BIDDING/CONTRACT DOCUMENTS

For The

“Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project”
Project

Bid No. S-14-21

BID OPENING: Wednesday, March 10, 2021 at 2:00 p.m.

In the
City Purchasing Office
Room 307, Municipal Building
2101 O’Neil Avenue
Cheyenne, WY 82001

Inquiries Regarding This Bid Should Be Directed To:
City of Cheyenne, Purchasing Manager, TJ Barttelbort
Phone: (307) 773-1045, Email: tbarttelbort@cheyennecity.org
INVITATION FOR BID  
#S-14-21

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FY 2021
PART 1 – INVITATION FOR BIDS
CITY OF CHEYENNE, WYOMING

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NAME OF JOB: Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project
BID NUMBER: S-14-21

The Governing Body of the City of Cheyenne, Wyoming (“the Governing Body”) will receive sealed bid proposals at the Office of the City Purchasing Agent, located in Room 309 of the Municipal Building at 2101 O’Neil Avenue, Cheyenne, WY 82001, until 2:00 p.m. local time on the 10th day of March, 2021, for the “Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project” project.

At the aforementioned time and place, such bids that are received for the project shall be publicly opened and read aloud.

The work to be performed will be in accordance with the plans and specifications on file in the City Purchasing Agent’s office. Bidding documents may be downloaded online at https://www.cheyennecity.org/Bids.aspx.

A pre-bid meeting will be via Zoom On-Line Meeting, at 10:00 AM on February 9, 2021. Please see Part 2, 25.00 PRE-BID CONFERENCE for additional clarification and information.

A bid guarantee in the amount of five percent (5%) of the total bid shall accompany any bid submitted. See Section 8.00 of Instructions to Bidders. The successful bidder shall furnish and pay for satisfactory performance and payment bonds in the amount of one hundred percent (100%) of the accepted bid. See Section 19.00 of Instructions to Bidders.

The City of Cheyenne (“the City”) reserves the right to reject any or all bids or to waive any formalities in the bidding.

Prior to the award of the contract, the City may hold bids for a period not to exceed sixty (60) calendar days from the date of opening of bids for the purpose of reviewing the bids and investigating the qualifications of the bidders. Provisions of Wyo. Stat. § 15-1-113, incorporated by reference, are made an express part of the Contract Documents.

TJ Barttelbort
Purchasing Division

Publication Dates: January 29 & February 5, 2021
Published in: Wyoming Tribune Eagle
PART 2 - INSTRUCTIONS TO BIDDERS
CITY OF CHEYENNE, WYOMING

1.00 USE OF SEPARATE BID FORMS

These Contract Documents include a complete set of bidding and contract forms which are for the convenience of bidders. Bidders shall make proposals upon the forms furnished herein and pursuant to the instructions and requirements set forth herein.

2.00 INTERPRETATION OF DOCUMENTS

The City will not provide oral interpretations to any bidder as to the meaning of the Contract Documents or any part thereof. If any person contemplating submitting a proposal requires interpretation or clarification regarding the meaning of any part of the drawings, specifications, or other portions of the contract documents, or finds discrepancies in or omissions from the drawings or specifications, that bidder shall submit a written request for interpretation, clarification, or correction thereof to the City of Cheyenne, hereinafter “City”. The bidder submitting the request will be responsible for its prompt delivery. Questions shall be directed to the City Purchasing Manager, by e-mail at tbarttelbort@cheyennecity.org.

Questions will be received until 5:00 pm local time on Tuesday, February 16, 2021, after which no additional questions will be accepted.

The City will respond via Addendum, no-later-than 5:00 pm local time on Friday, February 19, 2021.

3.00 ADDENDA

The City will make every interpretation, clarification, or correction to bidders by written addendum to the Contract Documents. The City will make reasonable efforts to mail, e-mail, or fax addenda to persons identified on the City’s plan-holders list, but it shall be the bidder’s responsibility to make inquiry as to the addenda issued. It shall also be the bidder’s responsibility to confirm that it is included on the City’s plan-holders list. The bidder shall acknowledge all addenda issued during the time of bidding in the bid proposal and shall be made a part of the Contract. The City will consider as incomplete any bid proposal in which all addenda are not acknowledged.

4.00 DEFINITIONS AND TERMS

Contract Documents: All documents in the bidding packet, including addenda, as identified in Part V, Article 5.

Contract Modification: A written document that must, at minimum, be executed by the Contractor and by the Mayor of the City of Cheyenne. A Contract Modification may require the approval of the City’s Governing Body. A contract modification must be executed to change the Contract Price, Contract Time, or to otherwise modify the Contract Agreement.
Contract Price: The original amount bid by the contractor, as specified in Article 4 of the Agreement and modified by any Contract Modifications.

Contract Time: Begins upon the date specified in the Notice to Proceed and consists of the number of calendar days up to and including the date specified in Part V, Article 3.

Field Order: A form issued by the City Engineer (“Engineer”) to authorize the Contractor to proceed with changes or additions to the work as described in a Work Directive or a Request for Adjustment. A Field Order may either increase or decrease quantities or authorize work for payment under a Force Account, if included in the bid, but cannot increase the Contract Price.

Force Account: A method of payment for work performed by the Contractor at the Engineer’s discretion and calculated in accordance with Part VI, Section 14.

Request for Adjustment: A form issued by the Engineer to allow the Contractor to request an adjustment of the Contract Time, the Contract Price, or to request any other modification of the Contract Agreement. The Contractor shall also use this form for submitting pricing as a result of a Work Directive.

Work Directive: A form issued by the Engineer to inform the Contractor of a change in the Work which does not alter the Contract Time, the Contract Price, or any other provisions of the Contract Agreement. If a change in the Work will increase the Contract Price, the City must approve and execute a Contract Modification before the Contractor may proceed with the Work as modified.

5.00 SITE INSPECTION AND CONTRACT DOCUMENTS EXAMINATION

Each bidder shall visit the proposed work site and become acquainted with the existing conditions of the site. Then, in preparing and submitting bids, contractors should take into account the observed existing conditions, construction necessities, required labor, facilities involved, and difficulties and restrictions that may be encountered in contract performance. If possible, the City will conduct a tour of the work areas. All interested parties should contact Sam Berta in the City’s Engineering Office, at 307-637-6290.

Each bidder should also thoroughly examine and become familiar with the Drawings, Technical Specifications, and all other Contract Documents.

The selected bidder, by executing a contract, shall in no way be relieved of any obligation under it due to the selected bidder’s failure to review or examine any form, legal instrument, or to become acquainted with existing conditions in the work area. The City will be justified in rejecting any claim based on facts which the selected bidder knew or should have been aware of as a result of inspecting the site and Contract Documents.

6.00 ALTERNATE BIDS

The City will not consider alternate bids unless alternate bid items are specifically requested by the Specifications and the bid proposal.
7.00 **BID PROPOSAL REQUIREMENTS**

Bidders shall submit all bids on forms supplied by the City, and all such bids are subject to the Contract Documents requirements. All bids shall be regular in every respect. The bidder shall not make or include any interlineation, excisions, or special conditions in the bid forms. The bidder shall explain or note, in conjunction with its signature, any erasures or other changes in the bids.

The bidder shall submit bid documents, including the Bid Proposal, Bid Guarantee, Non-Collusion Affidavit of Prime Bidders, and Sub-Contractors and Material Suppliers List, to the City Purchasing Division in a sealed envelope. The envelope shall bear the bidder’s name and address, the project name, bid number, and the date and time of bid opening in order to guard against premature opening of the bid proposal.

The City may consider as irregular any bid on which there is an alteration of or departure from the bid form provided and, at its option, may reject the bid.

Award of a contract resulting from this bid will be based on Section 15.00 below.

The bidder shall correctly fill in the blank spaces on the proposal form and state the unit or lump sum prices in the spaces provided. All proposals shall be totaled, and in the case of errors or discrepancies, the unit or lump sum prices shall govern.

Each bidder shall sign and display the name and address of the bidder in the blank spaces provided. If the bid is made by a sole proprietorship or partnership, the name and address of the sole proprietorship or partnership shall be shown, together with the names and addresses of the proprietor or partners. If the proposal is made by a corporation or other business entity, an official who is authorized to bind the corporation or other business entity shall sign in the name of such corporation or business entity.

The City will consider as incomplete and may reject any bid not displaying the information required by this Section.

City representatives and the successful bidder shall hold a pre-construction conference upon contract award. This conference will be for the purpose of reaching a complete understanding with the successful bidder concerning quality of work expected, work schedule and time of completion, work progress, and coordination of all construction.

8.00 **BID GUARANTEE**

Each bid proposal shall be accompanied by a bid guarantee which shall not be less than five percent (5%) of the bid amount.

The 5% bid guarantee may be in the form a bid bond secured and issued by a surety or guaranty company authorized to do business in the State of Wyoming or a cashier’s check made payable to the City of Cheyenne. Cash deposits, personal checks or company checks (unless certified) will not be accepted.
If the bid guarantee is to be submitted in the form of a bid bond, bidders must use the attached bid bond form. No deviation from the attached form will be allowed. If a surety company’s bid bond form is used, the wording shall be exactly as shown on the City’s bid bond form. No bid will be considered unless it is accompanied by the required guarantee. The bid guarantee shall ensure the execution of the agreement. The successful bidder shall furnish a surety bond as required by the Contract Documents.

If the Contractor (i) withdraws the bid within sixty (60) calendar days after bid opening, (ii) fails to provide performance and payment bonds, (iii) or fails to provide the minimum insurance certificates within the time required by Wyo. Stat. § 15-1-113 after the City accepts the proposal, then the bidder shall be liable to the City for default in the amount set forth on the bid bond as liquidated damages for said default.

Bid guarantees of unsuccessful bidders will be returned as soon as practicable after bid proposals are opened.

9.00 COLLUSIVE AGREEMENTS

Each bidder submitting a bid to the City for any portion of the work contemplated by the documents on which bidding is based shall execute and attach thereto an affidavit substantially in the form herein provided to the effect that he or she has not colluded with any other person, firm, or corporation in regard to any bid submitted.

10.00 STATEMENT OF BIDDER QUALIFICATIONS

Each bidder shall, upon the City’s request, submit satisfactory evidence that the bidder has practical knowledge of the particular work being bid upon, and has the necessary financial resources required to complete the proposed work. In awarding the contract, the City will give due consideration to the ability, reliability, work load, and general reputation of each bidder, as well as the City’s past experience with the bidders.

Each bidder, upon the City’s request, shall show that prior work performed by the bidder has been handled in such a manner that there are no just or proper claims against such work.

No bid proposal will be acceptable if the bidder is engaged in any other work which impairs his or her ability to finance this contract or provide equipment for the proper execution of the contract.

11.00 UNIT PRICES

If unit prices are called for, the unit price of each item in the proposal shall include the pro rata share of overhead and profit. As such, the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid equals the total bid. The City may reject as irregular any bid not conforming to this requirement. Bidders should pay special attention to this provision.

If conditions make it necessary to revise bid quantities, no limit will be fixed for such quantity revisions, provided the net cash value of all such additive and subtractive changes shall not change the original, total contract price by more than twenty percent (20%).
quantities appearing on the proposal form are approximate and are prepared for the comparison of bids. Payment to the contractor will be made only for the actual, accepted quantities of work performed and materials furnished in accordance with the contract.

The presence of any unit bid price that generates reasonable doubt that award to that bidder would result in the lowest ultimate cost to the City may be rejected as irregular.

12.00 **TIME FOR RECEIVING BIDS**

Bid proposals received before the advertised time for opening bids will be kept securely sealed until the time arrives to open bids. The officer whose duty it is to open bids will decide when the specified time has arrived, and no bid received thereafter will be considered.

13.00 **BID OPENING**

At the time and place fixed for opening bids, the City will open and publicly read aloud every bid received within the time set for receiving bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present in person or by representative.

14.00 **BID WITHDRAWAL**

Bids may be withdrawn by written or faxed request at any time prior to the scheduled closing time for receipt of proposals.

15.00 **CONTRACT AWARD AND BID REJECTION**

The City will award the contract to the most qualified and responsible bidder, as determined in the City’s sole discretion, who submits the lowest total responsive bid shown on Itemized Bid Sheet “A” plus “B”. This bid must also be less than funds available for this project. The City reserves the right to reject a bid if the total bid shown on the last Itemized Bid Sheet is not identical to the total bid shown on the Bid Proposal Sheet, included in this Bid Packet. The City reserves the right to reject a bid if the total bid price shown on the last Itemized Bid Sheet is not calculated correctly.

The City reserves the right to reject any or all proposals or to waive any formality or irregularity in any proposal in the interest of the City. No bidder may withdraw his proposal for a period of sixty (60) calendar days after the date of opening thereof.

16.00 **FUNDS PROGRAMMED**

The funds programmed for construction are estimated to be sufficient to provide for the proposed work shown on the plans. In the event contract unit prices indicate a total cost of the project in excess of the allotted funds, the project length may be shortened or quantities decreased to keep the cost of work within the funds allocated to the project. Similarly, if the contract unit prices indicate a total cost of the project less than the allotted funds, the length of the project may be increased and quantities added to ensure the allotted funds for the project are used.
PREFERENCE FOR STATE LABOR AND MATERIALS

Pursuant to Wyo. Stat. § 16-6-104, Wyoming made materials and products, and Wyoming suppliers of products and materials of equal quality and desirability shall have preference over materials or products produced or supplied outside the state and any contract let shall so provide. The City shall apply the preference created by Wyo. Stat. § 16-6-104 in a manner identical to the preference for resident contractors in Wyo. Stat. § 16-6-102.

Pursuant to Wyo. Stat. § 16-6-102, the City shall award the contract to the responsible, certified resident making the lowest responsible bid, if the certified resident’s bid is not more than five percent (5%) higher than the lowest responsible, nonresident bidder.

Pursuant to Wyo. Stat. § 16-6-103, a successful resident bidder shall not subcontract more than thirty percent (30%) of the work covered by the contract to nonresident contractors.

Pursuant to Wyo. Stat. § 16-6-106, preference is hereby given to materials, supplies, agricultural products, equipment, machinery, and provisions produced, manufactured, or grown in Wyoming, or supplied by a state resident, quality being equal to articles offered by the competitors outside of the state.

Pursuant to W.S.§ 16-6-107, the structure or structures to be constructed pursuant to this invitation to bidders shall be constructed and maintained by materials produced or manufactured in Wyoming if Wyoming materials are suitable and can be furnished in marketable quantities. Preference shall not be granted for materials of an inferior quality to those offered by competitors outside of the state, but a differential of five percent (5%) shall be allowed in cost of contracts Wyoming materials produced or manufactured in Wyoming.

Pursuant to Wyo. Stat. § 16-6-203, the successful bidder shall employ only Wyoming laborers on the project, and the contract awarded to the successful bidder shall contain a provision requiring that Wyoming labor be used, except other laborers may be used when Wyoming laborers are not available for employment within the state, or are not qualified to perform the work involved. In addition, the contract shall contain a provision requiring specific acknowledgement of the requirements of this section. The successful bidder may employ laborers other than Wyoming laborers if:

(i) The successful bidder informs the nearest state workforce center of his employment needs at least eleven (11) calendar days before work is commenced;

(ii) The state workforce center certifies that the bidder’s need for laborers cannot be filled from those Wyoming laborers listed with the Wyoming Department of Workforce Services. The department shall respond to a bidder’s request for certification within ten (10) calendar days of the date the information is filed; and
The successful bidder shall also agree to promptly respond to requests from the Wyoming Department of Workforce Services for the most recent construction schedule for the project.

18.00 CERTIFICATE OF RESIDENCY STATUS FOR IN-STATE PREFERENCE

Wyoming Contractors desiring residency status for the purpose of obtaining the five percent (5%) preference for resident bidders on public works projects must be so certified by the Wyoming Department of Workforce Services. No bidder may be considered a resident for the purpose of the five percent (5%) preference unless his residency has been certified as provided in Wyo. Stat. § 16-6-101.

19.00 AGREEMENT EXECUTION, PERFORMANCE, AND PAYMENT BONDS

Subsequent to the award and within fifteen (15) calendar days after the prescribed forms are presented for signature, the successful bidder shall execute and deliver to the City an agreement in the form included in the Contract Documents in such number of copies as the City may require and at the same time shall also provide the insurance, Workers Compensation and Unemployment insurance certificates, and the performance and payment bonds. The performance and payment bonds will remain active for the two (2) year warranty period, which is the two (2) year period following the City’s acceptance of the substantial completion certificate. If the Contractor is required to perform corrections in the work of the project in the two (2) year warranty period, the Contractor shall provide copies of their current insurance, Worker’s Compensation, and Unemployment Insurance Certificates as required in the original project.

Having satisfied all conditions of award as set forth elsewhere in these documents, the successful bidder shall, within the period specified in paragraph “a.” above, furnish a surety bond, not less than the amount of the contract as awarded, as security for the faithful performance of the contract and a bond in an equal sum as surety for the payment of all persons, firms, or corporations to whom the successful bidder may become legally indebted for labor, materials, tools, equipment, or services of any nature, including utilities and transportation services employed or used by him in performing the work. Such bond or bonds shall be in the same form as that included in the Contract Documents and shall bear the same date as that of the agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. These bonds shall be signed by an authorized agent of the surety company qualified to do business in the State of Wyoming. The successful bidder shall notify the surety of any changes affecting the general scope of the project or change in the Contract Price, and the amount of the bonds shall be adjusted accordingly. The successful bidder shall furnish proof of such adjustment to the City.

The successful bidder’s failure to execute such agreement, or to supply the required bond or bonds within thirty (30) calendar days after the prescribed forms are presented for signature, or within such extended period as the City may grant based upon reasons determined sufficient by the City, shall constitute a default. The City may then award the contract to the next lowest, responsible bidder or re-advertise for bids, and the bid guarantee of the bidder shall be forfeited to the City as liquidated damages as per Wyo. Stat. § 15-1-113(f). The City may also charge against the defaulting bidder the additional
difference between the amount of the original low bid and the amount for which the contract is subsequently let, if the amount exceeds the amount of the bid bond. If a more favorable bid is received by re-advertising, the defaulting bidder shall have no claim against the City for a refund.

If the cost of a payment and performance bond is included in the bid, the successful bidder may receive reimbursement for the costs of the bonds subject to the following requirements. If the bond cost is not included as a bid item, the bond cost shall be deemed to have been included in the Contract Price.

Subsequent to the contract award and compliance with the conditions stated in the preceding paragraph, the successful bidder may submit a written request to the engineer in charge of the project requesting the payment and performance bid item. The successful bidder shall include with this written request, a statement from the insuring firm, indicating the bond cost based on the preliminary estimate of the cost of the contract or as adjusted by the final contract price. Payment for the bond cost will be computed on the basis of the final Contract Price or on the basis of the preliminary cost estimate of the contract, whichever is less. The payment for a payment and performance bond may be adjusted upon project completion based on approved modifications to the Contract Price.

