for defects. At the time of delivery, the liner shall be homogeneous throughout, uniform in color, free of cracks, holes, foreign materials, blisters, or deleterious faults.

d. The liner manufacturer facility shall have a Quality Management System registered with ISO 9001:2008.

e. The wet out of the liner must be done in an indoor environmentally controlled manufacturing setting. No onsite wet out will be allowed. This facility maybe inspected at the manufacturer's plant(s) for compliance with these Specifications by OWNER or ENGINEER.

PART 3 - SUBMITTALS

3.01 SUBMITTALS

a. NSF/ANSI 61 Certificate of proposed pipe lining system.

b. Manufacturer's written letter of Installer Certification.

c. Manufacturer's product literature and technical data for the following items: Resin curing schedule showing time and temperature for each reach, end seals, and fittings for connection to proposed PVC waterline.

d. Manufacturer's detailed installation process and recommendations.

e. Site layout for installation equipment and plan of installation specific to project locations, including location and number of access points.

f. Available standard written warranty from the Manufacturer.

g. Manufacturer's ISO 9001 certificate.

h. Certificate of compliance with Standards listed in sections 2.1.

i. Pipe cleaning equipment and methods.

j. UV curing and pre and post-insertion video inspection equipment and recording method's.

k. Where applicable, a suitable temporary water service plan for affected customers.

l. Independent third party certified laboratory test reports demonstrating that the exact resin/liner combination to be used for this project meets the requirements for initial structural properties and chemical resistance (performed in accordance with ASTM F1216).

m. Independent third party certified laboratory test reports demonstrating that the exact resin and liner to be used for this project has been tested for long-term flexural modulus of elasticity and long-term flexural strength (i.e. 10,000-hour creep testing performed in accordance with ASTM 2990 or DIN 761 for design conditions applicable to this project).

n. Structural design calculations and specification data sheets listing all parameters used in the liner design and thickness calculations based on Appendix X1 of ASTM F2019, F1216 and based on the design parameters of this Specification. All calculations shall be prepared under and stamped by a Professional Engineer.

PART 4 – EXECUTION

4.01 EXAMINATION

a. Contractor will locate and designate all access points, open and make access points available for the Work. The Owner shall provide rights of access to the pipeline.

b. The Contractor shall provide the excavation, pipe work, reconnection and restoration for all access points.

c. The Contractor shall remove all internal debris, tuberculation and obstructions that will interfere with the installation of the CIPP or be detrimental to the final product. A pre-lining TV video inspection and report shall confirm the adequacy of the cleaning.

4.02 INSTALLATION

a. The approved system must utilize an outer and inner film to ensure that the liner remains intact during the insertion process and to protect the resin at all times during the installation and curing process from water and debris contamination, and resin migration.

b. A constant tension winch should be used to pull the glass fiber liner into position in the pipe. The liner shall have a lateral fiberglass reinforcement band which runs the entire length of the liner ensuring that the pulling force is transferred to the band and not the fiberglass liner. Once inserted, end plugs shall be used to cap each end of the glass fiber liner to prepare for pressurizing the liner. The end plugs should be secured with straps to prevent them from being expelled due to pressure. As with all CIPP products, liner restraints should be used in manholes.

c. Where applicable, a gliding foil shall be installed on the bottom one third to one half of the pipe prior to liner insertion, for the purpose of protecting the liner during insertion and reduce the drag, or as recommend by the liner manufacturer.

d. The glass fiber liner shall be cured with UV light sources at a constant inner pressure. When inserting the curing equipment in the liner, care should be taken to not damage the inner film material.

e. The UV light sources should be assembled according to the manufacturer's specifications for the liner diameter. For the liner to achieve the required water tightness and specified mechanical properties, the following parameters must be controlled during the entire curing process, giving the Engineer a record of the curing parameters over every segment of the entire length of the liner. This demonstrates that the entire liner is cured properly.

   The recording will include:
   - Curing speed
   - Light source working & wattage
   - Inner air pressure
   - Curing temperatures
   - Date and time
   - Length of liner

f. This will be accomplished using a computer and data base that are tamper proof. During the curing process, infrared sensors will be used to record curing data that will be submitted to the Engineer with a post CCTV inspection on DVD.

g. The optimal curing speed, or travel speed of the energized UV light sources, is determined for each length of liner based on liner diameter, liner thickness, and exothermic reaction temperature. Curing schedule to be strictly adhered to.

4.03 INTERNAL END SEALS

a. The Contractor shall install NSF/ANSI 61 approved end seals at the pipe lining beginning and termination points according to the Manufacturer's recommendations and AWWA M28, Appendix A.
b. Fittings for connection between CIPP and PVC shall be MJ x FE, unless otherwise approved by the ENGINEER.

4.04 HYDROSTATIC PRESSURE TEST

a. When requires a hydrostatic pressure test shall be performed as described in ASTM F1216, Section 8.3.

4.05 DISENFECTION

a. After the completion of the work the Contractor shall perform chlorine disinfection and laboratory tests on water samples of the newly installed liner in accordance to applicable Owner/AWWA Standards.

4.06 CLEANING AND SITE RESTORATION

a. Upon acceptance of the CIPP installation and any testing associated therewith, restore the project area affected during the operation to a condition at least equal to that existing prior to work. Site cleaning and restoration are incidental to the Work.

PART 5 - WARRANTY

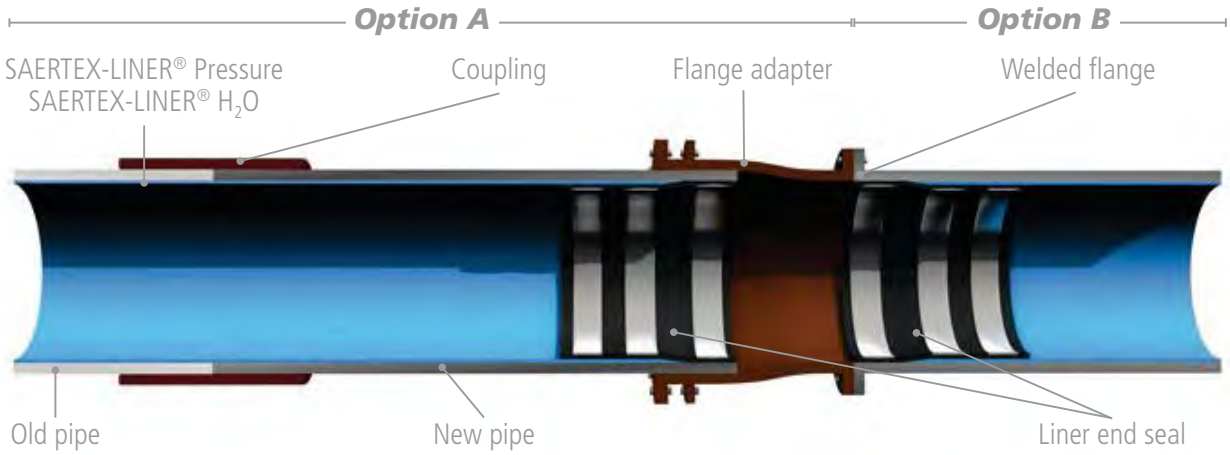
5.01 WARRANTY

All lining work shall be fully guaranteed by the CONTRACTOR for a period of 1 year from the date of Final Acceptance unless otherwise stipulated in writing by the OWNER prior to the date of Conditional Acceptance. During this period, all serious defects discovered by the OWNER or ENGINEER shall be removed and replaced by the CONTRACTOR in a satisfactory manner at no cost to the OWNER. In addition, the OWNER may conduct independent television inspections, at its own expense, of the lining Work at any time prior to the completion of the guarantee period.

END OF SECTION

SAERTEX-LINER® Pressure
SAERTEX-LINER® H_2O

Possible connection technology



1. Preparation

In order to uncover the old pipe, the excavation enclosure needs to be build with a sheeting or a slope.

2. Opening the network

The old pipe must be cut open and the intermediate piece has to be removed.

3. Placing the flanges

Flange adapters (Option A) or, as shown here, welded Flanges (Option B) are attached to the old pipe.

4. Installation

The SAERTEX-LINER® Pressure / SAERTEX-LINER® H_2O will be installed and cut back.

5. End seal

The SAERTEX-LINER® Pressure / SAERTEX-LINER® H_2O shall be connected with liner end seals to the flanges.

6. Finalization

The network will be coupled to the flanged pipe section and sealed.

www.facebook.de/saertexmulticom | www.saertex-multicom.de

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02/2016

Appendix E

Cathodic Protection for Pipelines Specification

CATHODIC PROTECTION FOR PIPELINES

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Requirements for sacrificial anode cathodic protection on water and sewer pipelines using prepackaged, magnesium anodes.

1.02 UNIT PRICES

A. This item will be measured and paid for as a lump sum item for the job.

B. Payment will be full compensation for all labor, equipment, materials and supervision for the installation of the cathodic protection system, complete in place including rectifier systems with deep anode groundbed and junction boxes, sacrificial anodes, power feed hookups, and all excavation, backfill, field welding, connections, adjustments, testing, cleanup, and other related work necessary for construction as shown on the drawings and specified herein.

1.03 REFERENCES

A. ASTM C94 - Ready Mixed Concrete

B. ASTM D-1248 - Polyethylene Plastics Molding and Extrusion Material

C. AWWA M9 Manual - Concrete Pressure Pipe

D. NEC 70 - National Electrical Code

E. CSA – Canadian Standards Association, Standard C22.2, No. 66 and No. 107

F. Local Electrical Code

G. NACE RP-0169 - Recommended Practice, Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

H. NACE RP-0572 - Recommended Practice for Design, Installation, Operation and Maintenance of Impressed Current Deep Groundbeds.

I. NEMA TC6 - PVC and ABS Plastic Utilities Duct for Underground Installation.

J. NEMA TC9 - Fittings for ABS and PVC Plastic Utilities Duct for Underground Installation.

K. NEMA 4 - TYPE 3R ENCLOSURES

L. UL 83 - Thermoplastic-Insulated Wires

M. UL 467 - Bonding and Grounding Equipment

N. UL 486A - Wire Connectors and Soldering Lugs for Use with Copper Conductors

1.04 SUBMITTALS

A. Design Drawings and Computations: All computations and drawings shall be prepared by or under the direct supervision of a Professional Engineer, registered in the State of Colorado with a minimum of five years' experience in cathodic protection design.

B. Drawings: As-built drawings of the cathodic protection installation shall be maintained by the Contractor during installation and construction. Drawings shall be revised to show exact locations of all anodes, wiring, and connections. All items of equipment and material shall be properly identified. The original as-built drawings shall be submitted to the City of Grand Junction representative.

1.05 QUALITY CONTROL

A. Provide manufacturer's certification that all components of the cathodic protection system meet the requirements of the drawings and specifications. The certification shall reference the applicable section of the specifications and the applicable standard detail.

B. All materials, fabrication and installations are subject to inspection and testing by the City of Grand Junction or its designated representative.

C. The drawings for the cathodic protection system are diagrammatic and shall not be scaled for exact locations unless scales are explicitly stated on the specific drawing. Field conditions, non-interference with other utilities or mechanical and structural features shall determine exact locations. Contractor shall note other existing utilities in the area and shall not damage these utilities during excavation. Any damaged utilities shall be repaired to the satisfaction of the City of Grand Junction at the Contractor's expense.

PART 2 A N O D E S

2.01 SACRIFICIAL ANODES - MAGNESIUM

A. Magnesium Anodes: High potential magnesium anodes shall be used. The metallurgical composition of the magnesium anodes shall be as follows:

Element	Percent Composition
Aluminum	0.01 Maximum
Manganese	0.50 to 1.3
Copper	0.02 Maximum
Nickel	0.001 Maximum
Iron	0.03 Maximum
Other - (each)	0.05 Maximum
Other - (total)	0.30 Maximum
Magnesium	Balance

B. Magnesium Anode Current Capacity: Magnesium anodes shall have a current capacity of no less than 500 amp-hours per pound of magnesium.

C. Anode Backfill Material: Use chemical backfill material around all galvanic anodes. Backfill provides a reduced contact resistance to earth, provides a uniform environment surrounding the anode, retains moisture around the anode, and prevents passivation of the anode.

1. All galvanic anodes shall come prepacked in a backfill material conforming to the following composition:

   a. Ground hydrated gypsum: 75 percent

   b. Powdered bentonite: 20 percent

   c. Anhydrous sodium sulfate: 5 percent.

2. The backfill shall have a grain size such that 100 percent is capable of passing through a 20 mesh screen and 50 percent is retained by a 100 mesh screen.

3. The backfill mixture shall completely surround the anode within a cotton bag.

4. For standard cast magnesium ingots, the weight of backfill required shall be as follows:

Anode Weight (Pounds)	Backfill Weight (Pounds)	Total Weight (Pounds)
9	15	24
17	25	42
20	50	70
32	38	70
48	48	96

D. Anode Lead Wires:

1. Standard lead wires for a galvanic anode shall be a 20-foot length of No. 12 AWG solid copper wire equipped with TW or THW insulation.

2. All anode lead wires shall be color coded green when terminated in test stations.

E. Lead Wire Connection to Magnesium Anode:

1. Magnesium anodes shall be cast with a galvanized steel core with the weight of the core not to exceed 0.10 pounds per linear foot.

2. One end of the anode shall be recessed to expose the core for the lead wire connection.

3. The lead wire shall be silver-soldered to the core and the connection fully insulated by filling the recess with an electrical potting compound.

2.08 THERMITE WELD EQUIPMENT

A. Charges and Molds: Cadweld molds and charges shall be used. Charges and mold size shall be as specified by Erico for the specific surface configuration.

B. Limitation: For high strength steel pipelines, use only 15 gram Cadweld charges.

C. Weld Coating: Coating for welds shall be Kop-Coat as manufactured by Carboline.

D. Weld Cap: The coated weld shall be covered with a plastic weld cap.

PART 3 C A T H O D I C P R O T E C T I O N S Y S T E M I N S T A L L A T I O N

3.01 INSTALLATION OF SACRIFICIAL ANODES

A. Location: Install sacrificial anodes at locations where the anodes will operate at maximum effectiveness.

B. Placement: Install anodes in native soil, in a vertically augured hole as shown on the drawings. If a vertical installation of the anodes is not feasible, the anodes may be installed horizontally.

C. Augured Hole: The hole diameter shall easily accommodate the anode.

D. Backfilling: After the hole is augured, lower the packaged anode into the hole and firmly tamp the soil around the package so that it is in intimate contact with the package.

E. Lead Wire: Run lead wires from the anodes underground at a minimum depth of 36 inches. Connect the wires through a test station as indicated on the drawings.

F. Handling: Handle galvanic anodes carefully to avoid damaging anode materials and wire connections.

3.08 POST INSTALLATION TESTING OF THE CATHODIC PROTECTION SYSTEMS

A. Notice: Prior to native state and polarized potential testing, the Contractor shall give a minimum of 48 hours notice to the City of Grand Junction to facilitate observation of the tests by a City Representative.

END OF SECTION

Appendix E.1

Corrosion Control Test Stations Specifications

CORROSION CONTROL TEST STATIONS

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Test station materials and installation requirements.

1.02 UNIT PRICES

A. No payment will be made for corrosion control test stations under this section. Include cost in lump sum price for pipeline cathodic protection.

1.03 REFERENCES

A. ASTM D1248 - Polyethylene Plastic Molding and Extrusion Material.

B. NACE RP-0169 - Recommended Practice, Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

C. AWWA M9 Manual - Concrete Pressure Pipe.

D. UL 83 - Thermoplastic Insulated Wires.

E. UL 486A - Wire Connectors for Use with Copper Conductors.

1.04 SUBMITTALS

A. Design Drawings and Computations: All computations and drawings shall be prepared by or under the direct supervision of a Professional Engineer, registered in the State of Colorado with a minimum of five years' experience in corrosion control.

B. Catalogue Cuts: Manufacturer's catalog cuts shall be submitted for each item. The catalog cuts shall include the manufacturer's name and shall provide sufficient information to show that the materials meet the requirements of the drawings and specifications. Where more than one item or catalog number appears on a catalog cut, clearly identify the item proposed.

C. Drawings: As-built drawings of the corrosion control test stations shall be maintained by the Contractor during installation and construction. Drawings shall be revised to show exact locations of all wiring, connections, and terminal boxes. All items of equipment and material shall be properly identified. The original as-built drawings shall be submitted to the City of Grand Junction representative.

1.05 QUALITY CONTROL

A. Provide manufacturer's certifications that all components of the corrosion control test stations meet the requirements of the drawings and specifications. The certification shall reference the applicable section of the specifications and the applicable standard details.

B. The drawings for the corrosion control test stations are diagrammatic and

shall not be scaled for exact locations, unless scales are explicitly stated on the specific drawing. Field conditions, non-interference with other utilities or mechanical and structural features shall determine exact locations. Contractor shall note other existing utilities in the area and during excavation, shall not damage these utilities. Any damaged utilities shall be repaired to the satisfaction of the City of Grand Junction at the Contractor's expense.

C. All materials, fabrication, and installations are subject to inspection and testing by the City of Grand Junction or its designated representative.

PART 2 P R O D U C T S

2.01 FLUSH MOUNT TEST STATIONS

A. Test stations shall consist of test wires, a terminal box and a traffic box as shown on the drawings.

B. The terminal box shall be a five terminal Big Fink as manufactured by Cott Manufacturing Company or approved equal.

C. The concrete traffic box shall be an 8.75-inch diameter I-RT with a cast iron cover marked "CP Test" as manufactured by Brooks Products, Inc or approved equal.

2.02 TEST STATION LEAD WIRES

A. Test station lead wires of all sizes shall have TW, THW or THHN insulation.

B. Type insulation shall be color coded based upon connection to underground structures:

1. Water piping: white.
2. Foreign structures: red.
3. Steel casings: yellow.

C. All terminal boards shall be wired by the installer as shown on the drawings.

2.03 THERMITE WELD EQUIPMENT

A. Charges and Molds: Weld charges and mold size shall be specified by the manufacturer for the specific surface configuration. Use only the correct charges for the specific application. Welding charges and molds shall be Erico, Cadweld or Continental Industries, Thermoweld.

B. Weld Coating: Coating for all welds shall be Kop-Coat as manufactured by Carboline or approved equal. Cover coated weld with a plastic weld cap.

PART 3 EXECUTION

3.01 APPLICATIONS

A. Required applications of corrosion control test stations include locations where future testing is anticipated for the following reasons:

1. Testing to determine the effectiveness of the installed cathodic protection systems and to allow for startup adjustments.

2. Testing to determine interference effects from and on adjacent or crossing foreign underground structures.

3. Testing to determine sources and magnitude of stray d-c currents and required mitigative measures.

4. Periodic monitoring to determine status of existing cathodic protection systems, stray current, and foreign line influence.

B. Install test stations at locations shown on the drawings.

3.02 GENERAL

A. Use continuous test station lead wires without cuts or tears in the insulation.

B. Locate test stations as close to directly over the pipe as possible. If the pipe is installed under a road, place the test station at the curb for easy access.

C. Attach test lead wires to the pipe by thermite welding.

D. Attach test wires to the pipe prior to backfilling.

E. Use color coded test wires as indicated on the drawings.

F. Wire test station terminal board configurations as shown on the drawings.

3.03 FLUSH-MOUNT TEST STATIONS

A. Install flush-mount test stations as shown on the drawings.

B. Sufficient slack shall be coiled beneath the test station to allow for soil settlement and to prevent damage to the leads during backfilling. Additional slack shall be left to allow for withdrawal of the terminal board a minimum of 18 inches above the top of the concrete traffic box for test purposes.

C. Set test stations installed outside areas of permanent paving materials in a Portland cement concrete pad. The concrete pad shall be a minimum of 24 inches square and no less than 4 inches thick.

3.04 TEST LEAD WIRE ATTACHMENT

A. Attach test leads to the pipe by thermite welding.

B. The pipe to which the wires are to be attached shall be clean and dry.

C. Use grinding wheel to remove all coating, mill scale, oxide, grease, and dirt from an area approximately 3 inches square. Grind the surface to bright metal.

D. The wires to be thermite welded to the structure shall have approximately 1 inch of insulation removed from each end, exposing clean, oxide-free copper for welding.

E. Using the proper size thermite weld mold as recommended by the manufacturer, place the wire between the graphite mold and the prepared metal surface. Use a copper sleeve crimped over the wire for all No. 12 AWG wires.

F. Place the metal disk in the bottom of the mold.

G. Pour the thermite weld charge into the mold. Squeeze the bottom of the cartridge to spread ignition powder over the charge.

H. Close the mold cover and ignite the starting powder with a flint gun.

I. After the exothermic reaction, remove the thermite weld mold and gently strike the weld with a hammer to remove the weld slag. Pull on the wire to assure a secure connection. If the weld is not secure or the wire breaks, repeat the procedure.

J. If the weld is secure, coat all bare metal and weld metal with Kop-Coat. Cover the coated weld with a plastic weld cap.

3.05 POST INSTALLATION BACKFILLING OF TEST STATION - LEAD WIRES.

A. Protect test station wires to prevent damage to the wire insulation and conductor integrity during backfilling.

B. After completion of the backfilling of the test wires to the pipe, verify the connection by recording a pipe-to-soil potential.

C. Replace any test wire found to have a high resistance connection.

END OF SECTION

Appendix F

Geotechnical Soils Report

Huddleston-Berry
Engineering & Testing, LLC

2789 Riverside Parkway
Grand Junction, Colorado 81501
Phone: 970-255-8005
Fax: 970-255-6818
Info@huddlestonberry.com

March 21, 2019
Project#00208-0095

City of Grand Junction
333 West Avenue, Building C
Grand Junction, Colorado 81501

Attention: Mr. Lee Cooper

Subject: Geotechnical Investigation
2019 Water Line Replacements
Grand Junction, Colorado

Dear Mr. Cooper,

At your request, Huddleston-Berry Engineering and Testing, LLC (HBET) conducted a subsurface exploration for the 2019 Water Line Replacements project. The scope of work included conducting geotechnical borings at five locations in Grand Junction, Colorado. The boring locations are shown on Figure 1. In addition, typed boring logs are included in Appendix. A. The results of laboratory soil classification testing are included in Appendix B.

Boring B-1 was conducted on S. 12th Street, south of Pitkin Avenue. This boring encountered 4.0-inches of asphalt pavement above brown, moist, medium stiff lean clay to a depth of 10.0 feet. The clay was underlain by brown, moist, medium dense silty sand to the bottom of the boring. Groundwater was not encountered in B-1 at the time of the investigation.

Boring B-2 was conducted on S. 15th Street near the intersection with 4th Avenue. This boring encountered 4.0-inches of asphalt pavement above granular base course to a depth of approximately 2.0 feet. Below the pavement materials, brown, moist, medium stiff lean clay extended to a depth of 10.0 feet. The clay was underlain by brown, moist to wet, dense to very dense sandy gravel and cobbles to the bottom of the boring. Groundwater was encountered in B-2 at a depth of 10.0 feet at the time of the investigation.

Boring B-3 was conducted on D Road, east of S. 10th Street. This boring encountered 6.0-inches of asphalt pavement above brown, moist, stiff to soft lean clay soils to a depth of 8.0 feet. The clay was underlain by brown, moist to wet, very loose to medium dense silty sand to the bottom of the boring. Groundwater was encountered in B-3 at a depth of 8.5 feet at the time of the investigation.

Boring B-4 was conducted on S. 9th Street near the intersection with Winters Avenue. This boring encountered 5.0-inches of asphalt pavement above brown, moist to wet, stiff to very soft lean clay to a depth of 12.0 feet. The clay was underlain by brown, wet, dense sandy gravel and cobbles to the bottom of the boring. Groundwater was encountered in B-4 at a depth of 9.5 feet at the time of the investigation.

Boring B-5 was conducted along Pitkin Avenue, near the S. 15th Street alignment. This boring encountered 1.0 foot of topsoil above brown, moist, soft to medium stiff lean clay to the bottom of the boring. Groundwater was not encountered in B-5 at the time of the investigation.

The blow counts (N-values) of the native clay soils encountered in the borings ranged from 1 to 12 blows-per-foot. The N-values of the native sand soils ranged from 17 to 21 blows-per-foot. The N-value of the native gravel and cobble soils was 41 blows-per-foot. The moisture contents in the soils ranged from 14 to 34%.

We are pleased to be of service to your project. Please contact us if you have any questions or comments regarding the contents of this report.

Respectfully Submitted:
Huddleston-Berry Engineering and Testing, LLC

Michael A. Berry, P.E.
Vice President of Engineering

FIGURES

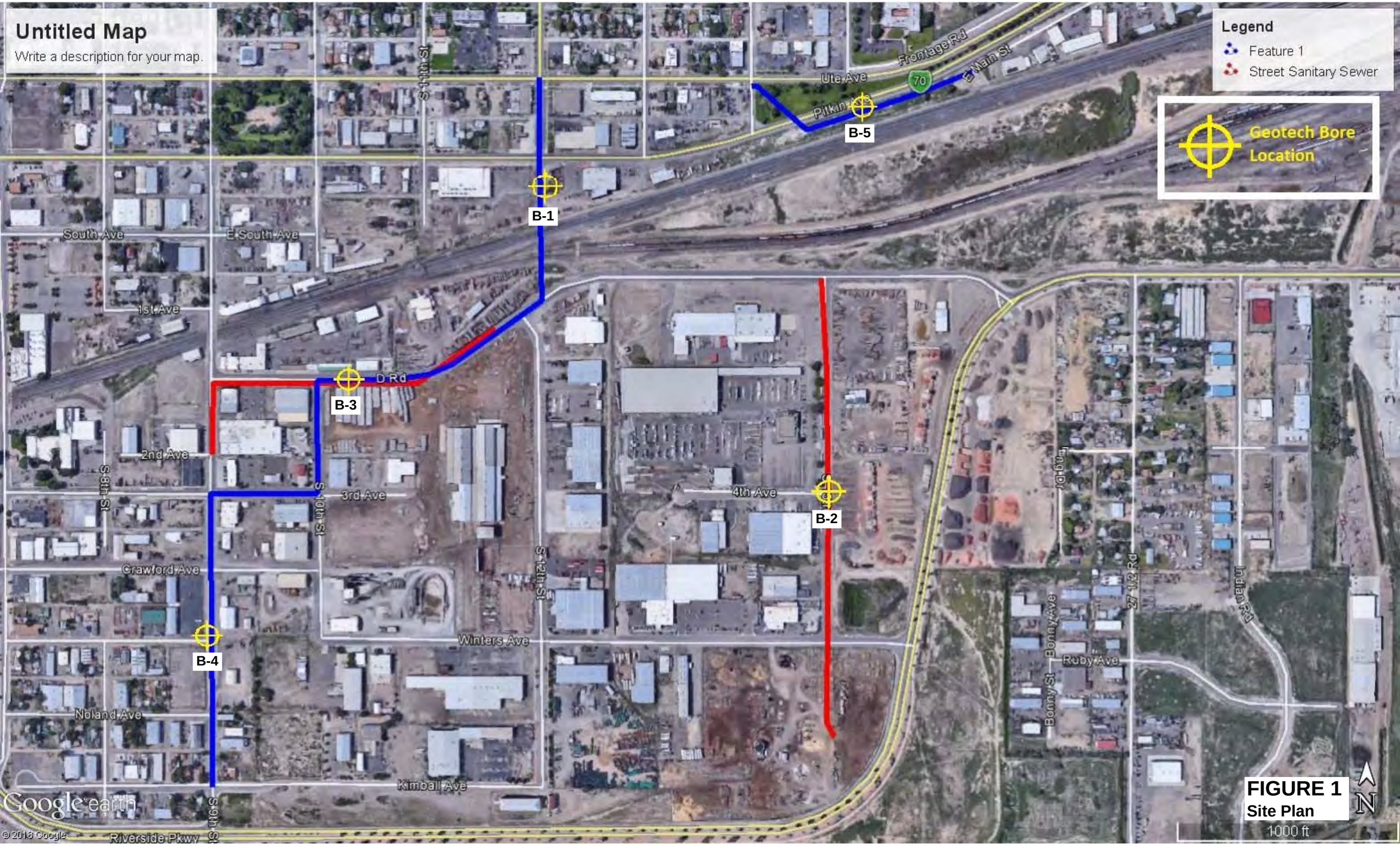

FIGURE 1
Site Plan

APPENDIX A
Typed Boring Logs

Huddleston-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

BORING NUMBER B-1

CLIENT City of Grand Junction
PROJECT NAME 2019 Water Line
PROJECT NUMBER 00208-0095
PROJECT LOCATION Grand Junction, CO
DATE STARTED 2/5/19 **COMPLETED** 2/5/19
GROUND ELEVATION ___ **HOLE SIZE** 4-inches
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING dry
LOGGED BY SD **CHECKED BY** MAB
AT END OF DRILLING dry
NOTES ___
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		ASPHALT										
		Lean CLAY (CL), brown, moist, medium stiff										
2.5			SS 1	89	3-3-4 (7)			20				
5.0												
7.5		*** Lab Classified SS2	SS 2	83	1-2-3 (5)			24	40	18	22	97
10.0		Silty SAND (sm), brown, moist, medium dense										
12.5												
15.0			SS 3	100	2-6-15-14 (21)			19				
		Bottom of hole at 15.0 feet.										

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970-255-8005
970-255-6818

BORING NUMBER B-2

CLIENT City of Grand Junction
PROJECT NAME 2019 Water Line
PROJECT NUMBER 00208-0095
PROJECT LOCATION Grand Junction, CO
DATE STARTED 2/5/19 **COMPLETED** 2/5/19
GROUND ELEVATION ---- **HOLE SIZE** 4-inches
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING 10.0 ft
LOGGED BY SD **CHECKED BY** MAB
AT END OF DRILLING 10.0 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		ASPHALT										
		Granular BASE COURSE										
2.5		Lean CLAY (CL), brown, moist, medium stiff	SS 1	72	2-3-4 (7)			24				
5.0												
7.5		*** Lab Classified SS2	SS 2	100	2-2-2 (4)			29	32	19	13	97
10.0		Sandy GRAVEL and COBBLES (gw), brown, moist to wet, dense to very dense										
12.5												
15.0		Bottom of hole at 15.0 feet.										

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970-255-6818

BORING NUMBER B-3

CLIENT City of Grand Junction
PROJECT NAME 2019 Water Line
PROJECT NUMBER 00208-0095
PROJECT LOCATION Grand Junction, CO
DATE STARTED 2/5/19 **COMPLETED** 2/5/19
GROUND ELEVATION ---- **HOLE SIZE** 4-inches
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING 8.5 ft
LOGGED BY SD **CHECKED BY** MAB
AT END OF DRILLING 8.5 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		ASPHALT										
		Lean CLAY (CL), brown, moist, stiff to soft										
2.5		*** Lab Classified SS1	SS 1	83	3-5-5 (10)			21	46	20	26	96
5.0												
7.5			SS 2	100	0-1-2 (3)			31				
		Silty SAND with trace Gravel (sm), brown, moist to wet, very loose to medium dense										
10.0												
12.5			SS 3	100	6-11			17				
		Bottom of hole at 14.0 feet.										

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BORING NUMBER B-4

CLIENT City of Grand Junction
PROJECT NAME 2019 Water Line
PROJECT NUMBER 00208-0095
PROJECT LOCATION Grand Junction, CO
DATE STARTED 2/5/19 **COMPLETED** 2/5/19
GROUND ELEVATION ___ **HOLE SIZE** 4-inches
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING 9.5 ft
LOGGED BY SD **CHECKED BY** MAB
AT END OF DRILLING 9.5 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0.0		ASPHALT										
		Lean CLAY (CL), brown, moist to wet, stiff to very soft										
2.5			SS 1	72	4-5-4 (9)			17				
5.0												
7.5		*** Lab Classified SS2	SS 2	100	0-0-1 (1)			34	27	18	9	91
10.0												
12.5		Sandy GRAVEL and COBBLES (gw), brown, wet, dense	SS 3	44	9-20-21 (41)			14				
		Bottom of hole at 14.5 feet.										

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BORING NUMBER B-5

CLIENT City of Grand Junction
PROJECT NAME 2019 Water Line
PROJECT NUMBER 00208-0095
PROJECT LOCATION Grand Junction, CO
DATE STARTED 3/5/19 **COMPLETED** 3/5/19
GROUND ELEVATION _____ **HOLE SIZE** 4-inches
DRILLING CONTRACTOR S. McKracken
GROUND WATER LEVELS:
DRILLING METHOD Simco 2000 Truck Rig
AT TIME OF DRILLING dry
LOGGED BY SD **CHECKED BY** MAB
AT END OF DRILLING dry
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0.0		Lean CLAY with Organics (TOPSOIL)										
		Lean CLAY (CL), brown, moist, soft to medium stiff										
2.5			SS 1	56	2-1-2 (3)			21				
5.0												
7.5		*** Lab Classified SS2	SS 2	83	4-5-7 (12)			17	39	18	21	95
10.0												
12.5			SS 3	75	1-1-3-4 (4)			22				
15.0		Bottom of hole at 15.0 feet.										