20.00  **SALES AND USE TAX PROVISIONS**

The successful bidder shall abide by Wyo. Stat. § 39-15-101 et seq., and Wyo. Stat. § 39-16-101 et seq., relating to Sales and Use Taxes. In particular, the successful bidder shall abide by the guidance provided in State of Wyoming, Department of Revenue Bulletin, “Use Tax and You” issued December 5, 2012, revised July 1, 2014. This Bulletin is available on-line through the Wyoming Department of Revenue’s website. If the Contractor has difficulty locating the Bulletin, they may contact the Wyoming Department of Revenue for assistance.

The successful bidder shall cause all subcontractors to abide by and perform their work on the same terms and conditions as provided above. The successful bidder shall cause the above statements to be inserted in any contract or agreement between the successful bidder and subcontractors.

The successful bidder shall notify the Wyoming Department of Revenue, Excise Tax Division, when they begin work on any project in the State of Wyoming. The notice shall include the project name, specific project location and contract amount. Questions regarding sales and use taxes should be directed to the Wyoming Department of Revenue, Excise Tax Division at (307) 777-5204.

21.00  **TRADE NAME PROVISIONS**

When in the specifications or drawings, an item is identified by a manufacturer’s name, trade name, catalog number, or reference, the bidder proposes to furnish the item so identified and does not propose to furnish an “equal” unless the proposed “equal” is clearly communicated to the City by the bidder, and the bidder has obtained prior certification from the City for approval of the proposed “equal”.

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The reference to a manufacturer’s name, trade name, or catalog number is intended to be descriptive, but not restrictive, and only to indicate to the bidder articles that will be satisfactory. Bids on other makes, catalog numbers, etc., will be considered, provided each bidder clearly states on the bid proposal exactly what the bidder proposes to furnish, and has submitted to the City, at least seven (7) calendar days prior to the bid opening date, illustrations, specifications, or other descriptive matter which clearly indicate the character of the article(s) to be covered by the bid, and has obtained the prior approval of the City for the proposed “equal”.

The City reserves the right to approve as an equal, or to reject as not being equal, any article the bidder proposes to furnish which contains major or minor variations from specifications but which may comply substantially therewith.

22.00 RETAINAGE ADMINISTRATION FOR CONTRACTS EXCEEDING $50,000.00

The City will withhold five percent (5%) of the work’s dollar value completed throughout the contract term.

If requested by the general contractor, the City shall enter into an interest bearing deposit agreement with any depository designated by the general contractor, after notice to the surety, to provide an agent for the custodial care and servicing of any deposits placed with it pursuant to this act on any contract of more than fifty thousand dollars ($50,000.00) pursuant to Wyo. Stat. § 16-6-704. Interest income will be paid to the successful bidder as collected or as otherwise instructed by the successful bidder. All expenses incurred for this service will be charged to the successful bidder and deducted from payments due and retained funds.

If the City finds that satisfactory progress is being made in all phases of the contract it may, upon written request by the contractor, authorize payment from the withheld percentage. Before the payment is made, the public entity shall determine that satisfactory and substantial reasons exist for the payment and shall require written approval from any surety furnishing bonds for the contract work in accordance with Wyo. Stat. § 16-6-116.

No payments returning retainage from this fund will be made until the City has determined that satisfactory and substantial reasons exist for the payment, and the required Certificate of Completion; Affidavit of Release of Liens; Contractor’s Final Waiver of Liens; Sub-Contractor’s Final Waiver of Liens; Consent of Surety for final payment; Sworn Statement for Final Payment Pursuant to Wyo. Stat. § 16-6-116 and § 16-6-117; and Engineer’s Certificate of Completion have all been received by the City, and all the items on the punch list have been completed.

23.00 SUB-CONTRACTORS, MATERIALMEN PROTECTION UNDER A BOND OR GUARANTEE; LIMITATIONS.

For contracts of $150,000.00 or more, the Contractor shall post on the construction site a prominent sign citing Wyo. Stat. § 16-6-121 and stating that any Sub-Contractor or materialmen shall give notice to the Contractor of a right to protection under the bond or guarantee and that failure to provide the notice shall waive the Sub-Contractor or materialmen’s protection under the bond or guarantee and shall waive any right to a lien.
for material or services provided. The general contractor shall post on the construction site a prominent sign citing this section and stating that any subcontractor or materialman shall give notice to the general contractor of a right to protection under the bond or guarantee and that failure to provide the notice shall waive the subcontractor or materialman's protection under the bond or guarantee.

24.00 PERMITS AND LICENSES

The Contractor shall obtain all permits necessary to execute the work. Fees will be waived for permits issued by the City. Permits may be required by other entities which are not furnished or paid for by the City. The successful bidder and its subcontractors shall be required to hold and pay for any licenses required and shall also pay for all public utility charges.

25.00 PRE-BID CONFERENCE

A pre-bid meeting will be held at 10:00 A.M. on February 9, 2021, via Zoom On-Line Meeting.

Representatives of the City will be present to discuss the Project.

Topic: Bid S-14-21 / Pre-Bid Meeting / Capital Basin - 26th Street Interceptor Storm Sewer Extension Project

Time: Feb 9, 2021 10:00 AM Mountain Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/85358738409?pwd=QnZEL3lnMGhmOUV4QkVJZEg3M0RKdz09

Meeting ID: 853 5873 8409
Passcode: 2101

The Zoom Meeting will open approximately five (5) minutes before the meeting commences, for interested parties to join. The meeting will be limited to approximately 40 minutes. As you join the meeting, please type the following information into the chat box, so that the City may record your presence at the meeting:

1. Individual Name
2. Business you are representing
3. Phone Number
4. Email Address
PART 3 – PROPOSAL FORMS
CITY OF CHEYENNE, WYOMING

CITY OF CHEYENNE BID PROPOSAL FORM

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<th>BID NO.</th>
<th>S-14-21</th>
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<td>Wednesday, March 20, 2021</td>
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<tr>
<td>TIME:</td>
<td>2:00 PM</td>
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<tr>
<td>PROJECT:</td>
<td>Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project</td>
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TO: GOVERNING BODY

CITY OF CHEYENNE
2101 O’NEIL AVENUE
CHEYENNE, WY 82001

(Submit bids to the City Purchasing Division, Room 309, Municipal Bldg. at 2101 O’Neil Avenue)

1. Pursuant to and in full compliance with all Bidding Documents, the undersigned Bidder hereby proposes to furnish all the labor and materials and to perform all the work required for the complete and prompt execution of everything described or shown in or reasonably implied by the Bidding Documents, including the Drawings and Specifications, for the work above indicated for the monies stated herein, which includes all State, County and local taxes normally payable in respect to such work when done for an entity not entitled to any exemption from such taxes. The amounts stated include all allowances for profit and overhead, taxes, fees and permits, transportation, services, tools and equipment, labor and materials and other incidental costs.

2. The Bidder has carefully examined the Bidding Documents, including the Drawings and Specifications and the work site, and has fully apprised him/her of the conditions affecting the work to be executed, and hereby proposes to construct and complete the above-referenced project, all in accordance with the Bidding Documents, at and for the following sum, as reflected in the total on the attached itemized bid sheets:

__________________________________________________________ Dollars
($________________________________________________________)

3. This Bid Proposal is accompanied by the required Bid Guarantee of five percent (5%) based upon the total cost of all items required to be bid. The City of Cheyenne is authorized to hold said Bid Guarantee for a period of not more than sixty (60) calendar days after the opening of the bids for the purpose of evaluating bids prior to award. If awarded the contract for this work, the undersigned Bidder agrees to execute the Agreement and furnish the required Bonds and Insurance Certificates within thirty (30) calendar days from the date of Notice of Award.

4. Attached hereto is an affidavit in proof that the undersigned has not entered into a collusive agreement with any person in respect to this bid or any other bid or the submitting of bids for which this bid is submitted.
5. The undersigned bidder has [ ] has not [ ] been granted a State of Wyoming Certificate of Residency Status. If the bidder has been granted a State of Wyoming Certificate of Residency Status, the undersigned bidder has [ ] has not [ ] subcontracted more than thirty percent (30%) of the work covered by this contract to nonresident bidders, as per Wyo. Stat. § 16-6-103 regarding limitations on subcontracting by resident contractors.

Dated this __________ day of __________________, __________
(Month) (Year)

FIRM NAME:__________________________________________

Bidder’s Legal Stature: ☐ Corporation
☐ Partnership
☐ Individual Sole Proprietorship
☐ L.L.C.
☐ Other:_____________________

State of Incorporation:__________________________________

Bidder’s Address:_____________________________________
_____________________________________________________
_____________________________________________________

Telephone Number:______________________________________

Email Address: _________________________________________

By:___________________________________________________
(Bidder’s Signature)

Title:__________________________________________________
_____________________________________________________

Witness

The Bidder acknowledges receipt of the following addenda to the Bid Documents (if none, so state):__________________________________________.

Addendum No. Dated
_____________________________________________________
_____________________________________________________
_____________________________________________________
_____________________________________________________

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<th>Item No.</th>
<th>Description</th>
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<td>2645.00</td>
<td>Fire Hydrant Lead Only (Swivel Tee, Valve, Pipe, Test Station)</td>
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<tr>
<td>Water Main Fittings, 8&quot; x 4&quot; reducer (DIP)</td>
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<td>Gate Valves, 6&quot;</td>
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<td>Gate Valves, 12&quot;</td>
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<td>Quantity</td>
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<td>Sewer Service Reconnect</td>
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<td>Storm Sewer Conflict Box 1 (6'0&quot; x 7'2&quot;)</td>
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<td>Storm Sewer Conflict Box 2 (10'0&quot; x 7'2&quot;)</td>
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<td>Slurry</td>
<td>120</td>
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<td>Curb and Gutter, 30-inch, type A</td>
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<td>Curb Turn Fillets, R15</td>
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<td>Detectable Warning Plates (Radial)</td>
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<td>New Concrete Sidewalk, 4&quot;</td>
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<td>New Decorative (Stamped/Colored) Concrete 4&quot;</td>
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<td>New Concrete ADA Ramps, 4&quot;</td>
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<td>Remove &amp; Reset Landscape Pavers</td>
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<td>SF</td>
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<td>New Drive Approach, 6&quot; Residential</td>
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<td>SY</td>
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</table>

**TOTAL**
CITY OF CHEYENNE NON-COLLUSION
AFFIDAVIT OF PRIME BIDDERS FORM

State of: _______________________, being first duly sworn, deposes and says that:

(1) S/he is (owner, partner, officer, representative, or agent) of ______________________________________, the bidder that has submitted the attached bid;

(2) S/he is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid;

(3) Such bid is genuine and is not a collusive or sham bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other bidder, firm, or person to submit a collusive or sham bid in connection with the contract of which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement, collusion, communication, or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other Bidder; to fix any overhead, profit, or cost element of the bid price or the bid price of any other Bidder; or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City or any person interested in the proposed contract; and

(5) The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the bidder or any of the bidder’s agents, representatives, owners, employees, or parties in interest, including this affiant.

Signed____________________________________

Subscribed and sworn to before me this ________ day of _____________, ________.

________________________________________

(Title) (Signature)

My Commission expires____________________
KNOW ALL MEN BY THESE PRESENTS, that____________________________, as Principal, and_________________________________________, as Surety, a corporation duly organized under the laws of the State of ____________ and authorized to do business within the State of Wyoming, are held and firmly bound unto the City of Cheyenne, Wyoming, in the full and just sum of ___________________________________Dollars ($________________), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal is herewith submitting a Proposal for________________________________________________________________________________________, and the City of Cheyenne, Wyoming has required as a condition for submitting said Proposal, that said Principal deposit specified Bid Security in an amount not less than five percent (5%) of the amount of said Proposal, conditioned that in event of failure of Principal to execute the contract and furnish the required performance and payment bonds if the contract is awarded to said Principal, that said sum be paid immediately to the City of Cheyenne, Wyoming as liquidated damages, and not as penalty, for the Principal’s failure to perform.

The condition of this obligation is such that if the aforesaid Principal will, within the time required, enter into a formal contract and give such bonds as are specified in the bidding documents with surety acceptable to the City; or if Principal shall fail to do so, pay to the City the sum determined herein as liquidated damages and not as a penalty, then this obligation shall be void; otherwise to remain in full force and effect.

Signed, sealed, and delivered this ______day of__________, ____.

_________________________  Principal (seal)

                          by__________________________________
                          Title________________________________

_________________________  Surety (seal)

                          by__________________________________
                          Attorney-in-fact

(Witness)

(Witness)

(Attach Power of Attorney)
List all materials suppliers and subcontractors proposed for this project and return list with bid:

**ATTENTION!**
Any Resident Bidder using Non-Resident subcontractors must fill in the percentage of work being done by the subcontractor.

<table>
<thead>
<tr>
<th>WORK</th>
<th>SUBCONTRACTOR OR MATERIAL SUPPLIER</th>
<th>CITY/STATE</th>
<th>% OF WORK</th>
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## BID SUBMISSION CHECKLIST

THE FOLLOWING CHECKLIST REPRESENTS THE REQUIRED FORMS TO BE EXECUTED AND DOCUMENTS TO PREPARE. THESE FORMS AND DOCUMENTS ARE TO BE INCLUDED IN THE CONTRACTOR’S SUBMITTED BID PACKAGE.

**COMPLETED & INCLUDED**

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>City of Cheyenne Bid Proposal Form [ ]</td>
</tr>
<tr>
<td>2.</td>
<td>Bid Price Total [ ]</td>
</tr>
<tr>
<td>3.</td>
<td>Itemized Bid Schedule [ ]</td>
</tr>
<tr>
<td>4.</td>
<td>Sub-Contractors and Material Suppliers List [ ]</td>
</tr>
<tr>
<td>5.</td>
<td>Non-Collusion Affidavit of Prime Bidders [ ]</td>
</tr>
<tr>
<td>6.</td>
<td>Bid Security / Bid Guarantee [ ]</td>
</tr>
<tr>
<td>7.</td>
<td>Acknowledgement of Addenda (If Any) [ ]</td>
</tr>
</tbody>
</table>
PART 4 - NOTICE OF AWARD, NOTICE TO PROCEED, AND OTHER FORMS
CITY OF CHEYENNE, WYOMING

CITY OF CHEYENNE
BID ACCEPTANCE FORM

BID NUMBER: S-14-21
DATE:
TO:

To Whom It May Concern:

The City of Cheyenne, having duly considered the proposals submitted on ___/____/____ for the construction of “Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project”, as outlined in these Contract Documents, and it appearing that your Proposal for performing the work outlined is fair, equitable, and in the City’s best interest, the bid items are hereby accepted at the bid prices contained therein.

In accordance with the terms of these Contract Documents, you are required to execute the formal Agreement and furnish the required Performance and Payment Bonds within thirty (30) calendar days from and including the date of this notice.

In addition, you are required to furnish at the same time a copy of Certificate of Insurance evidencing compliance with the requirements for insurance stated in the Bidding Documents, including unemployment insurance, and a copy of your Worker’s Compensation Certificate.

The Bid Guarantee submitted with your Proposal will be retained until the Agreement has been executed and the required Performance and Payment Bonds have been furnished and approved. In event that you should fail to execute the contract and furnish the Performance and Payment Bonds within the time limit specified, the said bid security will be retained as liquidated damages and not as penalty for the delay and extra work caused thereby.

CITY OF CHEYENNE, WYOMING

By____________________________________
  Purchasing Manager
CITY OF CHEYENNE
NOTICE TO PROCEED FORM

BID NUMBER: S-14-21

DATE:

TO:

You are hereby authorized to proceed on this date, _______________ with the construction of “Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project” as set forth in detail in the Contract Documents. No work may be done at the site prior to the date stated above.

CITY OF CHEYENNE, WYOMING

By__________________________
Purchasing Manager

The Contractor is required to return an acknowledged copy of this Notice to the City.

Acknowledged:

Contractor:

By [Printed Name]:

By: [Signature]:

Title:

Date:
CITY OF CHEYENNE CONTRACTOR’S CERTIFICATION OF COMPLETION FORM

<table>
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<tr>
<th>DATE:</th>
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<tbody>
<tr>
<td>PROJECT: Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project</td>
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<tr>
<td>JOB NUMBER:</td>
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<tr>
<td>CONTRACT NUMBER:</td>
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<tr>
<td>OWNER:</td>
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<tr>
<td>FROM:</td>
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</table>

This is to certify that I, ______________________________, am an authorized official of ______________________________, working in the capacity of ______________________________, and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the contract drawings and specifications.

The contract work is now complete in all parts and requirements, and ready for your final inspection.

I understand that neither the determination by the Engineer/Architect that the work is complete, nor the acceptance thereof by the Owner, shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

BY:_____________________________________

TITLE:___________________________________

FOR:____________________________________
CITY OF CHEYENNE
CONSENT OF SURETY FOR FINAL PAYMENT FORM

<table>
<thead>
<tr>
<th>PROJECT NAME:</th>
<th>Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project</th>
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</thead>
<tbody>
<tr>
<td>LOCATION:</td>
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<tr>
<td>PROJECT NUMBER:</td>
<td>S-14-21</td>
</tr>
<tr>
<td>TYPE OF CONTRACT:</td>
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<tr>
<td>AMOUNT OF CONTRACT:</td>
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</tbody>
</table>

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety:

___________________________________________________________________
___________________________________________________________________

On the Payment Bond of the following named Contractor:
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the Surety Company named herein of any of its obligations to the following named Owner as set forth in said Surety company’s bond:

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand and seal this _________ day of ________________________, ______.

(Name of Surety Company)

(Signature of Authorized Representative)

(Affix corporate seal here)

Title __________________________________________
TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has been employed by

A. 

to furnish labor and materials for

B. 

work, under a contract

C. 

for the improvement of the premises described as

D. 

in the City of Cheyenne, Laramie County, Wyoming, of which the City of Cheyenne is the Owner.

NOW, THEREFORE, this ____ day of ______________, _____, for and in consideration of the

E. 

dollars, paid simultaneously herewith, the receipt whereof is hereby acknowledged by the

undersigned, the undersigned does hereby waive and release any lien rights to, or claim of lien

with respect to and on said above-described premises, and the improvements thereon, and on the

monies or other considerations due or to become due from the owner, on account of labor, services,

material, fixture, apparatus or machinery heretofore or which may hereafter be furnished by the

undersigned to or for the above described premises by virtue of said contract.

(F)___________________________________ (SEAL)

(Name of sole ownership, corporation or partnership)

_____________________________________

(Signature of Authorized Representative)

TITLE: ________________________________

INSTRUCTIONS FOR FINAL WAIVER:

| A. | Person or firm with whom you agreed to furnish either labor, or services, or materials, or both. |
| B. | Fill in nature and extent of work; strike the word labor or the word materials if not in your contract. |
| C. | If you have more than one contract on the same premises, describe the contract by number if available, date and extent of work. |
| D. | Furnish an accurate enough description of the improvement and location of the premises so that it can be distinguished from any other property. |
| E. | Amount shown should be the amount actually received and equal to total amount of contract as adjusted. |
| F. | If waiver is for a corporation, corporate name should be used, corporate seal affixed and title of officer signing waiver should be set forth; if waiver is for a partnership, the partnership name should be used, partner should sign and designate himself as partner. |
CITY OF CHEYENNE
AFFIDAVIT OF RELEASE OF LIENS
FORM

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has been employed by __________________________ to furnish labor and materials for ______________________work, under a contract _________________ for the improvement of the property described as ___________________________________________ 

in the city/town of _____________, County of _____________, State of ________________ of which ___________________ ______________________ is the Owner.