APPENDIX B
Laboratory Testing Results

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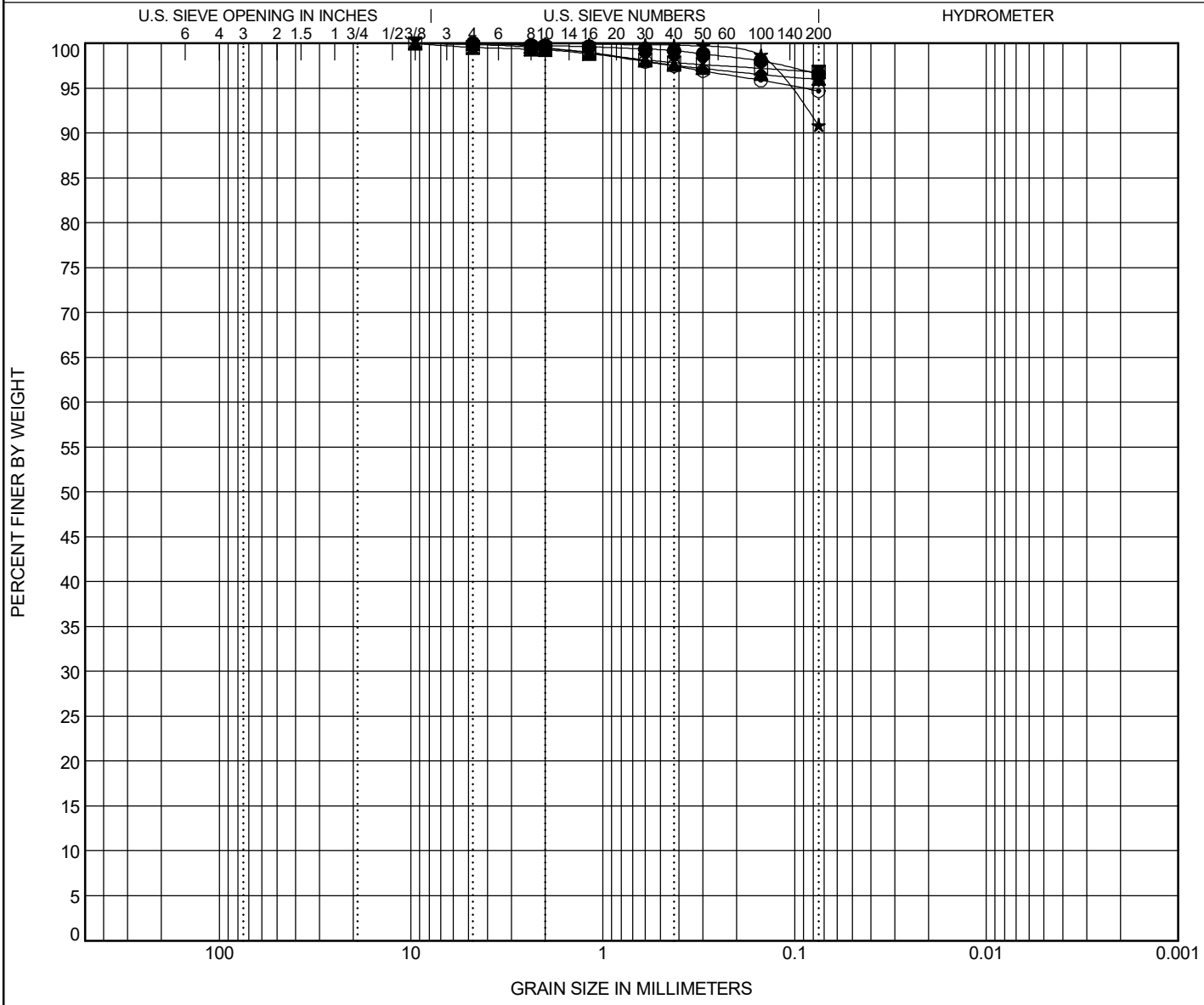
970-255-6818

GRAIN SIZE DISTRIBUTION

CLIENT City of Grand Junction **PROJECT NAME** 2019 Water Line

PROJECT NUMBER 00208-0095 **PROJECT LOCATION** Grand Junction, CO



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	B-1, SS2	3/19	LEAN CLAY(CL)	40	18	22		
⊠	B-2, SS2	3/19	LEAN CLAY(CL)	32	19	13		
▲	B-3, SS1	3/19	LEAN CLAY(CL)	46	20	26		
★	B-4, SS2	3/19	LEAN CLAY(CL)	27	18	9		
⊙	B-5, SS2	3/19	LEAN CLAY(CL)	39	18	21		

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1, SS2	3/19	4.75				0.0	3.4	96.6	
⊠	B-2, SS2	3/19	9.5				0.4	2.8	96.8	
▲	B-3, SS1	3/19	9.5				0.1	3.9	96.0	
★	B-4, SS2	3/19	2				0.0	9.1	90.9	
⊙	B-5, SS2	3/19	4.75				0.0	5.3	94.7	

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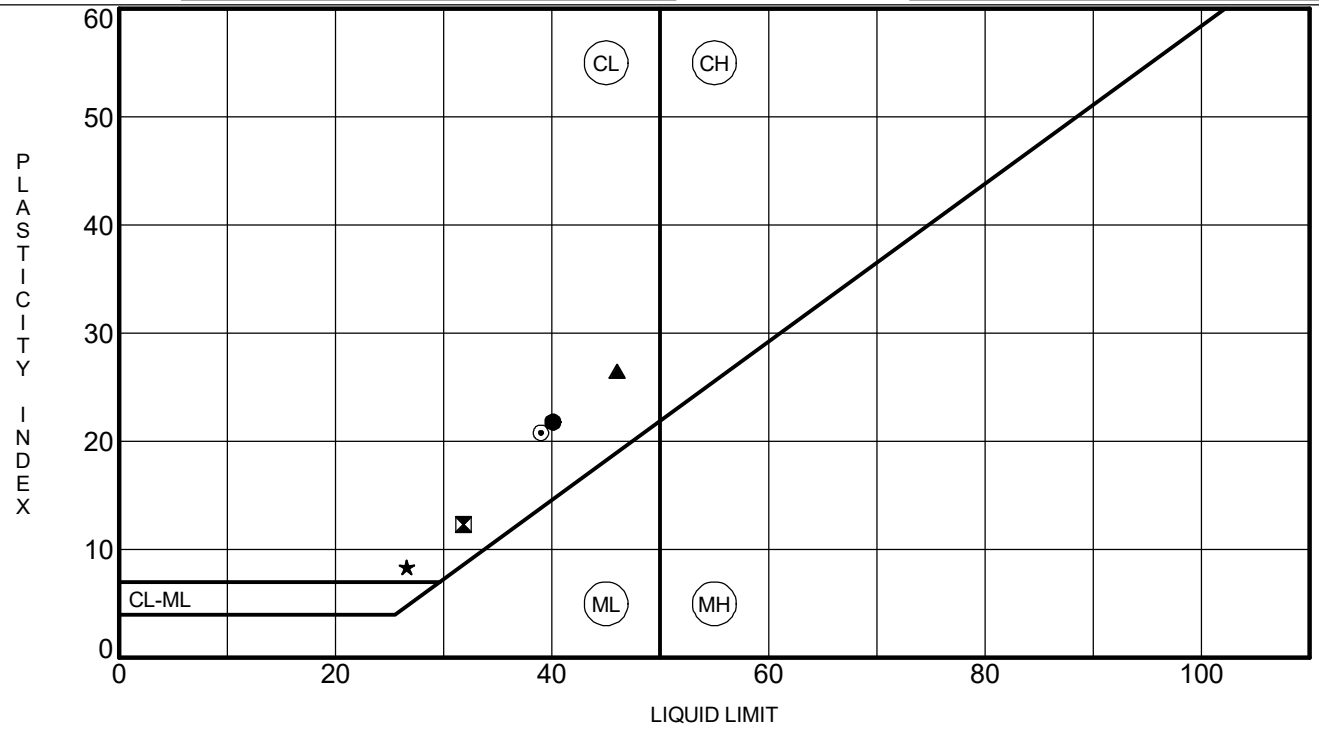
ATTERBERG LIMITS' RESULTS

CLIENT City of Grand Junction **PROJECT NAME** 2019 Water Line

PROJECT NUMBER 00208-0095 **PROJECT LOCATION** Grand Junction, CO



	Specimen Identification		LL	PL	PI	#200	Classification
●	B-1, SS2	3/5/2019	40	18	22	97	LEAN CLAY(CL)
⊠	B-2, SS2	3/5/2019	32	19	13	97	LEAN CLAY(CL)
▲	B-3, SS1	3/5/2019	46	20	26	96	LEAN CLAY(CL)
★	B-4, SS2	3/5/2019	27	18	9	91	LEAN CLAY(CL)
⊙	B-5, SS2	3/5/2019	39	18	21	95	LEAN CLAY(CL)

Appendix G

CDPHE Construction Dewatering Permit (Application Only)

COLORADO
Department of Public Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

For Agency Use Only:
Permit Number Assigned
COG07 - _____
COG315 -_____
COG316 -_____

Application for COLORADO DISCHARGE PERMIT SYSTEM (CDPS) General Permits:

- Construction Dewatering (COG070000)
- Remediation Activities Discharging To Surface Water (COG315000), or
- Remediation Activities Discharging To Groundwater (COG316000)

Please print or type. Original signatures are required. Photo, faxed, pdf or email copies will not be accepted.

This combined permit application is designed to streamline the application process for the three types of discharge permits listed in Part A below, and includes an *Application Guidance Document* to help applicants complete the application and select the right permit coverage for their activity. Please note that one application is intended to cover one project and one type of permit. Where multiple projects or types of permits are required, please submit an appropriate number of permit applications.

The application must be submitted to the Water Quality Control Division at least 30 days (for Construction Dewatering) or 45 days (for Remediation) prior to the anticipated date of discharge, and must be considered complete by the division before the review and approval process begins. The division will notify the applicant if additional information is needed to complete the application. If more space is required to answer any question, please attach additional sheets to the application form. Applications must be submitted by mail or hand delivered to:

Colorado Department of Public Health and Environment
Water Quality Control Division, WQCD-P-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

IMPORTANT: Please read the Application Guidance Document (Guidance) for this permit application prior to completing this application. The Guidance provides specific and important instructions required for completing this application correctly.

A. PERMIT INFORMATION

Reason for Application: □ NEW CERT

□ RENEW CERT EXISTING CERT # _____

Applicant is: □ Property Owner □ Contractor/Operator

Application is for the following discharge permit (select ONE). See Guidance.

□ Construction Dewatering (COG070000)

□ Remediation Activities Discharging to Surface Water (COG315000)

□ Remediation Activities Discharging to Groundwater (COG316000)

Note: This application is designed for processing each of the three permit types listed above. The division may request additional characterization of the proposed discharge to ensure that the appropriate permit coverage is requested and the appropriate permit certification is issued. The division may deny or change the requested type of discharge permit after review of the submitted application and will notify the applicant of the changes. Coverage under the "Subterranean Dewatering or Well Development" General Permit COG6030000 is not available using this application form.

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B. CONTACT INFORMATION

1. Permittee Information

Organization Formal Name: _____

Permittee Name: the person authorized to sign and certify the permit application. This person receives all permit correspondences and is responsible for ensuring compliance with the permit.

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

Email address: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

This form must be signed by the permittee to be considered complete. Per Regulation 61, in all cases, it shall be signed as follows:

a) In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the application originates.
b) In the case of a partnership, by a general partner.
c) In the case of a sole proprietorship, by the proprietor.
d) In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

2. DMR Cognizant Official (i.e. authorized agent) the person or position authorized to sign and certify reports required by permits including Discharge Monitoring Reports [DMR's], Annual Reports, Compliance Schedule submittals, and other information requested by the division. The division will transmit pre-printed DMR's to this person. If more than one, please add additional pages.

□ Same as 1) Permittee

Responsible Position (Title): _____

Currently Held By (Person): _____

Telephone No: _____

Email address: _____

Organization: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Per Regulation 61: All reports required by permits, and other information requested by the Division shall be signed by the permittee or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a) The authorization is made in writing by the permittee
b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position)
c) Submitted in writing to the Division

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B. CONTACT INFORMATION (cont.)

3. Site/Local Contact (contact for questions relating to the facility & discharge authorized by this permit.)
   □ Same as 1) Permittee

   Responsible Position (Title): _____
   Currently Held By (Person): _____
   Telephone No: _____
   Email address: _____
   Organization: _____
   Mailing Address: _____
   City: _____ State: _____ Zip: _____

4. Operator in Responsible Charge Required for Groundwater Remediation COG315000 or COG316000
   □ Same as 1) Permittee □ Same as 3) Site/ Local Contact

   **Note: Where the division determines that coverage under the construction dewatering permit is appropriate, an ORC is not required.*

   Operator Number _____ Legal Name: _____
   Telephone No: _____Email address: _____
   Company: _____

5. Billing Contact □ Same as 1) Permittee
   Responsible Position (Title): _____
   Currently Held By (Person): _____
   Telephone No: _____
   Email address: _____
   Organization: _____
   Mailing Address: _____
   City: _____ State: _____ Zip: _____

6. Other Contact Types (check below) Add pages if necessary:
   Responsible Position (Title): _____
   Currently Held By (Person): _____
   Telephone No: _____
   Email address: _____
   Organization: _____
   Mailing Address: _____
   City: _____ State: _____ Zip: _____

   □ Environmental Contact
   □ Facility Inspection Contact
   □ Consultant
   □ Compliance Contact
   □ Property Owner
   □ Other _____

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C. PERMITTED FACILITY INFORMATION

Facility or Project Name _____

Street Address (or cross streets) _____

City_____ Colorado, Zip Code _____

County _____

Type of Facility Ownership

□ City Government □ Corporation □ Private □ Municipal or Water District

□ State Government □ Mixed Ownership _____

Facility or Project Latitude/Longitude – List the latitude and longitude of the excavation resulting in the discharge(s). If the exact excavation location(s) are not known, list the latitude and longitude of the center point of the construction project. If using the center point, be sure to specify that it is the center point of construction activity.

Latitude _____. _____ Longitude _____. _____
Provide coordinates in decimal degrees to 6 decimal places (e.g., 39.703345°,-104.933567°)

Horizontal Collection Method: □ GPS Unspecified □ Interpolation Map - Map Scale Number_____
Reference Point: □ Project/Facility Entrance □ Project/Facility Center/Centroid

Horizontal Reference Datum: _____

Standard Industrial Classification (SIC) Code(s) for this FACILITY (include up to 4, in order of importance)

1_____ 2_____3_____4_____

Receiving Water_____

D. PROJECT DESCRIPTION

D.1. Description of Activity:

a) Provide a brief overview of the project and dewatering activity (e.g., highway, bridge and tunnel construction, storm drain expansion, etc.).

b) Is the dewatering and discharge in-stream? (The dewatering operation is considered in-stream where the dewatering activity is conducted within approximately the ordinary high water mark of the stream and/or on the bank of the stream and the discharge is back to the same water body.)

□ Yes * □ No

**If yes, you must provide a description of how your project meets this definition in the box below. If no description is provided, the work will not be considered in-stream. Please note that in-stream work activities may also require a separate Clean Water Act Section 404 Permit and Colorado 401 Certification.*

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c) Will the project involve a temporary stream diversion (e.g. diversion channel, pump-around, piped diversion, coffer dam) to reroute water around the construction area?

□ Yes * ☐ No

**By checking yes, the applicant understands that temporary water diversions are not covered under the permit certification and may require coverage under a Clean Water Act Section 404 Permit. Only dewatering discharge outfalls associated with construction-related activities may be covered under the permit certification.*

d) Will dewatering be conducted in areas that involve work on (e.g. replacing, repairing, making connections to, etc…) existing sanitary sewer lines, conveyances, or vessels, or in proximity to septic disposal systems?

□ Yes ☐ No

If yes, is there the potential that sewage or septage could be in the effluent to be discharged?

□ Yes ☐ No *

**If no, you must provide a description of the control measures that will be implemented to prevent sewage or septage from entering the discharge (use the box below). The division may add effluent limits for E. coli and/or Total Coliform if the applicant does not demonstrate that adequate measures will be in place.*

D.2 Description of Discharge:

a) Is the discharge to a ditch or storm sewer system? □ Yes* ☐ No

**If yes, the applicant must contact the owner of the ditch or storm sewer system prior to discharging to address any local ordinances and to determine if additional requirements will be imposed by the owner.*

b) Is the discharge to an impoundment? □ Yes* ☐ No

c) Discharge Frequency and Duration:

- Estimated discharge start date: _____
- Estimated discharge duration: Years _____ Months _____ Days _____
- Upon completion of construction phase dewatering, will there be long-term subterranean dewatering at the site (e.g. foundation, footer, toe drains, etc…)? □ Yes* ☐ No

  **If yes, note that construction phase dewatering and long-term subterranean dewatering cannot be covered under the same permit certification.*

d) Provide a brief description of the Best Management Practices (BMPs) to be used in the box below.

D.3 Discharge Outfalls (Limit 20 outfalls):

- Total number of defined outfalls requested: _____
- Total number of undefined outfalls requested:_____ (construction dewatering only)
- Complete Table 2a (for discharges to surface water) and/or 2b (for discharges to land with percolation to groundwater) to identify your defined and undefined outfall locations. Attach additional pages as necessary.

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Table 2a - Requested Outfalls for Discharges to Surface Water (Discharges that may reach surface water through direct discharge or through a conveyance such as a ditch or a storm sewer system)				
OUTFALL NUMBER[1]	NAME OF RECEIVING STREAM(S) (e.g., Cherry Creek, Boulder Creek, Arkansas River)	ESTIMATED MAXIMUM FLOW RATE[2] (gpm)	DESCRIPTION OF DISCHARGE LOCATION[3] (e.g., Discharge enters storm sewer located at the corner of Speer and 8th Ave. with flow to Cherry Creek)	LATITUDE/LONGITUDE OF EACH DISCHARGE OUTFALL
Defined Discharges to Surface Water				
001-A				
002-A				
003-A				
004-A				
Undefined Discharges to Surface Water *(Available for construction dewatering only) (Provide estimated lat/long only for undefined outfalls)*				
001-AU				
002-AU				
003-AU				
004-AU				

1 Identify up to 20 defined or undefined outfalls (undefined for construction dewatering only). Use additional pages as necessary.
2 For construction dewatering the maximum flow limit will be equal to twice the estimated maximum flow rate provided in the permit application. For groundwater remediation the 30-day average flow limit will be based on the design capacity of the treatment as provided in the permit application.
3 The discharge location is the point where effluent sampling will occur. This location must be at a point after treatment and before the effluent joins or is diluted by any other waste stream, body of water, or substance. If the discharge is to a ditch or storm sewer system, include the name of the ultimate receiving waters where the ditch or storm sewer discharges.

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Table 2b - Requested Outfalls for Discharges to Land with the Potential to Percolate to Groundwater (These discharges do not have the potential to reach surface water either directly or through a conveyance.)[4]			
OUTFALL NUMBER[1]	ESTIMATED MAXIMUM FLOW RATE[2] (gpm)	DESCRIPTION OF DISCHARGE LOCATION[3] (e.g., Discharge to a field south of project site and East of I-25)	LATITUDE/LONGITUDE OF EACH DISCHARGE OUTFALL
Defined Discharges to Land with Potential Percolation to Groundwater			
G001-A			
G002-A			
G003-A			
G004-A			
Undefined Discharges to Land with Potential Percolation to Groundwater *(Available for construction dewatering only) (Provide estimated lat/long only for undefined outfalls)*			
G001-AU			
G002-AU			
G003-AU			
G004-AU			

1 Identify up to 20 defined or undefined outfalls (undefined for construction dewatering only). Use additional pages as necessary.

2 For construction dewatering the maximum flow limit will be equal to twice the estimated maximum rate flow rate provided in the permit application. For groundwater remediation the 30-day average flow limit will be based on the design capacity of the treatment as provided in the permit application.

3 The discharge location is the point where effluent sampling will occur. This location must be at a point after treatment and before the effluent joins or is diluted by any other waste stream, body of water, or substance.

4 For discharges of uncontaminated groundwater to land, please review and consider the applicability of the division's *Low Risk Discharge Guidance: Discharges of Uncontaminated Groundwater to Land* before submitting a permit application to the division. This policy is available for download at https://www.colorado.gov/pacific/cdphe/clean-water-construction-compliance-assistance-and-guidance.

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E. ADDITIONAL INFORMATION

E.1 Nearby Sources of Potential Groundwater Contamination:

a) Has the proposed dewatering area been reviewed for possible groundwater contamination, such as plumes from leaking underground storage tanks (LUSTs), hazardous waste sites, or additional sources other than what is normally encountered at excavation and construction sites? *Applicants are expected to exercise due diligence in evaluating their project sites prior to applying for a discharge permit.*

□ Yes ☐ No

b) Is an open LUST located within one-half mile of the site?

□ Yes* ☐ No

**If yes, BTEX analytical data for a source water sample representative of the proposed discharge at the site must be included with the permit application. Failure to include this data may result in delays in processing the permit application until such data is submitted to the Division. See Guidance.*

c) Is a Superfund site or National Priorities List (NLP) site located within one mile of the site?

□ Yes* ☐ No

**If yes, analytical data for all parameters shown in Table 1 of this application (or an alternate list of constituents approved by the division) for a source water sample representative of the proposed discharge must be included with the permit application. Failure to include this data may result in delays in processing the permit application until such data is submitted to the Division. See Guidance.*

d) Is any other (non-LUST, non-Superfund, non-NPL site) known source of contamination, such as a Voluntary Cleanup (VCUP), Environmental Covenant, open RCRA Corrective Action site, or brownfields site located within one-half mile of the site?

□ Yes* ☐ No

**If yes, analytical data for all parameters shown in Table 1 of this application (or an alternate list of constituents approved by the division) for a source water sample representative of the proposed discharge must be included with the permit application. Failure to include this data may result in delays in processing the permit application until such data is submitted to the Division. See Guidance.*

e) If known sources of contamination are located near the site, provide an overview of the source and nature of contamination including:

- The nature of the contamination of the groundwater, alluvial water, stormwater, and/or surface water (the source water) for which treatment and/or remedial activities will occur,
- The primary industrial activities which resulted in the source water contamination,
- The source of the contamination (pipes, leaking underground storage tank, up gradient sources, etc.) or state "unknown."

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f) For contaminated discharges (remediation), provide a narrative description of the type(s) of treatment proposed for use at each identified outfall.

E.2 Chemical Additions

List any chemical additives or other materials to be used in the water or to treat water prior to discharge. Include the Material Safety Data Sheet (MSDS) for each chemical with the application.

CHEMICAL NAME	MANUFACTURER	PURPOSE	DOSAGE

E.3 Site Maps and Schematics

Are required maps and schematics attached? □ Yes
□ No-Application cannot be processed without required maps

✓ Location Map(s) for Outfalls - Application must include a location map(s) that shows the location of the project/facility, the limits of the construction activity, the approximate location of the requested discharge point(s)/outfalls, and the location of potential receiving water(s). If known, the map should also include the approximate location(s) where dewatering is to occur and the location of proposed BMP(s) to be used. A north arrow must be shown. Maps must be on paper that can be folded to 8 ½ x 11 inches.

E.4 Associated Permits

Does the applicant have a Stormwater Permit for Construction Activities? □ YES □ NO □ PENDING
If Yes, Stormwater Construction Permit Number: COR-_____

Does the applicant have a Clean Water Act Section 404 Permit? □ YES □ NO □ PENDING

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John W. Hickenlooper, Governor | Larry Wolk, MD, MSPH, Executive Director and Chief Medical Officer

E.5 Water Rights

The State Engineers Office (SEO) has indicated that any discharge that does not return water directly to surface waters (i.e. land application, rapid infiltration basins, etc.) has the potential for material injury to a water right. As a result, the SEO needs to determine that material injury to a water right will not occur from such activities. To make this judgment, the SEO requests that a copy of all documentation demonstrating that the requirements of Colorado water law have been met, be submitted to their office for review. The submittal should be made as soon as possible to the following address:

Colorado Division of Water Resources ● 1313 Sherman Street, Room 818 ● Denver, Colorado 80203

Should there be any questions on the issue of water rights; the SEO can be contacted at (303) 866-3581. It is important to understand that any CDPS permit issued by the division does not constitute a water right. Issuance of a CDPS permit does not negate the need to also have the necessary water rights in place. It is also important to understand that even if the activity has an existing CDPS permit, there is no guarantee that the proper water rights are in place.

F. REQUIRED CERTIFICATION SIGNATURE [Reg 61.4(1)(h)]

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature (Legally Responsible Party (Page 2 item 1) _____

Date _____

Name (printed) _____Title_____

This form must be signed by the permittee to be considered complete. Per Regulation 61, in all cases, it shall be signed as follows:

a) In the case of corporations, by a responsible corporate officer. For the purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the application originates.
b) In the case of a partnership, by a general partner.
c) In the case of a sole proprietorship, by the proprietor.
d) In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

4300 Cherry Creek Drive S., Denver, CO 80246-1530 P 303-692-2000 www.colorado.gov/cdphe/wqcd
John W. Hickenlooper, Governor | Larry Wolk, MD, MSPH, Executive Director and Chief Medical Officer

ATTACHMENT 1
Please Submit the Laboratory Data Package for any Required Analysis with the Permit Application
(See Important Table Notes)

Required Water Quality Data			
Metals	PQL (ug/l) [1]	Metals	PQL (ug/l) [1]
Aluminum-Trec	15	Lead-PD	0.5
Antimony-Trec	2	Manganese-PD	2
Arsenic-Trec	1	Manganese-Diss	2
Arsenic-PD	1	Molybdenum-Trec	0.5
Barium-Trec	1	Nickel-Trec	1
Beryllium-Trec	2	Nickel-PD	1
Cadmium-Trec	0.5	Selenium-Trec	1
Cadmium-PD	0.5	Selenium-PD	1
Chromium III-Trec	20	Silver-Trec	0.5
Chromium III-PD	20	Silver-PD	0.5
Chromium VI-Diss	20	Thallium-Trec	0.5
Chromium-Trec	20	Thallium-PD	0.5
Copper-Trec	2	Uranium-PD	1
Copper-PD	2	Uranium-Trec	1
Iron-Trec	20	Zinc-Trec	10
Iron-Diss	20	Zinc-PD	10
Lead-Trec	0.5		
Volatiles	PQL (ug/l) [1]	Volatiles	PQL (ug/l) [1]
acrolein	15	ethylbenzene	75
benzene	3	methyl bromide	5
bromoform	3	methyl chloride	4.5
carbon tetrachloride	3	1,1,2,2-tetrachloroethane	2
chlorobenzene	60	tetrachloroethylene	2.3
chlorodibromomethane	3	toluene	60
2-chloroethylvinyl ether	0.65 *	1,2-trans-dichloroethylene	0.5 *
chloroform	3	1,1,1-trichloroethane	5
1,2-dichlorethane	3	1,1,2-trichloroethane	2.0
1,1-dichlorethylene	5	trichloroethylene	2.3
1,2-dichlorpropane	2	vinyl chloride	3
1,3-dichlorpropylene	2 *	1,4-Dioxane	0.15 *
Semi-Volatile Organic Compounds	PQL (ug/l) [1]	Semi-Volatile Organic Compounds	PQL (ug/l) [1]
acenaphthene	20	1,2-diphenylhydrazine (as azobenzene)	5 *
acenaphthylene	30	fluorene	20
anthracene	20	fluoranthene	25
benzidine	170	hexachlorobenzene	16
benzo(a)anthracene	12	hexachlorobutadiene	9
benzo(a)pyrene	20	hexachlorcyclopentadiene	50
benzo(b)fluoranthene	35	hexachloroethane	16
benzo(ghi)perylene	20	indeno(1,2,3-cd)pyrene	20
benzo(k)fluoranthene	25	isophorone	25
bis(2-chloroethyl)ether *(or Dichloroethyl ether)*	15	naphthalene	20
bis(2-chloroisopropyl)ether *(or 2,2-dichloroisopropyl ether)*	60	nitrobenzene	19
bis(2-ethylhexyl)phthalate	25	N-nitrosodimethylamine	30

Semi-Volatile Organic Compounds	PQL (ug/l) [1]	Semi-Volatile Organic Compounds	PQL (ug/l) [1]
Butyl benzyl phthalate	25	N-nitrosodi-n-propylamine	30
2-chloronaphthalene	20	N-nitrosodiphenylamine	19
chrysene	18	pyrene	10
dibenzo(a,h)anthracene	20	1,2,4-trichlorobenzene	20
1,2-dichlorobenzene	2.5	2-chlorophenol	35
1,3-dichlorobenzene	2.5	2,4-dichlorophenol	30
1,4-dichlorobenzene	3.5	2,4,-dimethylphenol	30
3,3-dichlorobenzidine	18	4,6-dinitro-o-cresol	17
diethyl phthalate	20	2,4-dinitrophenol	100
dimethyl phthalate	20	4-nitrophenol	25
di-n-butyl phthalate	25	pentachorophenol	36
2,4-dinitrotoluene	17	phenol	15
2,6-dinitrotoluene	20	2,4,6-trichlorophenol	25
xylene	10 *	1,4-Dioxane	0.15 *

[1] PQLs are as listed in the division's *Practical Quantitation Limits Policy* (CW 6) unless noted otherwise.

* This is a recommended PQL based on EPA approved methods. The division's *Practical Quantitation Limits Policy (CW 6)* does not provide a 40 CFR 136 based PQL for this parameter.

Trec = Total Recoverable

PD = Potentially Dissolved

Diss = Dissolved

PQL = Practical Quantitation Limit

Important table notes:

1) Please refer to the permit application Guidance to determine whether analytical data is required with the permit application, and if so, what specific type of data is required.

2) Parameter names match the names as they appear in the general permit or, as italicized, as they appear in the division's *Practical Quantitation Limits Policy* (CW-6).

3) The division may require analytical data for additional parameters where the project site is located in close proximity to potential sources of contamination for parameters not included in this Attachment 1, including but not limited to pesticide, PCB, radionuclide contamination.

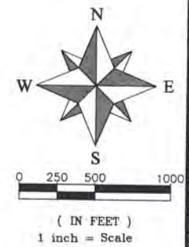
4) Applicants applying under the General Permit for Remediation Activities Discharging to Groundwater (COG316000) are encouraged to contact the division prior to sample collection to ensure that the correct metal speciation is included in the sample analysis.

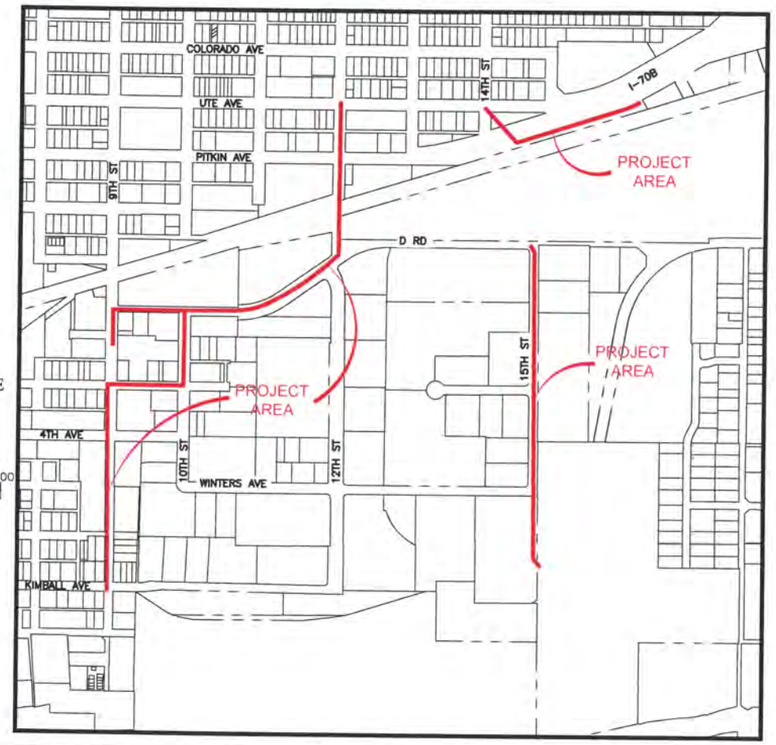
5) For the permit application, all sampling should be performed according to specified methods in 40 CFR 136, methods approved by EPA pursuant to 40 CFR 136, or methods approved by the division, in the absence of a method specified in or approved pursuant to 40 CFR 136. In addition, the PQLs listed in Attachment 1 should be met unless otherwise approved by the division.

PROJECT NO. 81-18-029

CITY OF GRAND JUNCTION
2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
MARCH 2019

Sheet List Table





VICINITY MAP

UTILITIES AND AGENCIES

AGENCY	NAME	POSITION	ROLE	MAILING ADDRESS	STREET ADDRESS	CITY, STATE	VOICE-WK	FAX
CITY OF GRAND JUNCTION	LEE COOPER	PROJECT ENGINEER	PROJECT ENGINEER	333 WEST AVE BLDG C	333 WEST AVE BLDG C	GRAND JCT., CO 81501	---	(970) 256-4022
CITY OF GRAND JUNCTION	LEE COOPER	PROJECT ENGINEER	SANITARY SEWER	333 WEST AVE BLDG C	333 WEST AVE BLDG C	GRAND JCT., CO 81501	(970) 256-4155	(970) 256-4022
GRAND VALLEY IRRIGATION CO.	PHIL BERTRAND	MANAGER	IRRIGATION	688 26 RD	688 26 RD	GRAND JCT., CO 81506	(970) 242-2762	
SPECTRUM	JEFF VALDEZ	MANAGER	CABLE TV	2502 FORESIGHT CIRCLE	2502 FORESIGHT CIRCLE	GRAND JCT., CO 81504	(970) 245-8750	(970) 245-6803
CENTURYLINK	CHRIS JOHNSON	ENGINEER	TELEPHONE	2524 BLICHMANN AVE	2524 BLICHMANN AVE	GRAND JCT., CO 81504	(970) 244-4311	(970) 240-4349
UTE WATER	JUSTIN BATES	SUPERVISOR	WATER	PO BOX 460	2190 H ¼ RD	GRAND JCT., CO 81502	(970) 242-7491	(970) 242-9189
XCEL	TILLMON MCSHOOLER	UNIT MANAGER	ELECTRIC	2538 BLICHMANN AVE	2538 BLICHMANN AVE	GRAND JCT., CO 81506	(970) 244-2695	(970) 244-2664
XCEL	SARAH BARRICAU	UNIT MANAGER	GAS	2538 BLICHMANN AVE	2538 BLICHMANN AVE	GRAND JCT., CO 81506	(970) 244-2656	(970) 244-2656

COLORADO LICENSED PROFESSIONAL ENGINEER 3-29-19

NOTE: NOTIFY AFFECTED UTILITY VENDOR 48 HOURS PRIOR TO EXCAVATIONS THAT WILL EXPOSE UTILITY LINES. THE COVER SHEET WILL HAVE A LISTING OF UTILITY VENDORS AND TELEPHONE NUMBERS.

DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

City of Grand Junction COLORADO

J-U-B ENGINEERS, INC.

OTHER J-U-B COMPANIES: THE LANGDON GROUP a J-U-B Company; GATEWAY MAPPING INC. a J-U-B Company

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

DRAWING STATUS:
- PROGRESS
- FINAL CONSTRUCTION DRAWINGS
- ASBUILT

DESIGNED BY: ERIK SNYDER 3/2019

REVIEWED BY: LEE COOPER 3/2019

AUTHORIZED FOR CONSTRUCTION

ACCEPTED AS CONSTRUCTED

CITY OF GRAND JUNCTION 2019 SOUTH DOWNTOWN WATER, & SANITARY SEWER REPLACEMENT PROJECT

PROJECT NO. 81-18-029

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
ABC	AGGREGATE BASE COURSE
AC	ASBESTOS CEMENT
AP	ANGLE POINT
ASB	ANCHORED STRAW BALES
ASP	ALUMINIZED STEEL PIPE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BACK OF CURB
BF	BUTTERFLY VALVE
BOW	BACK OF WALK
BCR	BEGIN CURB RETURN
BOT	BOTTOM
BSWMP	BETTER STORM WATER MANAGEMENT PRACTICES
CH	CHORD
CAP	CORRUGATED ALUMINUM PIPE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CI	CAST IRON
C,G,& SW	CURB, GUTTER & SIDEWALK
℄	CENTER LINE
CL	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COMB	COMBINATION (AS IN STORM SEWER AND SANITARY SEWER)
CONC	CONCRETE
CSM	CITY SURVEY MONUMENT
CSP	CORRUGATED STEEL PIPE
CU	COPPER
DI	DUCTILE IRON
DWY	DRIVEWAY
E	ELECTRIC
ECR	END CURB RETURN
EG	EDGE OF GUTTER
EL	ELEVATION
EP	EDGE OF PAVEMENT
EX	EXISTING
FB	FULL BODY
FC	FACE OF CURB
FG	FINISHED GRADE
℄	FLOW LINE
FL	FLANGE
FM	FORCE MAIN
FO	FIBER OPTICS
FS	FAR SIDE
FTG	FOOTING
G	GAS
GB	GRADE BREAK
GM	GAS METER
GV	GATE VALVE
HBP	HOT BITUMINOUS PAVEMENT
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
IRR	IRRIGATION
L	LENGTH OF ARC
LC	LONG CHORD
LF	LINEAR FEET
LL	LONG ARC
LS	SHORT ARC
LT	LEFT
MB	MAILBOX
MCSM	MESA COUNTY SURVEY MONUMENT
MH	MANHOLE
MJ	MECHANICAL JOINT
MW	MILL WRAP
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOP	NO ONE PERSON
NRCP	NON-REINFORCED CONCRETE PIPE
NS	NEAR SIDE
NTS	NOT TO SCALE
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PE	POLYETHYLENE
PERF	PERFORATED
PI	POINT OF INTERSECTION
PIP	PLASTIC IRRIGATION PIPE
POC	POINT ON CURVE
POT	POINT ON TANGENT
PR	PROPOSED
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RG	RESTRAINED GLANDS
RL	LONG RADIUS
ROW	RIGHT OF WAY
RP	RADIUS POINT
RR	RAIL ROAD
RS	SHORT RADIUS
RT	RIGHT
S	SLOPE
SAN	SANITARY
SC	SHORT CHORD
SCD	STANDARD CONTRACT DOCUMENTS
SCH	SCHEDULE
SF	SILT FENCE
SL	SECTION LINE
SSRB	STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION
SSUU	STANDARD SPECIFICATIONS FOR CONSTRUCTION OF UNDERGROUND UTILITIES
STA	STATION
STL	STEEL
STM	STORM
T	TELEPHONE
TAN	LENGTH OF TANGENT
TC	TOP OF CURB
TH	TEST HOLE
TV	TELEVISION
(TYP)	TYPICAL
UU	UNDERGROUND UTILITIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VPC	VERTICAL POINT OF CURVATURE
VPCC	VERTICAL POINT OF COMPOUND CURVATURE
VPRC	VERTICAL POINT OF REVERSE CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER

LEGEND

BSWMP DRAINAGE BASIN BOUNDARY

BSWMP ANCHORED STRAW BALES

BSWMP SILT FENCE

BUILDING

CONCRETE CURB AND GUTTER — 2' CURB AND GUTTER

CONCRETE CURB,GUTTER, & SIDEWALK — 7' C, G, & SW

CONCRETE DITCH — CONCRETE

CONCRETE SIDEWALK — 4' SW

CULVERT — 18" RCP

EARTH DITCH — EARTH

EDGE OF GRAVEL

EDGE OF PAVEMENT

FENCE (BARBED WIRE)

FENCE (CHAIN LINK)

FENCE (IRON)

FENCE (PLASTIC)

FENCE (TEMPORARY CONSTRUCTION)

FENCE (WOOD)

FENCE (WOVEN WIRE)

GUARD RAIL

HATCHING: INDICATES ASPHALT REMOVAL

HATCHING: INDICATES CONCRETE REMOVAL

HATCHING: INDICATES STAGING AREA — ~STAGING AREA~

LINE (CENTER OF IMPROVEMENTS) — CENTERLINE

LINE (CITY LIMITS) — CITY LIMITS

LINE (CONTROL) — CONTROL LINE

LINE (EASEMENT)

LINE (MONUMENT/SECTION) — MONUMENT/SECTION LINE

LINE (PROPERTY)

LINE (RIGHT OF WAY)

MATCH LINE — MATCH LINE SEE SHEET NO ?

PIPE (IRRIGATION) — 4" IRR

PIPE (SIPHON) — 4" SIPHON

PROPOSED CONCRETE CURB AND GUTTER

PROPOSED CONCRETE CURB,GUTTER,& SIDEWALK

PROPOSED CONCRETE SIDEWALK

PROPOSED "WET" UTILITIES (CONSTRUCTION NOTE WILL INDICATE TYPE, SIZE, AND MATERIAL OF NEW MAIN) — 8" PVC SANITARY SEWER

ALL PROPOSED FEATURES NOT SHOWN IN LEGEND WILL BE SHOWN THE SAME AS THEIR EXISTING COUNTERPART, BUT INDICATED BY BOLDER LINETYPE

RAIL ROAD

RETAINING WALL — 1' RETAINING WALL

STRIPING (CONTINUOUS WHITE) — WHITE

STRIPING (DASHED WHITE) — WHITE

STRIPING (CONTINUOUS YELLOW) — YELLOW

STRIPING (DASHED YELLOW) — YELLOW

TOP OF SLOPE — 4580

CONTOUR LINES (SHOWN BETWEEN TOP & TOE)

TOE OF SLOPE — 4570

TRAFFIC DETECTOR LOOP

UTILITY LINE (ABANDON) (THIS CASE A WATER LINE) — (ABANDONED)

UTILITY LINE (CABLE TV)

UTILITY LINE (ELECTRIC)

UTILITY LINE (FIBER OPTIC)

UTILITY LINE (GAS) — 1 1/4" MP

UTILITY LINE (HIGH VOLTAGE OVERHEAD POWER) — HOHP

UTILITY LINE (OVERHEAD POWER) — OHP

UTILITY LINE (OVERHEAD TELEPHONE) — OHT

UTILITY LINE (SANITARY SEWER) — 8" SAN

UTILITY LINE (SANITARY SEWER FORCE MAIN) — 8" FM

UTILITY LINE (SANITARY SEWER SERVICE)

UTILITY LINE (STORM SEWER) — 8" STM

UTILITY LINE (STORM SEWER, PERFORATED) — 8" PERF

UTILITY LINE (STORM/SANITARY SEWER SEWER COMBINATION) — 18" COMB

UTILITY LINE (TELEPHONE)

UTILITY LINE (WATER) — 8" W

SYMBOLS

BENCH MARK — A

BORE HOLE — B-X

CATCH BASIN

CLEAN OUT — SSCO

CURB STOP

FIRE HYDRANT

GUY WIRE ANCHOR

HEADGATE

IRRIGATION PUMP — P

MAILBOX — MB

MANHOLE (ELECTRIC) — E

MANHOLE (GAS) — G

MANHOLE (SANITARY/STORM)

MANHOLE (TELEPHONE) — T

MANHOLE (TV) — tv

MANHOLE (WATER) — W

METER (GAS) — GM

METER (WATER)

PEDESTAL (TELEPHONE)

PEDESTAL (TV) — TV

PROPERTY PIN

PULL BOX

REDUCER FITTING

SIGN OR POST (SIGN TYPE NOTED) — STOP

SPRINKLER HEAD

STREET LIGHT

SURVEY MONUMENT (CITY) — CSM

SURVEY MONUMENT (TYPE NOTED) — MCSM

TEST HOLE — TH #1

TRAFFIC PAINT MARKING

TRAFFIC SIGNAL POLE AND MAST ARM

UTILITY POLE

VALVE (GAS) — GV

VALVE (IRRIGATION) — IRR

VALVE (WATER)

VEGETATION (HEDGE OR BUSH)

VEGETATION (TREE STUMP)

VEGETATION (TREE) (CALIPER SIZE NOTED) — 6"

WATER HYDRANT — WH

WEIR

YARD LIGHT

BAR SCALE:

GRAPHIC SCALE

0 10 30 70

(IN FEET)
1 inch = 20 feet

NORTH ARROW:

N W E S

DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY TAG DATE 3/2019
DESIGNED BY ES DATE 3/2019
CHECKED BY BG DATE 3/2019
APPROVED BY BG DATE 3/2019

CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. — THE LANGDON GROUP — GATEWAY MAPPING INC. — OTHER J-U-B COMPANIES

CITY OF GRAND JUNCTION

STANDARD ABBREVIATIONS, LEGEND, SYMBOLS

2

1	102.7/108.2	4" Water Pipe (C-900 PVC, DR-18)	5	Lin. Ft.
2	102.7/108.2	6" Water Pipe (C-900 PVC, DR-18)	168	Lin. Ft.
3	102.7/108.2	8" Water Pipe (C-900 PVC, DR-18)	223	Lin. Ft.
4	102.7/108.2	12" Water Pipe (C-900 PVC, DR-18)	144	Lin. Ft.
5	102.7/108.2	18" Water Pipe (C-900 PVC, DR-18)	1167	Lin. Ft.
6	102.7/108.2	20" Water Pipe (C-900 PVC, DR-18)	4116	Lin. Ft.
7	102.7c/108.4	3/4" Water Service Line (Type K Copper) (If Lead or Poly service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	316	Lin. Ft.
8	102.7c/108.4	1" Water Service Line (Type K Copper) (If Lead or Poly service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	80	Lin. Ft.
9	102.7c/108.4	1-1/2" Water Service Line (Type K Copper or HDPE 3408) (If lead service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	161	Lin. Ft.
10	102.7c/108.4	2" Water Service Line (Type K Copper or HDPE 3408) (If lead service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	20	Lin. Ft.
11	102.8/108.3	20" x 12" Reducer	2	Each
12	102.8/108.3	8" x 4" Tee	1	Each
13	102.8/108.3	8" x 6" Tee	1	Each
14	102.8/108.3	12" x 12" Tee	1	Each
15	102.8/108.3	18" x 18" Tee	1	Each
16	102.8/108.3	20" x 6" Tee	2	Each
17	102.8/108.3	20" x 8" Tee	6	Each
18	102.8/108.3	20" x 18" Tee	1	Each
19	102.8/108.3	20" x 20" Tee	1	Each
20	102.8/108.3	12" x 8" Cross	1	Each
21	102.8/108.3	20" Plug (Includes Thrust Block)	1	Each
22	102.8/108.3	6" x 6" MJ Swivel Tee	1	Each
23	102.8/108.3	8" x 6" MJ Swivel Tee	3	Each
24	102.8/108.3	12" x 6" MJ Swivel Tee	1	Each
25	102.8/108.3	20" x 6" MJ Swivel Tee	3	Each
26	102.8/108.3	20" x 18" MJ Swivel Tee	1	Each
27	102.8/108.3	6" x 45 deg Elbow	0	Each
28	102.8/108.3	8" x 11.25 deg Elbow	1	Each
29	102.8/108.3	8" x 22.5 deg Elbow	1	Each
30	102.8/108.3	8" x 45 deg Elbow	8	Each
31	102.8/108.3	12" x 45 deg Elbow	2	Each
32	102.8/108.3	18" x 22.5 deg Elbow	1	Each
33	102.8/108.3	18" x 45 deg Elbow	7	Each
34	102.8/108.3	20" x 11.25 deg Elbow	5	Each
35	102.8/108.3	20" x 45 deg Elbow	15	Each
36	102.8/108.3	4" Restrained Connection to Existing Water Pipe/Valve/Fitting	1	Each
37	102.8/108.3	6" Restrained Connection to Existing Water Pipe/Valve/Fitting	1	Each
38	102.8/108.3	8" Restrained Connection to Existing Water Pipe/Valve/Fitting	7	Each
39	102.8/108.3	12" Restrained Connection to Existing Water Pipe/Valve/Fitting	3	Each
40	102.8/108.3	18" Restrained Connection to Existing Water Pipe/Valve/Fitting	3	Each
41	102.8/108.3	8" Welded Flange or Hymax Solid Sleeve Restrained Coupling with Stiffener for connection to HDPE	1	Each
42	102.8/108.3	18" Welded Flange or Hymax Solid Sleeve Restrained Coupling with Stiffener for connection to HDPE	2	Each
43	102.8a/108.3	Fire Hydrant	9	Each
44	102.8b/108.3	4" Gate Valve	1	Each
45	102.8b/108.3	6" Gate Valve	11	Each
46	102.8b/108.3	8" Gate Valve	8	Each
47	102.8b/108.3	12" Gate Valve	3	Each
48	102.8e/108.3	18" Butterfly Valve	3	Each
49	102.8e/108.3	20" Butterfly Valve	6	Each
50	102.8j/108.4	3/4" Corporation Stop	12	Each
51	102.8j/108.4	1" Corporation Stop	3	Each
52	102.8j/108.4	1-1/2" Corporation Stop	1	Each
53	102.8j/108.4	2" Corporation Stop	2	Each
54	102.8k/108.4	20" x 3/4" Tapping Saddle	12	Each
55	102.8k/108.4	20" x 1" Tapping Saddle	3	Each
56	102.8k/108.4	20" x 1-1/2" Tapping Saddle	1	Each
57	102.8k/108.4	20" x 2" Tapping Saddle	2	Each
58	102.9/108.2	4" Gravity Sewer Pipe (SDR 35 PVC)	570	Lin. Ft
59	102.9/108.2	6" Gravity Sewer Pipe (SDR 35 PVC)	167	Lin. Ft.
60	102.9/108.2	8" Gravity Sewer Pipe (SDR 35 PVC)	1329	Lin. Ft
61	102.9/108.2	10" Gravity Sewer Pipe (SDR 35 PVC)	326	Lin. Ft.
62	102.9/108.2	15" Gravity Sewer Pipe (SDR 35 PVC)	2141	Lin. Ft.
63	102.9/108.3	8" X 4" Sewer Service Tap (Full Body Wye w/ Street 45 deg)	7	Each
64	102.9/108.3	8" X 6" Sewer Service Tap (Full Body Wye w/ Street 45 deg)	1	Each
65	102.9/108.3	10" X 4" Sewer Service Tap (Full Body Wye w/ Street 45 deg)	4	Each
66	102.9/108.3	15" X 4" Sewer Service Tap (Full Body Wye w/ Street 45 deg)	5	Each
67	102.9/108.3	15" X 6" Sewer Service Tap (Full Body Wye w/ Street 45 deg)	3	Each
68	102.10/108.2	18" Storm Drain Pipe (ADS Corrugated HDPE Pipe)	49	Lin. Ft.
69	102.11/108.5	Sanitary Sewer Basic Manhole (48" I.D.). Includes connection of adjacent sewer line, forming inverts and adjusting to final grade. (See City of Grand Junction Standard Detail SS-02).	13	Each
70	102.11/108.5	Manhole Barrel Section (D>5') (48" I.D.)	51	Lin. Ft.
71	102.11/108.5	Storm Sewer Basic Manhole (48" I.D.). Includes connection to adjacent storm sewer lines, forming inverts and adjusting to final grade. (See City of Grand Junction Std. Detail D-03).	1	Each
72	102.11 / SP	MH Coatings	72	VLF
73	103.9/108.7	Granular Stabilization Material (Type B) (Crushed Rock) (Includes haul and disposal of unsuitable excavated material) (Assumed material unit weight = 138 lbs/ft3)	4036	Ton
74	103	Clay Cut-Off Wall	40	Each
75	104.2	Install 2-way sanitary sewer service cleanout (STD. DETAIL SS-07). Includes cleanout ring and cover and concrete collar in unpaved areas (See STD. DETAIL SS-07)	20	Each
76	108.2/206	Imported Trench Backfill (Class 3) (Includes haul and disposal of unsuitable excavated material) (Assumed Unit Weight = 133 lbs/ft3)	13888	Ton
77	108.2/206	Structure Backfill (Flow-Fill)	16	Cu. Yd.
78	202	Remove Bollard	2	Each
79	202	Abandon Pipe (Abandon pipe by plugging ends with concrete)	44	Each
80	202	Abandon Existing Water Valve (Close valve, remove top half of existing valve box, fill cavity to finish subgrade with flow-fill material)	9	Each
81	202	Remove Existing Fire Hydrant (Return Hydrant to City Shops)	9	Each
82	202	Remove Existing Pipe (Various sizes and material type)	3645	Lin. Ft.
83	202	Removal of Asphalt Mat (Planing) (T-Top Section) (2" Depth) (Per City Standard Detail GU-03)	4540	Sq. Yd.
84	202	Removal of Asphalt Mat (Full-Depth) (Per City Standard Detail GU-03)	4068	Sq. Yd.
85	202	Removal of Concrete (Saw cut and remove concrete as shown) (Includes but not limited to curb, gutter, sidewalk, driveway, slabs, V-pan, curb ramps, intersection corners, aprons, and concrete walls.)	1145	Sq. Ft.
86	202	Remove Sod	1272	Sq. Ft.
87	202	Removal of Tree (size as shown on plan)	1	Each
88	202	Removal of Manhole (Price to include plugging existing pipes, removal and disposal of consection)	8	Each
89	202	Remove Manhole Cone Section, Ring, and Cover. Contractor shall salvage ring and cover and deliver to city shops. Contractor shall fill remaining barrel sections with flow fill material.	5	Each
90	202/210	Remove and Reset 4' Barbed Wire Fence	10	Lin. Ft
91	202/210	Remove and Reset 5' Chain Link Fence	30	Lin. Ft.
92	202/210	Remove and Reset 6' Chain Link Fence with Barbed Wire Top	160	Lin. Ft.
93	203	Disposal of Radioactive Mill Tailings	100	Cu. Yd.
94	208	Storm Drain Inlet Protection (Gravel Filter at Curb Inlet) (As shown and per detail)	24	Each
95	208	Concrete Washout Facility	1	Lump Sum
96	208/108.10	Erosion Control (Complete in Place)	1	Lump Sum
97	209/108.12	Dust Abatement	1	Lump Sum
98	210	Reset landscape ground cover. Contractors shall remove ground cover and any underlying weed barrier as needed and stockpile materials. Contractor shall reset these materials and provide additional materials as needed to restore landscaping.	544	Sq. Ft.
99	210	Reset Sprinkler System (Complete in place)	1	Lump Sum
100	210	Reset Sign	3	Each
101	212	Sod (Includes 6" Thick Imported Topsoil placed prior to sod placement)	1272	Sq. Ft.
102	304	Aggregate Base Course (Class 6) (4" thick)	420	Sq. Yd.
103	304	Aggregate Base Course (Class 6) (15" thick)	4099	Sq. Yd.
104	401.08	Hot Bituminous Pavement (2" Thick) (Grading SX, PG 64-22, GYR=75) (Mill & Fill Overlay)	2057	Sq. Yd.
105	401.08	Hot Bituminous Pavement (3" Thick) (Grading SX, PG 64-22, GYR=75) (One 3" Lift Bottom Mat)	2976	Sq. Yd.
106	401.08	Hot Bituminous Pavement (Patching) (2" Thick) (Grading SX, PG 64-22, GYR=75) (One 2" Lift Top Mat) (T-Top Patch) (See City Standard Detail GU-03)	2483	Sq. Yd.
107	401.08	Hot Bituminous Pavement (Patching) (5" Thick) (Grading SX, PG 64-22, GYR=75) (One 3" Bottom Lift, One 2" Top Lift)	1092	Sq. Yd.
108	603	Bypass Pumping	1	Lump Sum
109	608.06	Concrete Drainage Pan (3' Wide) (Match in Kind)	3	Sq. Yd.
110	608.06	Concrete Drainage Pan (4' Wide) (Match in Kind)	10	Sq. Yd.
111	608.06	Concrete Curb and Gutter (Standard) (2' Wide)	203	Lin. Ft.
112	608.06	Concrete Valley Gutter (Standard) (2' Wide)	48	Lin. Ft
113	608.06	Concrete Curb (6" Wide, 12" High) (Match in Kind)	19	Lin. Ft.
114	608.06	Cap Top Half of Sewer Pipe in concrete per Std. Detail GU-04 (20' long)	2	Each
115	608.06	Encase entire sewer in reinforced concrete per Std. Detail GU-04 (All cases where water line below sewer line or at waterway crossing)	1	Each
116	608.06	Concrete Sidewalk (4" Thick) (Match in Kind)	31	Sq. Yd.
117	608.06	Concrete Pavement (6" Thick) (CDOT Class D, 4500 PSI Mix)	27	Sq. Yd.
118	620	Portable Sanitary Facility	1	Each
119	625	Construction Surveying	1	Lump Sum
120	626	Mobilization	1	Lump Sum
121	627	Preformed Thermoplastic Pavement Marking (Xwalk-Stop Line)	32	Sq. Ft
122	627	Modified Epoxy Pavement Marking (Inlaid)	3	Gallon
123	630	Traffic Control Plan	1	Lump Sum
124	630	Traffic Control (Complete in Place)	1	Lump Sum
125	630	Flagging	400	Hour
126	SP	UV Cured CIPP Rehabilitation	349	Lin. Ft.
127	SP	Cathodic Protection System	1	Lump Sum
128	SP	Reconfigure Manhole Bench (C3-271-031)	1	Lump Sum
129	SP	Coordination with Doug Jones Property	1	Lump Sum
130	MCR	Minor Contract Revisions	1	Lump Sum
131	GCC-56	Newsletters (20-80 per distribution) (weekly)	1	Lump Sum

DESCRIPTION DATE

REVISION 1 – –

REVISION 2 – –

REVISION 3 – –

REVISION 4 – –

DRAWN BY TAG DATE 3/2019

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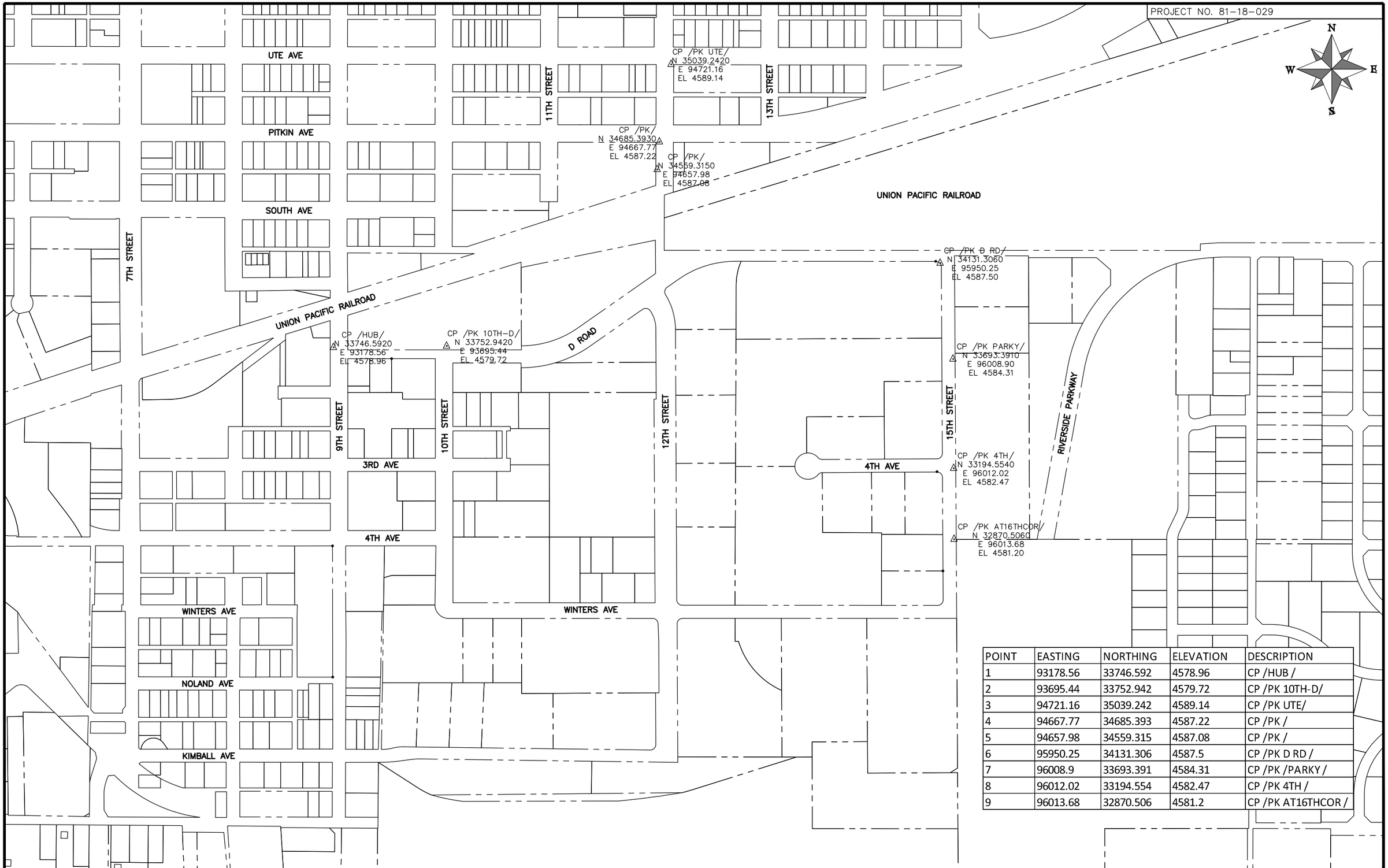
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. OTHER J-U-B COMPANIES: THE LANGDON GROUP, GATEWAY MAPPING INC.

CITY OF GRAND JUNCTION

SUMMARY OF APPROXIMATE QUANTITIES

PROJECT NO. 81-18-029



POINT	EASTING	NORTHING	ELEVATION	DESCRIPTION
1	93178.56	33746.592	4578.96	CP /HUB /
2	93695.44	33752.942	4579.72	CP /PK 10TH-D/
3	94721.16	35039.242	4589.14	CP /PK UTE/
4	94667.77	34685.393	4587.22	CP /PK /
5	94657.98	34559.315	4587.08	CP /PK /
6	95950.25	34131.306	4587.5	CP /PK D RD /
7	96008.9	33693.391	4584.31	CP /PK /PARKY /
8	96012.02	33194.554	4582.47	CP /PK 4TH /
9	96013.68	32870.506	4581.2	CP /PK AT16THCOR /

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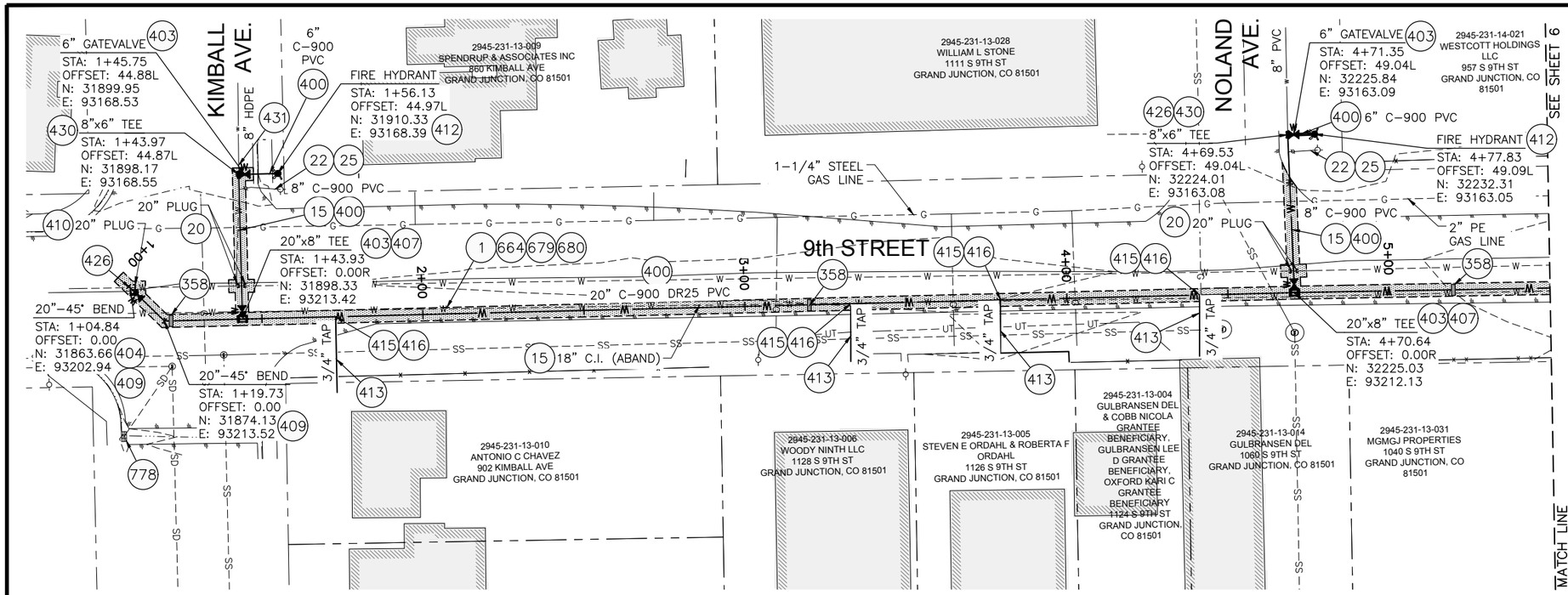
SCALES:
PLAN
HORIZONTAL: 1" = 200'
0 50'100' 200' 400'

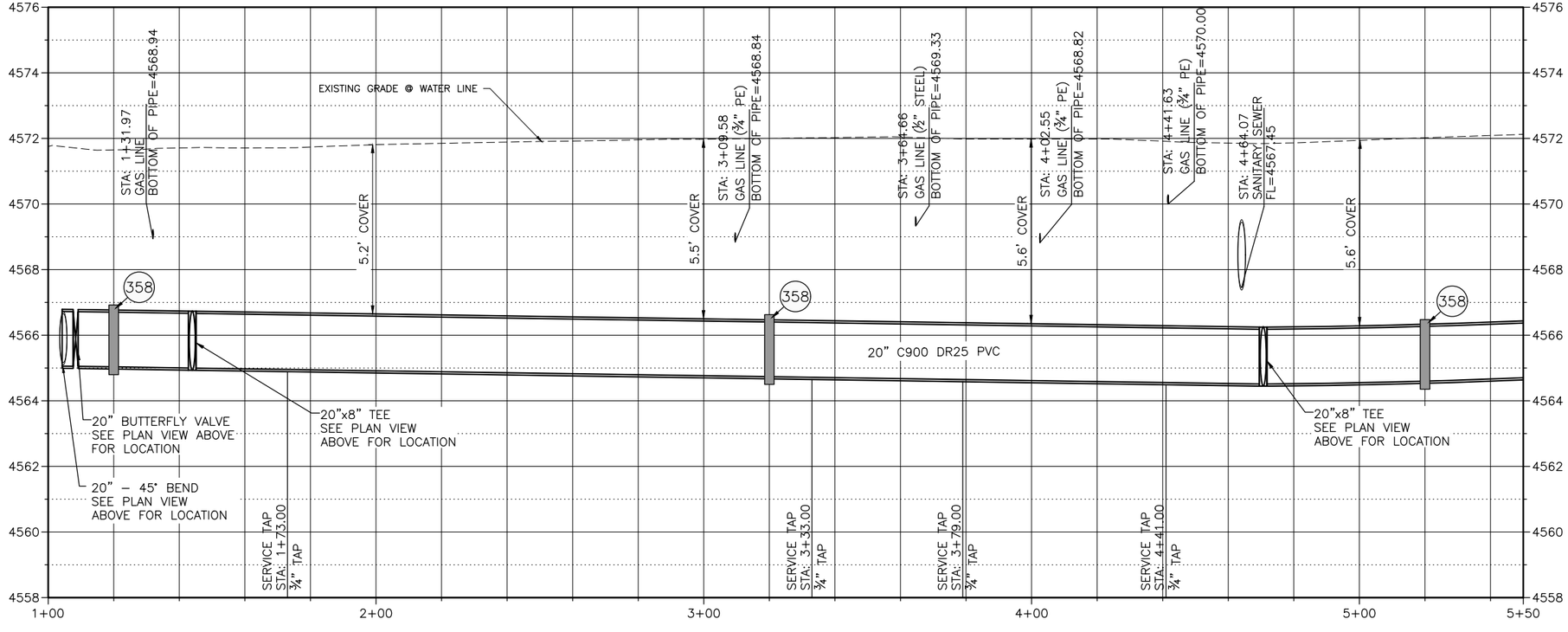
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. | THE LANGDON GROUP | GATEWAY MAPPING INC. | OTHER J-U-B COMPANIES

CITY OF GRAND JUNCTION

PROJECT CONTROL MAP





PROJECT NO. 81–18–029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS.