NOW, THEREFORE, this _______ day of ________________, _____, the undersigned, as the Contractor for the above-named contract pursuant to the conditions of the contract hereby certifies that to the best of his knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of work, labor or services, who have or may have liens against any property of the Owner arising in any manner out of the performance of the contract referenced above.

Exceptions: (List names of suppliers and/or subcontractors and amounts owed. If none, write “None.”) The City will withhold the amounts listed below from final payment due the Contractor until these obligations have been satisfied.

CONTRACTOR ________________________________________ (SEAL) 
(Name of sole ownership, corporation or partnership)

(Affix corporate seal here)

____________________________(SEAL)
(Signature of Authorized Representative)

TITLE: ____________________________________________

ATTACHMENTS:

1. Contractor’s Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers.
TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has been employed by ___________________ to furnish labor and materials for ________________ (work) under contract #________ for the improvement of the property described as __________________________________________________________ in the city/town of _____________, County of ______________, State of ____________ of which ________________________________ is the Owner.

NOW, THEREFORE, this ____ day of ______________, _____, the undersigned, as the Contractor for the above-named Contract pursuant to the Conditions of the Contract hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write “None.” If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

ATTACHMENTS:
I. Consent of Surety to Final Payment. (Whenever Surety is involved, Consent Of Surety is required.)
II. Contractor’s Release or Waiver of Liens, conditional upon receipt of final payment.
III. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers.
IV. Contractor’s Affidavit of Release of Liens.

CONTRACTOR ____________________________________________ (SEAL)
(Name of sole ownership, corporation or partnership)

(Affix corporate seal here)

__________________________________________________________ (SEAL)
(Signature of Authorized Representative)

TITLE: ________________________________
CITY OF CHEYENNE
CONTRACT PAYMENT REQUEST FORM

<table>
<thead>
<tr>
<th>DATE:</th>
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<tbody>
<tr>
<td>PROJECT:</td>
<td>Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project</td>
</tr>
<tr>
<td>CITY BID NUMBER:</td>
<td>S-14-21</td>
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<tr>
<td>CITY CONTRACT NUMBER:</td>
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<td>CONTRACTOR:</td>
<td></td>
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<tr>
<td>CONTRACT PAYMENT REQUEST NUMBER:</td>
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<tr>
<td>FOR WORK COMPLETED THROUGH DATE OF:</td>
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</table>

The present status of the account for this contract is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Original Contract Amount</td>
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<tr>
<td>Net Change by Change Orders to Date</td>
<td>$</td>
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<tr>
<td>Current Contract Amount</td>
<td>$</td>
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<td>Total Completed to Date</td>
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<td>Less 5% Retainage</td>
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<td>Total Earned Less Retainage</td>
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<td>Less Previous Payments</td>
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<td>Total Payment Due</td>
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<td>Total Retainage Due</td>
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Contractor’s Certification:

The undersigned Contractor certifies that: (1) all previous progress payments received from the City on account of work done under the Contract referred to above have been applied to discharge Contractor’s legitimate obligations incurred in connection with work covered by prior Contract Payment Request numbered one through ____ inclusive; (2) title of all work, materials and equipment incorporated in said work or otherwise listed in or covered by this Contract Payment Request will pass to Owner at the time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by Bond acceptable to owner indemnifying Owner against such liens, security interest or encumbrance); and (3) all work covered by this Contract Payment Request is in accordance with the Contract Documents and not defective.

____________________________________  ___________________________________________
Date                                      Contractor

Authorized Signature                      Print Name and Title

Payment of the above AMOUNT DUE THIS PAY REQUEST is recommended.

____________________________________  ___________________________________________
Project Manager Signature                  Print Name and Title

Authorization by City Representative

____________________________________  ___________________________________________
City Representative Signature              Print Name and Title
CITY OF CHEYENNE
ITEMIZED PAY REQUEST
FORM

CONTRACTOR:

PROJECT: Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project

PAY REQUEST NUMBER:

This form must be submitted with the above pay request, or submit AIA document G702 and G703.

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<tr>
<td>Description of Work/Material</td>
<td>Unit</td>
<td>Original QTY</td>
<td>Contract Unit Price</td>
<td>Original Contract Price</td>
<td>QTY Complete This period</td>
<td>Total Complete This period</td>
<td>QTY Complete from Previous Period</td>
<td>Total Complete From Previous Period</td>
<td>Total Complete (G+I)</td>
<td>Balance to finish</td>
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ARTICLE 1. STATEMENT OF WORK. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, and services, including utility and transportation services, and perform and complete all work in an efficient and workmanlike manner in the construction of the “Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project” project all in strict accordance with the Contract Documents including all addenda thereto, numbered and dated:

ARTICLE 2. RESPONSIBLE DESIGNEE FOR THE CITY. The Contractor shall in any and all matters relating to the scope of services to be provided under this Contract or any other provisions herein, contact the City Engineer, or his/her designated representative.

ARTICLE 3. TIME FRAME FOR COMPLETION. The services to be performed under this Agreement shall commence on the date stipulated in the “Notice to Proceed” that will be issued by the City. The work shall be completed by _______________. If the work has not been completed within the time stipulated above, including any extensions of time issued by the City for excusable delays, the Contractor and his/her sureties shall pay the City fixed, agreed liquidated damages, as stipulated in the Supplemental Conditions, for each calendar day of delay until the work is completed.

ARTICLE 4. COMPENSATION AND METHOD OF PAYMENT. The CITY will pay the Contractor for the performance of the Contract in current funds, the sum of ___________________________ Dollars ($______________). In the event there are changes in the estimated quantities shown on the Bid Proposal, the unit prices multiplied by the actual quantities shall govern, and the total contract amount will be adjusted accordingly. The City agrees to pay the above amount for contractual services in the following manner, upon receipt of appropriate documentation:

a. The Contractor will be paid on a monthly basis for percentage of estimated work completed. Submittal will be at least seven (7) business days prior to the payable due date as established
annually by the City Treasurer’s Office. The pay request shall be submitted on the Contract Payment Request Form and Itemized Pay Request or the AIA Documents G702 and G703. The engineer will review the estimate for approval prior to payment.

b. The City will withhold five percent (5%) of the dollar value of the work completed for a minimum of forty-one (41) calendar days after Notice of Final Settlement has been published in accordance with Wyo. Stat. §15-1-113(h). Upon completion of the work under this Contract, the Contractor shall submit a Contractor’s Certificate of Completion; the Consent of Surety; Final Waivers of Lien from the Contractor, and all Sub-Contractors, Suppliers and Materialmen; Affidavit of Release of Liens; Affidavit of Payment; and a current Workers Compensation Certificate. Final payment will not be made until the above documents have been received by the City and all items on the Punch List have been completed, and the advertising requirements have been met.

ARTICLE 5. CONTRACT. The executed Contract Documents shall consist of the following:

1. This Agreement;
2. Addenda;
3. Invitation for Bids;
4. Instructions to Bidders;
5. Signed Bid Proposal;
6. General Conditions and Insurance;
7. Supplemental Conditions;
8. Part IV Forms & Notices;
9. Specifications and Special Provisions;
10. Drawings.

This Agreement, together with other documents enumerated in this Article 5, which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, forms the Contract between the parties hereto.

IN WITNESS WHEREOF, THAT the governing body of the City of Cheyenne has authorized the Mayor as Executive Officer of the City to enter into this Agreement, and that the parties hereto have caused this Agreement to be executed on the day and year in the first part herein written.

ATTEST: ______________________________
Kristina F. Jones, City Clerk

CITY OF CHEYENNE, WYOMING

______________________________
Marian J. Orr, Mayor

Notary or Corporation Secretary:
SUBSCRIBED AND SWORN TO BEFORE ME
this ___ day of __________, ___
by_________________________________
My Commission expires:___________
1. Signature of principal must be affixed to the bond.
2. Signature of principal must be witnessed.
3. Name of principal must be witnessed.
4. The legal capacity of the principal must be stated in the caption of the bond (i.e., corporation, partnership or sole proprietorship).
5. If the principal is jointly owned, all owners must sign the bond.
6. If the principal is a partnership, at least two partners must sign the bond.
7. Signature of the attorney-in-fact acting on behalf of the surety company must appear on the bond.
8. The surety’s seal must be affixed to the signature of the attorney-in-fact (Facsimile seals are NOT acceptable).
9. The surety company must be registered with the state insurance commission and qualified to do business in the State of Wyoming.
10. Power of Attorney/Acknowledgment of Surety must be signed, sealed and dated with the same date as execution of bond.
11. Date of written Agreement and date of bond must be same. Post-dated bonds are not acceptable.
12. Bond form must be completely executed. Bonds with blank spaces, including dates, are unacceptable.
13. The bond must be accompanied by a properly executed authorization of Power of Attorney. Note: The bond shall continue in force throughout the project and a two-year warranty period; and at the discretion of the City, for any additional warranty period specified in the contract documents.

**CORPORATE PRINCIPALS ONLY**

14. The person signing on behalf of the corporate principal must state his/her legal capacity and he/she must be either the president or the vice-president if it is a corporation. If the officer or person signing on behalf of the corporate principal is other than the president or vice-president, there must be attached to the bond a resolution or certified evidence of authority that such officer or person has authority to sign in behalf of the principal.
15. The signature of the principal must be witnessed, or attested to if it is a corporate principal by ONLY the secretary or assistant secretary of the corporation.
16. The corporate seal must be affixed to the signature of the principal. (Facsimile seals are NOT accepted).
17. Each party is required to sign his/her own name.
18. All changes or strike-throughs must be initialed by the resident agent or attorney-in-fact of the surety company. The surety company must be notified of such changes.
KNOW ALL MEN BY THESE PRESENTS:

That

______________________________________________
(Name of Contractor)

______________________________________________
(Address of Contractor)

a _____________________________________, hereinafter called Principal,

and ___________________________________ hereinafter called Surety, are

(Name of Surety)

held and firmly bound unto the City of Cheyenne, Wyoming, Municipal Building, 2101 O’Neil
Avenue, hereinafter called City, in the penal sum of:

_____________________________________________

($____________________), in lawful money of the United States, for the payment of which sum
well and truly to be made, we bind ourselves, successors and assigns, jointly and severally,
firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a
certain contract with the City, dated the _____ day of ___________, _____, a copy of which is
hereto attached and made a part hereof for the

______________________________________________

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the
undertakings, covenants, terms and conditions, and agreements, of said contract during the original
term thereof, and any extensions thereof which may be granted by the City, with or without notice
to the Surety and during the two-year guarantee period, and if the Principal shall satisfy all the
claims and demands incurred under such contract, and shall fully indemnify and save harmless the
City from all costs and damages which the City may suffer by reason of failure to do so, and shall
reimburse and repay the City all outlay and expense which the City may incur in making good any
default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that
no change, extension of time, alteration or addition to the terms of the Contract or to work to be
performed thereunder or the specifications accompanying the same shall in any wise affect its
obligation on this bond, and it does hereby waive notice of any such change, extension of time,
alteration or addition to the terms of this contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the City and the Contractor shall
abridge the right of any beneficiary hereunder whose claim may be unsatisfied.
IN WITNESS WHEREOF, this instrument is executed in ___ counterparts, each one of which shall be deemed an original, this the ___ day of ____________, _____.

__________________________________  ________________________________
(Witness)  (Principal)  (Seal)
By______________________________

__________________________________
(Title)
__________________________________
(Address)

__________________________________
(Witness)

__________________________________
(Surety)  (Seal)
By______________________________

__________________________________
(Associate-in-fact)
__________________________________
(Address)

Countersigned by:

By______________________________
(Wyoming Resident Agent)

__________________________________
(Address)

NOTE: Date of Bond must be same date as date of Contract. If Contractor is a partnership, all partners must execute bond.

IMPORTANT: Surety companies executing bonds must hold a Certificate of Authority issued by the State of Wyoming Insurance Department.
PART 6 – GENERAL CONDITIONS
CITY OF CHEYENNE, WYOMING

1.00 PROJECT SITE

26th Street, approximately between O’Neil Avenue & Central Avenue, Cheyenne, Wyoming.

2.00 NOTICES

Any notice, correspondence, or billing required by the terms of this Agreement shall be delivered by hand or mail, prepaid, to the address of the respective party representative(s) named below:

CITY: Sam Berta
City Engineering
2101 O’Neil Ave.
Cheyenne, WY 82001
Ph: 307-637-6290

3.00 DRUG-FREE WORKPLACE

In compliance with the Drug Free Work Place Act of November 1988, the City has established an “Alcohol and Controlled Substance Policy” that pertains to alcohol and drug usage by City employees. All independent contractors under contract with the City and their employees and subcontractors are required to comply with the provisions of this policy for drug and/or alcohol usage on City property or other sites occupied by the Contractor while performing the duties and responsibilities of the contract. It is the responsibility of the Contractor to become familiar with the requirements of this policy and to inform all subcontractors and employees of their obligation to comply and to ensure their compliance therewith. If the Contractor, the Contractor’s employees, or subcontractors are found in violation of this policy, the contract may be terminated. The Contractor is an independent Contractor and shall comply with the City’s Alcohol and Controlled Substance Policy and the provisions of this section.

4.00 NONDISCRIMINATION

The parties shall comply with the Civil Rights Act of 1964, the Wyoming Fair Employment Practices Act (Wyo. Stat. § 27-9-105 et seq.), the Americans With Disabilities Act (ADA (42 U.S.C. § 12101 et seq.)), the Age Discrimination Act of 1975, and any properly promulgated rules and regulations thereto and all parties to this Agreement assure that no person shall be excluded from participation in, denied the benefits of, or otherwise discriminated against in connection with the award and performance of this Agreement on the grounds of age, sex, race, creed, color, national origin, ancestry, religion, pregnancy, qualifying disability, sexual orientation, or gender identity. The parties further assure that they will include the language of this paragraph in all agreements associated or connected in any way with this Agreement and shall cause all existing Agreements to similarly include this clause therein.
5.00 CONTRACTS FOR PUBLIC IMPROVEMENTS

Wyo. Stat. § 15-1-113 is expressly incorporated herein by this reference as though fully set forth herein.

6.00 SAFETY PROGRAMS

The City, as mandated by Occupational Safety and Health Administration (“OSHA”), has in place many safety programs. All independent contractors, their employees, and their subcontractors, under contract with the City, must be familiar with and comply with any and all applicable OSHA standards, regulations, and provisions.

7.00 INDEPENDENT CONTRACTOR

At all times during the term of this Agreement, the Contractor shall be considered an independent contractor. Neither Contractor nor any one employed by it shall represent, act, purport to act, or be deemed to be the agent, representative, employee, or servant of the City.

8.00 CONFIDENTIALITY

To the extent allowed by law, the City and the Contractor shall treat as confidential and not disclose to others information (including technical information, experience, or data) regarding either party’s plans, programs, plants, processes, products, costs, equipment, operations, or customers which come within the knowledge of the parties, without in each instance securing the prior written consent of the other party, unless such disclosure is required by law or legal process. However, nothing shall prevent either Contractor or the City from disclosing to others, or using in any manner, information which either party can show (a) has been published or has become part of the public domain other than by acts of Contractor or the City; (b) has been furnished or made known to Contractor or the City by third parties without restrictions on its disclosure; or (c) was in either party’s possession prior to the disclosure thereof by the City or Contractor to each other. Contractor shall not be restricted in any way from releasing information in response to a subpoena, court order, or legal process, but shall notify City of the demand for information before Contractor responds to such demand. The City reserves the right to prohibit the release of said information as provided by law.

9.00 CONFLICT OF INTEREST

In entering this Agreement, the Contractor covenants that it presently has no interest, and shall not acquire any interest, direct, indirect, financial, or otherwise, which would conflict in any manner or degree with performance of the services hereunder. Contractor further covenants that in the performance of the Agreement, no subcontractor, or person having such an interest, shall be employed by the City. Contractor certifies that no one who has or will have any financial interest under this Agreement is an officer or employee of the City.
10.00 ACCEPTANCE NOT WAIVER

The City’s approval of drawings, plans, specifications, reports, and incidental work, or materials furnished hereunder shall not in any way relieve Contractor from responsibility for the technical accuracy of the work. The City’s approval or acceptance of, or payment for, any services shall not be construed to operate as a waiver of any of the City’s rights under this Agreement or any of its legal rights under statute and common law arising out of the performance of this Agreement.

11.00 INSURANCE REQUIREMENTS

The Contractor shall file a Certificate of Insurance with the City verifying each type of insurance coverage listed below.

The Certificate of Insurance shall be submitted to and approved by the City before the Contractor begins to perform under this bid and the subsequent contract.

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<thead>
<tr>
<th>TYPE OF COVERAGE</th>
<th>MINIMUM POLICY REQUIREMENTS</th>
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<tr>
<td>Commercial General Liability (Including Products and Completed Operations; Explosion, Collapse and Underground if applicable to the hazards of a specific project.)</td>
<td>$1,000,000 per Occurrence $2,000,000 Aggregate</td>
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<td>Business Automobile Liability</td>
<td>$1,000,000 (Combined Single Limit)</td>
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<td>Workers’ Compensation</td>
<td>Statutory</td>
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<td>OR</td>
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<tr>
<td>Employer’s Liability</td>
<td>$500,000 Each Accident $500,000 Each Disease-Policy Limit $500,000 Disease/Each Employee</td>
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It is understood and agreed that these policies are primary and not contributory. All policies required under this contract shall be in effect for the duration of the project and contract. The Contractor shall immediately notify in writing the City Risk Manager, City Clerk, and City Attorney of any fact, circumstance, or occurrence that has resulted in, or may result in, the cancellation or substantive change of any insurance coverage required by this contract, and failure to do so shall be construed to be a breach of this contract.

The Contractor shall name the City as an additional insured on the Contractor’s insurance policies, except workers’ compensation, and the Contractor shall provide a copy of the endorsements providing this coverage.

The City has the right to reject a certificate of insurance if the City determines that the Contractor’s insurance company is widely regarded in the insurance industry as financially unstable. Any insurance company providing coverage under this contract shall have a minimum A.M. Best rating of A- (excellent).
The City has the right to review the insurance certificates of any or all Sub-Contractors used by the Contractor. Further, the City requires that the Sub-Contractors’ insurance coverages be at least equivalent to that required of the Contractor.

The City has the right to increase the required minimum limit of liability on any contract project as warranted by an increase in hazard. Examples of increased hazard include, but are not limited to, handling of hazardous materials and activities involving large congregations of people.

The City shall have the right to consult with the Contractor’s insurance agent for disclosure of relevant policy information, but the City’s non-request or non-review such policies, endorsements, or certificates shall not affect the City’s rights or Contractor’s obligations hereunder. Disclosure of relevant policy information would specifically involve, but is not limited to, exclusions, deductibles, and claims in progress which could significantly reduce the annual aggregate limit.

12.00 INDEMNITY

In entering into the Agreement, the Contractor agrees to hold harmless, defend, and indemnify the City of Cheyenne, its officials, employees, agents, and authorized volunteers against any and all claims and costs, including attorneys’ fees, arising during or resulting from the Contractor’s performance of the contract. The Contractor shall carry insurance as set forth in these Contract Documents. The Contractor acknowledges its understanding of this paragraph and realizes it may have a financial responsibility to the City. The City does not waive any applicable defenses and expressly reserves the right to invoke governmental immunity pursuant to the Wyoming Governmental Claims Act, Wyo. Stat. § 1-39-101, et seq. for any claim arising out of performance of this agreement.

The Contractor expressly understands and agrees that although the City and the Engineer have the right under this Contract to observe and review the Contractor’s work and operations, this right shall not relieve the Contractor from any of its covenants, obligations, or duties hereunder. The Contractor shall be responsible for and hold harmless the City, the Engineer, and their representatives from all suits, actions, or claims of any character, due to injuries or damages sustained by any person or property, in consequence of any neglect in performing the work, observing safety standards or regulations, through the use of unsafe or unacceptable practices or materials in the performance of the work, the Contractor’s failure to comply with any law, ordinance or regulation or otherwise.

13.00 PROJECT RECORD DOCUMENTS

The Contractor shall maintain at the job site one copy of all Contract and project documents, each portion of which shall be clearly marked, “Project Record Copy”. These documents, including drawings, specifications, addenda, approved shop drawings, change orders, field orders, other Contract Modifications, and other approved documents submitted by the Contractor in compliance with various sections of the Contract Documents, shall be maintained in good condition, available at all times for inspection by the City, and not used for construction purposes.
The Contractor shall mark up the most appropriate document to show significant changes made during construction progress, and significant detail not shown in the original Contract Documents. The information shall include, but shall not be limited to, location of underground utilities and appurtenances referenced to permanent surface improvements, and location of internal utilities and appurtenances concealed in building structures referenced to visible and accessible features of structures.

The Contractor shall keep the project record documents current and not permanently conceal any work until required information has been recorded. Upon completion of the project and prior to final acceptance, the Contractor shall submit the marked up set of project record documents to the Engineer for the City along with the “Contractor’s Certificate of Completion” found in the bidding documents. After the Engineer has inspected the work and has determined it to be substantially complete, the City will issue a “Certificate of Substantial Completion”, which will establish the date of commencement of the warranty period.

14.00 CONTRACT DOCUMENTS

The City will furnish to the Contractor, without charge, two (2) copies of the Contract Documents including technical specifications and drawings. Additional copies requested by the Contractor will be furnished at cost.

15.00 TIME FOR COMPLETION

The Contractor shall commence the work required under this contract at the time stipulated by the City in the Notice to Proceed. The Contractor shall complete the work by: **Substantial Completion, October 31, 2021, Final Completion, July 1, 2022.** Time will not be counted when the project is officially suspended by the City due to acts of God, winter shutdown, and City-originated suspensions that are necessary through no fault of the Contractor. In the latter instance, if the City suspends the work for more than ninety (90) calendar days, the Contractor may apply for a price adjustment to compensate for reasonable expenses caused by the suspension. Any application for price adjustment or Contract Time extension will be submitted to the Governing Body of the City for its consideration in the form of a Contract Modification. It will be the responsibility of the Contractor to provide sufficient documentation to substantiate any claim.

16.00 JOB OFFICES AND STAGING AREA

The Contractor and Sub-Contractor(s) may maintain office and storage facilities on the site which are necessary to properly conduct the work. These facilities’ locations shall not cause any interference to any work performed on the site. The Contractor shall consult with the City regarding the locations. Upon completion of the improvements, or as directed by the City, the Contractor shall remove all such temporary structures and facilities from the site. The Contractor shall leave the site of the work in the condition required by the Contract.

On-site toilet facilities for employees of Contractors and Sub-Contractor(s) shall be provided and maintained in a sanitary condition. The Contractor shall remove all trace of these facilities prior to completion of the project.
17.00 **THE USE OF CITY OWNED REFUSE CONTAINERS**

All City contracts shall require all Contractors to use City-provided Sanitation services if available.

18.00 **REFERENCE POINTS**

Project survey points are provided by the City one time only, unless otherwise noted by the City in the appropriate project manual.

The Contractor shall make all surveys that will be necessary for the proper construction. The Contractor shall preserve all property pins and control points. If any of these are destroyed or disturbed due to the Contractor’s construction activities or negligence, the Contractor will be charged at the Engineer’s established hourly crew rate for replacing them, with payment for this extra work to be made directly to the Engineer by deduction from the monthly periodic estimate payments to the Contractor. The Contractor shall also be responsible for any mistakes or damage resulting from the unnecessary loss or disturbances of control points.

19.00 **SEQUENCE OF WORK**

The Contractor shall make every effort to complete the work in a manner and fashion that minimizes roadway closures and inconveniences to the traveling public and adjacent property owners. Once barricades are placed in the right-of-way, the Contractor shall show progress of work during normal Working Days and hours. If no progress of work is recorded for twenty-four (24) hours and no concrete is waiting for strength, the Contractor shall remove barricades, re-open the right-of-way, and provide a safe travel way for the public. If the Contractor does not re-open the right-of-way or show progress of work within twenty-four (24) hours, the City shall use any and all means necessary to re-open the area at the Contractor’s expense. The Contract Documents are compiled to support the efficient operations of the Contractor and are not intended to supplant the Contractor’s responsibility of superintendence. Special consideration regarding schedules or work sequences necessary or anticipated during the course of the project will be identified in the Special Provisions.

20.00 **GENERAL TRAFFIC REQUIREMENTS**

The Contractor shall provide adequate signs, barricades, lights, and flaggers, and take all necessary precautions to prevent accident or injury and to minimize inconvenience to the public during the progress of the work.

All traffic control or other protective devices shall be installed and maintained in accordance with the Uniform Manual of Traffic Control Devices or in conformance with the applicable requirements of the authority having jurisdiction in such matters. The Contractor shall provide an American Traffic Safety Services Association (“ATSSA”) certified work site supervisor to supervise all traffic control operations if the City deems necessary.
Material stored on or adjacent to public streets shall not obstruct or inconvenience the traveling public.

Streets, driveways, or other access points shall not be closed without the prior consent of the City, Engineer, and proper governmental authorities. Fire hydrants on or near the site of the work shall be accessible at all times. The Contractor shall notify affected property owners, the City and the Engineer at least 48 hours in advance of any proposed closure for construction operations including any work to be done by utility companies.

The Contractor shall submit a traffic control diagram to the City for approval before work begins. The diagram shall indicate location and type of signs, cones, flashers, flagging, reflective barricades, and all other devices deemed necessary for the proper protection of the work area.

21.00 **EXISTING ROADWAYS AND OTHER PROPERTY**

The Contractor shall take all necessary precautions to protect adjacent roadways, properties, improvements, and underground facilities affected by the Contractor’s operations, regardless of the facilities’ ownership.

Any existing improvements or facilities damaged by the Contractor’s operations in the performance of the work under this Agreement shall be repaired or replaced by and at the expense of the Contractor to the satisfaction of the City.

The Contractor shall be responsible for the preservation and maintenance of all existing roadways affected but not directly disturbed by the work. The Contractor shall repair, replace, or clean any roadway indirectly affected by his or her operations during the course of the project. Such work shall be accomplished by and at the expense of the Contractor without reimbursement by the City.

22.00 **FINAL CLEANUP**

The Contractor shall clean all sidewalks, streets and other areas affected by construction and ensure removal of all loose surface materials. All piles of excess excavation, rocks, rubbish, or other debris shall be cleaned up and disposed of. Damage to any areas by the Contractor will be repaired or replaced by the Contractor at no expense to the City. No extra compensation will be allowed for final cleaning of the site, but the cost thereof shall be included in the unit price bid for other items in the Proposal. If work is suspended for any reason, the Contractor will be required at the Contractor’s expense, prior to shut down, to provide for the public’s safety and use as directed by the City or Engineer.

23.00 **ENGINEER OR INSPECTOR OVERTIME AND USE OF CITY RESOURCES:**

Inspection work required beyond normal working hours by any Engineer or Inspector having authority on the project must have the City’s written approval twenty-four (24) hours in advance of scheduled work. In emergency situations, verbal approval may be given followed by written approval on the next working day. In an emergency situation, verbal approval will suffice until the next working day at which time written approval will be obtained.
The City of Cheyenne Board of Public Utilities (“BOPU”) requires that requests for services on the weekend be made not later than 4:30 p.m. on the Thursday prior to need so that appropriate personnel arrangements can be made.

All costs for overtime inspection or professional services associated with the work will be paid for by the Contractor.

No City services, equipment, or personnel will be provided for this project unless specifically defined and stated in the bidding or contract documents, nor will any be provided free of charge unless expressly stated in these documents.

24.00 FORCE ACCOUNT, EXTRA WORK, AND WORK CHANGES

When the Contractor is required to do work or services under the force account or extra work, the cost for said work will be calculated using the provisions of the Wyoming Department of Transportation system for determining costs for equipment, operators and labor involved. Any extra work, additions, deletions or revisions in the work will be authorized by written Contract Modification or change orders. The Engineer may authorize minor changes or alterations in the work not involving extra cost and not inconsistent with the overall intent of the Contract Documents in the form of a Field Order.

25.00 CONTRACT MODIFICATIONS

a. General: Contract Modifications are used to increase or decrease the total Contract Price, to alter the Contract Time, or to alter any other contract agreement provision. Each Contract Modification must be in writing, approved by the City’s Governing Body, and executed by the Mayor and Contractor.

b. A Contract Modification does not invalidate the contract or release the surety. If the parties agree to a Contract Modification, the Contractor shall perform the work in the manner required by the contract as modified, except that the Contractor shall not perform any work which is subject to the Contract Modification, until such time as the City Engineer authorizes the Contractor to proceed. The City will initiate a request to modify the Contract by submitting the proposed Contract Modification to the Contractor for review and approval.

The City Engineer or agent thereof, e.g., a project manager, may issue a Field Order to authorize the work to be paid for under the Force Account bid item or to adjust existing bid item quantities without increasing the total Contract Price. See Section 24.00. The Contractor may not begin work under any Contract Modification until the City Engineer has authorized the Contractor to proceed.

The Contractor shall use a Request for Adjustment form to request an adjustment of the Contract Time or Contract Price. The City shall have no obligation to process oral requests for modification of the Contract Time or Contract Price, and no City official shall have the authority to approve oral modification requests. Proposed adjustments may be based upon extra work necessitated by an emergency, a change of conditions, or the City Engineer’s
interpretation of the contract requirements. Requests for Adjustments shall not be valid unless the Contractor has filed the request with the Engineer within:

1. Two (2) Working Days after the occurrence of the emergency or the discovery of any change in conditions which necessitates Additional Work; or


The City will pay for adjustments and modifications based on contract unit bid prices. If the Contractor’s cost of production or the character of the work is materially changed, the City may adjust the contract as specified in this section or seek a Contract Modification. The City will not pay for loss of anticipated profits resulting from adjustments or modifications, unless so specified in the adjustment or modification.

Differing Site Conditions: Before the conditions are disturbed or the affected work is performed or continued, the Contractor shall notify the City in writing if either of the following is encountered: (1) latent physical conditions that differ materially from those indicated in the contract; or (2) unusual physical conditions that differ materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract. The City will not grant or consider Contract Modifications based on differing site conditions if the Contractor does not timely notify the City within two (2) Working Days after discovering latent or unusual physical conditions.

Significant Changes in the Character of Work: The Contract Unit Price of each bid item in the proposal shall include the pro rata share of overhead and profit so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid represents the total bid. The City may alter the contract quantities, the Work, or both as necessary to complete the project, subject to the requirement that modifications to the Contract Price may be necessary in the event the alterations significantly change the character of the work. If alterations do not significantly change the character of the work specified in the contract, the City will pay for the altered work at contract unit prices and additional mark-ups for overhead and profit are not allowed.

Either of the following constitutes a “significant change” (1) when the character of the work, as altered, differs materially in kind or nature from that specified in the contract; or (2) in accordance with the relevant section in the Instruction to Bidders, when the net monetary value of all such additive and subtractive changes in quantities of such items increases or decreases the original total Contract Price by more than twenty percent (20%).

Extra and Force Account Work: When necessary or desirable to complete the project, the City may direct the Contractor to perform unforeseen work for which there is no pay item or unit price in the contract. The City shall seek a Contract Modification in the event the City’s direction to perform unforeseen work results in an increase in the Contract Price, the alteration of the Contract Time or required any other modification of the Contract Agreement. The City Engineer may direct the Contractor to perform work under the Force Account item for minor changes or alterations in the work that do not increase the original Contract Price. All Force Account Work shall be approved with a Field Order in accordance with the above procedures.
Extra work under the Force Account item shall be paid by one of the following methods: (1) Contract unit bid prices that are representative of the work being performed, as specified in item Significant Changes in the Character of Work; and (2) Negotiated unit bid prices for items where the Contractor’s cost of production or the character of the work is materially changed. The negotiated unit bid prices shall include the pro rata share of overhead and profit. Overhead and profit mark-up on Sub-Contractor unit bid prices shall be limited to five percent (5%); (3) lump sum, as stipulated in the order authorizing the work. Documentation for lump sum pricing shall be provided to a degree sufficient for the City Engineer to review for acceptability. Overhead and profit shall be limited to five percent (5%) on Sub-Contractor work and fifteen percent (15%) on work by Contractor’s own forces; and (4) Time and material basis utilizing approved materials, equipment, and labor costs calculated under the provisions of the latest edition of the Wyoming Department of Transportation Specifications Subsection 109.4.4.

26.00 PARTIAL USE OF SITE IMPROVEMENTS

The City may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected, and can be accepted as complying with the Contract Documents if, in its opinion, each section is reasonably safe, fit and convenient for the use and accommodation for which it was intended, provided:

The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the Contractor;

The Contractor will not be responsible for any damages or maintenance costs due directly to the use of such sections;

The use of such sections shall in no way relieve the Contractor of liability arising from having used defective materials or to poor workmanship.

Any guarantee period shall not commence until the date of the final acceptance of all work which the Contractor is required to construct under this contract.

27.00 TWO YEAR WARRANTY PERIOD

If after the approval of final payment and prior to the expiration of two (2) years after the date of Substantial Completion or such longer period as may be prescribed by law or by the terms of any applicable special guarantee, the Contractor shall promptly, without cost to the City and in accordance with the City’s written instructions, either correct such defective work or, if it has been rejected by the City, remove it from the site and replace it with non-defective work within thirty (30) calendar days of written notification by the City. If the Contractor does not promptly comply with the terms of such instruction, the City may have the defective work corrected or the rejected work removed and replaced, and all costs incurred therefore, including compensation for additional professional services, shall be paid by the Contractor and its sureties. The remedies provided in this section are in addition to all other remedies available to the City under applicable law and shall not be construed as exclusive of any other legal right or remedy available to the City.
28.00 COMPLETION AND WARRANTY


Substantial Completion. Shall be defined as when the project can be safely and effectively used by the public for its intended use, without further delays, disruptions, or other impediments and only clean up and work of a minor nature remains to be finished, as agreed to by the City Engineer or as otherwise specified. After written notice from the Contractor of Substantial Completion, the Engineer and the City shall make a determination of acceptance of substantial completion. If in agreement, the City will issue written notice of Substantial Completion at which date the contract time will stop. The Engineer will then make an inspection of the project and develop a punch list of items to be completed. The Contractor will have thirty (30) calendar days to complete all punch list items, with the exception of seasonal work item, which will be as agreed by the Engineer and the City. Liquidated damages may be assessed by the City, in accordance with Section 29.00, for every day that expires after the allotted time for the completion of the punch list.

Warranty. The specified date in the City’s Notice of Substantial Completion issued to the Contractor shall be the effective date for the beginning of the two-year warranty period.

Final Completion. After completion of the punch list, the Contractor shall issue the Contractor’s Certificate of Completion along with the marked-up Project Record Drawings in accordance with Project Documents. At that time the Engineer and the City shall inspect and if all construction provided for and contemplated by the contract is found to be complete to their satisfaction, this inspection shall constitute the final inspection and the Engineer shall make the final acceptance. The Contractor shall be notified in writing as to the date of the Final Completion.

Prior to the end of the Warranty Period, the City shall inspect the Project for defects in the workmanship or material. A written deficiency list shall be developed and provided to the Contractor. Normal wear and tear shall not be considered a deficiency. The Contractor shall promptly, without cost to the City and in accordance with the City’s written instructions, either correct such defective work or, if it has been rejected by the City, remove it from the site and replace it with non-defective work within thirty (30) calendar days of written notification by the City.

29.00 LIQUIDATED DAMAGES

For each calendar day that any work shall remain uncompleted after the contract time specified for the completion of the work provided for in the contract, the following liquidated damages charges will be deducted from any monies due the Contractor:

<table>
<thead>
<tr>
<th>ORIGINAL CONTRACT AMOUNT</th>
<th>LIQUIDATED DAMAGE CHARGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>From ($)</td>
<td>To and including ($)</td>
</tr>
<tr>
<td>0.00</td>
<td>25,000.00</td>
</tr>
</tbody>
</table>
Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the use of additional contract time, will in no way constitute a waiver on the part of the City to any of its rights under the contract.

Unless otherwise provided in the contract, liquidated damage charges will be calculated in accordance with the table. All time in excess of the required Contract Time will be calculated on a calendar day basis.

30.00 GOVERNMENTAL IMMUNITY

The City and its officials and employees do not waive governmental immunity by entering into this Agreement and specifically retain all immunities and defenses available to them as Governmental Entities pursuant to Wyo. Stat. § 1-39-101, et seq, and all other applicable laws. Further, the City fully retains all immunities and defenses provided by law with regard to any action, whether in tort, contract, or any other theory of law, based on this Agreement. The City does waive its governmental immunities solely for the enforcement of the terms and conditions of this Agreement.

31.00 GOVERNING LAW, JURISDICTION, AND VENUE

The construction, interpretation, and enforcement of this Agreement shall be governed by the laws of the State of Wyoming. The courts of the State of Wyoming shall have jurisdiction over any action arising out of this Agreement and over the parties, and the venue shall be the First Judicial District, Laramie County, Wyoming.

32.00 COMPLIANCE WITH LAWS

This Agreement shall be governed in all respects by the laws of the State of Wyoming. The parties hereto shall comply with all applicable federal, state, and local laws, rules, and regulations in the performance of this contract. The identified laws or regulations are included in this Agreement as mandated by statute or for the convenience of the Contractor. The Contractor’s attention is directed to the fact that all applicable federal and state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over design and construction of the project shall apply to the Agreement throughout, and they are deemed incorporated herein. Other laws and regulations apply which are not included herein, and are within the Contractor’s duty and responsibility for compliance therewith.
33.00  **DEFAULT**

Each and every term and condition herein shall be deemed a material element of this Agreement. In the event either party shall fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

34.00  **REMEDIES**

In the event a party declares the other party in default hereof, said party declaring default shall notify the defaulting party in writing, and such defaulting party shall be allowed a period of fifteen (15) calendar days to cure said default. In the event that the default remains uncorrected, the party not in default may elect to: (a) terminate this Agreement and seek damages; (b) treat this Agreement as continuing and require specific performance; or (c) avail itself of any other remedy at law or equity.