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW–FILL MATERIAL.

(358) 103 – CLAY CUT–OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C–900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(403) 102.8b/108.3 – GATE VALVE. (SIZE AS SHOWN)

(404) 102.8e/108.3 – BUTTERFLY VALVE (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(409) 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)

(410) 102.8/108.3 – END CAP / PLUG (SIZE AS SHOWN) (INCLUDES THRUST BLOCK

(412) 102.8a/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(415) 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(426) RESTRAINED CONNECTION TO EXISTING WATER PIPE/VALVE/FITTING. THE UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(431) 102.8/108.3 – WELDED FLANGE OR HY–MAX SOLID SLEEVE RESTRAINED COUPLING WITH STIFFENER FOR CONNECTION TO HDPE

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 2" LIFT TOP MAT) (T–TOP PATCH) (SEE CITY STD. DETAIL GU–03)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W–07 & W–08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE
- WATERLINE SERVICES INSTALLED OUTSIDE TRENCH LIMITS AND UNDER PAVEMENT TO BE INSTALLED BY TRENCHLESS METHODS

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DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

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SCALES: PLAN HORIZONTAL: 1" = 20' (0 5' 10' 20'); PROFILE HORIZONTAL: 1" = 20' (0 5' 10' 20'), VERTICAL: 1" = 2' (0 0.5' 1' 2')

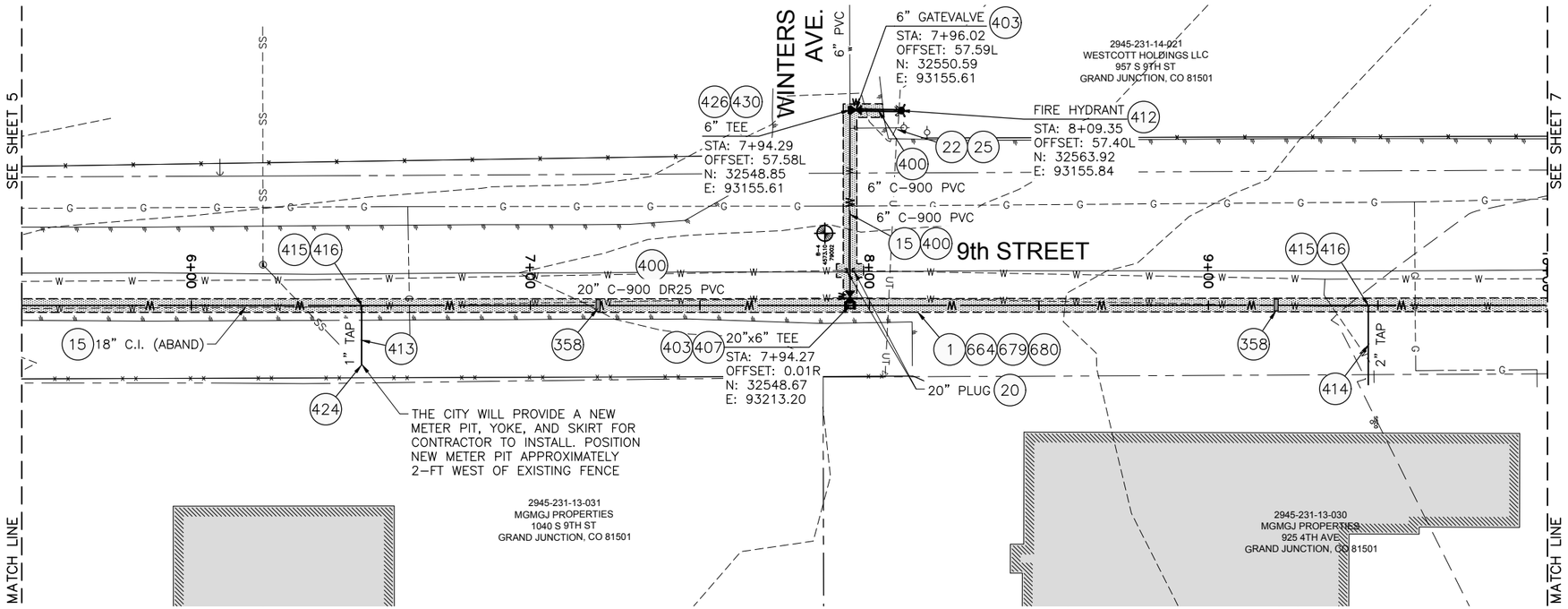
CITY OF Grand Junction COLORADO

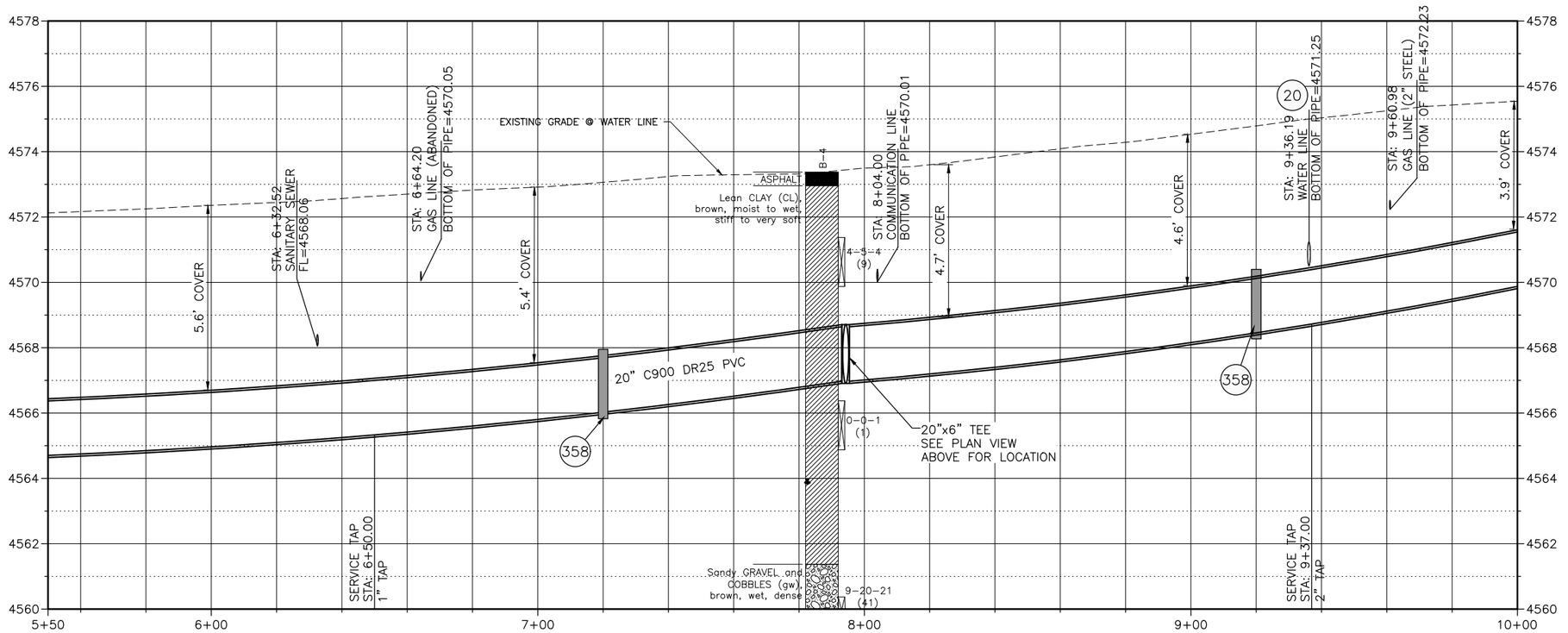
J-U-B ENGINEERS, INC. — OTHER J-U-B COMPANIES: THE LANGDON GROUP, GATEWAY MAPPING INC.

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 9th STREET WATER LINE

5

Plot Date:3/29/2019 1:55 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \81-PALISADE-G\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WL\CAD\SHEET\CIVIL\81-18-029_C-201X.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW-FILL MATERIAL.

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C-900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(403) 102.8b/108.3 – GATE VALVE. (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(412) 102.8a/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(414) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER OR HDPE 3408 PIPE) (SIZE AS SHOWN ON PLAN) IF LEAD OF POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(415) 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(424) 102.8/108.4 – METER PIT (PROVIDED BY CITY)

(426) RESTRAINED CONNECTION TO EXISTING WATER PIPE/VALVE/FITTING. THE UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 2" LIFT TOP MAT) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W-07 & W-08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE
- WATERLINE SERVICES INSTALLED OUTSIDE TRENCH LIMITS AND UNDER PAVEMENT TO BE INSTALLED BY TRENCHLESS METHODS

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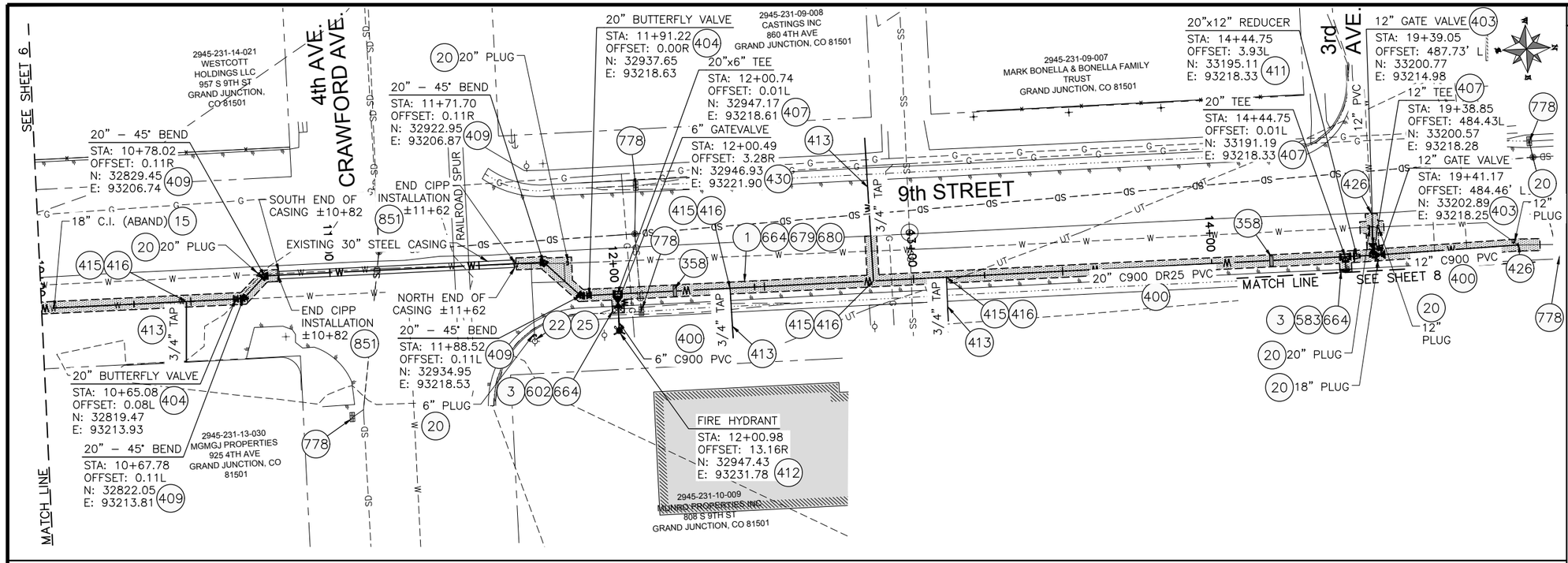
CITY OF Grand Junction COLORADO

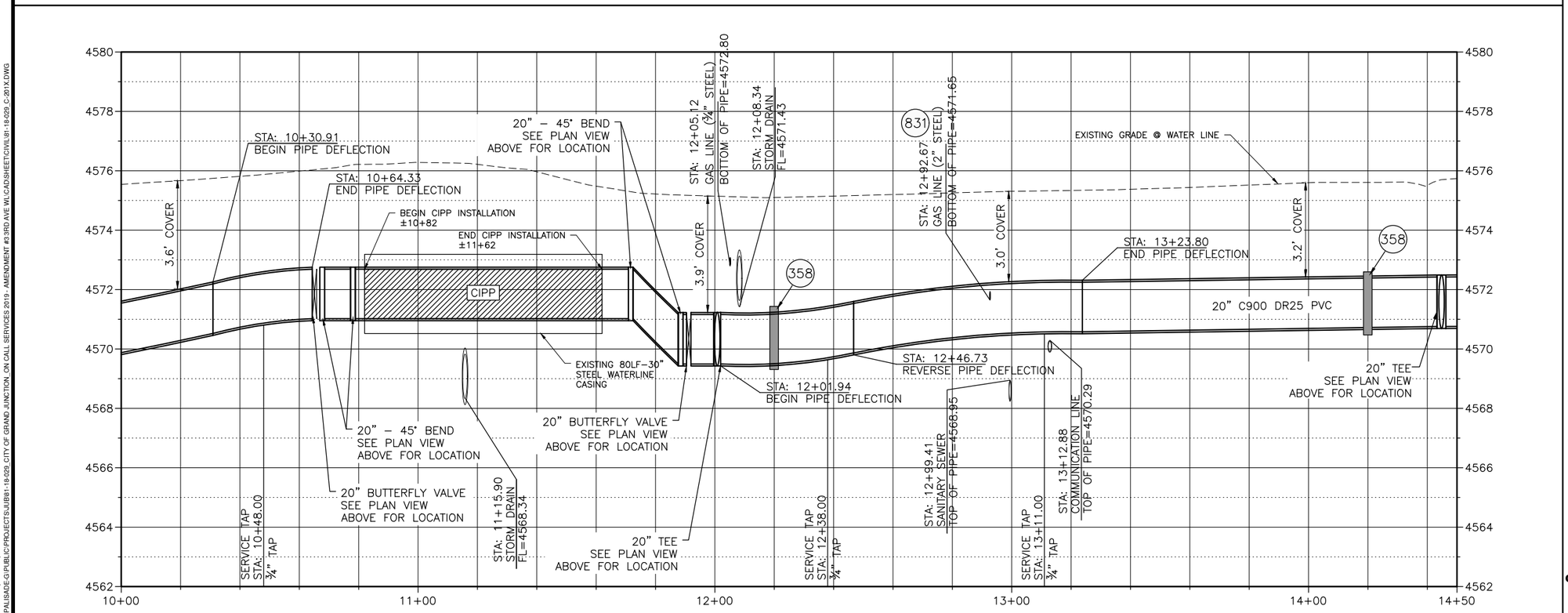
J-U-B ENGINEERS, INC. — OTHER J-U-B COMPANIES: THE LANGDON GROUP, GATEWAY MAPPING INC.

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 9th STREET WATER LINE

6

Plot Date:3/29/2019 1:55 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \81-PALISADE-G\PUBLIC\PROJECTS\JUB\1-18-029, CITY OF GRAND JUNCTION, ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE W\LOADSHEET\CIVIL\81-18-029_C-801X.DWG





PROJECT NO. 81–18–029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V–PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW–FILL MATERIAL.

(358) 103 – CLAY CUT–OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C–900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(403) 102.8b/108.3 – GATE VALVE. (SIZE AS SHOWN)

(404) 102.8e/108.3 – BUTTERFLY VALVE (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(409) 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)

(411) 102.8/108.3 – REDUCER (SIZE AS SHOWN)

(412) 102.8a/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(415) 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(426) RESTRAINED CONNECTION TO EXISTING WATER PIPE/VALVE/FITTING. THE UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(583) 608.06 – CONCRETE DRAINAGE PAN (4' WIDE) (MATCH IN KIND)

(602) 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 2" LIFT TOP MAT) (T–TOP PATCH) (SEE CITY STD. DETAIL GU–03)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

(831) COORDINATE WITH XCEL ENERGY FOR RELOCATION OF GAS LINE

(851) SP – CURED IN PLACE WATER PIPE PER PROJECT SPECIFICATIONS. DESIGNED, SUBMITTED, AND STAMPED BY P.E. FIELD VERIFY SIZE/MATERIAL BEFORE ORDERING LINER. INSTALL MJ x FE ADAPTER FOR CONNECTION TO CIPP.

NOTES:

- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W–07 & W–08
- CIPP SHALL BE INSTALLED WITHIN ENTIRE LENGTH OF EXISTING STEEL CASING. CIPP STATION LIMITS SHOWN ARE ESTIMATES BASED ON AS–BUILT INFORMATION
- WATERLINE SERVICES INSTALLED OUTSIDE TRENCH LIMITS AND UNDER PAVEMENT TO BE INSTALLED BY TRENCHLESS METHODS
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE

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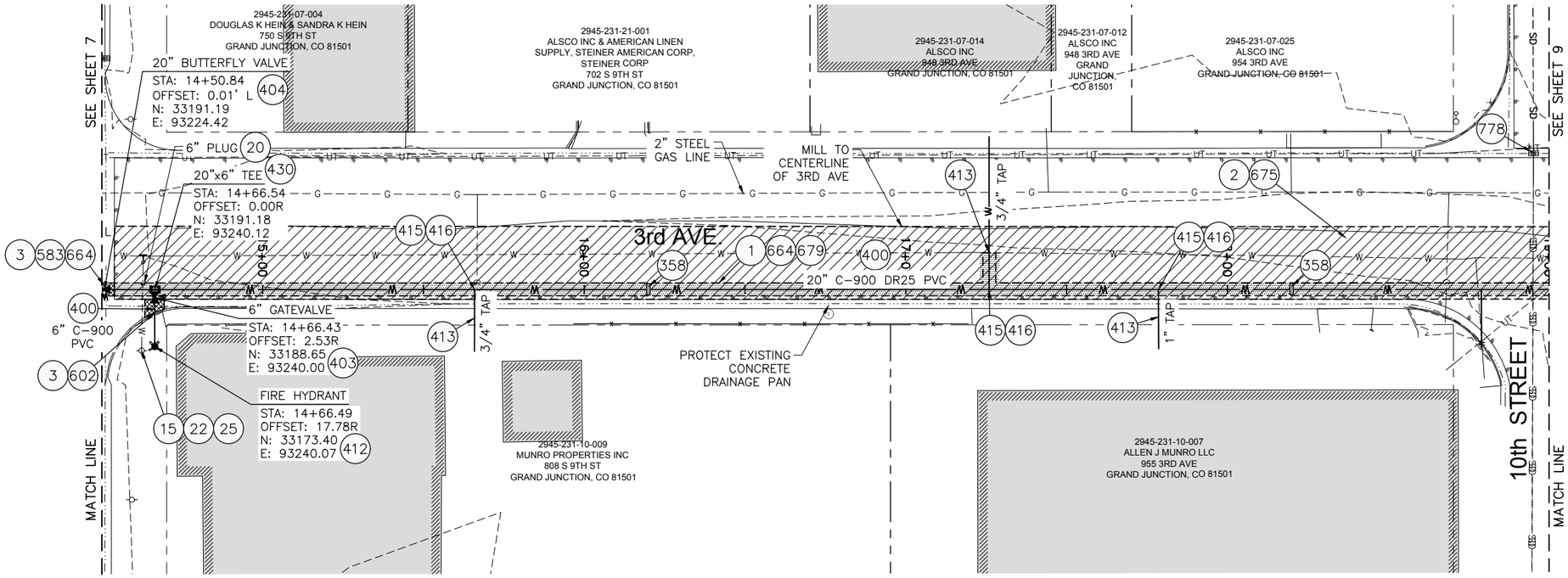
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. — OTHER J-U-B COMPANIES: THE LANGDON GROUP, GATEWAY MAPPING INC.

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 9th STREET WATER LINE

7

Plot Date:3/29/2019 1:56 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \\81-PALISADE-G\PUBLIC\PROJECTS\JUB\1-18-029, CITY OF GRAND JUNCTION, ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE W\LOADSHEET\CIVIL\1-18-029_C-261X.DWG



PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(2) 202.09 – REMOVAL OF ASPHALT MAT (PLANING). (2" DEPTH)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW-FILL MATERIAL.

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C-900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(403) 102.8b/108.3 – GATE VALVE (SIZE AS SHOWN)

(404) 102.8e/108.3 – BUTTERFLY VALVE (SIZE AS SHOWN)

(412) 102.8a/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(415) 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(583) 608.06 – CONCRETE DRAINAGE PAN (4' WIDE) (MATCH IN KIND)

(602) 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(675) 401.08 – HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (MILL & FILL OVERLAY)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

(831) COORDINATE WITH XCEL ENERGY FOR RELOCATION OF GAS LINE

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W-07 & W-08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE
- WATERLINE SERVICES INSTALLED OUTSIDE TRENCH LIMITS AND UNDER PAVEMENT TO BE INSTALLED BY TRENCHLESS METHODS

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

DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY TAG DATE 3/2019
DESIGNED BY ES DATE 3/2019
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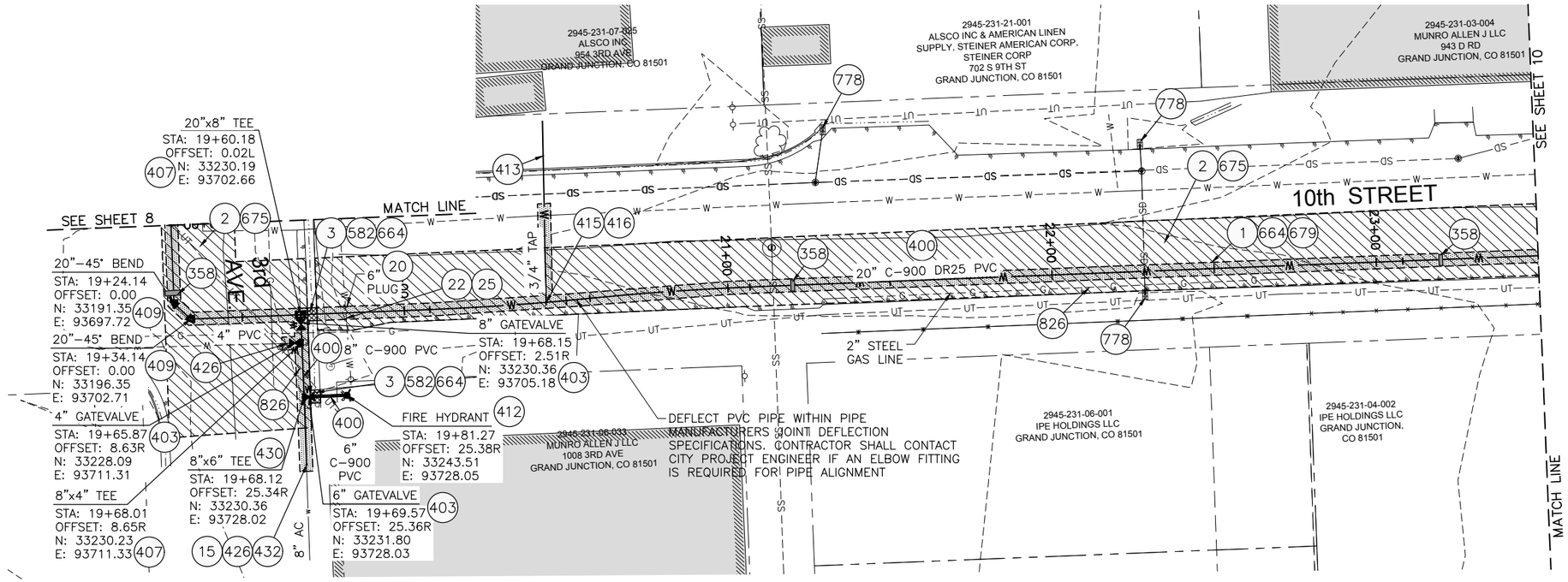
SCALES:
PLAN: HORIZONTAL: 1" = 20'
PROFILE: HORIZONTAL: 1" = 20'; VERTICAL: 1" = 2'

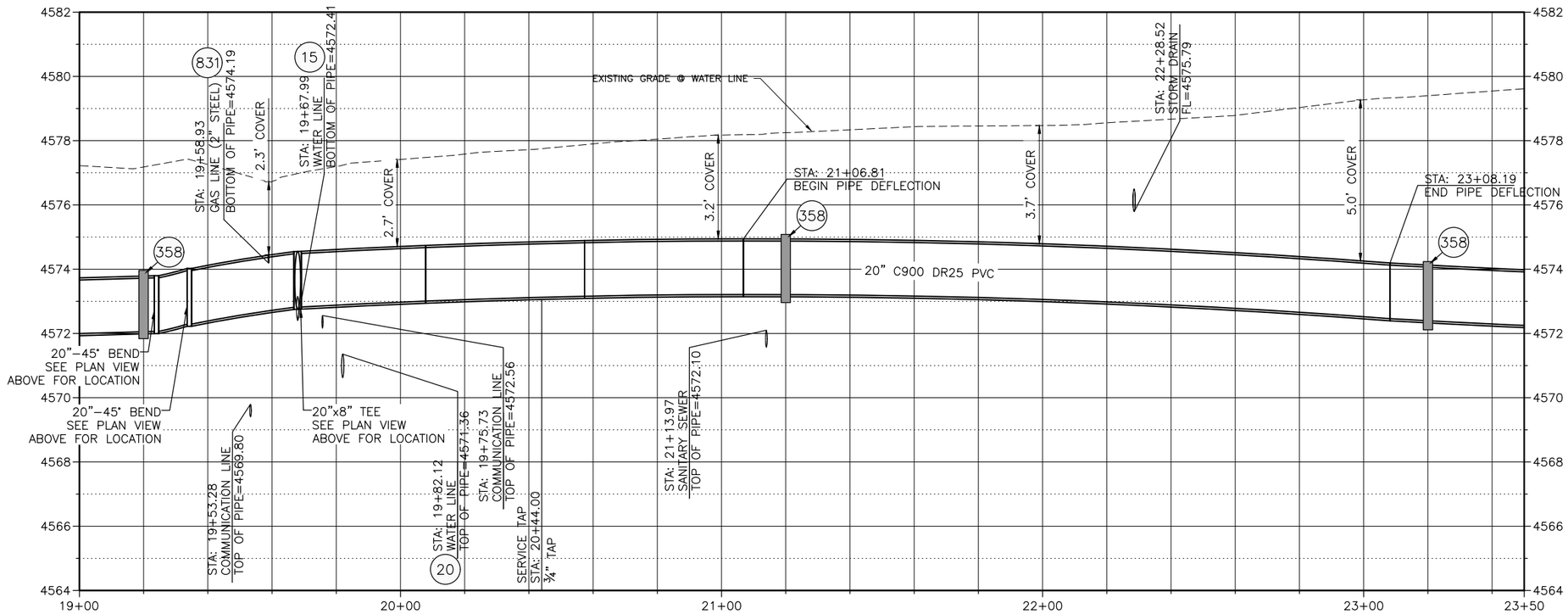
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. — OTHER J-U-B COMPANIES: THE LANGDON GROUP, GATEWAY MAPPING INC.

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 3rd AVE WATER LINE

Plot Date:3/29/2019 1:56 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \\bl-PALISADE-G\PUBLIC\PROJECTS-JUB\81-18-029, CITY OF GRAND JUNCTION, ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE W\CAD\SHEET\CIVIL\81-18-029_C-201X.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(2) 202.09 – REMOVAL OF ASPHALT MAT (PLANING). (2" DEPTH)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(21) 202 – REMOVE EXISTING WATER VALVE.

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS.

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW-FILL MATERIAL.

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C-900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(403) 102.8b/108.3 – GATE VALVE. (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(409) 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)

(412) 102.8a/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(415) 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(426) RESTRAINED CONNECTION TO EXISTING WATER PIPE/VALVE/FITTING. THE UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(432) 102.8/108.3 – CONNECT TO EXISTING AC PIPE USING FULL 20-FT STICK OF PVC PIPE

(582) 608.06 – CONCRETE DRAINAGE PAN (3' WIDE) (MATCH IN KIND)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(675) 401.08 – HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (MILL & FILL OVERLAY)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

(826) PROTECT EXISTING UTILITY LINE IN PLACE

(831) COORDINATE WITH XCEL ENERGY FOR RELOCATION OF GAS LINE

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W-07 & W-08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE
- WATERLINE SERVICES INSTALLED OUTSIDE TRENCH LIMITS AND UNDER PAVEMENT TO BE INSTALLED BY TRENCHLESS METHODS

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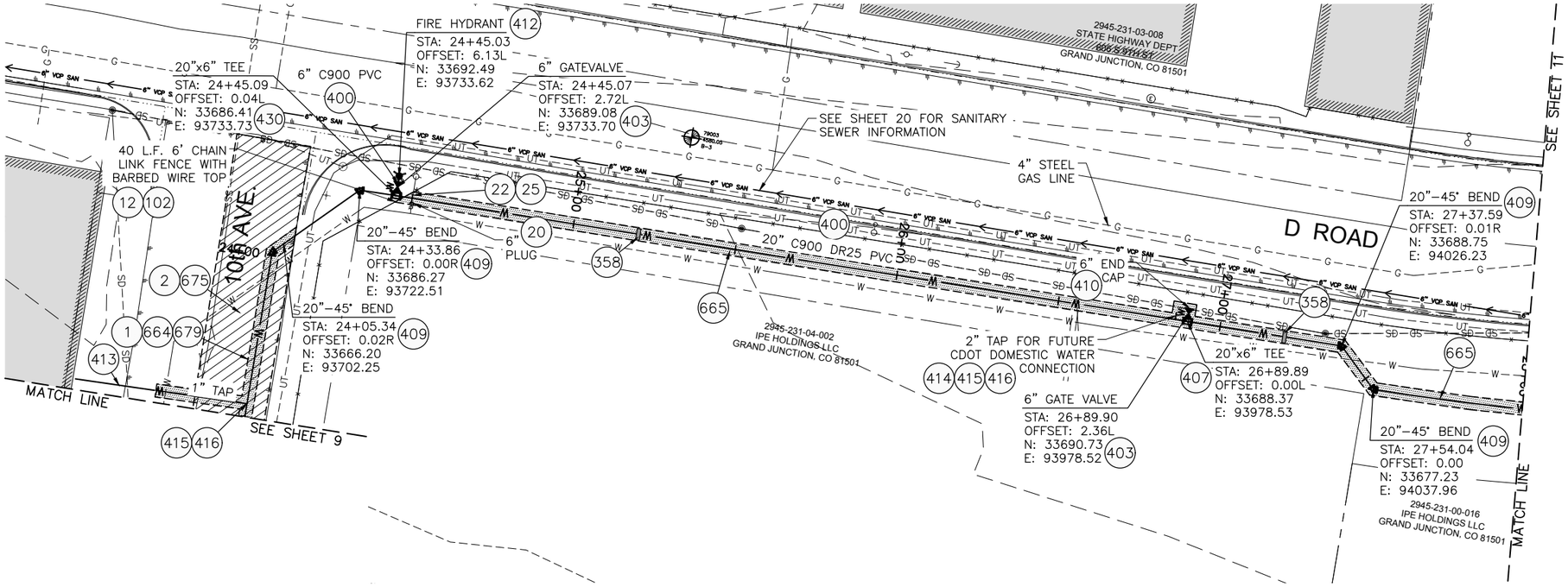
CITY OF Grand Junction COLORADO

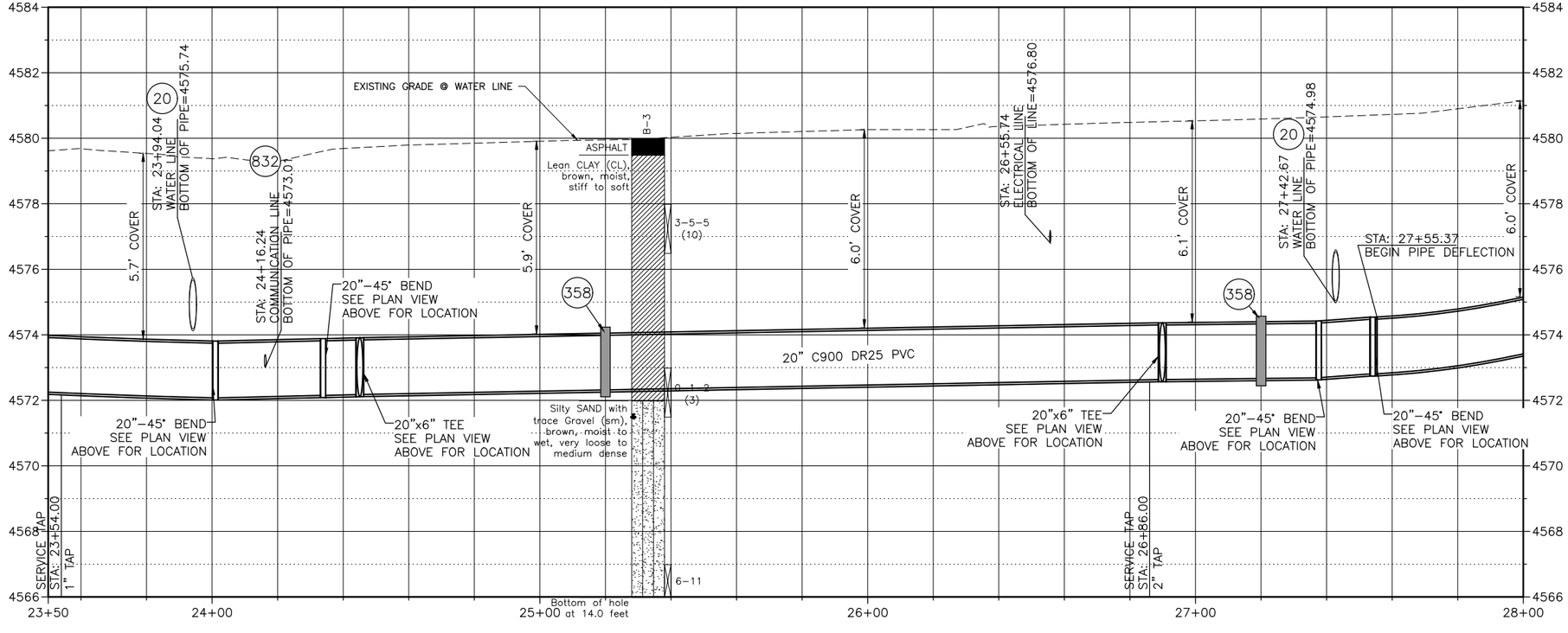
J-U-B ENGINEERS, INC. — THE LANGDON GROUP — GATEWAY MAPPING INC. — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 10th STREET WATER LINE

9

Plot Date:3/29/2019 1:56 PM Plotted By: Erik Snyder
Date Created:3/29/2019 I:\81-PALISADE-GI\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\RD AVE W\CAD\SHEET\DWG\81-18-029_C-201X.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(2) 202.09 – REMOVAL OF ASPHALT MAT (PLANING). (2" DEPTH)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS

(12) 202 – REMOVAL OF FENCE AS SHOWN. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(21) 202 – REMOVE EXISTING WATER VALVE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS.