In the event Contractor fails to strictly perform in accordance with this Agreement, the City may elect to make good such deficiencies and charge Contractor therefore.

35.00  **TERMINATION**

The City may, by written notice to Contractor, terminate this Agreement, in whole or in part, by giving Contractor fifteen (15) calendar days written notice. Upon receipt of such notice, Contractor shall discontinue all services affected (unless the notice directs otherwise), and deliver to the City representative within five (5) calendar days all documents belonging to the City, including but not limited to, data, drawings, specifications, reports, estimates, and summaries accumulated by the Contractor in the performance of this Agreement, whether completed or in progress. In the event of termination, the City shall pay Contractor for all work accepted as of the date of termination.

36.00  **WAIVER**

The waiver by either party of any term, condition, or covenant, or breach of any term, condition, or covenant, shall not constitute a waiver of any other term, condition, or covenant, or breach thereof.

37.00  **SEVERABILITY**

If any provision, section, subsection, sentence, clause, or phrase of this Agreement is invalidated by any court of competent jurisdiction, such holding shall not affect the validity of the remainder of the Agreement, which shall continue in full force and affect.

38.00  **SUCCESSORS AND ASSIGNS**

All the terms, conditions, and provisions herein shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.
39.00 ASSIGNMENT

Neither party shall assign this Agreement without prior written consent of the other party. Any delegation or assignment shall not operate to relieve either party of its responsibilities hereunder.

40.00 THIRD PARTY RIGHTS

The parties do not intend to create in any other individual or entity the status of third party beneficiary, and this Agreement shall not be construed so as to create such status. The rights, duties and obligations contained in this Agreement shall operate only between the parties to this Agreement, and shall inure solely to the benefit of the parties to this Agreement. The parties to this Agreement intend and expressly agree that only the parties signatory to this Agreement shall have any legal or equitable right to seek to enforce this Agreement, to seek any remedy arising out of a party’s performance or failure to perform any term or condition of this Agreement. This paragraph is not intended nor shall it be construed to waive all the parties’ immunities.

41.00 FORCE MAJEURE

The performance of the Agreement by either party shall be subject to force majeure including, but not limited to, acts of God, fire, flood, natural disaster, war or threat of war, acts or threats of terrorism, civil disorder, unauthorized strikes, governmental regulation or advisory, recognized health threats as determined by the World Health Organization, the Centers for Disease Control, or local government authority or health agencies (including, but not limited to, the health threats of COVID-19, H1N1, or similar infectious diseases), curtailment of transportation facilities, or other similar occurrence beyond the control of the parties, where any of those factors, circumstances, situations, or conditions or similar ones prevent, dissuade, or unreasonably delay the performance required by this Agreement. The Agreement may be cancelled by either party, without liability, damages, fees, or penalty, and any unused deposits or amounts paid shall be refunded, for any one or more of the above reasons, by written notice to the other party.
PART 7 - SPECIFICATIONS

CITY OF CHEYENNE, WYOMING

THE STANDARD SPECIFICATIONS GOVERNING THIS PROJECT SHALL BE THE “CITY OF CHEYENNE/BOARD OF PUBLIC UTILITIES CONSTRUCTION SPECIFICATIONS AND STANDARD DRAWINGS, 2014” WITH APPROVED AMENDMENTS ISSUED BY THE CITY ENGINEER AT THE TIME OF THIS CONTRACT.

IT IS THE CONTRACTOR’S RESPONSIBILITY TO KEEP CURRENT ON THESE AMENDMENTS. COPIES OF THESE AMENDMENTS ARE AVAILABLE ON THE CITY’S WEBSITE AT http://www.cheyennecity.org.

SPECIAL PROVISIONS

THE SPECIAL PROVISIONS WILL ADD TO OR REVISE CERTAIN SECTIONS OF THE “CITY OF CHEYENNE/BOARD OF PUBLIC UTILITIES CONSTRUCTION SPECIFICATIONS AND STANDARD DRAWINGS, 2014”. REVISED PARAGRAPHS AND ADDITIONS WILL CORRESPOND TO THE STANDARD NUMERICAL AND TITLE DESIGNATIONS.

THE SPECIAL PROVISIONS MAY ALSO INCLUDE NEW SECTIONS OF SPECIFICATIONS NOT COVERED IN THE STANDARD SPECIFICATIONS AND WILL BE NUMBERED STARTING FROM SECTION 04000.
CAPITOL BASIN - 26TH STREET INTERCEPTOR STORM SEWER EXTENSION
PROJECT

TENTATIVE PROJECT TIMELINE

Legal Advertisement: January 29 & February 5, 2021
Pre-Bid Meeting (Zoom): February 9, 2021
Question Submission Date: February 16, 2021
Addendum Response Deadline: February 19, 2021
Bid Opening: March 10, 2021
City Council 1st Reading: March 22, 2021
Finance Committee: April 5, 2021
City Council Final Approval: April 12, 2021
Contract Signature Processing: April 13-16, 2021
Notice to Proceed (Estimated): April 19, 2021
Substantial Completion: October 31, 2021
Final Completion: July 1, 2022
CAPITOL BASIN 26TH STREET INTERCEPTOR STORM SEWER EXTENSION PROJECT

SUPPLEMENTARY SPECIFICATIONS

The following are supplementary specifications and shall supplement, amend, and wherein conflict therewith, supersede various sections of the City of Cheyenne and Board of Public Utilities Construction Standards and Specifications, 2014, and all Amendments to date.
ENGINEERS CERTIFICATE

WE HEREBY CERTIFY THAT WE HAVE PREPARED OR DIRECTLY SUPERVISED THE PREPARATION OF THESE PLANS AND SPECIFICATIONS, AND THAT WE ARE DULY REGISTERED PROFESSIONAL ENGINEERS IN THE STATE OF WYOMING.

SCOTT COWLEY, PE
WYOMING P.E. NO. 6509

GREG T. REID
WYOMING P.E. NO. 14083
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Appendix B Health And Safety Plan
SECTION 01054: CONTROL OF WORK

Add the following to subsection 1.04:

E. The contractor shall provide a project superintendent on-site at all times during construction activities. The superintendent shall be responsible for, but not limited to the following tasks:

1. Must be knowledgeable and familiar with plans, specs, addendums, and shop drawings.
2. Manage and oversee the construction activities of all sub-contractors on-site.
3. Review and approve all shop drawings including sub-contractors prior to submitting to the City.
4. Review stakeout data, survey stakes and verify against the design plans prior to, and during, associated construction activity.
5. Obtain approval from the owner/engineer prior to beginning any force account efforts.
6. Provide an accurate weekly construction schedule.
7. Available during non-working hours for emergencies and or storm water management erosion control issues.
8. Substitution by permission only.

SECTION 01340: SUBMITTALS

Add the following to:

3.01 F. The Contractor shall thoroughly review approve the submittals against the plans and specifications for compliance prior to submittal to the City and the Engineer. This includes submittals from all sub-contractors. Each submittal shall be numbered in sequential order and organized per each bid item with a cover letter detailing what the submittal is referring to. The cover letter shall also include the Contractor’s approval signature. If these conditions have not been met, the submittals shall be rejected. The Owner shall have at least four (4) working days to review the submittals and more time might be required depending on the nature of the submittal.

SECTION 01562: DUST CONTROL and CLEAN UP

Add the following to 3.02.C after work suspension: and delay in payment

SECTION 02050: REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Add the following to:

1.01 A. Fire hydrants, inlet boxes, storm manholes, abandoned gas pipe, storm sewer pipe, water pipe, and trees that interfere with the construction.
4.02 D. Pay Item Pay Unit
   Removal & Disposal of Structures and Obstructions Lump Sum (LS)

SECTION 02190: AGGREGATES

2.03 B. Replace “crushed stone or crushed gravel” with “crushed granite”.
2.03 B1. Replace “stone or gravel” with “granite”. And add “with 100% fractured faces” after fifty percent.

2.03 B2. Replace “crushed stone, crushed gravel or natural sand “with “crushed granite”.

2.05 B. Replace “crushed stone or crushed gravel” with “crushed granite”. 100% Fractured Faces.

2.05 C. Replace “crushed stone, crushed gravel or natural sand” with “crushed granite”. 100% Fractured Faces

2.07 A. Replace “crushed stone or crushed gravel” with “crushed granite” and “finely crushed stone, gravel or sand” with “crushed granite”. 100%

SECTION 02210: EXCAVATION, EMBANKMENT, AND COMPACTION

Add or insert the following to:

Delete all reference to Rock excavation in this section. Refer to Section 02222 Rock Excavation.

2.04 A. The final decision of determining what “Muck Excavation” is shall be determined by the Engineer.

2.06 Excavation Below Subgrade

A. In the event material is discovered that is not defined as Muck Excavation but is determined unworkable or unsuitable by the Engineer, the material shall be removed as determined by the Engineer.

2.07 UNCLASSIFIED EXCAVATION ABOVE SUBGRADE: This item shall include sawcutting, removal and disposal of all surfacing and excavation to the proposed subgrade as shown in the plans including, asphalt, concrete, base, subbase, sidewalks, curb & gutter, valley pans, drive approaches, fillets, and any other surfacing materials requiring removal to the new proposed subgrade elevation.

3.02 A. The minimum compaction for the entire project shall be 95 percent in roadways and developable areas and shall govern over the geotech report unless the geotech report recommends compaction greater than 95 percent. ASTM D 698 Standard Proctor.

3.04 A. Fine grading will not be paid separately and considered subsidiary.

3.04 G. The Contractor shall continue to maintain the subgrade after proof rolling is complete until roadway is paved. If the subgrade fails and exhibits movement, even after a proof roll has been accepted, the Contractor shall rework the area until acceptable at no additional cost to the Owner.

3.04 G. 3. Remove and replace with: Areas which exhibit movement, cracking, or deflection in excess as determined by the Engineer shall be reworked, reconditioned and retested to ensure proper compaction to the satisfaction of the Engineer. This shall be performed until the roadway is paved, regardless of weather.
3.05 D. No separate payment will be made for dewatering and shall be considered subsidiary.

4.01 H. EXCAVATION BELOW SUBGRADE: This item shall be measured by the average end area method of calculating cubic yards of material.

4.01 I. UNCLASSIFIED EXCAVATION ABOVE SUBGRADE: This item shall be measured by the square yard of surfacing items removed and disposed of as called for in the plans.

4.02 H. EXCAVATION BELOW SUBGRADE: This item shall be paid for by the Cubic Yard Basis of material at the contract unit price bid. The price shall reflect compensation for all labor, equipment, tools, and incidentals necessary to complete the excavation and disposal of unstable material in embankment foundations and soft or unstable material in the Subgrade. The cost of backfilling with Crushed Base Backfill Material (Grading W) and compacting holes created by the removal of unstable material shall be included in the “Excavation Below Subgrade” item.

B 4.02 I. UNCLASSIFIED EXCAVATION ABOVE SUBGRADE: This item shall be paid by the square-yard at the contract unit price bid. The price shall include all sawcutting labor, materials, equipment, haul, and disposal of excavated materials removed to the new proposed subgrade elevation.

SECTION 02220: TRENCH EXCAVATION

Add The Following:

3.01 B. The suitability of the excavated material for use as backfill shall be determined by the Engineer. The Contractor shall be responsible for managing the excavated material that is suitable for backfill. In the event this material becomes contaminated or otherwise unsuitable for back fill, it shall be the contractor’s responsibility to remove from the site and import suitable backfill material, as determine by the engineer, at no additional cost to the owner.

3.15 TRENCH DIMENSIONS

A. Remove the first sentence and replace with: “Trench width from the bottom to one (1) foot above the top of pipe shall be no less than the outside diameter of the pipe plus twelve (12) inches on either side of the pipe, but not more than twenty-four (24) inches on either side of the pipe plus the pipe outside diameter.”

SECTION 02222: ROCK EXCAVATION

Add the following:

1.03 DEFINITIONS

A. Rock Excavation as it relates to trench excavation shall be defined as materials in which a minimum 52,000-pound excavator with rock tiger teeth on the bucket cannot remove. As approved by Engineer.

B. Rock Excavation as it relates to excavation and embankment work shall be defined as material in which a minimum D-9 size dozer with one ripper tooth cannot penetrate. As approved by Engineer.
Replace with the following:

4.01 METHOD OF MEASUREMENT

A. Rock Excavation shall be measured by the cubic yard, using volumetric measurements of the neat line limits of the trench or the difference of pre and post surveys of the excavated material.

4.02 BASIS OF PAYMENT

A. The accepted quantities of rock excavation shall be paid for at the contract unit price per cubic yard, including all labor, materials, and equipment required to remove and dispose of the rock material, as well as any imported fill material required to fill the excavation complete in place.

B. Payment shall be made under

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock Excavitation</td>
<td>CY</td>
</tr>
<tr>
<td>Rock Excavitation (blasting)</td>
<td>CY</td>
</tr>
</tbody>
</table>

SECTION 02225: TRENCH BACKFILL

Add the following to:

2.01 MATERIALS

A. Pipe Bedding Materials

1. (a) For the Capitol Basin 26th Street Interceptor Storm Sewer Extension Project, Type I bedding material for RCP storm sewer pipe is only required from 6” below the pipe to level with the spring line of the pipe. The bedding material shall be leveled and properly knifed into the haunches of the storm pipe prior to back fill with Type “A” Trench backfill. All other pipe types will follow City Standard for Pipe Bedding.

3.01 A.

7. If excavated material is considered unsuitable for backfill by the Engineer the contractor shall remove said material from the site and import suitable material for backfill. Import back fill material shall meet the requirements for Section 02190 Crushed Base Aggregate Grading “G”.

4.01 B. Import trench backfill shall be measured by the cubic yard; complete in place based on the Trench width (up to the maximum allowable trench width) multiplied by the trench depth (top of subgrade to 1 foot above the pipe) and length and compacted to 95% ASTM D 698 Standard Proctor.

4.02 B. Import trench backfill shall be paid at the contract unit price bid and shall include all labor, materials and equipment to be removed and disposed of unsuitable material, hauling, placing and compacting imported trench back fill material (Crushed Base Grading “G”) as accepted by the Engineer.
SECTION 02231: AGGREGATE SUBBASE AND BASE COURSE

Change the following to:

4.02 BASIS OF PAYMENT

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushed Base Grading “W” (____ inches thick)</td>
<td>Square Yard (SY)</td>
</tr>
</tbody>
</table>

SECTION 02280: TOPSOIL

Add or insert the following to:

3.01 B. or as shown in the plans.

3.04 D. Topsoil shall be placed evenly to the top back of curb, sidewalk, edge of surfacing, etc, to provide positive drainage as directed by the Engineer. If the topsoil subsides, additional topsoil will be added to compensate.

Remove the following:

3.05 A. “or obtained within the limits of the project and hauled across a balance station in the earthwork for final placement"

4.01 C. “unless it is hauled across an earthwork balance station, in which case it shall be measured as topsoil borrow.”

SECTION 02512: PLANT MIX PAVEMENTS

Add or insert the following to:

3.02 F, 1. Surface voids and rock pockets due to segregation of the material shall be corrected by the addition of hot mix and hand manipulation of the material to add fines to the area and reestablishing the finish grade. This work shall be performed prior to the initial compaction effort. If voids are excessive, corrective measures such as seal coat or wearing course shall be applied at no additional cost to the Owner.

3.04 C. The cores will also be measured to verify the minimum required pavement thickness. If the cores determine that the pavement thickness is less than the minimum, a payment deduction in the amount proportional to the core thickness shall be applied to the area represented by the cores.

Replace with the following:

4.01 A. Plant mix bituminous pavement shall be measured by the square yard (SY) and weigh tickets shall be provided by the Contractor.
SECTION 02515: ASPHALT PATCHING

3.02 APPLICATION

Paragraph C.:

Delete Sentences 4-8

“T” Patching will not be required on the Capitol Basin 26th Street Interceptor Storm Sewer Extension Project.

SECTION 02570: ADJUSTING STREET FIXTURES

4.02. C. Payment shall also include the sawcutting, concrete collar; rebar reinforcement, etc. to complete the item.

SECTION 02665: WATER DISTRIBUTION AND TRANSMISSION SYSTEMS

2.01 F. 4. All mechanical fittings are to be restrained/mega-lugged.

3.01. E. 16. a. 1) Trench Dimensions

Remove the first sentence and replace with the following: “Trench width from the trench bottom to a point 1 foot above the top of pipe shall be no less than the outside diameter of the pipe plus 12” on either side, and not more than 24” on either side of the pipe plus the pipe outside diameter”.

4.01 F. Tap replacement will be measured by the each of service line installed from the main to and including a new curb stop.

4.02 A. 1. Payment shall also include slurry encasements and or casings as required, and any shoring required to maintain trench integrity and to protect existing utilities. Payment shall also include removing utility spoils off site. If the spoils are allowed to be wasted on-site, the Prime Contractor shall manage the material accordingly so as it does not impact other quantities such as embankment/unclassified excavation, topsoil placing, seeding, etc.

4.02 B. When not identified as an individual pay item, payment shall also include valve restraint blocks when required.

4.02 F. Tap replacements payment shall be made at the unit price bid and include all labor, materials, and equipment to complete the item. Including appropriate size copper pipe length (see plans for each length) corporation stop, curb stop, insulation as needed (see detail in sheet 58), and installation as needed above or below storm sewer pipe.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tap Replacement ¾” (Common)</td>
<td>Each</td>
</tr>
<tr>
<td>Tap Replacement ¾” Reroute (Insulated)</td>
<td>Each</td>
</tr>
<tr>
<td>Tap Replacement 1” (Insulated)</td>
<td>Each</td>
</tr>
<tr>
<td>Tap Replacement ¾” (Insulated)</td>
<td>Each</td>
</tr>
<tr>
<td>New Two Inch (2”) Tap (State Lot)</td>
<td>Each</td>
</tr>
</tbody>
</table>
4.02 G. WATER MAIN CASINGS

1. Payment shall be made based on lineal feet of casing pipe installed including, but not limited to, labor, equipment, tools, materials, casing pipe, rubber seals, stainless steel bands, casing spacers, vents (when required) and all incidentals and efforts per the standard detail.

SECTION 02725: STORM DRAINS AND CULVERTS

Add the following:

2.01 F. The manhole shall be constructed to allow for a minimum of three (3) inches of adjustment to finish grade.

3.02 A. The manhole shall be adjusted to finish grade after paving operations with a reinforced 48 inch square concrete collar poured around the ring.

Remove and replace with the following:

4.01 C. Manholes/conflict boxes will be measured by the each complete in place as show in the plans, accepted by the Engineer including ring & cover, steps, concrete inverts.

4.01 G. Storm sewer conflict boxes will be measured by the each as shown in the plans complete in place and accepted by the Engineer. Storm sewer pipe will be measured by the lineal foot complete in place as shown on the plans and submitted lay schedule.

4.02 B. MANHOLES

2. Payment Shall be Made under

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storm Manhole 84”</td>
<td>Each</td>
</tr>
<tr>
<td>Storm Manhole 72”</td>
<td>Each</td>
</tr>
<tr>
<td>Storm Manhole 60”</td>
<td>Each</td>
</tr>
<tr>
<td>Storm Manhole 48”</td>
<td>Each</td>
</tr>
<tr>
<td>6’x7’-2” Conflict Box (Thomes) Type V Cement</td>
<td>Each</td>
</tr>
<tr>
<td>7’-2”x10’ Conflict Box (Pioneer) Type V Cement</td>
<td>Each</td>
</tr>
<tr>
<td>Inlet Type A (Slurry Backfill)</td>
<td>Each</td>
</tr>
<tr>
<td>Inlet Type AA (Slurry Backfill)</td>
<td>Each</td>
</tr>
<tr>
<td>Inlet Type AAA (Slurry Backfill)</td>
<td>Each</td>
</tr>
<tr>
<td>Inlet Type R (Slurry Backfill)</td>
<td>Each</td>
</tr>
<tr>
<td>Trench Cut of Walls</td>
<td>Each</td>
</tr>
<tr>
<td>Storm Drain Tie In Collar /Cut Off Wall</td>
<td>Each</td>
</tr>
</tbody>
</table>

SECTION 02805: SIGNAGE

Add the following:

3.01 L. Contractor shall investigate non-operating monument light pole located in the island at Carey and Randal/26th Street intersection. Contractor shall coordinate with Black Hills Energy and a licensed electrician to determine cause of non-operation and provide a solution and proposed cost to correct.
4.01 E. Measurement shall be made for monument light pole investigations and proposed correction as Lump Sum.

4.02 B. Payment for investigations and proposed corrections shall be made as Lump Sum (LS). Following a proposed solution and cost estimate by the Contractor to the Owner, and assuming the proposal is accepted by the Owner, payment for the correction shall be made through the Force Account bid item.

SECTION 02900: LANDSCAPING

Add the following:

3.01 A.1. Topsoil shall be raked to provide positive drainage and placed evenly to the top back of curb, sidewalk, or adjacent surfacing. Additional topsoil shall be added to compensate for settling. Roots, rocks, and other debris shall be removed prior to seeding or placing sod.

3.01 D.10. Contractor shall hire and ISA Certified Arborist to observe and prune existing tree roots as needed for surfacing and utility construction. Contractor shall coordinate with the City of Cheyenne Arborist to be onsite during work which will affect existing trees. Contractors Arborist shall complete root pruning and make recommendations as necessary so as to limit damage to trees within the project limits.

Contractors Arborist may be required to complete multiple trips as required based on the Contractors sequence of work, i.e., on site during curb and gutter efforts on site during sidewalk installation.

Contractors Arborist shall be required to document each tree pruned including description of work completed, species, location based off of address and project roadway centerline station.

4.01 C. Certified Arborist time will be measured at the hours of time onsite assess and prune tree roots as needed and agreed to by the City of Cheyenne.

4.02 C. Certified Arborist hours paid shall include all labor, materials and equipment required to assess the needs and prune tree roots necessary to complete utility and surfacing construction acceptable to the City of Cheyenne.

Delete 4.01 A & B. and Replace with the Following:

4.01 A. Irrigation System Modification/Repair

This item will be measured for payment under Force Account, itemized and agreed to by the Contractor, Engineer, and Owner at each address requiring modification or repair.

4.01 B. Landscaping (Site Restoration)

This item will be measured for payment under Force Account, itemized and agreed to by the Contractor, Engineer and Owner at each address requiring landscape restoration.

Delete 4.02 A & B. and Replace with the Following:

4.02 A. Basis of Payment for Irrigation Modification/Repair
Shall include all Labor, Materials, Equipment, and Incidentals necessary to complete the item.

Items may include irrigation pipe, fittings, sprinkler heads, wiring and other incidentals.

The Contractor shall submit a detailed, itemized list of all Labor, Materials, and Equipment cost required to complete the item by address/site that shall be verified by the Engineer prior to payment.

4.02 B. Basis of Payment for Landscaping (Site Restoration)

Shall include all Labor, Materials, Equipment, and Incidentals necessary to complete the item accepted by the Engineer and Owner.

Items may include Sod, Landscape Rock, Trees, Shrubs, Weed Barrier Fabric, Edging, etc.

The Contractor shall submit a detailed, itemized list of all Labor, Materials, and Equipment Cost required to complete the item by address/site that shall be verified by the Engineer prior to payment.

SECTION 03330: CONCRETE CURBS AND COMBINED CURBS AND GUTTERS

Add the following:

4.02 A. Payment shall also include all labor, materials, and incidentals necessary to construct curb cuts for approaches, driveways, handicap ramps, etc.

SECTION 03340: CONCRETE SIDEWALKS, DRIVEWAY APPROACHES, CURB TURN FILLETS, VALLEY GUTTERS AND MISCELLANEOUS NEW CONCRETE STRUCTURES

4.01 A. Replace with the following: Curb turn fillets – This item shall be measured per the ‘each’ based on the size of the radius, complete in place, including curb.

Replace the following:

4.02 E. Payment shall be made under:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curb Turn Fillet (___‘Rad.)</td>
<td>Per Each</td>
</tr>
</tbody>
</table>

The following are supplementary notes and shall supplement, amend, and wherein conflict therewith, supersede various the City of Cheyenne and Board of Public Utilities Current Construction Standard Drawings, and all Amendments to date.

STANDARD DRAWING # 03320-01

Add the following to note 6. Rebar shall be set into the existing concrete paving with epoxy cement.

STANDARD DRAWING # 03340-01

Remove the note “this portion shall be paid for as curb and gutter”. This is included in the cost of the fillet.
SPECIAL PROVISION
SECTION 01045
CONSTRUCTION REQUIREMENTS

This Special Provision shall supplement, amend, and wherein conflict therewith, supersede various sections of the City of Cheyenne and Board of Public Utilities “Construction Standards and Specifications, July 2018” and all Amendments to date.

PART 1 GENERAL

Section 1.01 SUMMARY

A. Prior to beginning any work on this project, the Contractor shall submit a work plan and progress schedule which is sufficiently detailed to show the sequence of each component of work required to complete the project within the contract time period and in the manner specified in this Special Provision. Items which shall be shown include the duration of the project, the beginning and ending dates of each component of work, and the production rates used to estimate the time required. Major components of work shall be shown even if they are not contract pay items (availability of pipe materials, manholes, crushing surfacing materials, etc.). An updated schedule shall be submitted at the beginning of each month on the first working day of that month showing the original schedule, any changes which have been made to the schedule, and the progress to date of each component. Additional schedules shall be submitted earlier if changes on the project are made or as directed by the Engineer. Monthly partial payments may be withheld until the current work schedule is submitted.

B. A progress meeting shall be held each week at a time and place determined by the Engineer. As a minimum, the Contractor’s project Superintendent, foreman/superintendent for each subcontractor scheduled to work in a given week are to attend. A weekly schedule shall be submitted to indicate the upcoming week’s work. The weekly schedule shall show what work is to be done the following week on a daily basis. The schedule shall list the items to be worked on each day and the stations or locations where the work will be performed. Address issues that affect the surrounding community and traveling public.
C. The Contractor shall prepare a media release for publication to all Cheyenne media outlets. The release shall be transmitted to the City and Engineer a minimum of seven (7) calendar days prior to commencing work operations on Capitol Basin 26th Street Interceptor Storm Sewer Extension Project. The media release shall be transmitted electronically via email to the Project Engineer. Information to be provided within the release shall include but is not limited to: Scope of work, the Contractor’s working hours, alternate routes, traffic control plan & diagram, general schedule of project and proposed completion date. Updated media releases shall be provided, if requested by the City or Engineer. The media release shall be in final version and require only a minimum amount of editing. The media release will be reviewed by, and distributed by the City. Keep adjacent landowners and businesses informed as to the project’s progress and access arrangements for employees and patrons. Notify each affected business, School District, State Agencies, owner/residents a minimum of two business days in advance of access changes.

D. Provide written updates for emergency services, the Engineer, and City. Inform emergency services prior to any operation or traffic pattern change that will affect routes used by emergency vehicles. Prepare an immediate access plan to a building or areas adjacent the project providing immediate access for emergency services.

E. The Contractor shall provide and maintain access to adjacent residential and State properties within the project limits through the duration of the project unless otherwise noted in the construction phasing exhibits. Pedestrian signing shall address safe routes to access office buildings and residence locations. The Contractor shall obtain written permission from the Engineer, City, prior to restricting any access. A copy of the written notice prior to restricting access shall be provided to the Engineer at least 24 hours prior to each access closure.

F. Considerations will be given to total closures for critical work items including sanitary sewer, storm sewer & water main crossings, and associated utility lowering’s across major streets for a brief (3-day) weekend or holiday period.

G. The Contractor is advised that they will be required to coordinate with Cheyenne Light Fuel & Power, Charter\ Spectrum, AT&T and Century Link. Coordinate construction activities with each utility to facilitate the relocations and ensure that both new and existing facilities are adequately protected.
during construction. Activities may include relocation and lowering and replacement of gas mains, underground telephone cable, and providing additional support for poles or duct banks that may be adjacent to trench excavations. Verify utility locations within the project limits. Coordinate with Century Link, Charter, and AT&T while excavating adjacent or crossing communications lines/ducts along the project several major telecommunication crossing exists on Carey Ave, crossing 26th Street. Coordinate with the City Traffic Department for location of street light and lighted pedestrian signs.

H. The Contractor will be responsible for coordinating with the City Sanitation Department, U.S. Postal Service, Emergency Responders, etc. to provide for continued / regular trash removals, postal deliveries, and emergency access for the residences, Schools, and businesses adjacent to the work area during the period of construction.

I. The Contractor is responsible to develop, permit, and implement a Storm Water Pollution Prevention Plan for the project site.

J. The Contractor shall properly barricade the construction site until the Work is complete. The Contractor shall be responsible for securing the safety of the Construction area with adequate fence or other approved measures.

K. The 26th project area drains significant runoff toward the Capital Ave. The Contractor shall be responsible for coordinating, developing, scheduling, and implementing a construction schedule and Storm Water Pollution Prevention Plan with the drainage basin flows that result in this area.

L. Sequence of Work. Construct the project in the order indicated in the sequence of work below. The Contractor shall hold a public meeting within the project area prior to beginning any construction activities along 26th Street. The contractor shall make arrangements for the location to host the meeting, provide adequate notice to area residence, school district, State construction office, utility companies and the general public one week prior to scheduled meeting. The Contractor shall present his approach to the project sequencing, schedule, and approach to handling both pedestrian and vehicular access along with sanitation, postal, express delivery, and emergency services. The Engineer will assist the Contractor with scheduling, exhibits and attendance at the meeting.
M. Traffic Control. Traffic Control through the construction area is the responsibility of the Contractor. Before starting construction, the Contractor shall submit in writing the proposed Phasing Plan and method of handling traffic. All proposed methods of handling traffic shall be approved in writing by the City and the Engineer. No phase of construction shall start until an acceptable method of handling traffic has been received and approved. The proposed methods shall include, as a minimum the following information:

- A detailed diagram that shows the location of all sign placements, including but not limited to advance construction signs, barricades, specialized signs, sequential chevrons, variable message boards, speed limit signs, cones, drum channelizing devices is required. Indicate the method, length, and time duration for lane closures at the major intersections (Pioneer, Randal, Carey, General) Indicate the need, number and location for flag persons to be used.

- Approval of the proposed methods of handling traffic does not relieve the Contractor of liability specifically assigned to him under the contract. The Contractor shall provide at the preconstruction conference the name of the individual, other than the Superintendent, that is to be responsible for the traffic control management. The designated person shall be a certified traffic supervisor. Responsibility includes the management of the Contractor’s signing and all other details covered by the Specifications that contribute to the convenience, safety, and orderly movement of traffic, to provide access to adjacent property and businesses along with maintaining adequate notice and communication of current and upcoming traffic changes to the traveling public. Payment for traffic control will not be adjusted due to contract length, weather delays, additional traffic control setups, maintenance, or mobilizations.

N. Specialized Signs. Contractor shall submit traffic control plans for approval and all plans shall be in accordance with the City of Cheyenne standards and the Manual of Uniform Traffic Control Devices (MUTCD). Signing shall be in place prior to commencement of work activities and following approval by the City of Cheyenne.

O. Variable Message Boards & Sequential Chevrons. The contractor shall have available variable message boards and sequential chevrons to facilitate information delivery to the travelling public.
P. Flagging. The Contractor shall have flagging personnel available for flagging when construction activities impact and impede pedestrian, vehicular, and bus access to and from schools or through the construction area. Pedestrian access routes through the project area shall be identified for students and the public.

Q. Mobilizations. Additional mobilizations for the Contractor, sub-contractors, along with traffic control set-ups shall be anticipated in the contract prices submitted for the project.

R. Maintenance. The Contractor shall be responsible for the installation and maintenance of temporary surfacing materials, temporary striping, temporary water, pumps, and traffic control. Temporary surfacing within public streets shall be asphalt when permanent surfacing is not placed within one week (7 days). Traffic control maintenance shall include cleaning, maintaining, moving, removing, or replacing. Traffic control signs in conflict with construction signing shall be turned away from traffic or covered adequately. Graffiti on traffic control signs shall be immediately cleaned or signs replaced.

S. Project Time Frame. The Contractor shall have project substantially complete by October 31, 2021. Substantially complete shall include all work necessary to return the constructed area to full normal vehicular and pedestrian Traffic. Work to be completed includes all wearing course, permanent striping, signing, traffic signals, sidewalks, and sanitary sewer linings.

The final completion date for the entire Capitol Basin 26th Street Interceptor Storm Sewer Extension project is July 1, 2022.

No adverse weather days will be tracked or added into the contract time period for this contract.

T. Temporary Utilities Temporary water, sanitary sewer by-pass pumping and associated notifications, testing, traffic control, access to adjacent properties and associated project coordination efforts to complete the installation of utilities and street improvements are to be included in the project work efforts.

U. The Contractor is responsible for protecting the Work previously completed and the materials on the site from damage by vandalism, weather conditions, irrigation and drainage. No extra payments will be made for dewatering the site or reworking previously approved areas that become damaged.
All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

END OF SECTION 01045
PART 1 – GENERAL

1.01 WORK INCLUDED:
A. WORK described in this Section is solely in the Plume Area as shown on the DRAWINGS. This Section does not apply to work outside of this area. The Plume Area is defined as beginning at Station 140+50 and continuing northeast to Station 151+25, based on Roadway.
B. This Section provides procedures and requirements for sampling, handling, and disposal of soil excavated during construction activities and includes all labor, equipment, materials, transportation, and incidentals for performing the following WORK to the lines, grades, and elevations as specified and shown, and as directed by the ENGINEER.
C. Excavation of waste identified in this Section shall be performed by the CONTRACTOR only to the extent necessary to facilitate site grading and construction activities as shown on the contract documents.
D. The CONTRACTOR shall dispose of surplus (excess) soil from excavations in the Plume Area per the requirements of this Section.
E. This Section provides procedures and requirements for handling groundwater dewatered during construction activities and includes but is not limited to all labor, equipment, materials, and incidentals for dewatering and disposal. The CONTRACTOR shall capture and treat groundwater dewatered from utility trench excavations for discharge per the WYPDES permit.
F. This Section provides procedures and requirements for ventilating contaminated air encountered during construction activities. The Section discusses all labor, equipment, and incidentals for performing the work. The CONTRACTOR shall ventilate utility trench excavations to the extent that concentrations of air contaminants are less than the project-specific Action Limits specified in the HASP (which shall be equal to or lower than the OSHA-specified PELs).
G. WORK in the Plume Area will be conducted in a Wyoming Department of Environmental Quality Solid & Hazardous Waste Division Orphan Site. The Orphan Site is the Cheyenne PCE Orphan Plume and is known to have 2 contaminants, PCE and TCE, with trace levels of cis-1,2-DCE.

1.02 RELATED WORK:
Section 01231 Safety
Section 01563 Sediment Erosion Control and Storm Water Management
Section 02210 Excavation, Embankment, and Compaction
Section 02220 Trench Excavation
Section 02225 Trench Backfill

1.03 DEFINITIONS:
A. ABIH: American Board of Industrial Hygiene
B. Action Limits: Minimum and maximum values of a quality assurance measurement that can be interpreted as representing acceptable performance with respect to the parameter being tested
C. CFR: Code of Federal Regulations
D. Contaminated Air: Ambient air with concentrations of contaminants that could cause adverse effects to humans or the environment.
E. Exclusion Zone: Defined and secured work area required for removal of hazardous waste per 29 CFR 1910.120.
F. Groundwater: Water held in the pore space of soil or other underground strata, including water infiltration in excavations.
G. HASP: Health and Safety Plan
H. Hazardous Waste: Soil or aqueous waste characterized as a RCRA hazardous waste, per 40 CFR Parts 260 through 265.
J. Non-Hazardous Waste: Soil or aqueous waste not characterized as a RCRA hazardous waste, per 40 CFR Parts 260 through 265. Consists of, or contains pollutants that, under ambient environmental conditions, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect State waters beneficial uses as described in the appropriate State water quality control plan, yet pollutants are present under concentrations acceptable by the local solid waste disposal facility.
K. No.: Number
L. On-site Aqueous Waste Treatment and Disposal: Aqueous waste characterized as inert or non-hazardous waste due to natural occurrence or treatment and approved for discharge on-site per the aqueous waste screening protocol (per Part 3.15) and the approved WYPDES permit.
M. OSHA: U.S. Occupational Safety and Health Administration
N. PEL: Permissible Exposure Limit – A legal limit set by OSHA for the exposure of an employee to a chemical substance or physical agent, usually given as a TWA.
O. ppmv: parts per million by volume
P. RCRA: Resource Conservation and Recovery Act
Q. Reusable Soil: Soil characterized as non-hazardous waste and approved for reuse within the Site, per the specifications and soil characterization screening protocol (Part 3.08), and excluding soil originating from dredged material.
R. SDS: Safety Data Sheet
S. Site: Designated and delineated area where project work is to be completed.
T. Soil: Soil or other solid material (e.g., gravel or rock) serving as subsurface materials in the work area below ground surface, asphalt, or concrete, excluding any miscellaneous crushed base layer.
U. SPCC: Spill Prevention, Control, and Countermeasure
V. State: State of Wyoming
W. Stockpile Area: Area reserved for the construction of soil stockpiles.
X. SWPPP: Stormwater Pollution Prevention Plan
Z. TTLC: Total Threshold Limit Concentrations – Concentrations of an organic or inorganic contaminant in a solid waste that characterizes that waste as hazardous.
AA. TWA: Time-Weighted Average – The average exposure over a specified period of time, usually eight (8) hours.
BB. Unrestricted Export Soil: Soil characterized as inert or non-hazardous waste and approved for unrestricted export outside the Site per the specifications and soil characterization screening protocol (Part 3.08).

CC. U.S. DOT: United States Department of Transportation

DD. U.S. EPA: United States Environmental Protection Agency

EE. VOC: Volatile Organic Compound

FF. VOC-Impacted Soil: Excavated soil with VOC vapor concentrations greater than 50 ppmv.