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW-FILL MATERIAL.

(102) 210 – RESET FENCE. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C-900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(403) 102.8b/108.3 – GATE VALVE. (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(409) 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)

(410) 102.8/108.3 – END CAP / PLUG (SIZE AS SHOWN)

(412) 102.8a/108.3 – FIRE HYDRANT ASSEMBLY

(413) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(414) 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER OR HDPE 3408 PIPE) (SIZE AS SHOWN ON PLAN) IF LEAD OF POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.

(415) 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)

(416) 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(665) 304 – AGGREGATE BASE COURSE (CLASS 6) (4" THICK) (WIDTH OF TRENCH SURFACE TREATMENT)

(675) 401.08 – HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (MILL & FILL OVERLAY)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(832) RESET TELEPHONE LINE (BY OTHERS).

NOTES:
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CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. — THE LANGDON GROUP a J-U-B Company — GATEWAY MAPPING INC. a J-U-B Company — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – D ROAD WATER LINE

10

Plot Date:3/29/2019 1:56 PM Plotted By: Erik Snyder
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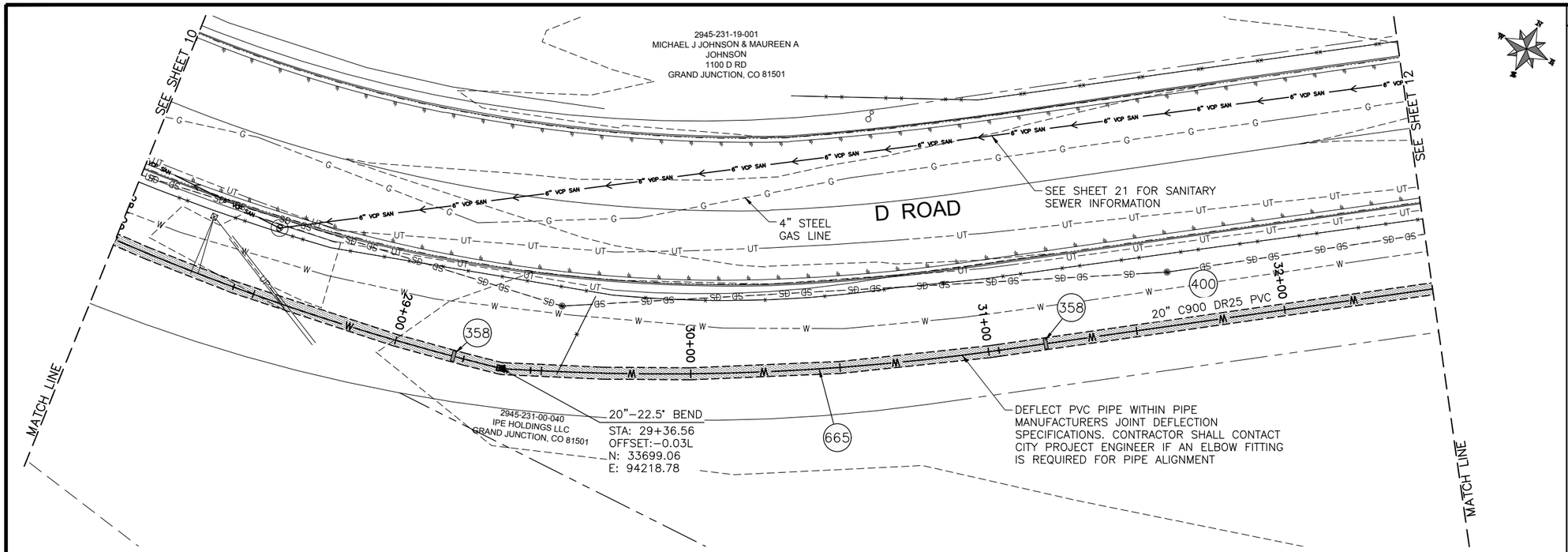

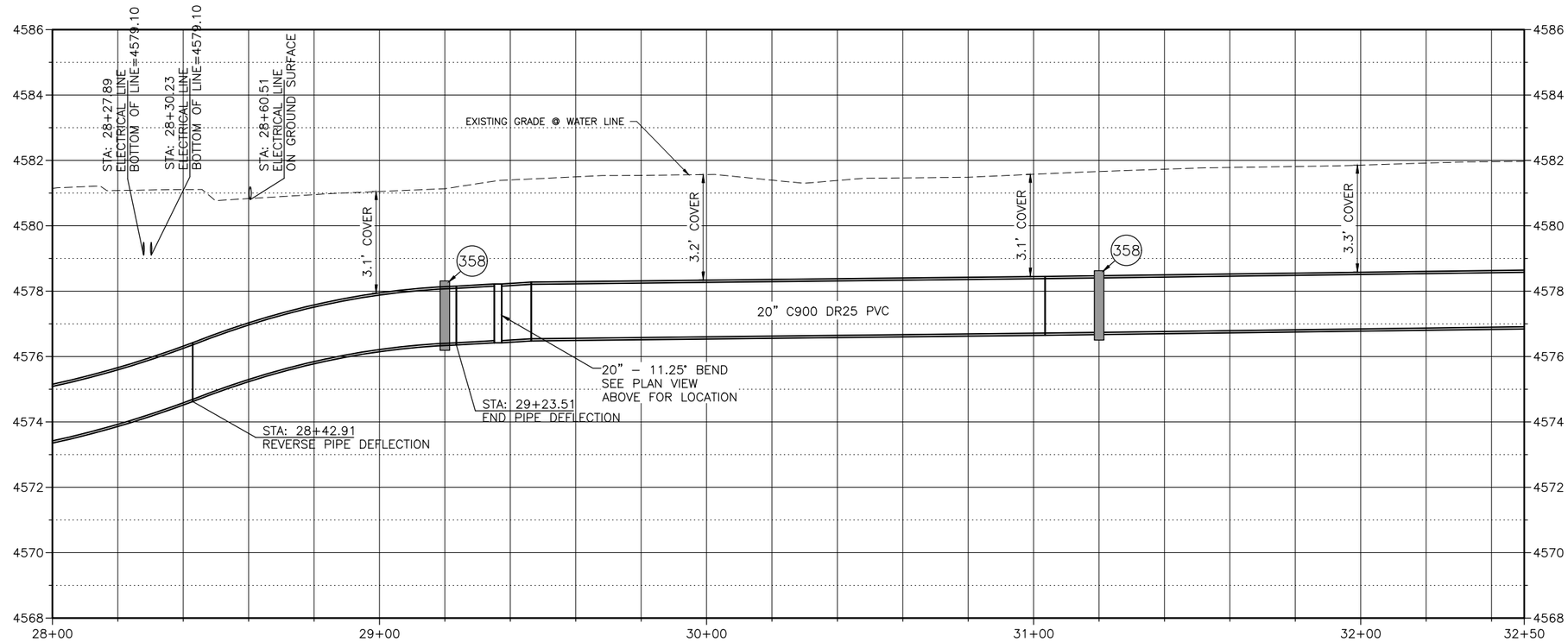

PROJECT NO. 81–18–029

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(358) 103 – CLAY CUT–OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C–900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(665) 304 – AGGREGATE BASE COURSE (CLASS 6) (4" THICK) (WIDTH OF TRENCH SURFACE TREATMENT)

NOTES:
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- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE

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J-U-B ENGINEERS, INC. | THE LANGDON GROUP (A J-U-B Company) | GATEWAY MAPPING INC. (A J-U-B Company) | OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – D ROAD WATER LINE

Plot Date:3/28/2019 1:57 PM Plotted By: Erik Snyder
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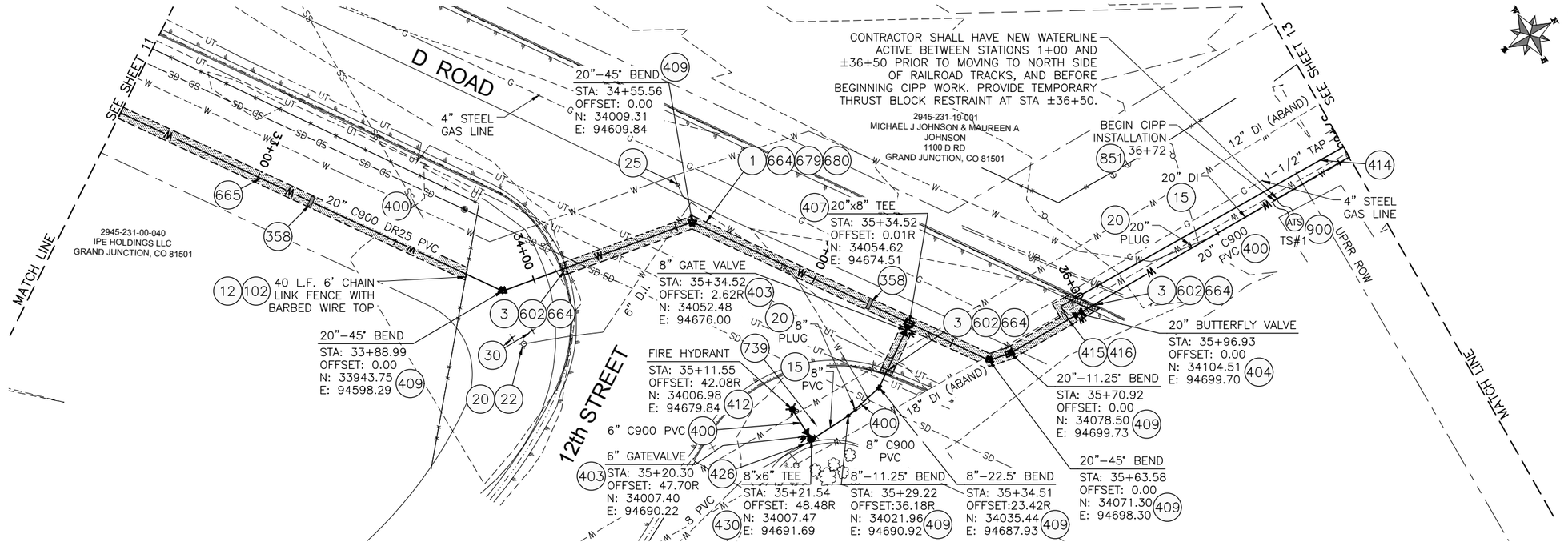

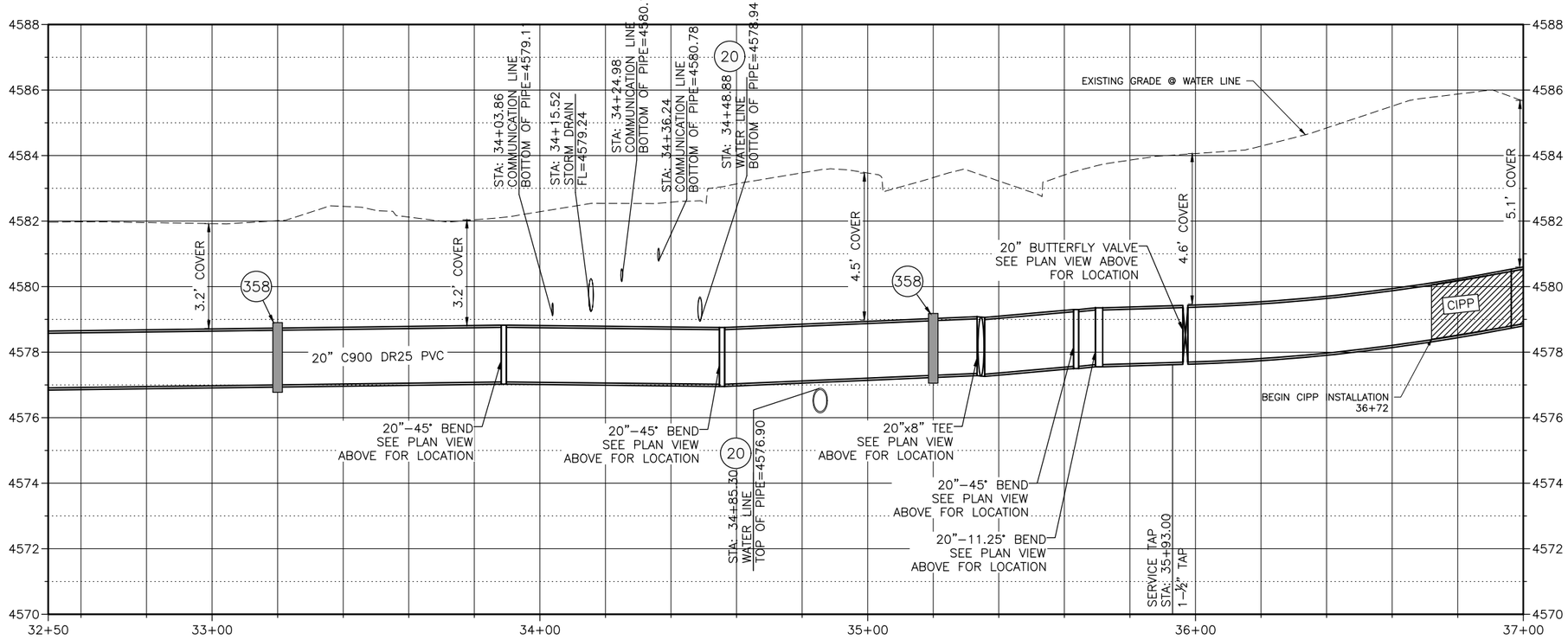

PROJECT NO. 81–18–029

1. 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)
3. 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V–PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS
12. 202 – REMOVAL OF FENCE AS SHOWN. (HEIGHT AND MATERIAL AS SHOW ON PLAN)
15. 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)
20. 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.
22. 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS.
25. 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW–FILL MATERIAL.
30. 202 – REMOVE BOLLARD
102. 210 – RESET FENCE. (HEIGHT AND MATERIAL AS SHOW ON PLAN)
358. 103 – CLAY CUT–OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)
400. 102.7/108.2 – WATER MAIN PIPE (C–900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
403. 102.8b/108.3 – GATE VALVE. (SIZE AS SHOWN)
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407. 102.8/108.3 – TEE (SIZE AS SHOWN)
409. 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)
412. 102.8a/108.3 – FIRE HYDRANT ASSEMBLY
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415. 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)
416. 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)
426. RESTRAINED CONNECTION TO EXISTING WATER PIPE/VALVE/FITTING. THE UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE
430. 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)
602. 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)
664. 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)
665. 304 – AGGREGATE BASE COURSE (CLASS 6) (4" THICK) (WIDTH OF TRENCH SURFACE TREATMENT)
679. 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 3" LIFT BOTTOM MAT)
680. 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 2" LIFT TOP MAT) (T–TOP PATCH) (SEE CITY STD. DETAIL GU–03)
739. 610 – REMOVE AND PROTECT GROUND COVER MATERIAL (INCLUDES RESETTING ROCK GROUND COVER UPON COMPLETION OF WATER LINE)
851. SP – CURED IN PLACE WATER PIPE PER PROJECT SPECIFICATIONS. DESIGNED, SUBMITTED, AND STAMPED BY P.E. FIELD VERIFY SIZE/MATERIAL BEFORE ORDERING LINER. INSTALL MJ x FE ADAPTER FOR CONNECTION TO CIPP
900. CATHODIC PROTECTION ANODE TEST STATION TO BE INSTALLED PER SHEET "CP DETAILS"

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- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE

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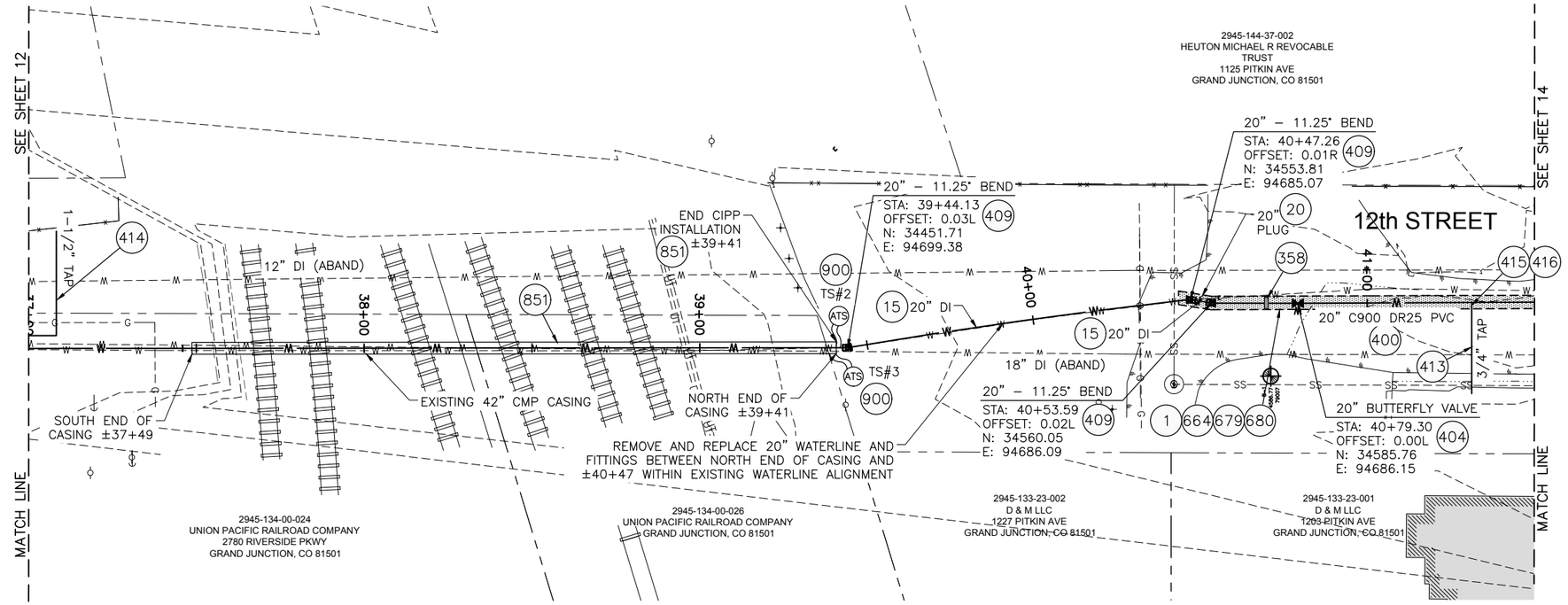
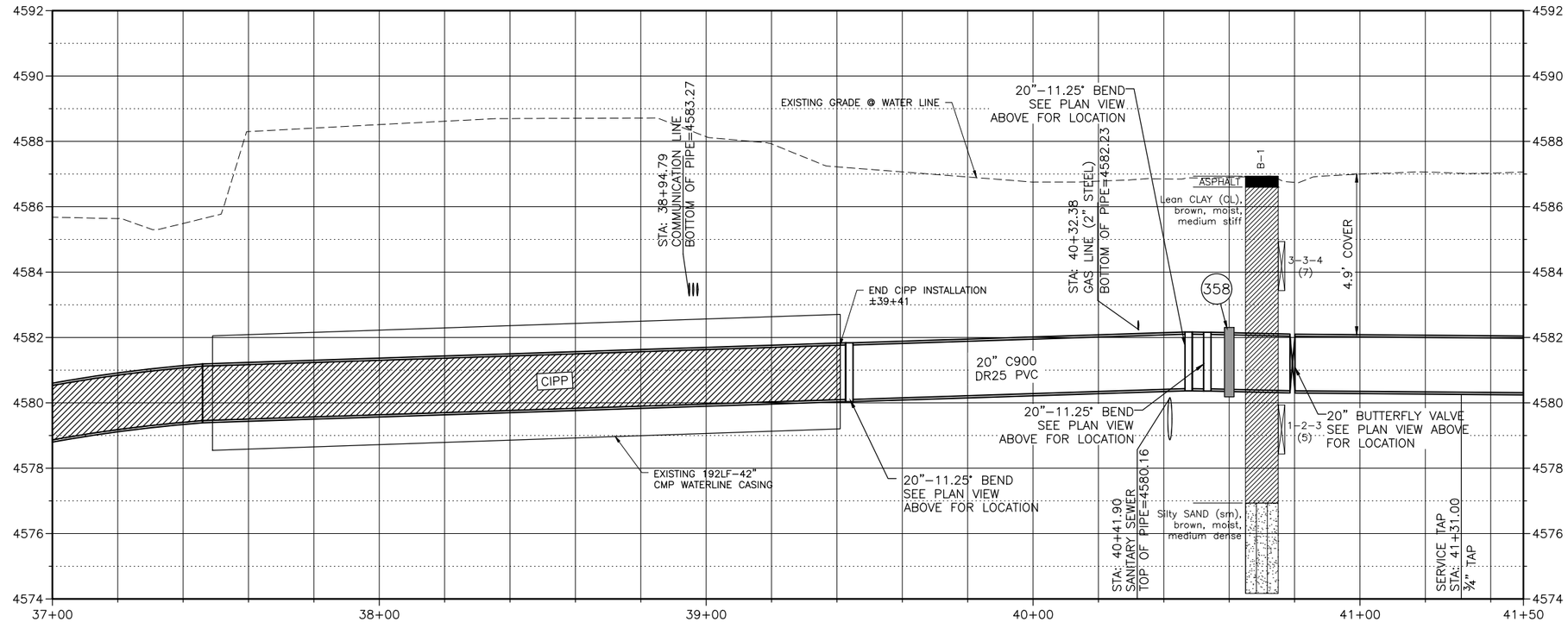
2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – D ROAD WATER LINE

12

Plot Date:3/29/2019 1:57 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \81-PALISADE-E\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE W\CAD\SHEET\CIVIL\81-18-029_C-201X.DWG





PROJECT NO. 81–18–029

1. 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)
15. 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)
20. 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.
358. 103 – CLAY CUT–OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)
400. 102.7/108.2 – WATER MAIN PIPE (C–900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
404. 102.8e/108.3 – BUTTERFLY VALVE (SIZE AS SHOWN)
409. 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)
413. 102.7c/108.4 – WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE SHALL BE REPLACED TO METER.
415. 102.8k/108.4 – TAPPING SADDLE (SIZE AS SHOWN ON PLAN)
416. 102.8j/108.4 – CORPORATION STOP (SIZE AS SHOWN ON PLAN)
664. 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)
679. 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 3" LIFT BOTTOM MAT)
680. 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 2" LIFT TOP MAT) (T–TOP PATCH) (SEE CITY STD. DETAIL GU–03)
851. SP – CURED IN PLACE WATER PIPE PER PROJECT SPECIFICATIONS. DESIGNED, SUBMITTED, AND STAMPED BY P.E. FIELD VERIFY SIZE/MATERIAL BEFORE ORDERING LINER. INSTALL MJ x FE ADAPTER FOR CONNECTION TO CIPP
900. CATHODIC PROTECTION ANODE TEST STATION TO BE INSTALLED PER SHEET "CP DETAILS"

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W–07 & W–08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE
- WATERLINE SERVICES INSTALLED OUTSIDE TRENCH LIMITS AND UNDER PAVEMENT TO BE INSTALLED BY TRENCHLESS METHODS

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

DESCRIPTION	DATE
REVISION 1	
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REVISION 3	
REVISION 4	

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SCALES: PLAN HORIZONTAL: 1" = 20' (0 5' 10' 20'); PROFILE HORIZONTAL: 1" = 20' (0 5' 10' 20'), VERTICAL: 1" = 2' (0 0.5' 1' 2')

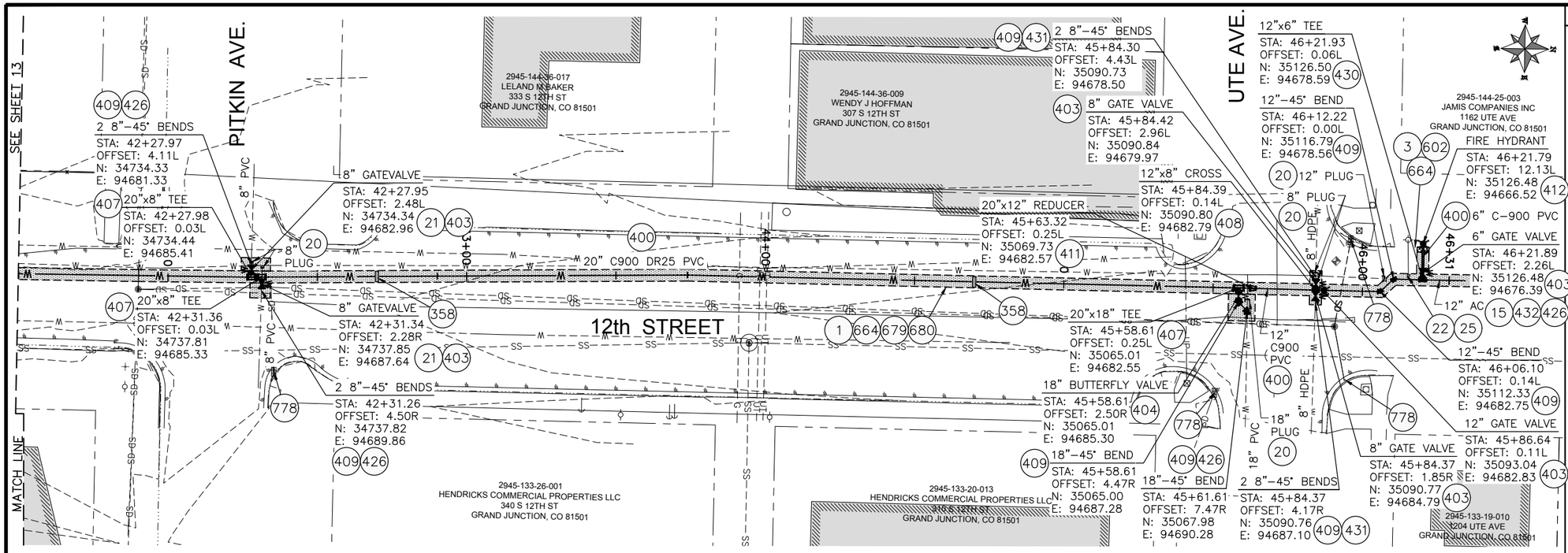
CITY OF Grand Junction COLORADO

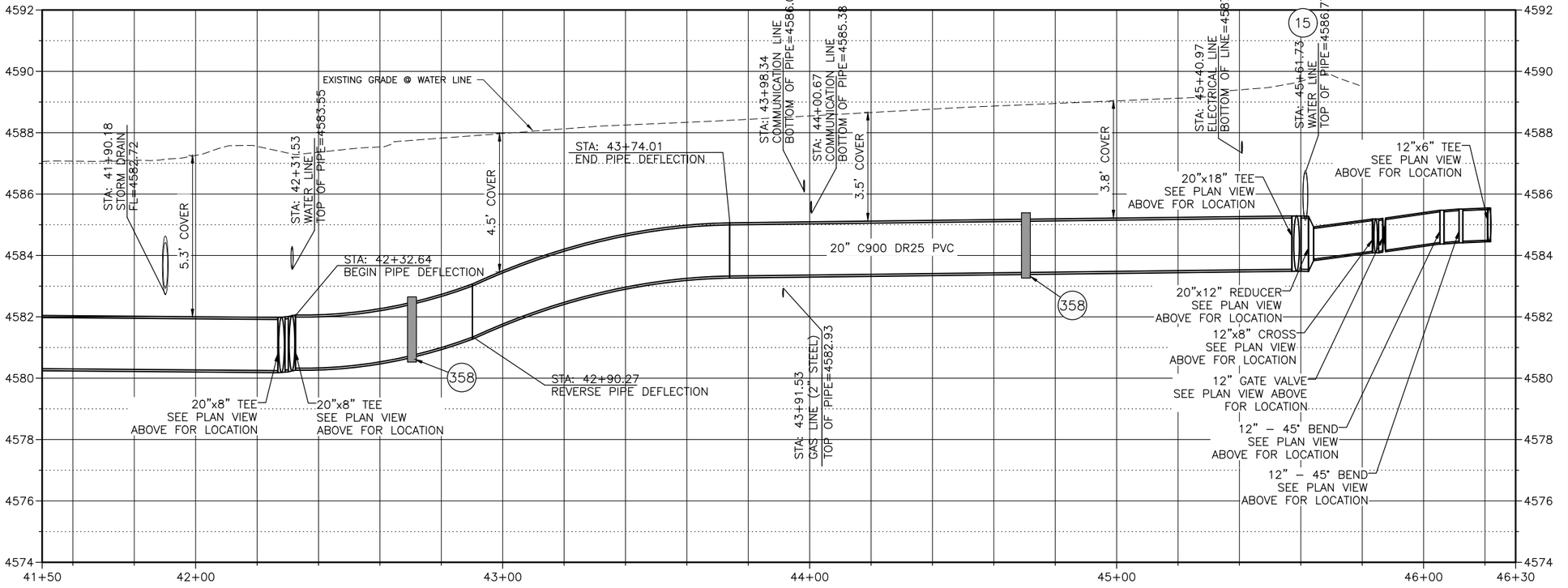
J-U-B ENGINEERS, INC. — THE LANGDON GROUP — GATEWAY MAPPING INC. — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 12th STREET WATER LINE

13

Plot Date:3/29/2019 1:57 PM Plotted By: Erik Snyder
Date Created:3/29/2019 I:\PALISADE-G\PUBLIC PROJECTS\SUBSI-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE W\CAD\SHEET\CIVIL\81-18-029_C-201X.DWG





PROJECT NO. 81–18–029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V–PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(21) 202 – REMOVE EXISTING WATER VALVE

(22) 202 – REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS

(25) 202 – ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.

(358) 103 – CLAY CUT–OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C–900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(403) 102.8b/108.3 – GATE VALVE. (SIZE AS SHOWN)

(404) 102.8e/108.3 – BUTTERFLY VALVE (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(408) 102.8/108.3 – CROSS (SIZE AS SHOWN)

(409) 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)

(411) 102.8/108.3 – REDUCER (SIZE AS SHOWN)

(412) 102.8a/108.3 – FIRE HYDRANT ASSEMBLY

(426) RESTRAINED CONNECTION TO EXISTING WATER PIPE/VALVE/FITTING. THE UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(431) 102.8/108.3 – WELDED FLANGE OR HY–MAX SOLID SLEEVE RESTRAINED COUPLING WITH STIFFENER FOR CONNECTION TO HDPE

(432) 102.8/108.3 – CONNECT TO EXISTING AC PIPE USING FULL 20–FT STICK OF PVC PIPE

(602) 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64–22, GYR=75) (ONE 2" LIFT TOP MAT) (T–TOP PATCH) (SEE CITY STD. DETAIL GU–03)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W–07 & W–08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE

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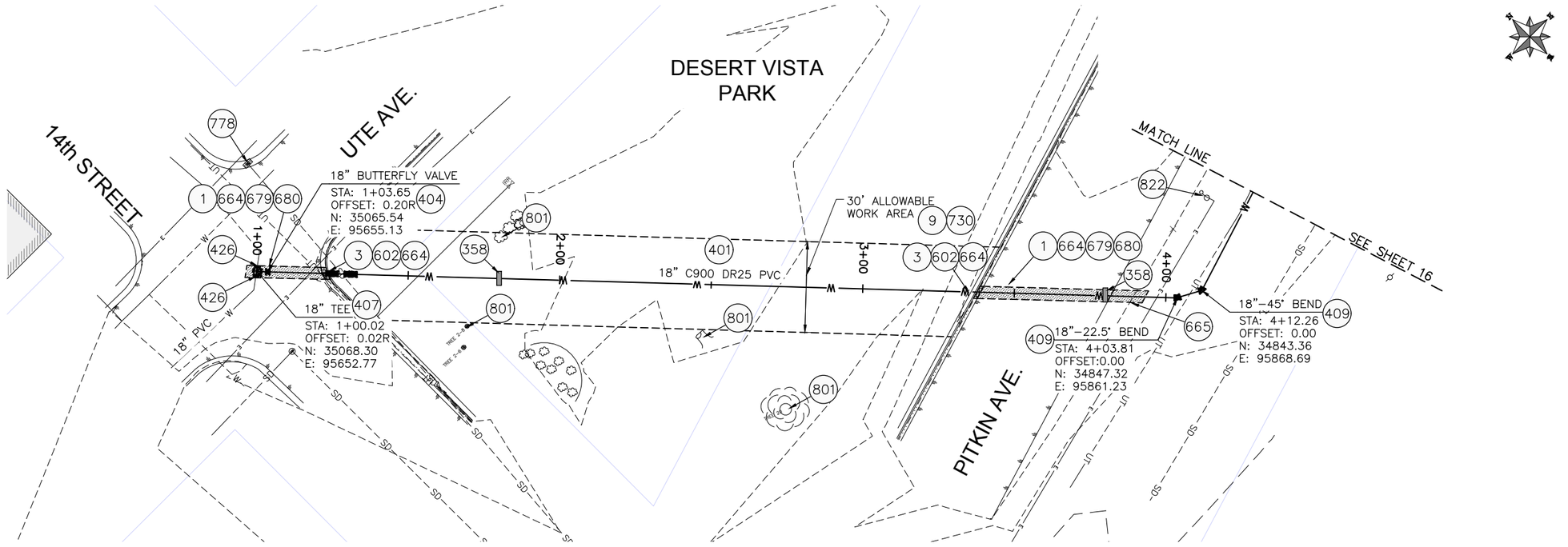
CITY OF Grand Junction COLORADO

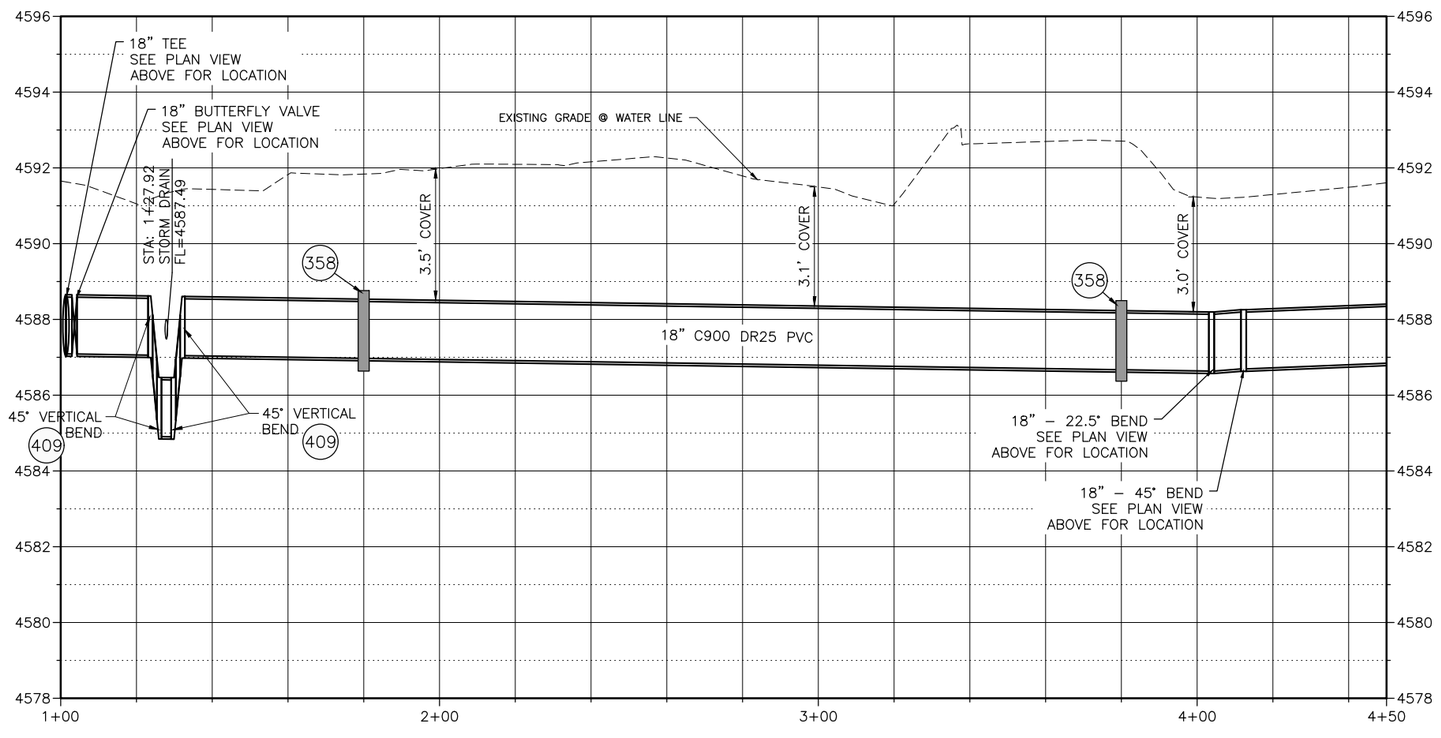
J-U-B ENGINEERS, INC. | THE LANGDON GROUP | GATEWAY MAPPING INC. | OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 12th STREET WATER LINE

14

Plot Date:3/29/2019 1:58 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \\81-PALISADE-G\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE W\CAD\SHEET\CIVIL\81-18-029_C-201X.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(9) 202 – REMOVAL OF SOD.

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(401) 102.7/108.2 – WATER MAIN PIPE (C-900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(404) 102.8e/108.3 – BUTTERFLY VALVE (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(409) 102.8/108.3 – ELBOW (SIZE AND ANGLE AS SHOWN)

(426) RESTRAINED CONNECTION TO EXISTING WATER PIPE/VALVE/FITTING. THE UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(602) 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(665) 304 – AGGREGATE BASE COURSE (CLASS 6) (4" THICK) (SHOULDER BASE)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 2" LIFT TOP MAT) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)

(730) 212 – RESOD AREA AS SHOWN

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

(801) PROTECT TREE

(822) PROTECT LIGHT POLE

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W-07 & W-08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE

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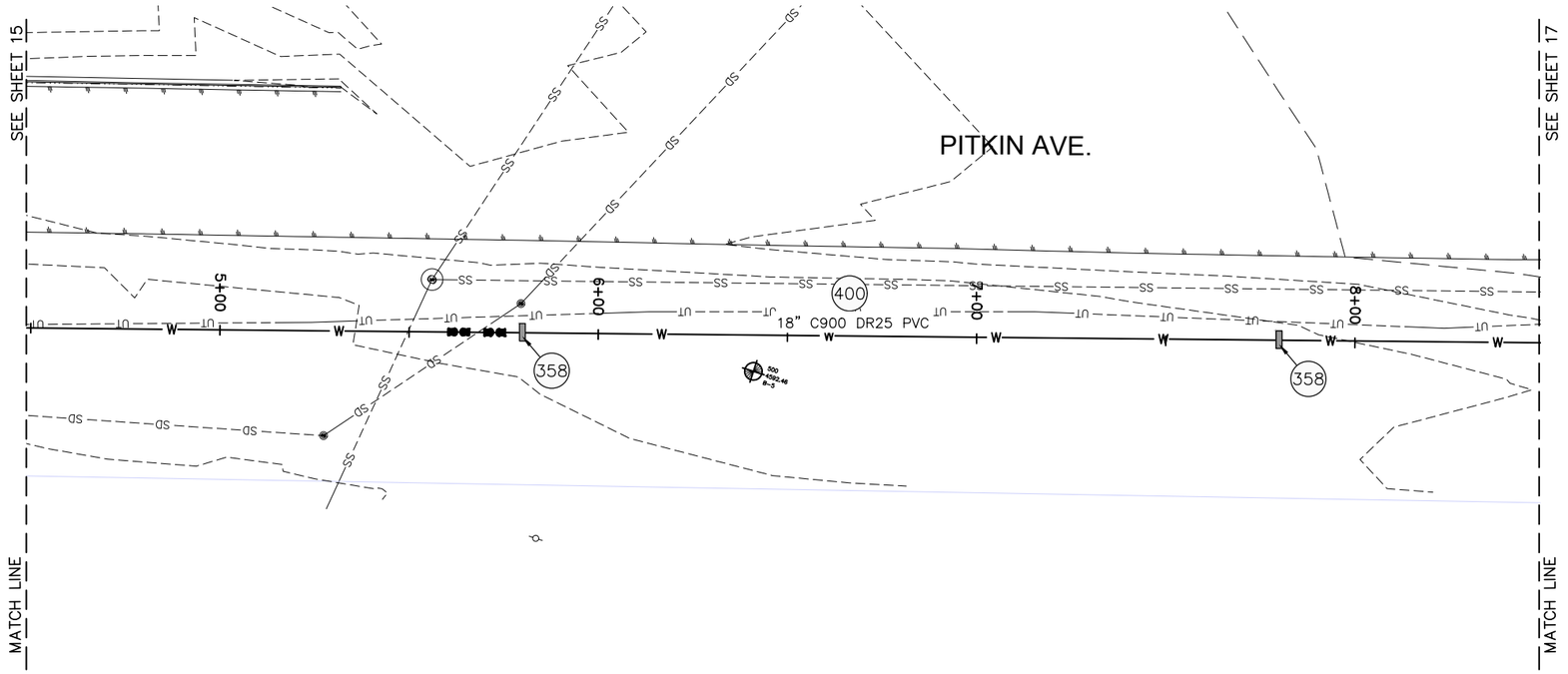
CITY OF Grand Junction COLORADO

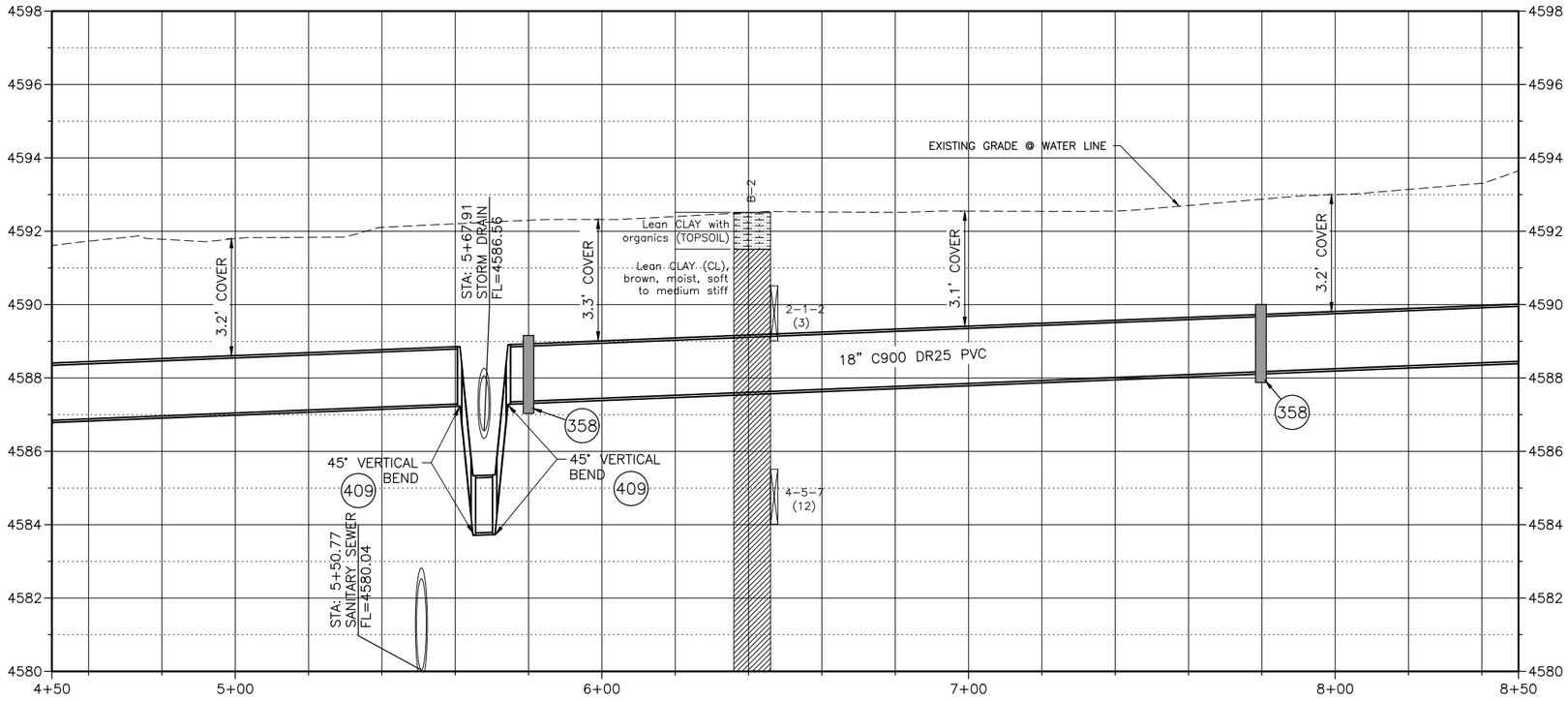
J-U-B ENGINEERS, INC. — THE LANGDON GROUP — GATEWAY MAPPING INC. — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – PITKIN WATER LINE

15

Plot Date:3/29/2019 1:56 PM Plotted By: Erik Snyder
Date Created:3/29/2019 I:\81-PALISADE-G\PUBLIC\PROJECTS-AUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\RD AVE WL\CAD\SHEET\CIVIL\81-18-029_C-201X-PITKIN.DWG





PROJECT NO. 81-18-029

(400) 102.7/108.2 – WATER MAIN PIPE (C-900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(409) 102.8/108.3 – ELBOW (SIZE AN ANGLE AS SHOWN)

NOTES:
- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W-07 & W-08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE

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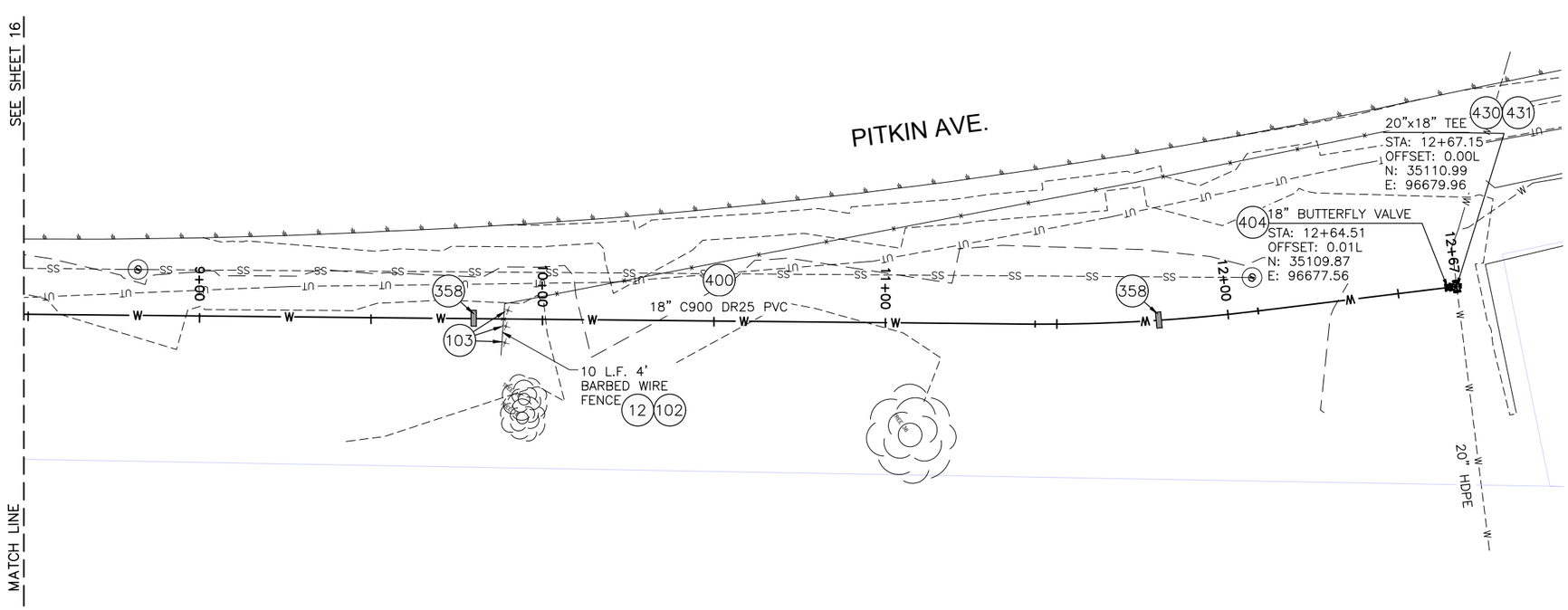
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. — THE LANGDON GROUP, a J-U-B Company — GATEWAY MAPPING INC., a J-U-B Company — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – PITKIN WATER LINE

16

Plot Date:3/29/2019 1:59 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \81-PALISADE-G\PUBLIC\PROJECTS\JUB\1-18-029, CITY OF GRAND JUNCTION, ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WLC\ADSHEET\CIVIL\81-18-029_C-261X PITKIN.DWG



PROJECT NO. 81-18-029

(12) 202 – REMOVAL OF FENCE AS SHOWN. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

(102) 210 – RESET FENCE. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

(103) 210 – RESET SIGN

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO WATERLINE INSTALLATION PAY ITEM)

(400) 102.7/108.2 – WATER MAIN PIPE (C-900 PVC) (SIZE AS SHOWN). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(404) 102.8e/108.3 – BUTTERFLY VALVE (SIZE AS SHOWN)

(407) 102.8/108.3 – TEE (SIZE AS SHOWN)

(426) CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(430) 102.8/108.3 – MJ x SWIVEL TEE (SIZE AS SHOWN)

(431) 102.8/108.3 – WELDED FLANGE OR HY-MAX SOLID SLEEVE RESTRAINED COUPLING WITH STIFFENER FOR CONNECTION TO HDPE

NOTES:

- ALL WATERLINE FITTINGS SHALL BE EPOXY COATED PER CITY STANDARD SPECIFICATION 102.7a AND WRAPPED WITH 8 MIL POLYETHYLENE AND TO INCLUDE THRUST BLOCK PER CITY STD DETAILS W-07 & W-08
- 36" BURY DEPTH UNLESS OTHERWISE NOTED IN THE PROFILE

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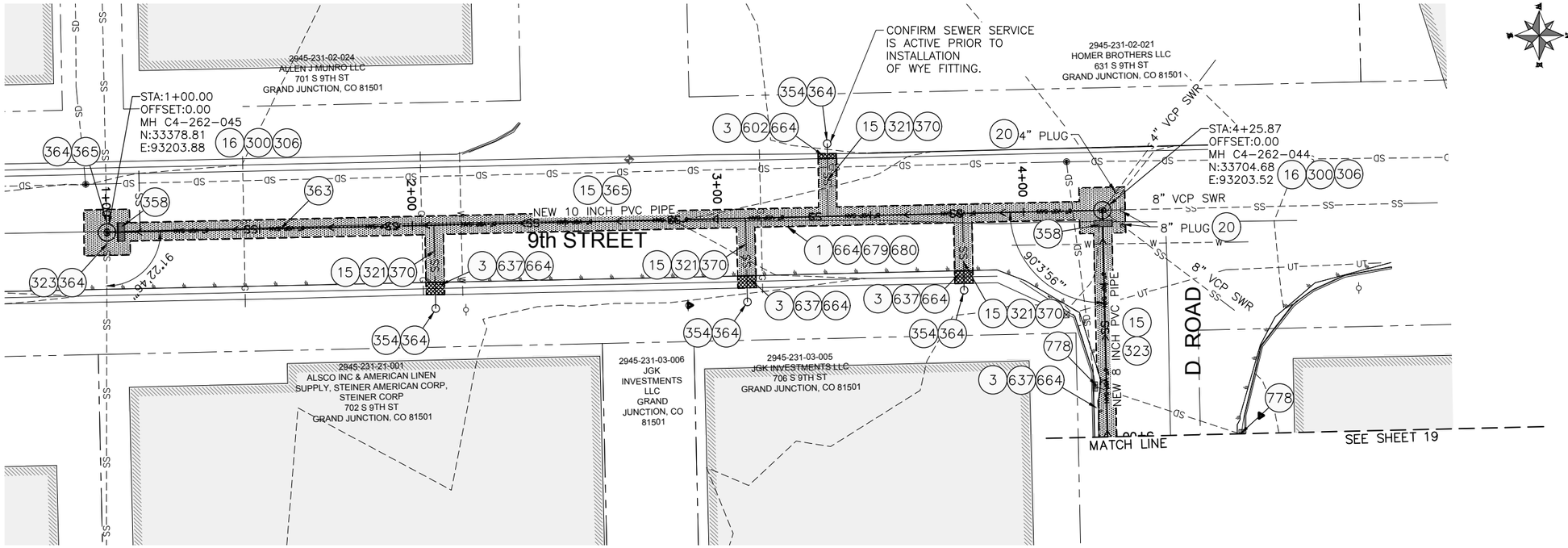
CITY OF Grand Junction COLORADO

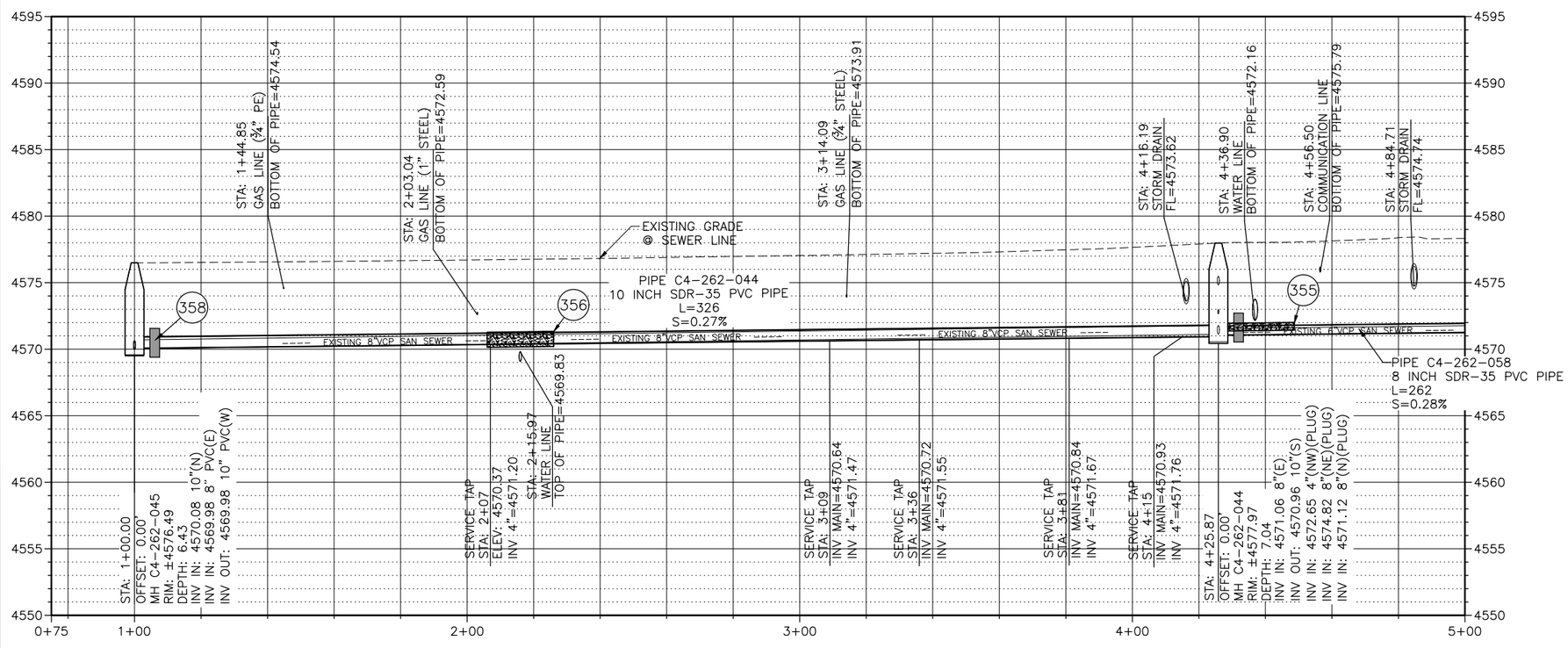
J-U-B ENGINEERS, INC. — THE LANGDON GROUP a J-U-B Company — GATEWAY MAPPING INC. a J-U-B Company — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – PITKIN WATER LINE

17

Plot Date:3/29/2019 1:59 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \81-PALISADE-E\PUBLIC\PROJECTS\JUB\81-18-029, CITY OF GRAND JUNCTION, ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WLC\ADSHEET\CIVIL\81-18-029_C-261X PITKIN.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(16) 202 – REMOVAL OF MANHOLE. CONTRACTOR SHALL SALVAGE RING AND COVER AND DELIVER TO CITY SHOPS

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.

(300) 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.). INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAIL SS-02)

(306) 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)

(321) 102.9/108.2 – 4" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(323) 102.9/108.2 – 8" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

(354) 104.20 – INSTALL 2-WAY SANITARY SEWER SERVICE CLEANOUT (STD. DETAIL SS-07). INCLUDES CLEANOUT RING AND COVER AND CONCRETE COLLAR IN UNPAVED AREAS (SEE STD. DETAIL SS-07).

(355) 104.40 – CAP TOP HALF OF SEWER IN CONCRETE PER STD. DETAIL GU-04. (WATER LINE LESS THAN 18" ABOVE SEWER LINE)

(356) 104.40 – ENCASE ENTIRE SEWER IN REINFORCED CONCRETE PER STD. DETAIL GU-04. (ALL CASES WHERE WATER LINE BELOW SEWER LINE OR AT WATERWAY CROSSING)

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO SEWER INSTALLATION PAY ITEM)

(363) BYPASS PUMPING (AS DEEMED NECESSARY BY THE CITY AND CONTRACTOR)

(364) CONNECT TO EXISTING SEWER PIPE. THE CONTRACT PRICE FOR SEWER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING SEWER PIPES.

(365) 102.9/108.2 – 10" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

(370) 102.9/108.3 – 10"x4" SEWER SERVICE TAP. FULL BODY WYE (SEE STD. DETAIL SS-06)

(602) 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)

(637) 608.06 – CONCRETE VALLEY GUTTER (MATCH IN KIND)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 2" LIFT TOP MAT) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

NOTES:
- DO NOT INSTALL STEPS IN NEW MANHOLES.

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APPROVED BY BG DATE 3/2019

SCALES: PLAN HORIZONTAL: 1" = 20' (0, 5', 10', 20'); PROFILE HORIZONTAL: 1" = 20' (0, 5', 10', 20'), VERTICAL: 1" = 5' (0, 1.25', 2.5', 5')

CITY OF Grand Junction COLORADO

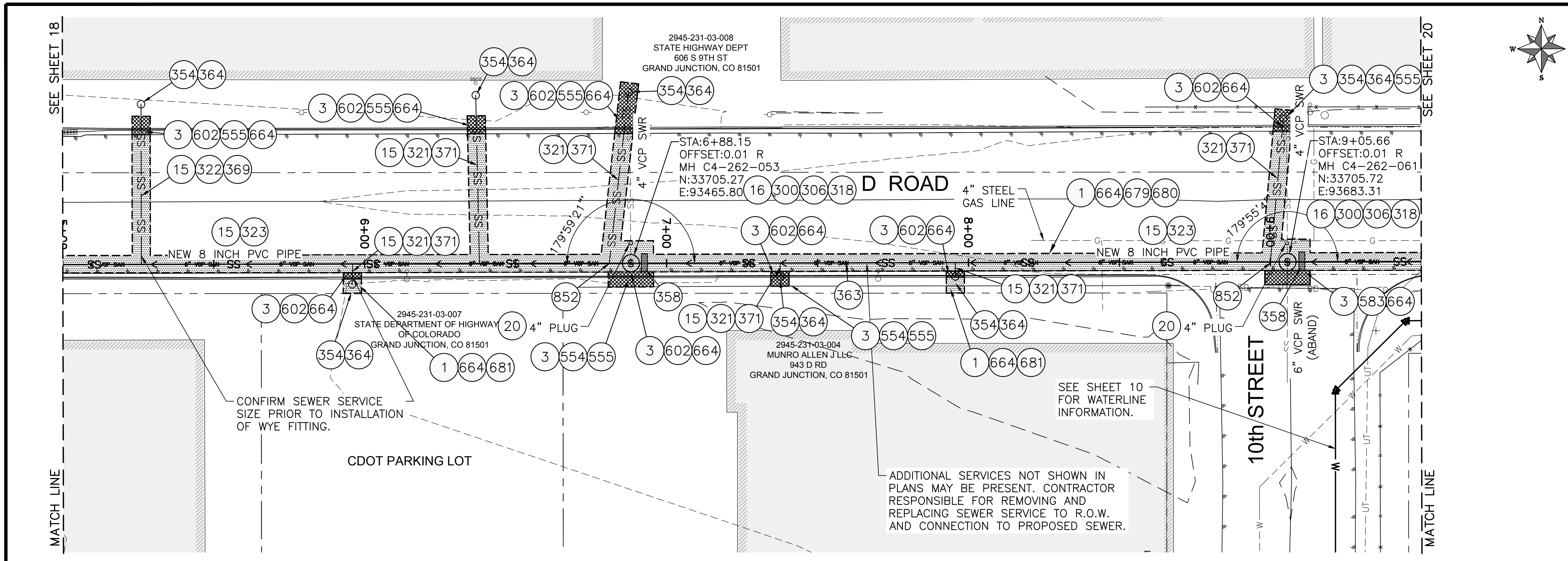
J-U-B ENGINEERS, INC. — THE LANGDON GROUP — GATEWAY MAPPING INC. — OTHER J-U-B COMPANIES

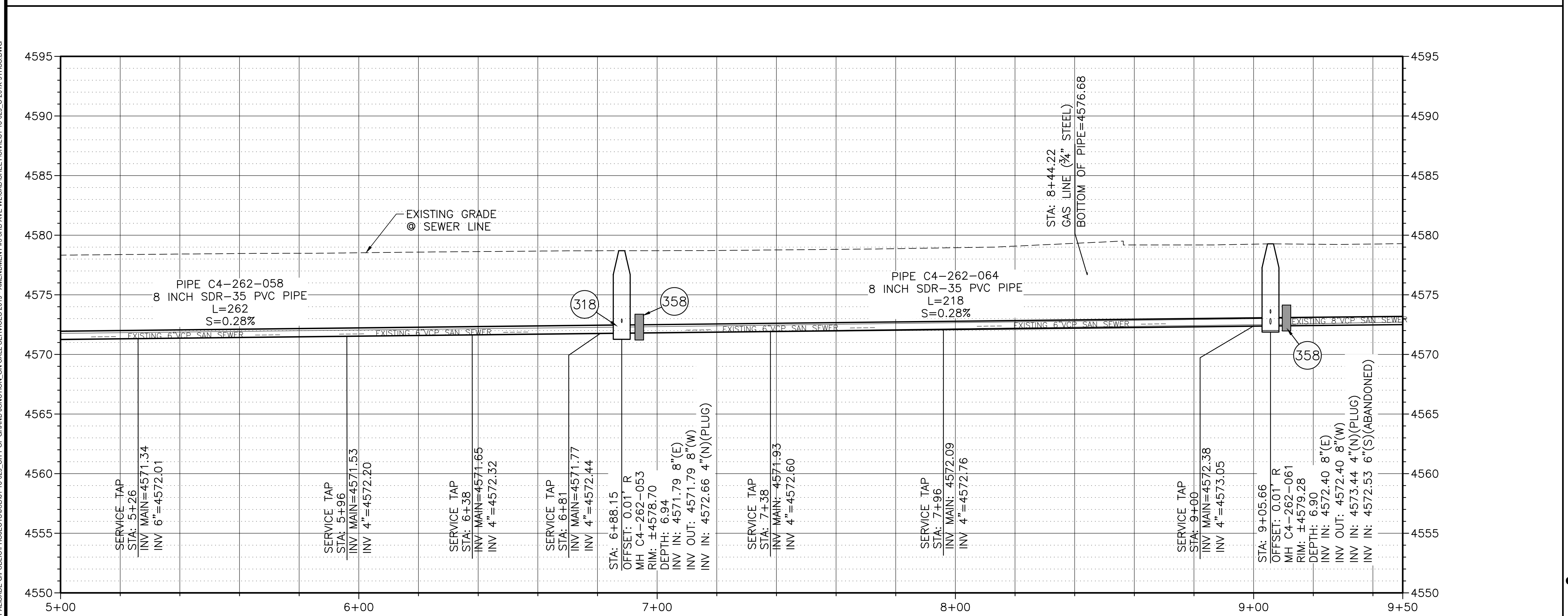
2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 9TH ST SANITARY SEWER

18

Plot Date:3/29/2019 2:00 PM Plotted By: Erik Snyder
Date Created:2/28/2019 I:\81-PALISADE-GI\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\RD AVE WL\CAD\SHEETS\DWG\81-18-029_C-201X-9THSS.DWG

PROJECT NO. 81-18-029





1. 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT
3. 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.
15. 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)
16. 202 – REMOVAL OF MANHOLE. CONTRACTOR SHALL SALVAGE RING AND COVER AND DELIVER TO CITY SHOPS
300. 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.). INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAIL SS-02)
306. 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)
318. PROVIDE PVC INVERT. (PIPE SHALL BE LAID CONTINUOUSLY THROUGH MANHOLE). COST IS INCIDENTAL TO COST OF MANHOLE INSTALLATION.
321. 102.9/108.2 – 4" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
322. 102.9/108.2 – 6" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
323. 102.9/108.2 – 8" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL
354. 104.20 – INSTALL 2-WAY SANITARY SEWER SERVICE CLEANOUT (STD. DETAIL SS-07). INCLUDES CLEANOUT RING AND COVER AND CONCRETE COLLAR IN UNPAVED AREAS (SEE STD. DETAIL SS-07).
358. 103 – CLAY CUT-OFF WALL (INCIDENTAL TO SEWER INSTALLATION PAY ITEM)
363. BYPASS PUMPING WILL BE REQUIRED FOR CONSTRUCTION.
364. CONNECT TO EXISTING SEWER PIPE. THE CONTRACT PRICE FOR SEWER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING SEWER PIPES.
369. 102.9/108.3 – 8"x6" SEWER SERVICE TAP. FULL BODY WYE
371. 102.9/108.3 – 8"x4" SEWER SERVICE TAP. FULL BODY WYE (SEE STD. DETAIL SS-06)
554. 608.06 – CONCRETE CURB (6" WIDE, 12" HIGH) (MATCH IN KIND)
555. 608.06 – CONCRETE SIDEWALK (4" THICK) (MATCH IN KIND)
583. 608.06 – CONCRETE DRAINAGE PAN (4' WIDE)
602. 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)
664. 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)
679. 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)
680. 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 2" LIFT TOP MAT) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)
681. 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (5" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75)(ONE 3" BOTTOM LIFT, ONE 2" TOP LIFT)
852. RELOCATE EXISTING SERVICE FROM CONNECTION TO MANHOLE, TO DOWNSTREAM OF MANHOLE.