GG. VRP: Voluntary Remediation Program

HH. Waste: Solid, liquid (aqueous), or gaseous material that is not needed or not suitable for its original intended purpose, or a material classified as waste by a regulatory authority.

II. WDEQ: Wyoming Department of Environmental Quality

JJ. Work Area: Disturbed construction area requiring access and runoff control.

KK. WYPDES: Wyoming Pollutant Discharge Elimination System

1.04 REFERENCES:
The publications in the following list form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

A. HAZWOPER: OSHA Regulations per 29 CFR 1910.120.
B. RCRA Regulations per 40 CFR Parts 260 through 265.
E. Wyoming Department of Transportation Chapter 1, Section 15(a)(ii).
F. United States Department of Transportation 49 CFR Parts 107, 130, 171 through 173, and 177 through 180.
G. WDEQ/VRP: Fact Sheet #12D “Soil and Groundwater Cleanup Level Tables”
H. WDEQ/WQD: WYPDES Fact Sheet: Ground Water Remediation General Permit for Temporary Discharges Permit Number WYG940000
J. WDEQ Solid and Hazardous Waste Division: Solid Waste Guideline #2

1.05 REGULATIONS:
A. The CONTRACTOR shall comply with the specific permit and waste acceptance criteria of each individual off-site facility used by the CONTRACTOR for recycling or disposal of excavated soils.

B. The CONTRACTOR shall comply with the provisions specified for the work of this Section, which includes obtaining all necessary permits and providing all necessary notifications and approvals.

1.06 HEALTH AND SAFETY REQUIREMENT:
A. The CONTRACTOR shall comply with the health and safety requirements as specified by the HASP specific to the site.

1.07 QUALITY ASSURANCE:
A. Regulation Documents
1. The CONTRACTOR shall maintain at all times one copy each at the office and at the site of the approved CONTRACTOR’s Removal, Storage, Transportation, and Disposal Work Plan, and all required permits for the WORK.

B. Access by ENGINEER
1. The ENGINEER or ENGINEER’s representatives may enter exclusion zones for brief periods of time provided the ENGINEER or ENGINEER’s representatives have documentation of proper training and utilize appropriate PPE as called out in the ENGINEER or ENGINEER’s representatives’ HASP.

C. Independent Testing Laboratory
1. The CONTRACTOR shall obtain the services of an independent testing laboratory certified by the U.S. EPA and accredited by the State of Wyoming. The CONTRACTOR’s independent testing laboratory shall analyze all soil and groundwater samples submitted for chemical characterization, and shall be capable of achieving reporting limits necessary for material characterization.

D. Sample Collection and Preparation
1. The CONTRACTOR shall be responsible for conducting soil, aqueous, and air sampling at intervals specified in this Section, necessary permits, or as approved by the ENGINEER. Sample collection, preparation, and transportation shall be completed by a competent person following the procedures laid out in this Section and the WYPDES. The CONTRACTOR shall provide on-site supervision of the construction related soil and groundwater sampling, and shall provide recommendations regarding the waste classification for disposal of soil for review and approval by the ENGINEER.

E. Photoionization Detector (PID)
1. The CONTRACTOR shall provide at all times an on-site PID for measurements of VOCs in the ambient air. The PID shall be used in areas of excavated soil or exposed groundwater that may release VOCs to the air. The Site Health and Safety Supervisor shall have the authority to halt operations and evaluate ventilation solutions if PID readings exceed the Action Limits for a given contaminant specified in the job-specific HASP. The PID shall be ppbRAE or approved equivalent.

1.08 SUBMITTALS:
The CONTRACTOR shall prepare and submit the following to the ENGINEER a minimum of three (3) weeks (unless otherwise noted) before any excavation of soil or exposure of groundwater pertaining to this Section:
A. Notifications, Permits, and Approvals
1. The CONTRACTOR shall notify the ENGINEER a minimum of one (1) weeks prior to the start of removal of soils or exposure of groundwater.
2. The CONTRACTOR shall provide copies of required regulatory permits or approvals and appropriate regulatory agency notifications in accordance with permit requirements.
3. Spill Prevention, Control, and Countermeasure (SPCC) Plan
   a. The CONTRACTOR shall submit a SPCC plan to the ENGINEER a minimum of two (2) weeks prior to construction activities. The SPCC plan shall be Site specific.
b. The SPCC Plan shall be for untreated groundwater and contaminated soils that are transported outside of the Plume Area or onto uncontaminated surfaces.

c. A copy of the SPCC plan shall be kept at the Site at all times should a spill occur. The plan shall be available for immediate implementation.

4. WYPDES Permit

a. The CONTRACTOR shall submit and obtain an approved WYPDES permit for “Ground Water Remediation General Permit for Temporary Discharges ( Permit Number WYG940000)” prior to groundwater dewatering activities if groundwater is to be discharged. The CONTRACTOR shall provide proof to the ENGINEER that a WYPDES permit has been obtained a minimum of three (3) weeks prior to dewatering activities.

B. Health and Safety Plan (HASP)

1. The CONTRACTOR shall submit a detailed job-specific HASP including safe work practices and emergency procedures approved by the Health and Safety Manager. All emergency phone numbers shall be identified. The CONTRACTOR shall maintain a copy of the HASP on-site at all times of the work.

2. The CONTRACTOR shall submit current training certificates in the certified HASP.

3. Any of the CONTRACTOR’s personnel that will come into contact with soil or groundwater through removing or managing non-hazardous waste or hazardous waste shall have documented 40 hours of initial training per 29 CFR 1910 (HAZWOPER) and current 8-hour annual HAZWOPER refresher training.

4. The CONTRACTOR shall ensure that all employees who perform work in the Plume Area or associated soils, groundwater or soil vapors from the Plume Area are properly trained and certified in the use of personal protective equipment (PPE), and the proper handling, storage, and transportation of soils and aqueous waste under applicable OSHA, U.S. and State DOT, and U.S. EPA regulations.

5. If applicable, the CONTRACTOR shall submit a respiratory protection plan, which conforms to 29 CFR 1910.134 and ANSI Z88.2-69, including documentation of current respiratory fit tests for employees involved in VOC-impacted soil and groundwater removal, and an authorization signed by the Health and Safety Manager and a licensed medical physician stating employees are fit for use of respiratory protection equipment.

6. The CONTRACTOR shall provide the services of a Health and Safety Manager who shall be responsible for employee training and respiratory fit tests (if Level C PPE or greater is required) and the preparation of the CONTRACTOR’s detailed job-specific HASP, including determination of the need for PPE. The CONTRACTOR’s Health and Safety Manager shall be an industrial hygienist certified by the ABIH to conduct training and respiratory fit tests, and to review and approve the CONTRACTOR’s detailed job-specific HASP, including determination of the need for PPE in performing hazardous waste removal work. The CONTRACTOR shall submit proper documentation that the hygienist is ABIH certified, including certification number and date of certification/re-certification.

7. The CONTRACTOR shall provide the services of a Site Health and Safety Supervisor to implement the approved job-specific HASP. The Site Health and Safety Supervisor shall have the authority to halt operations at the site in the event of an emergency or to correct unsafe work practices or conditions. The
CONTRACTOR shall submit the resume of the Site Health and Safety Supervisor documenting minimum training in 40-Hours HAZWOPER, 8-Hours HAZWOPER Supervisor, First Aid, and CPR certifications.

C. CONTRACTOR’s Removal, Storage, Transportation, and Disposal Work Plan
   1. The CONTRACTOR shall prepare and submit a Removal, Storage, Transportation, and Disposal Work Plan that details the following:
      a. Sequencing of the soil removal work by location and estimated volume/tonnage to be stockpiled.
      b. Locations, means, and methods for storing excavated soils or exposed groundwater prior to transportation in accordance with applicable permits and this Section.
      c. Methodology for characterizing excavated soils and treated groundwater for export, reuse, or off-site disposal in accordance with this Section.
      d. Methodology for establishing exclusion zones around work areas, and decontamination areas at designated egress locations.
      e. Procedures for decontamination of equipment used within exclusion zones.
      f. Plan for groundwater and stormwater management within excavation(s) including lawful disposition of accumulated standing water as aqueous waste.
      g. All necessary transportation plans, route maps, haul permits, hauling companies, and certifications to be utilized for the transportation of soils removed from the Site during the WORK.
      h. Names, locations, and approvals for proposed designated facilities for final disposition.
      i. Methods and equipment associated with soil excavation and dewatering including sequence.
      j. Methods, equipment, and materials for vapor and dust suppression.

D. Field Screening Results and Reports
   1. For field screening (air monitoring) performed by the CONTRACTOR, provide all field notes and results associated with screening potentially contaminated materials for VOCs on a weekly basis during construction activities.

E. Independent Testing Laboratory
   1. The CONTRACTOR shall submit a qualifications package that shall include the name of analytical laboratory certified by the U.S. EPA and accredited by the State of Wyoming with the laboratory’s certification number(s), and the laboratory’s QA/QC manual. The laboratory’s reporting and detection limits must also be provided to determine if the precision sufficiently meets project intent.

F. Waste Profiles
   1. The CONTRACTOR shall submit waste profiles for approval by the ENGINEER a minimum of one (1) working day prior to transport of waste off-site (both soil and aqueous) to designated facilities for final disposition.

G. Disposal Manifests
   1. The CONTRACTOR shall submit completed disposal manifest(s) for final disposition of waste at designated facilities.

1.09 PROJECT CONDITIONS:
A. Information in the geotechnical and site investigation reports provided in PART 5 – LIMITED SITE INVESTIGATION does not constitute a guarantee of accuracy of uniformity of soil or groundwater conditions within the site. Information provided in PART 5 – LIMITED SITE INVESTIGATION is solely for pre-characterization of subsurface soils and groundwater for bidding and health and safety considerations. Characterizations and concentrations listed in PART 5 – LIMITED SITE INVESTIGATION may not represent actual site conditions.

1.10 ENVIRONMENTAL REQUIREMENTS:
A. Off-site Precautions: Equipment which has contacted waste shall not be allowed to pass outside the Exclusion Zone, over existing on-site access roads, off-site public roads, or other public and private property without decontamination and protection as approved by the ENGINEER in the Removal, Storage, Transportation, and Disposal Work Plan. Any such roads or property which are damaged or contaminated with hazardous waste as a result of CONTRACTOR’s operations shall be restored to original condition by the CONTRACTOR at CONTRACTOR’s own expense and at no additional cost to the OWNER.
B. Vapor Control: Vapors shall be controlled by the CONTRACTOR. Any damage caused by the vapor nuisance is exclusively the responsibility of the CONTRACTOR and shall be immediately repaired by the CONTRACTOR at CONTRACTOR’s own expense and at no additional cost to the OWNER.
C. Dust and Noise Control: Dust and noise shall be controlled by the CONTRACTOR. Any damage caused by dust or noise is exclusively the responsibility of the CONTRACTOR and shall be immediately repaired by the CONTRACTOR at the CONTRACTOR’s own expense and at no additional cost to the OWNER.
D. Stormwater Runoff Management: Stormwater shall be managed by the CONTRACTOR. Refer to Section 01563 of the City of Cheyenne Specifications.
E. Temporary Drainage: The Plume Area shall be kept as free as reasonably possible of standing water by the CONTRACTOR. Stormwater entering the Plume Area and coming into contact with contaminated soils and/or groundwater from excavations shall be treated as contaminated water. Discharge of contaminated water must meet the treatment requirements of the WYPDES permit.

1.11 PROTECTION:
A. Air Monitoring: The CONTRACTOR shall continuously monitor the air with a PID for measurements of VOCs in the ambient air. The PID shall be used according to Part 1.07(H).
B. Worker Health and Safety: The CONTRACTOR shall implement health and safety monitoring for the CONTRACTOR’s workers and equipment through a Site Safety Manager. The level of protection shall be in accordance with the CONTRACTOR’s approved job-specific HASP, and the type of PPE shall be adjusted (upgraded or downgraded) as necessary in order to complete the work, at the CONTRACTOR’s own expense, and at no additional cost to the OWNER. The CONTRACTOR’s workers shall wear and use appropriate PPE as specified in the job-specific HASP.

PART 2 – PRODUCTS

2.01 MATERIALS:
A. Plastic Sheeting: Soils contaminated at a higher concentration than neighboring soils will be identified during field screening via a PID, odor, or soil staining at the direction of the
CONTACTORS TESTING AGENCY and the ENGINEER. If these excavated soils are to be placed on an uncontaminated surface, a 40-mil minimum thickness polyethylene sheeting shall be provided by the CONTRACTOR to line the bottom of stockpile areas for the excavated soil. The CONTRACTOR shall provide 40-mil minimum thickness polyethylene sheeting to cover stockpiles if stockpiled for more than 14 days or to protect the stockpile from rainfall. Any soils and groundwater that are uncontaminated that come in contact with contaminated materials shall also be considered contaminated. Paved surfaces shall be broom cleaned after excavated soils and liners are removed.

**B. Construction Fencing:** Shall be provided by the CONTRACTOR per Section 01231 of the City of Cheyenne Specifications. Hazardous areas shall be considered any exposed subsurface soil in the Plume Area. This fencing shall be considered the delineation of the exclusion zone.

**C.** In accordance with the SWPPP, BMP materials shall be used as required.

**D.** In accordance with the SPCC, any materials required for containment of spills shall be provided by the CONTRACTOR. In the event spill containment materials are used and no longer provide the same capacity or protection, additional materials shall be provided by the CONTRACTOR.

**E.** Storage containers for hazardous waste shall comply with 40 CFR Part 265.

**F.** The CONTRACTOR shall supply all materials necessary for on-site aqueous waste treatment and disposal, including piping, baffles, tanks, or other materials necessary to complete the work as described in this Section.

### 2.02 EQUIPMENT:

**A.** The CONTRACTOR shall provide all equipment necessary to perform the work described in this Section.

**B.** All equipment used to transport hazardous materials will conform to Wyoming Department of Transportation Chapter 1, Section 15(a)(ii), which has adopted U.S. DOT 49 CFR Parts 107, 130, 171 through 173, and 177 through 180.

**C.** The CONTRACTOR shall provide pump(s) and equipment necessary to dewater excavations to provide for a safe and efficient work environment and to dispose of groundwater by the selected method.

**D.** The CONTRACTOR shall provide a portable water purification device (e.g., an air stripping water purification device sufficient in size to purify the rate dewatered from the excavation) to treat groundwater as the excavation is dewatered.

**E.** The CONTRACTOR shall provide a mechanism for ventilation of excavations to maintain the concentration of VOCs in the ambient air to less than the Action Limits specified in the job-specific HASP.

**F.** The CONTRACTOR shall provide a PID for measurements of VOCs in the ambient air around excavated soil or exposed groundwater. The PID shall be ppbRAE or approved equivalent.

### PART 3 – EXECUTION

#### 3.01 REQUIREMENTS:

**A.** Schedule

1. Construction in the Plume Area shall last no longer than 90 calendar days. The timeline shall begin once surficial soil, asphalt and/or concrete is removed for construction in the Plume Area and shall end once all utility trenches are
backfilled, compacted and accepted. Final grading and placement of topsoil, asphalt and/or concrete are not included in this 90-day period.

2. Liquidated Damages in the amount of $2,000.00 per calendar day shall be assessed if the work in the Plume Area is not completed, as described above. These liquated damages shall be separate from other liquidated damages associated with the contract.

B. Furnish

1. The CONTRACTOR shall furnish all labor, materials, and equipment necessary to properly handle, manage, characterize, stockpile, load, transport, and dispose of excavated soil and exposed groundwater and to ventilate contaminated air identified in this Section.

C. Tracking

1. The CONTRACTOR shall submit completed manifests to the ENGINEER for signature by the OWNER a minimum of one (1) working day before transport of non-hazardous and/or hazardous waste off-site. The CONTRACTOR is responsible to ensure that each manifest, from the point of origin to the point of disposal, is complete and accurate for full tracking of non-hazardous and/or hazardous waste.

D. Exclusion Zones

1. As required by the Removal, Storage, Transportation, and Disposal Work Plan, exclusion zones shall be established by the CONTRACTOR when excavating and stockpiling soil characterized as hazardous waste. Temporary construction fencing shall be located around the exclusion zones by the CONTRACTOR to restrict unauthorized persons from entering the zones. Exclusion zones shall be offset from the excavation limits a minimum of 10 feet on all sides.

2. The CONTRACTOR shall provide engineering measures for odor, vapor, and dust control. The CONTRACTOR shall spray the excavation surfaces and applicable portions of the site with water and/or approved dust/odor suppressants to control odor, vapor, and dust.

E. Caution Labels

1. The CONTRACTOR shall affix caution labels to all waste containers (including drums and roll-off bins). The CONTRACTOR shall provide a label with sufficient print size to be clearly legible, with bold print on a contrasting background, displaying the following information, at a minimum:
   • CAUTION: CONTAINS (type of non-hazardous or hazardous waste)
   • Date
   • Source
   • CONTRACTOR Name
   • Phone Number
   • U.S. EPA ID Number (if applicable)

3.02 CHEMICAL HAZARDS:

A. Tetrachloroethylene (PCE): An SDS describing the chemical hazards of PCE shall be included with the job-specific HASP, and available on-site at all times.

B. Trichloroethylene (TCE): An SDS describing the chemical hazards of TCE shall be included with the job-specific HASP, and available on-site at all times.

C. Any other chemicals identified by the job-specific HASP with SDS forms included.
3.03 ACTION LIMITS:

A. The CONTRACTOR’s HASP shall establish Action Limits for air monitoring of VOCs. The CONTRACTOR shall perform air monitoring with a PID or similar equipment during excavation to ensure that the Action Limits for VOCs are not exceeded. The Action Limits shall be based on current NIOSH standards, specific to the VOCs anticipated at the site, which include PCE, TCE, and any others identified by the CONTRACTOR. The CONTRACTOR’s job-specific HASP shall include provisions for “Personal Sampling” and appropriate PPE requirements to ensure that personnel on-site are not exposed to VOC-impacted soils, contaminated groundwater, or contaminated air that pose significant human health risks.

B. The CONTRACTOR’s HASP shall establish Action Limits for soils and groundwater with reported concentrations of VOCs. The CONTRACTOR’s job-specific HASP shall include a PPE requirement and dust abatement plan to ensure that site personnel are not exposed to hazardous soils or groundwater directly or through inhalation of particulates or vapors at concentrations that pose a significant human health risk.

C. The CONTRACTOR shall notify the ENGINEER when soils, groundwater, and/or contaminated air are encountered with conditions other than originally disclosed.

3.04 PERMITTING AND NOTIFICATIONS:

A. The CONTRACTOR shall provide all notifications to applicable regulatory agencies and other authorities and pay all required fees prior to commencement of construction activities specified in this Section.

3.05 EXCAVATION:

A. The CONTRACTOR shall perform excavation of soil, limiting the size of the excavation work face and quantity of stockpiles required for loading and staging where possible. If air monitoring results indicate VOC emissions greater than the specified Action Limits, mitigation measures for VOC emissions shall be immediately employed by the CONTRACTOR in order to continue the soil excavation activities.

3.06 SOIL MANAGEMENT:

A. The CONTRACTOR shall manage excavated soil in a safe manner according to federal, state, and local requirements.

B. The CONTRACTOR shall not mix or comingle soil stockpiles.

C. In accordance with this Section, the CONTRACTOR shall characterize stockpiled soil identified in this Section for disposition.