NOTES:
- DO NOT INSTALL STEPS IN NEW MANHOLES.

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

DESCRIPTION	DATE
REVISION	–
REVISION	–
REVISION	–
REVISION	–

DRAWN BY TAG DATE 3/2019
DESIGNED BY ES DATE 3/2019
CHECKED BY BG DATE 3/2019
APPROVED BY BG DATE 3/2019

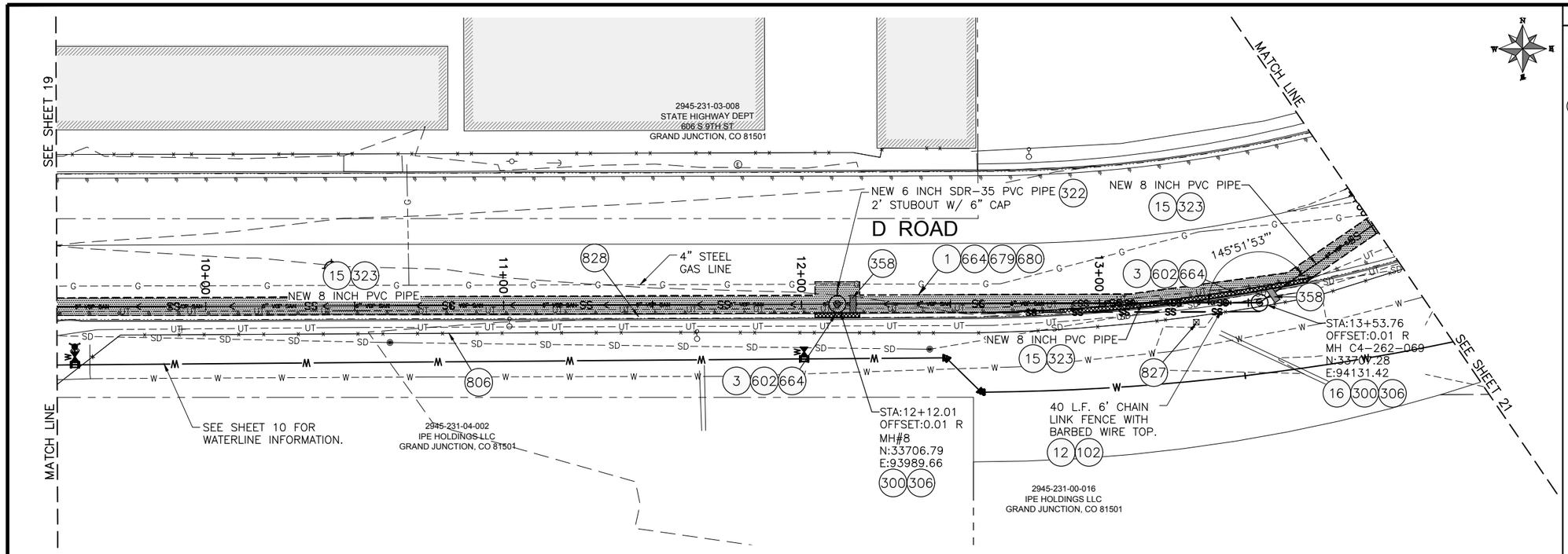
SCALES: PLAN HORIZONTAL: 1" = 20' ; PROFILE HORIZONTAL: 1" = 20', VERTICAL: 1" = 5'

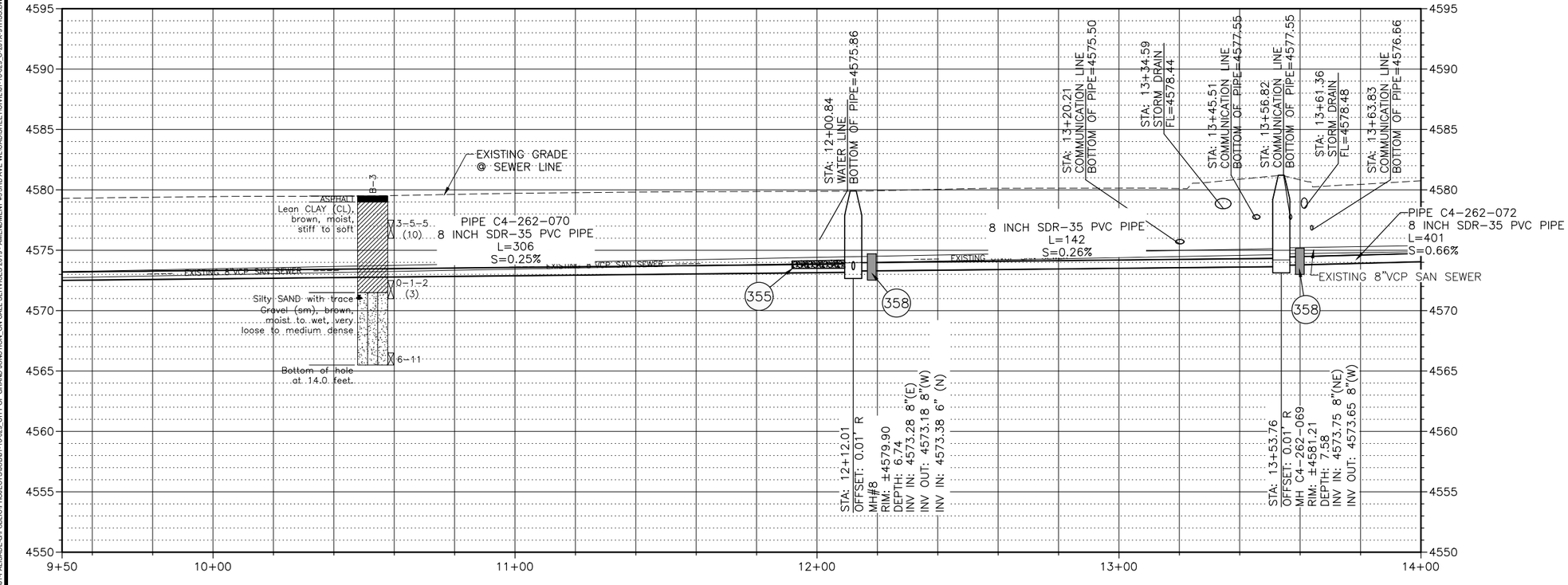
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. THE LANGDON GROUP GATEWAY MAPPING INC. OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – D ROAD SANITARY SEWER

Plot Date:3/29/2019 2:00 PM Plotted By: Erik Snyder
Date Created:3/28/2019 \\81-PALISADE-G\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3 3RD AVE WL\CAD\SHEET\CIVIL\81-18-029_C-201X-9THSS.DWG





PROJECT NO. 81-18-029

1 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT

3 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

12 202 – REMOVAL OF FENCE AS SHOWN. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

15 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

16 202 – REMOVAL OF MANHOLE. CONTRACTOR SHALL SALVAGE RING AND COVER AND DELIVER TO CITY SHOPS

102 210 – RESET FENCE. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

300 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.). INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAIL SS-02)

306 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)

322 102.9/108.2 – 6" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

323 102.9/108.2 – 8" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

355 104.40 – CAP TOP HALF OF SEWER IN CONCRETE PER STD. DETAIL GU-04. (WATER LINE LESS THAN 18" ABOVE SEWER LINE)

358 103 – CLAY CUT-OFF WALL (INCIDENTAL TO SEWER INSTALLATION PAY ITEM)

602 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)

637 608.06 – CONCRETE VALLEY GUTTER (MATCH IN KIND)

664 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

679 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

680 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 2" LIFT TOP MAT) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)

806 PROTECT FENCE

827 PROTECT EXISTING ELECTRIC BOX

828 PROTECT EXISTING CURB AND GUTTER.

NOTES:
- DO NOT INSTALL STEPS IN NEW MANHOLES.

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REVISION 2	
REVISION 3	
REVISION 4	

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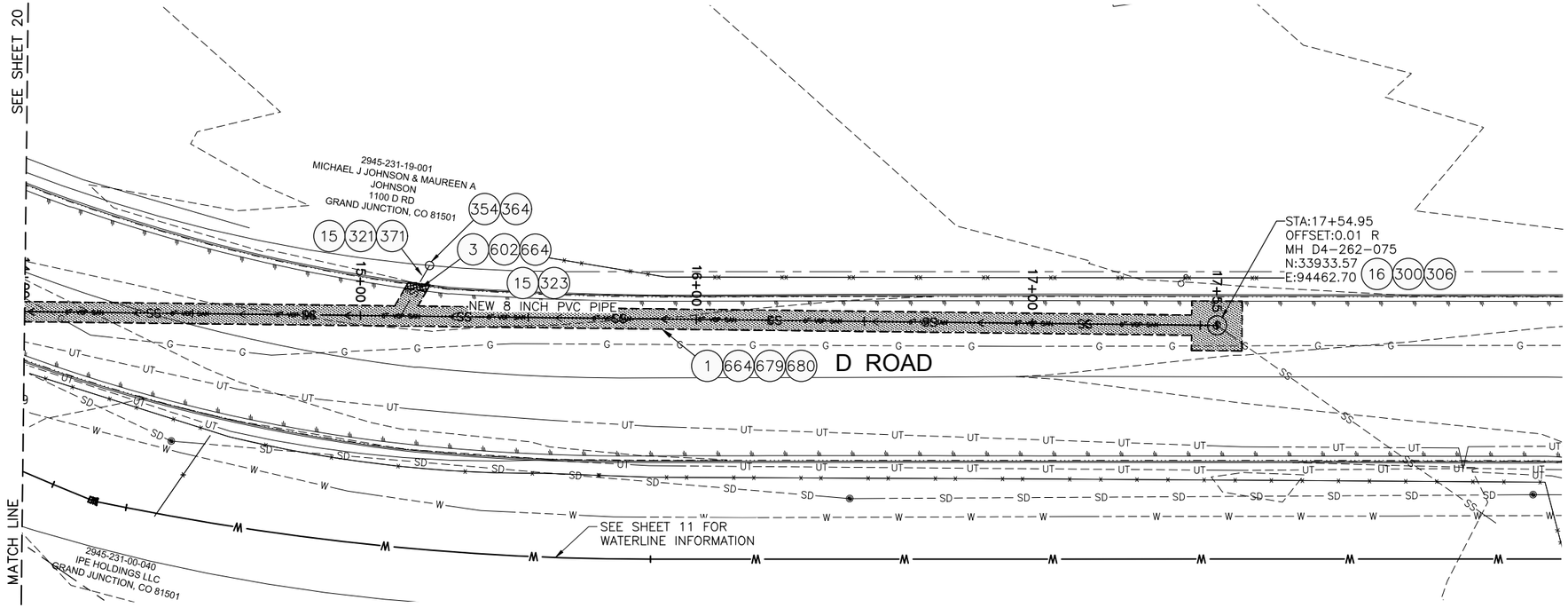
CITY OF Grand Junction COLORADO

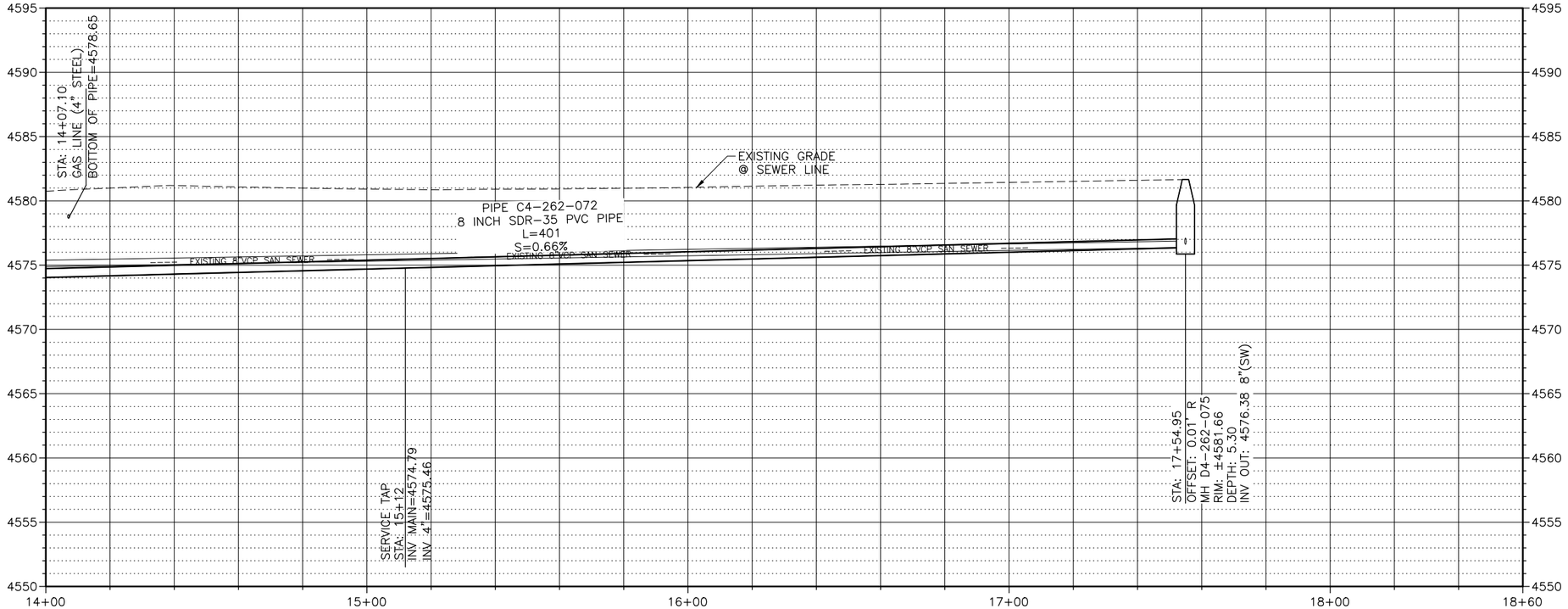
J-U-B ENGINEERS, INC. — THE LANGDON GROUP — GATEWAY MAPPING INC. — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – D ROAD SANITARY SEWER

20

Plot Date:3/29/2019 2:01 PM Plotted By: Erik Snyder
Date Created:2/28/2019 \\81-PALISADE-01\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WL\CAD\SHEET\CIVIL\81-18-029_C-201X-STRSS.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(16) 202 – REMOVAL OF MANHOLE. CONTRACTOR SHALL SALVAGE RING AND COVER AND DELIVER TO CITY SHOPS

(300) 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.). INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAIL SS-02)

(306) 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)

(321) 102.9/108.2 – 4" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.

(323) 102.9/108.2 – 8" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

(354) 104.20 – INSTALL 2-WAY SANITARY SEWER SERVICE CLEANOUT (STD. DETAIL SS-07). INCLUDES CLEANOUT RING AND COVER AND CONCRETE COLLAR IN UNPAVED AREAS (SEE STD. DETAIL SS-07).

(364) CONNECT TO EXISTING SEWER PIPE. THE CONTRACT PRICE FOR SEWER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING SEWER PIPES.

(371) 102.9/108.3 – 8"x4" SEWER SERVICE TAP. FULL BODY WYE (SEE STD. DETAIL SS-06)

(602) 608.06 – CONCRETE CURB AND GUTTER (STANDARD) (2' WIDE)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 2" LIFT TOP MAT) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)

NOTES:
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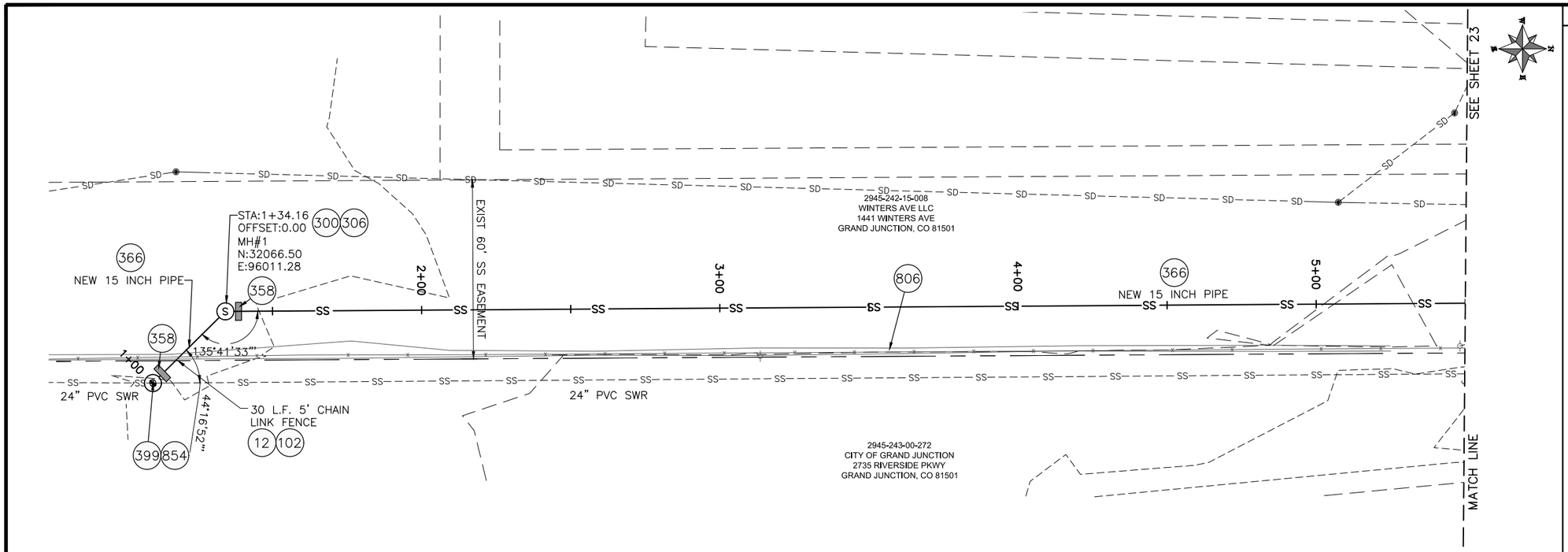
SCALES: PLAN HORIZONTAL 1" = 20' (0 5' 10' 20'); PROFILE HORIZONTAL 1" = 20' (0 5' 10' 20'), VERTICAL 1" = 5' (0 1.25' 2.5' 5')

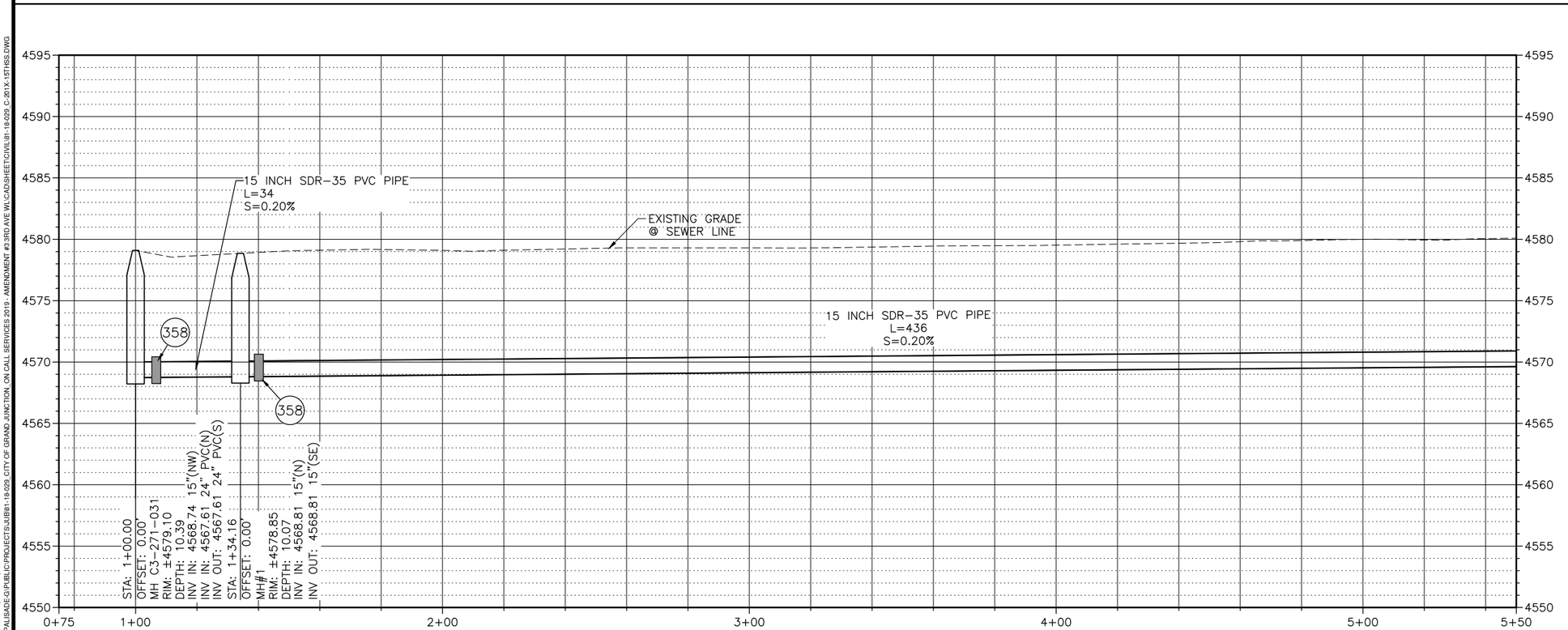
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. | THE LANGDON GROUP a J-U-B Company | GATEWAY MAPPING INC. a J-U-B Company | OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – D ROAD SANITARY SEWER

Plot Date:3/29/2019 2:01 PM Plotted By: Erik Snyder
Date Created:2/28/2019 I:\81-PALISADE-G\PUBLIC\PROJECTS\JUB\81-18\029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WL\CAD\SHEET\DWG\81-18-029_C-201X-8THSS.DWG





PROJECT NO. 81-18-029

(12) 202 – REMOVAL OF FENCE AS SHOWN. (40 L.F. 5' CHAIN LINK FENCE)

(102) 210 – RESET FENCE. (40 L.F. 5' CHAIN LINK FENCE)

(300) 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.). INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAILS SS-02).

(306) 102.11/108.5 – MANHOLE BARREL SECTION (D > 5') (48" I.D.)

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO SEWER INSTALLATION PAY ITEM)

(366) 102.9/108.2 – 15" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

(399) 102.11/105.8 – CONNECT TO EXISTING MANHOLE (15" PIPE). (SEE CITY OF GRAND JUNCTION STANDARD DETAIL SS-08).

(806) PROTECT FENCE

(854) RECONFIGURE MANHOLE BENCH TO ALLOW FOR PROPOSED 15" SEWER PIPE

NOTES:
- DO NOT INSTALL STEPS IN NEW MANHOLES.
- CONTRACTOR TO COORDINATE WITH SAWMILL FOR TEMPORARY RELOCATION OF LUMBER DURING CONSTRUCTION

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

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REVISION 3	
REVISION 4	

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SCALES: PLAN HORIZONTAL 1" = 20' (0 5' 10' 20'); PROFILE HORIZONTAL 1" = 20' (0 5' 10' 20'), VERTICAL 1" = 5' (0 1.25' 2.5' 5')

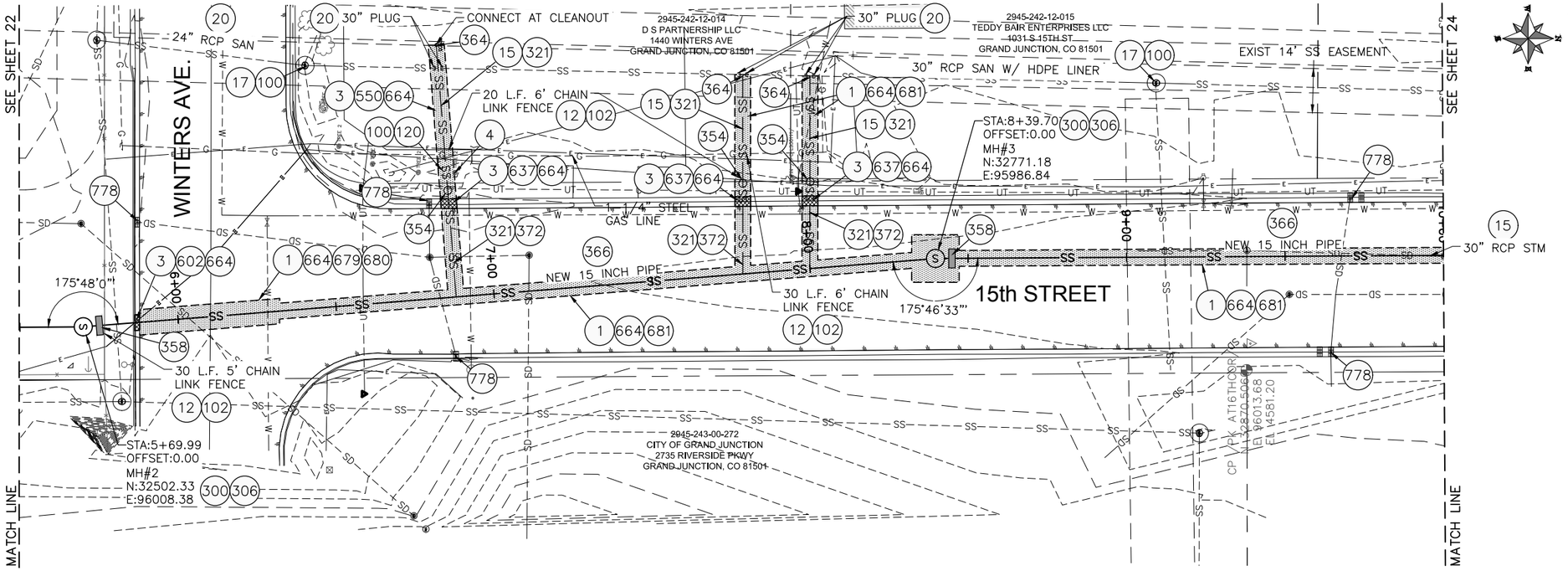
CITY OF Grand Junction COLORADO

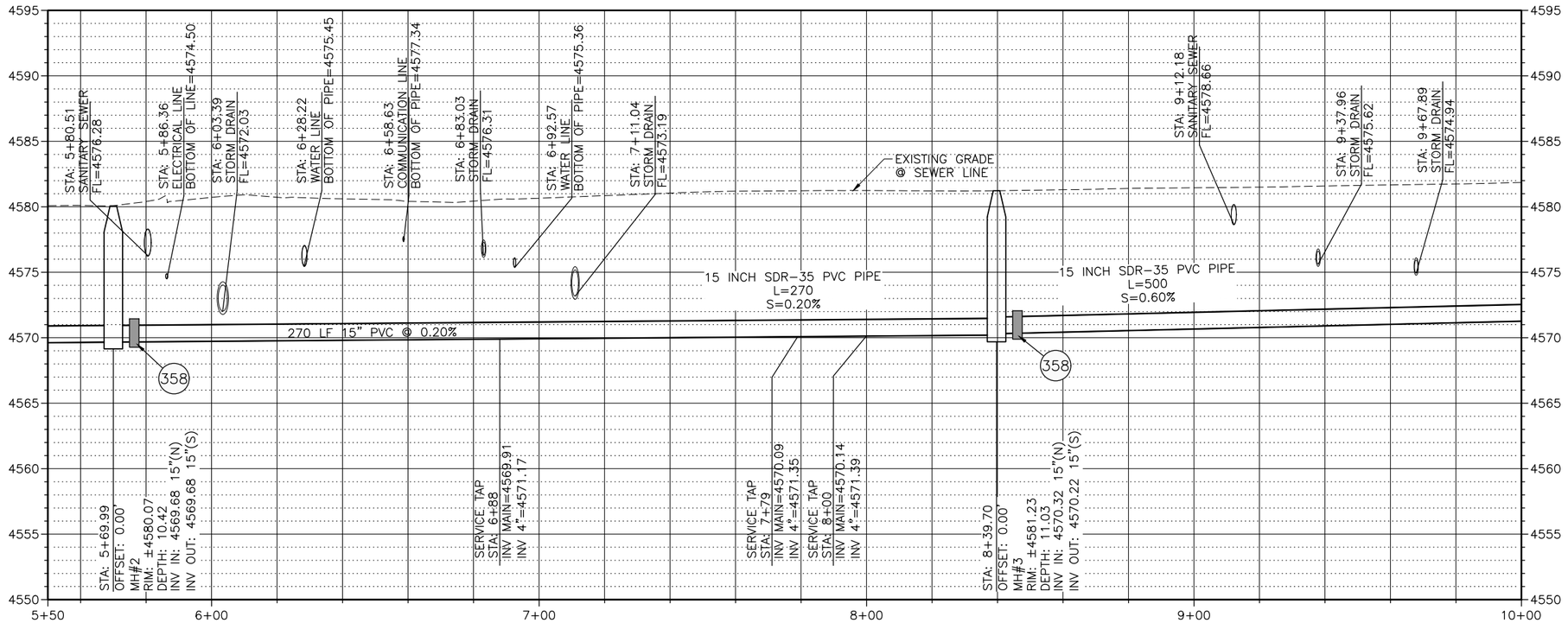
J-U-B ENGINEERS, INC. | THE LANGDON GROUP (A J-U-B Company) | GATEWAY MAPPING INC. (A J-U-B Company) | OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 15TH ST SANITARY SEWER

22

Plot Date:3/29/2019 2:02 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \\81-PALISADE-01\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WL\CAD\SHEET\CIVIL\81-18-029_C-261X-15THSS.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS

(4) REMOVAL OF TREE (SIZE AS SHOWN ON PLAN)

(12) 202 – REMOVAL OF FENCE AS SHOWN. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(17) 202 – REMOVE MANHOLE CONE SECTION, RING, AND COVER. CONTRACTOR SHALL SALVAGE RING AND COVER AND DELIVER TO CITY SHOPS. CONTRACTOR SHALL FILL REMAINING BARREL SECTIONS WITH FLOW FILL MATERIAL

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(100) 210 – RESET LANDSCAPE GROUND COVER. CONTRACTOR SHALL REMOVE GROUND COVER AND ANY UNDERLYING WEED BARRIER AS NEEDED AND STOCKPILE MATERIALS. CONTRACTOR SHALL RESET THESE MATERIALS AND PROVIDE ADDITIONAL MATERIALS AS NEEDED TO RESTORE LANDSCAPING.

(102) 210 – RESET FENCE. (HEIGHT AND MATERIAL AS SHOW ON PLAN)

(120) 210 – RESET SPRINKLER SYSTEM (COMPLETE IN PLACE)

(300) 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.). INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAIL SS-02)

(306) 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)

(321) 102.9/108.2 – 4" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(354) 104.20 – INSTALL 2-WAY SANITARY SEWER SERVICE CLEANOUT (STD. DETAIL SS-07). INCLUDES CLEANOUT RING AND COVER AND CONCRETE COLLAR IN UNPAVED AREAS (SEE STD. DETAIL SS-07).

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO SEWER INSTALLATION PAY ITEM)

(364) CONNECT TO EXISTING SEWER PIPE. THE CONTRACT PRICE FOR SEWER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE.

(366) 102.9/108.2 – 15" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

(372) 102.9/108.3 – 15"x4" SEWER SERVICE TAP. FULL BODY WYE (SEE STD. DETAIL SS-06)

(550) 412 – CONCRETE PAVEMENT (6" THICK) (CDOT CLASS D, 4500 PSI MIX)

(602) 608.06 – CONCRETE CURB AND GUTTER (2' WIDE)

(637) 608.06 – CONCRETE VALLEY GUTTER (MATCH IN KIND)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR = 75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR = 75) (ONE 2" LIFT TOP MAT) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)

(681) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (5" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75)(ONE 3" BOTTOM LIFT, ONE 2" TOP LIFT)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

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

NOTES:
- DO NOT INSTALL STEPS IN NEW MANHOLES.
- CONTRACTOR TO COORDINATE WITH SAWMILL FOR TEMPORARY RELOCATION OF LUMBER DURING CONSTRUCTION

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CITY OF Grand Junction COLORADO

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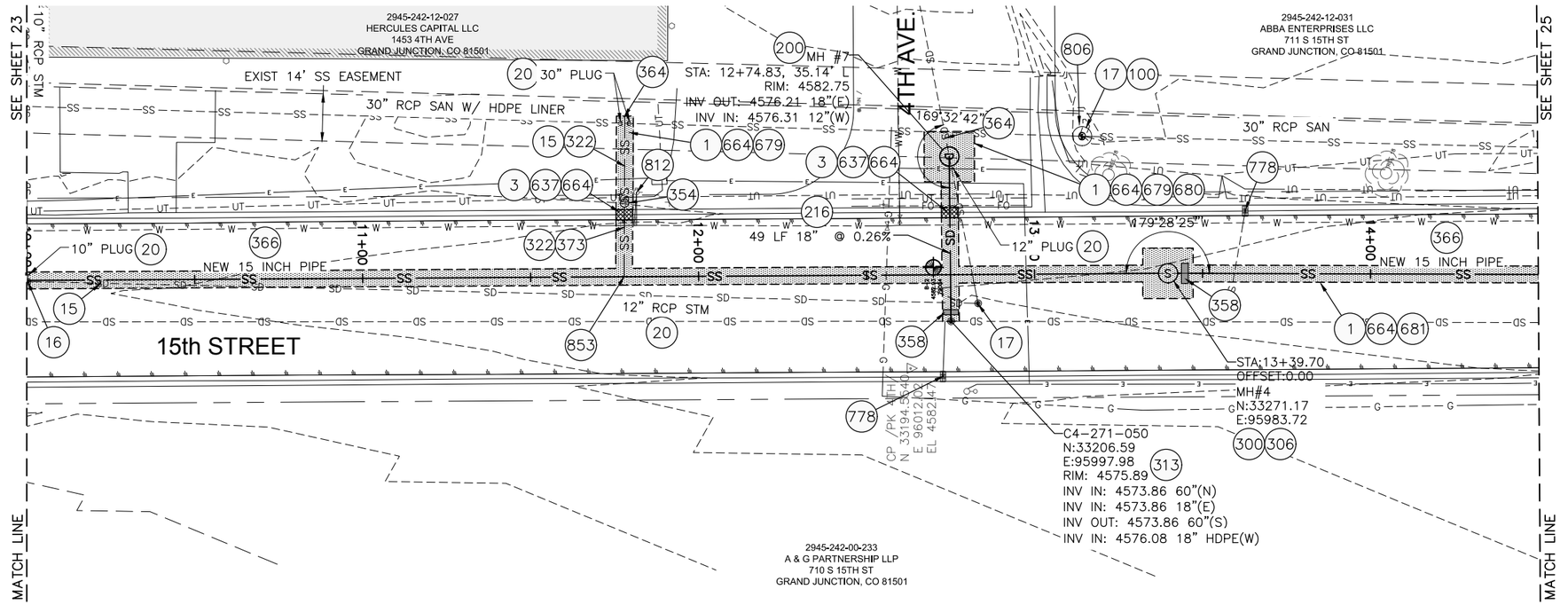
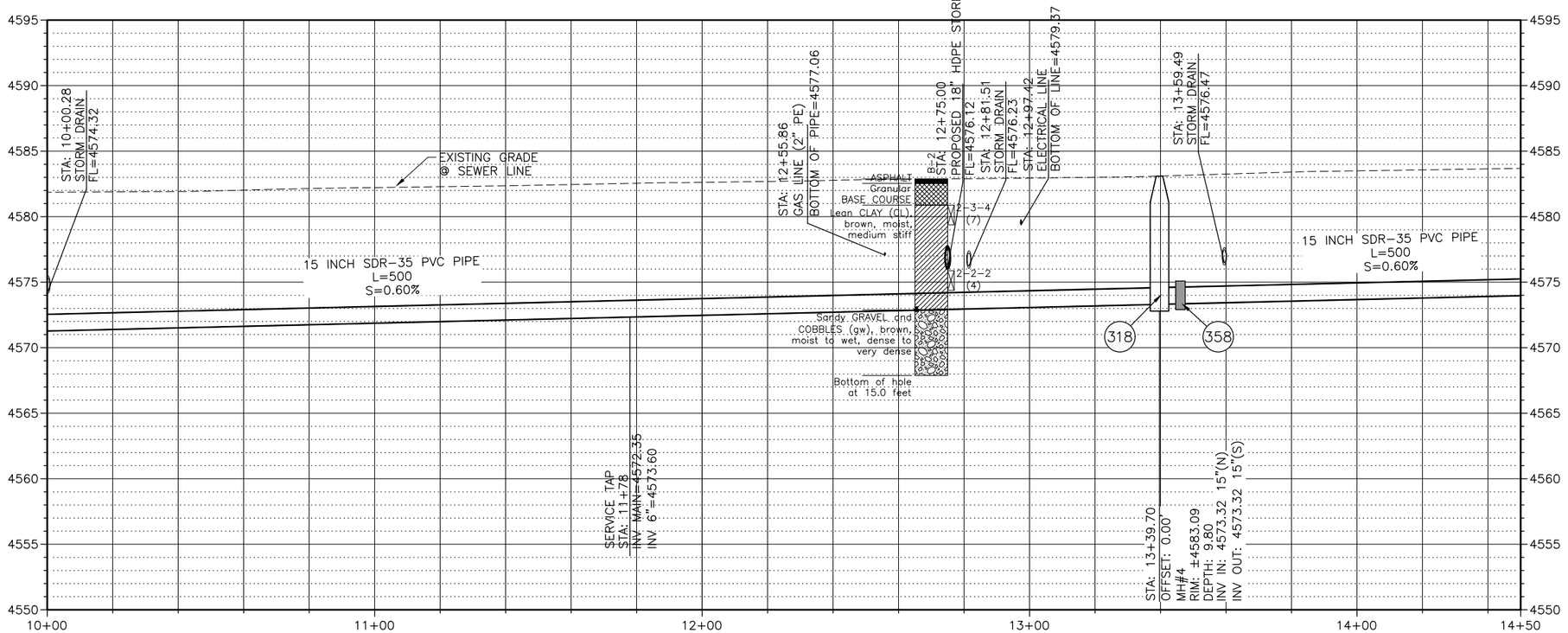
2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 15TH ST SANITARY SEWER

23

Plot Date:3/29/2019 2:03 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \\R1-PALISADE-G\PUBLIC\PROJECTS\JUB\1-18-029, CITY OF GRAND JUNCTION, ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WL\CADSHEET\CIVIL\81-18-029_C-261X-15THSS.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

(16) 202 – REMOVAL OF MANHOLE. CONTRACTOR SHALL SALVAGE RING AND COVER AND DELIVER TO CITY SHOPS

(17) 202 – REMOVE MANHOLE CONE SECTION, RING, AND COVER. CONTRACTOR SHALL SALVAGE RING AND COVER AND DELIVER TO CITY SHOPS. CONTRACTOR SHALL FILL REMAINING BARREL SECTIONS WITH FLOW FILL MATERIAL

(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(100) 210 – RESET LANDSCAPE GROUND COVER. CONTRACTOR SHALL REMOVE GROUND COVER AND ANY UNDERLYING WEED BARRIER AS NEEDED AND STOCKPILE MATERIALS. CONTRACTOR SHALL RESET THESE MATERIALS AND PROVIDE ADDITIONAL MATERIALS AS NEEDED TO RESTORE LANDSCAPING.

(200) 102.11/108.5 – STORM SEWER BASIC MANHOLE (48" I.D.) INCLUDES CONNECTION OF ADJACENT STORM SEWER LINES, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAIL D-03)

(216) 102.10/108.2 – 18" STORM DRAIN PIPE (ADS CORRUGATED HDPE PIPE). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(300) 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.) INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION SS-02)

(306) 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)

(313) 102.11/108.5 – CONNECT TO EXISTING MANHOLE (18" PIPE). (SEE CITY OF GRAND JUNCTION STANDARD DETAIL D-12).

(318) PROVIDE PVC INVERT. (PIPE SHALL BE LAID CONTINUOUSLY THROUGH MANHOLE). COST IS INCIDENTAL TO COST OF MANHOLE INSTALLATION.

(322) 102.9/108.2 – 6" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(354) 104.20 – INSTALL 2-WAY SANITARY SEWER SERVICE CLEANOUT (STD. DETAIL SS-07). INCLUDES CLEANOUT RING AND COVER AND CONCRETE COLLAR IN UNPAVED AREAS (SEE STD. DETAIL SS-07).

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO SEWER INSTALLATION PAY ITEM)

(364) CONNECT TO EXISTING SEWER PIPE. THE CONTRACT PRICE FOR SEWER PIE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE

(366) 102.9/108.2 – 15" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

(373) 102.9/108.3 – 15"x6" SEWER SERVICE TAP. FULL BODY WYE (SEE STD. DETAIL SS-06)

(637) 608.06 – CONCRETE VALLEY GUTTER (MATCH IN KIND)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR =75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR = 75) (ONE 2" LIFT TOP MAP) (T-TOP PATCH) (SEE CITY STD. DETAIL GU-03)

(681) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (5" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75)(ONE 3" BOTTOM LIFT, ONE 2" TOP LIFT)

(778) 208 – STORM DRAIN INLET PROTECTION (GRAVEL FILTER AT CURB INLET) (AS SHOWN AND PER DETAIL)

(806) PROTECT FENCE

(812) PROTECT FIRE HYDRANT

(853) CONTRACTOR SHALL CONFIRM SIZE OF SERVICE PIPE PRIOR TO INSTALLATION OF WYE FITTING

NOTES:
- DO NOT INSTALL STEPS IN NEW MANHOLES.

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

DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY TAG DATE 3/2019
DESIGNED BY ES DATE 3/2019
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APPROVED BY BG DATE 3/2019

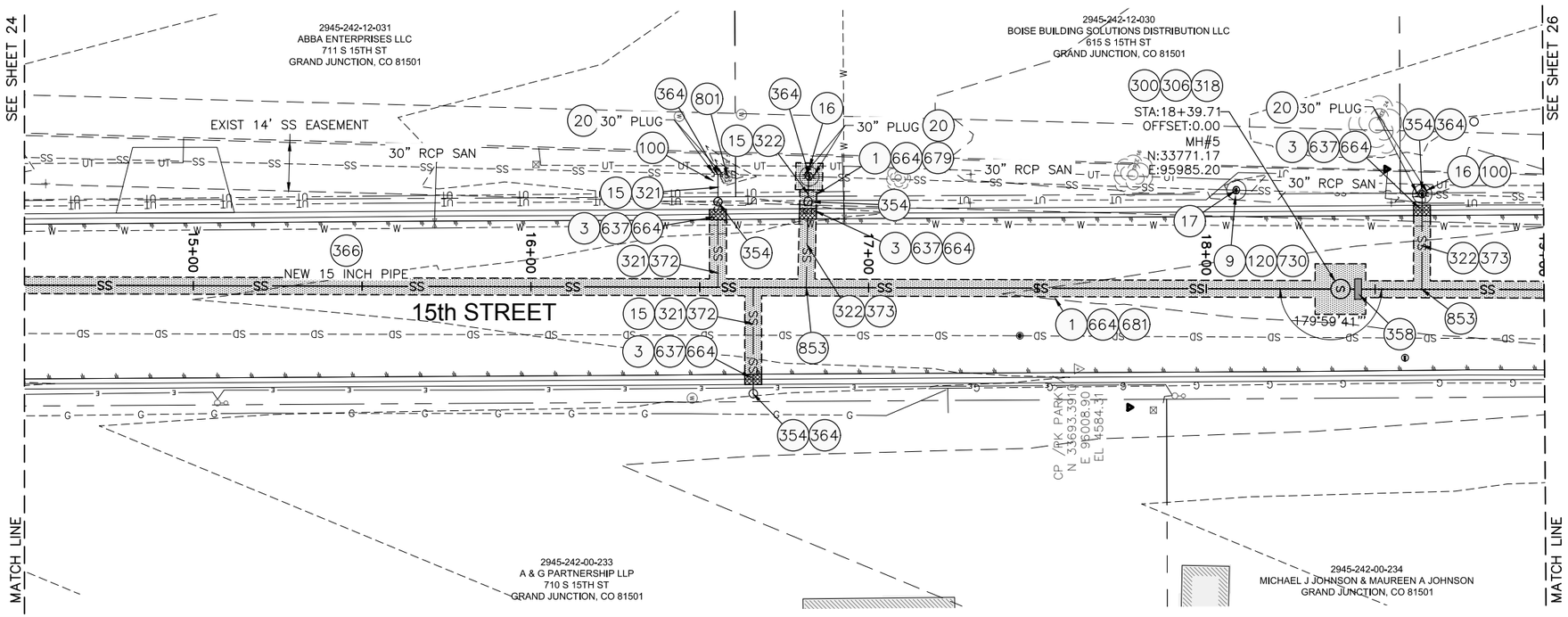
SCALES: PLAN HORIZONTAL: 1" = 20' (0 5' 10' 20'); PROFILE HORIZONTAL: 1" = 20' (0 5' 10' 20'), VERTICAL: 1" = 5' (0 1.25' 2.5' 5')

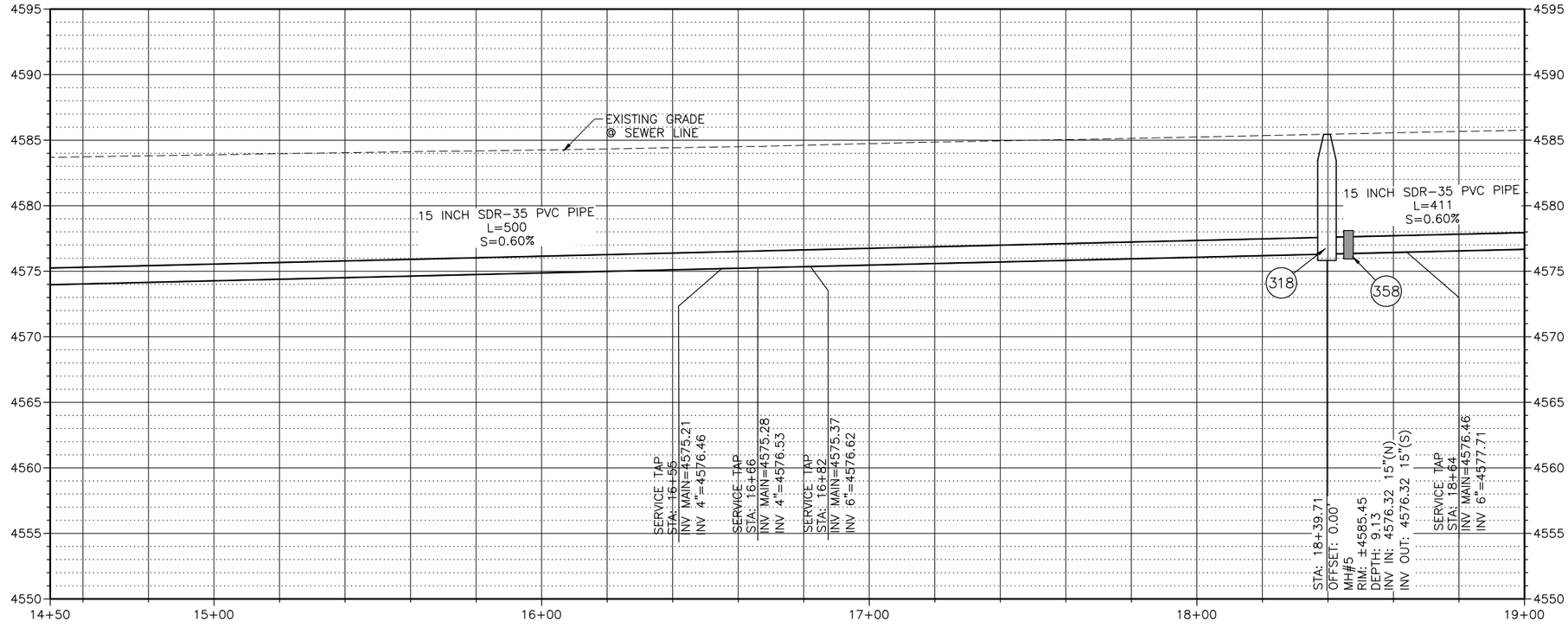
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. — THE LANGDON GROUP — GATEWAY MAPPING INC. — OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 15TH ST SANITARY SEWER

Plot Date:3/29/2019 2:04 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \\bl-PALISADE-G\PUBLIC\PROJECTS\JUB\1-19-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE W\CADSHEET\CIVIL\81-19-029_C-261X-15THSS.DWG





PROJECT NO. 81-18-029

(1) 202 – REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT

(3) 202 – REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS

(9) 202 – REMOVAL OF SOD

(15) 202 – REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)

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(20) 202 – ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE

(100) 210 – RESET LANDSCAPE GROUND COVER. CONTRACTOR SHALL REMOVE GROUND COVER AND ANY UNDERLYING WEED BARRIER AS NEEDED AND STOCKPILE MATERIALS. CONTRACTOR SHALL RESET THESE MATERIALS AND PROVIDE ADDITIONAL MATERIALS AS NEEDED TO RESTORE LANDSCAPING.

(120) 210 – RESET SPRINKLER

(300) 102.11/108.5 – SANITARY SEWER BASIC MANHOLE (48" I.D.). INCLUDES CONNECTION OF ADJACENT SEWER LINE, FORMING INVERTS AND ADJUSTING TO FINAL GRADE. (SEE CITY OF GRAND JUNCTION STANDARD DETAIL SS-02)

(306) 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)

(318) PROVIDE PVC INVERT. (PIPE SHALL BE LAID CONTINUOUSLY THROUGH MANHOLE). COST IS INCIDENTAL TO COST OF MANHOLE INSTALLATION.

(321) 102.9/108.2 – 4" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(322) 102.9/108.2 – 6" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL

(354) 104.20 – INSTALL 2-WAY SANITARY SEWER SERVICE CLEANOUT (STD. DETAIL SS-07). INCLUDES CLEANOUT RING AND COVER AND CONCRETE COLLAR IN UNPAVED AREAS (SEE STD. DETAIL SS-07).

(358) 103 – CLAY CUT-OFF WALL (INCIDENTAL TO SEWER INSTALLATION PAY ITEM)

(364) CONNECT TO EXISTING SEWER PIPE. THE CONTRACT PRICE FOR SEWER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE.

(366) 102.9/108.2 – 15" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

(372) 102.9/108.3 – 15"x4" SEWER SERVICE TAP. FULL BODY WYE (SEE STD. DETAIL SS-06)

(373) 102.9/108.3 – 15"x6" SEWER SERVICE TAP. FULL BODY WYE (SEE STD. DETAIL SS-06)

(609) 608.06 – CONCRETE CURB WITH SPILL GUTTER (2' WIDE)

(637) 608.06 – CONCRETE VALLEY GUTTER (MATCH IN KIND)

(664) 304 – AGGREGATE BASE COURSE (CLASS 6) (15" THICK)

(679) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (3" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(680) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (2" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75) (ONE 3" LIFT BOTTOM MAT)

(681) 401.08 – HOT BITUMINOUS PAVEMENT (PATCHING) (5" THICK) (GRADING SX, BINDER GRADE PG 64-22, GYR=75)(ONE 3" BOTTOM LIFT, ONE 2" TOP LIFT)

(730) 212 – RESOD AREA AS SHOWN

(801) PROTECT TREE

(853) CONTRACTOR SHALL CONFIRM SEWER SERVICE SIZE PRIOR TO INSTALLATION OF WYE FITTING

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NOTES:
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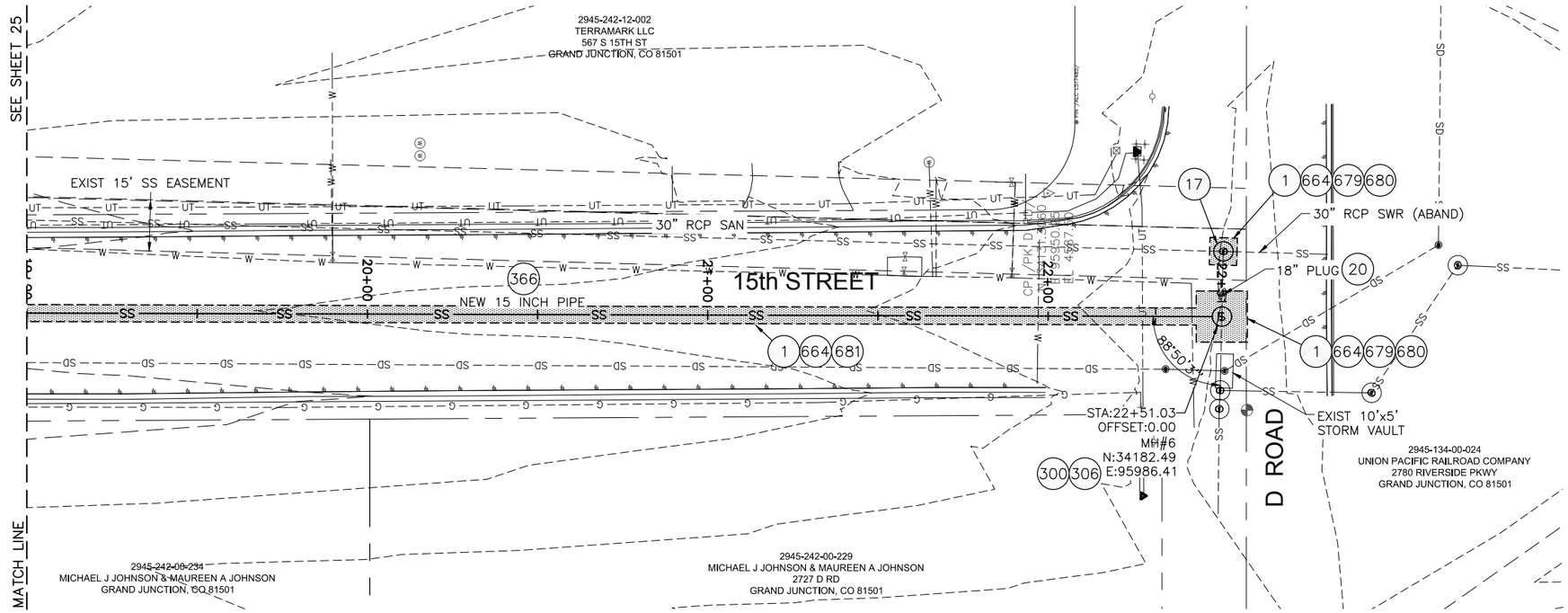
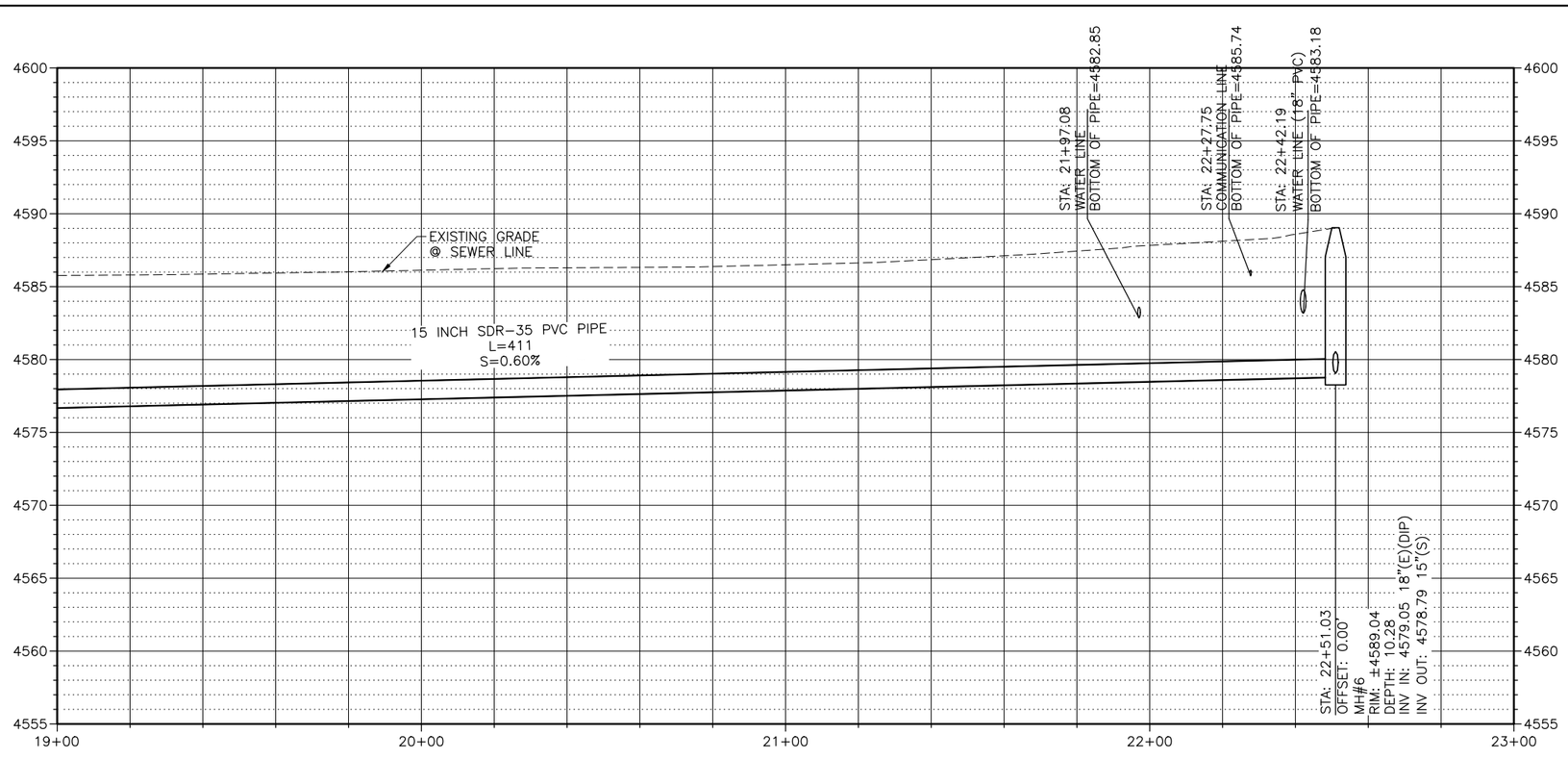
CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. | THE LANGDON GROUP (A J-U-B Company) | GATEWAY MAPPING INC. (A J-U-B Company) | OTHER J-U-B COMPANIES

2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 15TH ST SANITARY SEWER

Plot Date:3/29/2019 2:04 PM Plotted By: Erik Snyder
Date Created:3/29/2019 I:\81-PALISADE-G\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\3RD AVE WL\CAD\SHEET\CIVIL\81-18-029_C-201X-ISTHSS.DWG





PROJECT NO. 81-18-029

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(306) 102.11/108.5 – MANHOLE BARREL SECTION (D>5') (48" I.D.)

(366) 102.9/108.2 – 15" GRAVITY SEWER PIPE (SDR 35 PVC). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 130.16 EARTH BACKFILL MATERIAL

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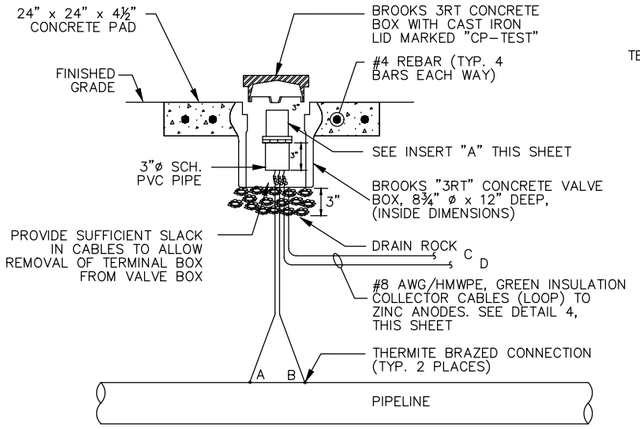
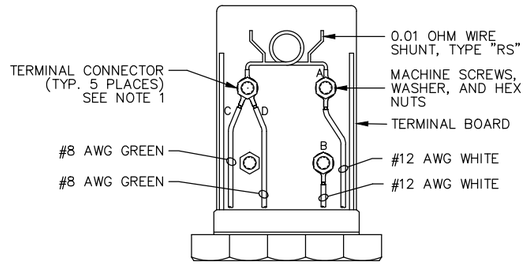
2019 SOUTH DOWNTOWN WATER & SANITARY SEWER REPLACEMENT PROJECT
PLAN & PROFILE – 15TH ST SANITARY SEWER

Plot Date:3/29/2019 2:05 PM Plotted By: Erik Snyder
Date Created:3/29/2019 \\81-PALISADE-01\PUBLIC\PROJECTS\JUB\81-18-029_CITY OF GRAND JUNCTION_ON CALL SERVICES 2019 - AMENDMENT #3\RD AVE WL\CAD\SHEET\DWG\81-18-029_C-201X-15THSS.DWG



1 FLUSH MOUNTED ANODE TEST STATION

WIRE CODING:
* WIRES A & B ARE WHITE #12 AWG TW SOLID SINGLE CONDUCTOR WIRE
* WIRSE C & D ARE GREEN #8 AWG ANODE LEAD WIRE TO ANODE GROUND BED



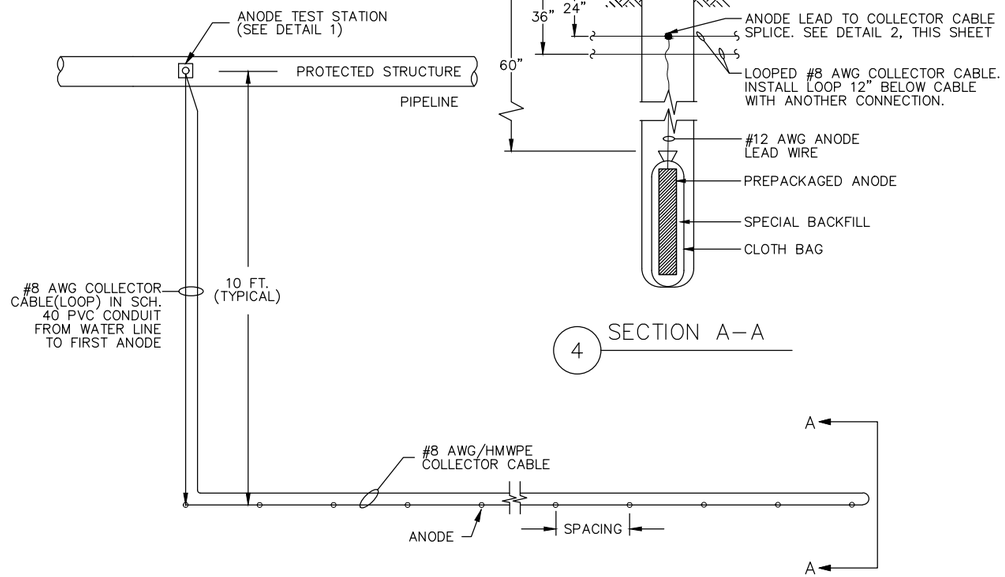
NOTES:

1. TERMINAL CONNECTORS SHALL BE RING TONGUE, BRAZED, COPPER, NON-INSULATED WITH."¼" STUD SIZE

– FOR WIRE SIZE 14-10 AWG, USE THOMAS & BETTS 54101 OR APPROVED EQUAL.

– FOR WIRE SIZE 8 AWG, USE THOMAS & BETTS 54130 OR APPROVED EQUAL.

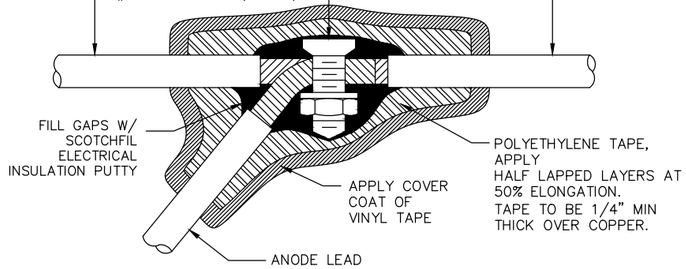
INSERT "A"



4 SECTION A-A

3 ANODE TEST STATION PLAN

NOTE: FOR ANODE SIZE AND SPACING REQUIREMENT, SEE TABLE ON THIS SHEET

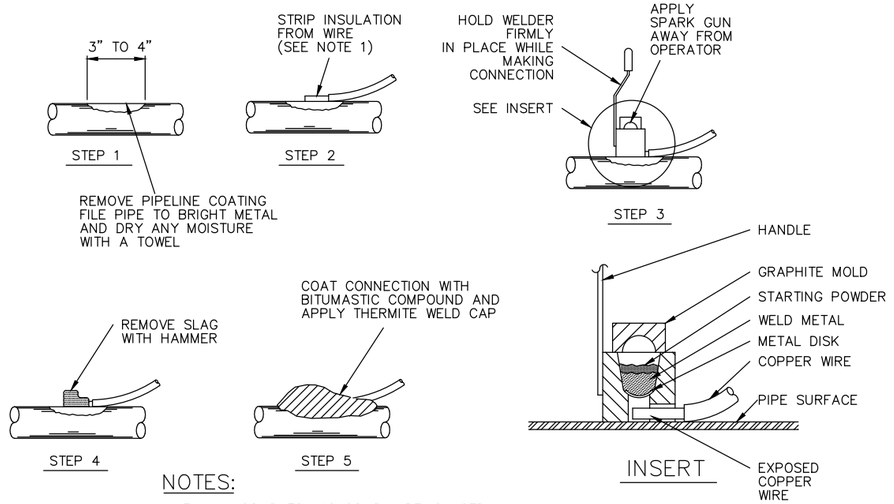


NOTES:

1. MAKE SPLICE WATERPROOF
   A. SMOOTH ALL IRREGULAR SURFACES WITH ELECTRICAL INSULATION PUTTY.
   B. APPLY 2 LAYERS OF HALF LAPPED RUBBER SPLICING TAPE.
   C. APPLY 2 LAYERS OF HALF LAPPED VINYL ELECTRICAL TAPE.
2. NUMBER OF WIRES MAY VARY PER SPLICE

2 SPLICE DETAIL

TEST STATION	STATION NO.	STRUCTURE CONNECTION	ANODE SPACING (FT)	NO. OF ANODES	ANODE MODEL
TS#1	36+72	EXIST 24" DIP	10	1	20D2
TS#2	39+41	EXIST 24" DIP	10	1	20D2
TS#3	39+41	EXIST 42" CMP	10	5	20D2



NOTES:

1. WHEN #14 SOLID TO #10 SOLID WIRE IS USED, IT WILL BE NECESSARY TO INSTALL A COPPER SLEEVE OF ADEQUATE SIZE OVER BARE SECTION OF WIRE BEFORE CONNECTION IS ATTEMPTED.
2. THERMITE WELD PROCEDURES SIMILAR FOR "L" BRACKETS.
3. REPAIR ALL DAMAGE TO COATING AND LINING IN ACCORDANCE WITH MFG. RECOMMENDATIONS.

5 THERMITE BRAZED CONNECTION DETAIL

DESCRIPTION	DATE
REVISION 1	
REVISION 2	
REVISION 3	
REVISION 4	

DRAWN BY TAG DATE 3/2019
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SCALES: N.T.S.

CITY OF Grand Junction COLORADO

J-U-B ENGINEERS, INC. | THE LANGDON GROUP | GATEWAY MAPPING INC. | OTHER J-U-B COMPANIES

CITY OF GRAND JUNCTION

CATHODIC PROTECTION DETAILS