D. The CONTRACTOR shall not contaminate (i.e., spill or spread soil or waste onto) haul routes during performance of the work.

3.07 STOCKPILE CONSTRUCTION:

A. The CONTRACTOR shall establish separate stockpiles for each excavation not to exceed 200 cubic yards (CY) and at a minimum 100 CY unless approved by the ENGINEER. At direction of the ENGINEER, if field screening via a PID, odor, or soil staining indicates that a quantity of soils is contaminated at a higher concentration than neighboring soils, those soils shall be stockpiled separately. A single excavation is defined as a continuous trench. No additional payment will be made for stockpiles constructed outside of these required volumes.
B. The CONTRACTOR shall construct stockpile(s) on a level surface that is geotechnically and structurally competent. All stockpile locations shall be approved by the ENGINEER. Each completed stockpile shall be finished to a uniform shape and the top shall be sloped at a minimum grade of two percent (2%) to provide drainage.

C. The CONTRACTOR shall remove residual water from the stockpile of excavated soils. No residual water shall be allowed to drain outside of the Plume Area or onto an uncontaminated surface.

D. Stockpiles shall be placed on subsurface soils within the Plume Area. Stockpiles shall not be placed on asphalt or other uncontaminated surfaces unless approved by the ENGINEER.

E. The CONTRACTOR shall conduct air monitoring at the stockpiles with a PID any time workers are near the stockpiles. The CONTRACTOR shall maintain the stockpiles and provide mitigation measures if needed, and as directed by the ENGINEER, if air monitoring Action Limits are reached.

F. Excavated VOC-impacted soils shall be segregated and stockpiled separately from all other materials by the CONTRACTOR. Soil stockpiles deemed as RCRA Hazardous Soil Waste by sample analytical results shall be immediately placed and sealed within DOT-approved containers and disposed of at a licensed off-site disposal facility by the CONTRACTOR upon approval by the ENGINEER.

G. Stockpiles shall be clearly demarcated, tracked, and labeled by the CONTRACTOR to correspond with representative samples submitted for laboratory testing for soil characterization purposes as presented in this Section.

3.08 SOIL CHARACTERIZATION FOR DISPOSITION:

A. The CONTRACTOR shall characterize the soil to determine proper disposition.

B. The CONTRACTOR shall collect soil samples from stockpiled soils in accordance with Wyoming Department of Environmental Quality (WDEQ) Solid Waste Guideline #2 and the U.S. Environmental Protection Agency (EPA) SW-846. Sampling frequencies shall apply to soil stockpiles on a per each stockpile basis.

<table>
<thead>
<tr>
<th>Total Maximum Volume per Waste Stockpile (CY)</th>
<th>Number of Primary Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>One (1) 3-point composite sample</td>
</tr>
</tbody>
</table>

C. Each soil sample submitted for testing shall be collected by the CONTRACTOR at the midpoint of stockpile height. Each sample shall be collected at a randomly selected point on the stockpile surface.

D. The CONTRACTOR’s soil sampling and handling procedures shall be in accordance with U.S. EPA’s “Test Methods for Evaluating Solid Waste – Physical/Chemical Methods” (SW-846, Revision 8). Soil samples shall be transferred to laboratory-quality sample containers and preserved by the CONTRACTOR in accordance with SW-846. Each soil sample shall be recorded and transported using an approved chain-of-custody form.

E. The CONTRACTOR shall request laboratory turn-around time sufficient to meet its contractual schedule; however, the maximum turn-around time shall be fourteen (14) calendar days. If required to meet contractual schedule, the CONTRACTOR shall expedite laboratory analysis at no cost to the OWNER.
F. Laboratory analysis of each soil sample shall be performed by the CONTRACTOR’s Independent Testing Laboratory in accordance with the following table:

<table>
<thead>
<tr>
<th>Analysis Type</th>
<th>Method Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatile Organic Compounds (VOCs)</td>
<td>U.S. EPA Method 8260B</td>
</tr>
<tr>
<td>Full TCLP Analysis</td>
<td>Multiple</td>
</tr>
<tr>
<td>Paint Filter Test</td>
<td>U.S. EPA Method 9095B</td>
</tr>
</tbody>
</table>

NOTE: If reported Total Threshold Limit Concentrations (TTLC) for an analyte exceeds 20 times the regulatory maximum for the enforceable federal soluble concentration per Toxicity Characteristic Leaching Procedure (TCLP), the appropriate leachability test(s) shall be conducted. If the TCLP method detection limits exceed the unrestricted soil concentrations, then low-level VOCs analysis is required.

G. The CONTRACTOR shall review the laboratory results and provide a summary including recommendations for soil disposition for review and approval by the ENGINEER prior to transport of any soils. Recommendations for disposition shall be based on the contaminant concentration thresholds listed in the table below. The summary shall include sampling procedures, stockpile origination based on project stationing and depth, as applicable, laboratory analytical results, and chain-of-custody documentation.

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Unrestricted Soil</th>
<th>Non-Hazardous Soil</th>
<th>RCRA Hazardous Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCE</td>
<td>&lt; 0.0021 mg/kg</td>
<td>&gt; 0.0021 mg/kg; &lt; 0.7 mg/L</td>
<td>&gt; 0.7 mg/L</td>
</tr>
<tr>
<td>TCE</td>
<td>&lt; 0.00201 mg/kg</td>
<td>&gt; 0.00201 mg/kg; &lt; 0.5 mg/L</td>
<td>&gt; 0.5 mg/L</td>
</tr>
<tr>
<td>Paint Filter Test</td>
<td>n/a</td>
<td>Pass</td>
<td>n/a</td>
</tr>
</tbody>
</table>

3.09 SOIL DISPOSITION:

A. Soils that are found to be Unrestricted Soil shall be returned to the excavation as reusable soil placement or disposed of as unrestricted export soil. Soils that are found to be Non-Hazardous Soil need to be disposed of off-site as Non-Hazardous Soil waste at an approved landfill or recycling facility. Soils that are found to be RCRA Hazardous Soil shall be containerized and disposed of at an approved landfill or recycling facility.

B. The CONTRACTOR must return all Unrestricted Soil possible to the excavation.

C. The CONTRACTOR shall identify facilities or sites from the list shown in Part 3.11 of this Section for final disposition of all soils identified in this Section. The ENGINEER shall have approval authority for the final disposition of soils to confirm proposed disposal locations are permitted for disposal of the contaminants. As part of the approval process, the CONTRACTOR shall submit completed sample manifests and waste profile applications from the disposal/recycling facility for review and approval by the ENGINEER and OWNER.

D. The OWNER shall obtain U.S. EPA ID numbers and provide the ID Numbers to the CONTRACTOR for use by the CONTRACTOR for lawful waste management when transporting and disposing of RCRA hazardous waste. U.S. EPA ID Numbers are not
needed for disposal of non-hazardous waste. The Contractor shall comply with U.S. EPA requirements of hazardous waste generation, temporary on-site storage, transportation, and disposal.

E. All hazardous waste shall be properly managed, manifested, and transported by a licensed hazardous waste hauler to a proper waste management facility.

F. After approval of a waste profile by the CONTRACTOR’s recycling or disposal facility, should random sampling of the waste stream by the facility upon delivery indicate that the waste exceeds approved profile criteria, the CONTRACTOR shall immediately notify the ENGINEER if the facility will not accept any waste that was approved for acceptance. The CONTRACTOR shall be responsible for any costs associated with additional transportation of the material to another facility. The OWNER shall pay the correct disposal costs according to the waste classification, minus the added transportation costs incurred by the CONTRACTOR.

3.10 SOIL DISPOSAL FACILITIES:
A. The CONTRACTOR shall transport and dispose of soil to designated and approved licensed facilities, as required.

B. The CONTRACTOR shall submit current licenses, certifications, and contact information for any facilities proposed for recycling or disposal of soil classified as non-hazardous waste or VOC-impacted soil. The proposed facilities shall be fully licensed and permitted at the time of use and not subject to regulatory investigation or undergoing review for renewal of its license. The CONTRACTOR shall not propose any disposal facilities located outside the contiguous United States.

C. The CONTRACTOR shall submit waste profile applications for one or more licensed facilities that accept soil characterized as Non-Hazardous Soil for review and approval by the ENGINEER. Should the proposed facility or facilities be found to be unacceptable to the OWNER in its exclusive discretion, an alternate facility or facilities shall be submitted by the CONTRACTOR for approval as a substitute at no additional cost to the OWNER.

The following list presents approved facilities for lawful recycling and/or disposal of Non-Hazardous Soil, and that passes the “paint filter test” (U.S. EPA Method 9095B).

Approved Landfills and Recycling Facilities for Soil Characterized as Non-Hazardous Waste:

- City of Cheyenne Landfill
  Physical Address: 1461 Happy Jack Road
  Mailing Address: 2101 O’Neil Avenue
  Cheyenne, Wyoming 82001
  PH: (307) 632-8315
  PH: (307) 637-6288

- North Weld Landfill
  40000 Weld County Road 25
  Ault, Colorado 80610
  PH: (866) 482-6319

D. The CONTRACTOR shall submit waste profile applications for one or more licensed facilities that accept RCRA Hazardous Soil for review and approval by the ENGINEER.
Should the proposed facility or facilities be found to be unacceptable to the OWNER in its exclusive discretion, an alternate facility or facilities shall be submitted by the CONTRACTOR for approval as a substitute at no additional cost to the OWNER.

The following list presents approved facilities for lawful recycling and/or disposal of soil characterized as RCRA Hazardous Soil.

**Approved Landfills and Recycling Facilities for Soil Characterized as RCRA Hazardous Waste:**

- Enviro-Serve
  
  5405 Cloverbrook Circle
  
  Littleton, Colorado 80130
  
  PH: (303) 961-9319

3.11 **SOIL LOADING AND HAULING:**

A. While soils are being loaded into the trucks at a load out area, the CONTRACTOR shall perform vapor, odor, and dust suppression. After the soil is loaded into the transport trucks, the soil shall be covered and otherwise contained to prevent material from blowing or spilling out of the truck during transport to the designated facility for final disposition.

B. All vehicles shall be decontaminated by the CONTRACTOR prior to leaving the load out areas. For track-out prevention and control, all truck exteriors shall be broom-cleaned after loading. The roll-off bin portion of the dump truck shall then be covered with a tarp to prevent soil and/or dust from spilling out of the truck during transport to the designated facility for final disposition.

C. Prior to leaving the load out areas, each truck shall be inspected by the CONTRACTOR to ensure that the payloads are adequately covered, the trucks are cleaned of spilled material, and the shipment is properly manifested or documented. Proper hazardous waste placarding shall be required for transportation of hazardous waste.

3.12 **DEWATERING:**

A. The CONTRACTOR shall perform dewatering activities of excavations to provide safe and efficient work conditions for installation of utilities. The CONTRACTOR shall reduce groundwater volumes that require handling, treatment, or disposal as much as feasibly possible. If air monitoring results indicate VOC emissions greater than the specified Action Limits, mitigation measures for VOC emissions shall be immediately employed by the CONTRACTOR in order to continue the groundwater dewatering activities. Dewatering of the trench is included within these special provisions should it be required to complete the work. All dewatering of impacted groundwater shall be approved of by the ENGINEER prior to dewatering.

B. The CONTRACTOR shall construct and maintain exclusion zones when dewatering excavations with groundwater characterized as hazardous waste in accordance with the Removal, Storage, Transportation, and Disposal Work Plan.

C. The predicted hydraulic conductivity of the aquifer using literature values may range between 0.1 and 20 feet per day. Providing the worst case scenario that the groundwater level must be lowered 6 feet in primarily high hydraulic conductivity material and the trench is 75 feet long, the approximate maximum flow rate into the trench will be 20 gallons per minute when the trench is initially opened, but subsiding to approximately 10
gallons per minute after dewatering lowers the potentiometric surface in the vicinity of the trench. The CONTRACTOR shall furnish appropriately sized pump(s) to dewater the excavation.

3.13 GROUNDWATER MANAGEMENT:
A. The CONTRACTOR shall manage groundwater from dewatering activities in a safe manner in accordance with federal, state, and local requirements.
B. The CONTRACTOR shall not mix groundwater removed from inside the plume area with groundwater removed from outside the plume area.

3.14 GROUNDWATER TREATMENT ON-SITE:
A. The CONTRACTOR shall treat groundwater on-site using a portable water purification device (e.g., an air stripping water purification device such as a Carbonair Dual Diesel STAT 400 Low Profile Airstripper, an activated carbon filter, or equivalent) capable of purifying the flow of water from the dewatering activities. Calculations discussed in Part 3.12(C) indicate that groundwater flow into the trench could be as high as 20 gallons per minute, and slow to approximately 10 gallons per minute. Therefore, the portable water purification device shall be capable of purifying up to 20 gallons per minute unless the CONTRACTOR proposes use of on-site storage for initial drawdown.
B. Treated groundwater shall be sampled by the CONTRACTOR at the rate specified in Section 3.16 and as described in the WYPDES permit and SWPPP prepared by the CONTRACTOR.
C. The CONTRACTOR shall discharge the treated groundwater in accordance with federal, State, and local requirements. The CONTRACTOR shall discharge the treated groundwater in accordance with the approved WYPDES permit. Any fines incurred as a result of improper discharge, or not complying with applicable regulations, shall be the responsibility of the CONTRACTOR at no additional cost to the OWNER.
D. The CONTRACTOR shall provide an operator of the portable water purification device during hours when the system is in use. During periods of time when the system is not used, the CONTRACTOR’s operator is not required to be on-site.

3.15 AQUEOUS WASTE MONITORING:
A. The CONTRACTOR shall sample and monitor the aqueous waste as required per the WYPDES permit and this Section.
B. The CONTRACTOR shall collect and sample treated aqueous waste samples in accordance with the frequency provided in the following table.

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Frequency</th>
<th>WYPDES Discharge Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowrate</td>
<td>Daily</td>
<td>Reporting Only</td>
</tr>
<tr>
<td>pH</td>
<td>Daily</td>
<td>6.5-9.0</td>
</tr>
<tr>
<td>Specific Conductance</td>
<td>Daily</td>
<td>7,500 mS/cm</td>
</tr>
<tr>
<td>TSS</td>
<td>Weekly</td>
<td>30 mg/L (Monthly) 90 mg/L (Daily Maximum)</td>
</tr>
<tr>
<td>TPH</td>
<td>Weekly</td>
<td>10 mg/L</td>
</tr>
<tr>
<td>Visual O&amp;G</td>
<td>Weekly</td>
<td>10 mg/L (In the event that an oil sheen is observed in the discharge, a grab sample shall be...</td>
</tr>
<tr>
<td>Analysis Type</td>
<td>Method Number</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------</td>
<td></td>
</tr>
<tr>
<td>Volatile Organic Compounds (VOCs)</td>
<td>U.S. EPA Method 8260B</td>
<td></td>
</tr>
</tbody>
</table>

C. Each aqueous waste sample submitted for testing shall be collected by the CONTRACTOR after the aqueous waste has been treated. The sample collection point shall be the permitted discharge point.

D. For quality control purposes, duplicate aqueous waste samples shall be collected and analyzed by the CONTRACTOR at a frequency of 10% of the number of primary samples. Duplicate aqueous waste samples shall be represented by collection of an additional sample from the same location at the same time and analyzed by the same U.S. methods conducted for the primary samples. Duplicate samples are not required on each container. Duplicate samples must be collected every 10th sample collected by the CONTRACTOR.

E. Aqueous waste samples shall be transferred to laboratory-quality sample containers and preserved by the CONTRACTOR. Each aqueous waste sample shall be recorded and transported using an approved chain-of-custody form.

F. The CONTRACTOR shall request laboratory turn-around time sufficient to meet its contractual schedule and WYPDES discharge requirements; however, the maximum turn-around time shall be fourteen (14) calendar days. If required, the CONTRACTOR shall expedite laboratory analysis at no cost to the OWNER.

G. Laboratory analysis of each aqueous waste sample shall be performed by the CONTRACTOR’s Independent Testing Laboratory in accordance with the following table:

H. The CONTRACTOR shall review the laboratory reports and prepare a summary as required for the WYPDES and submit to the ENGINEER.

3.16 AIR VENTILATION IN EXCAVATIONS:
A. The CONTRACTOR shall ventilate excavations to maintain concentrations of VOCs in the ambient air to less than the Action Limits specified in the job-specific HASP.
B. The CONTRACTOR shall monitor the concentrations of VOCs in the ambient air with a PID, or similar device, in the areas being ventilated. The CONTRACTOR shall record all spikes in PID readings and PID readings taken at regular intervals of approximately 1 hour.
C. Should concentrations of VOCs in the ambient air exceed the Action Limits, the CONTRACTOR shall reevaluate ventilation methods, and adjust accordingly at no additional cost to the OWNER.

3.17 DECONTAMINATION:
A. The work under this Part consists of the minimum procedures required for control of fugitive dust and airborne contaminant emissions from the site.

B. All vehicles and equipment that come in contact with contaminated material from the Plume Area shall be decontaminated by the CONTRACTOR before exiting the site. Intermediate decontamination, including removal of exposed soil with a shovel and broom, shall be conducted on all equipment moving from the Plume Area to other areas within the site.

C. Decontamination shall be performed at an established area near each egress point from the Plume Area. The decontamination area shall be configured so vehicles do not drive over contaminated soils between the decontamination area and the final egress point, and so other vehicles do not drive through the decontamination area.

D. The decontamination area shall be an aggregate, such as base course, vehicle tracking control (VTC) pad, placed prior to Plume Area egress. The VTC shall be of sufficient length, width, and depth to allow for equipment parking during decontamination and for material to be completely removed, or the VTC shall remain in-place under pavement structure, without recontamination of equipment to the satisfaction of the Engineer. Upon completion of decontamination the VTC aggregate will be considered contaminated and all equipment that contacts it will require decontamination.

E. Final decontamination shall be performed by the CONTRACTOR by pressure washing the affected surfaces using equipment requiring minimal water volume, but sufficient pressure to dislodge soils. The following surfaces shall be decontaminated on all vehicles:
   1. Wheels and tracks
   2. Undercarriage
   3. Wheel wells
   4. Truck beds
   5. Buckets and other earth-contact surfaces on excavation equipment
   6. Any other areas with visual contamination

F. Workers performing decontamination activities shall don proper PPE, as specified by the HASP.

3.18 RECORDS AND REPORTS:
A. The CONTRACTOR shall keep records of documents generated in the course of the work. These include field notes, laboratory reports, air monitoring data, chain-of-custody forms, daily soil volumes and weights, waste manifests, and reports of any spills or accidents. Copies of all records shall be organized by date and submitted to the ENGINEER at the completion of the work in both hardcopy and electronic format (PDF).

B. The CONTRACTOR shall maintain a field logbook during soil removal activities. The field logbook shall serve to document observations, on-site personnel, equipment arrival and departure times, and other vital project information. Logbook entries shall be complete and accurate enough to permit reconstruction of field activities. Logbooks shall be bound with consecutively numbered pages. Each page shall be dated with the time of entry noted. All entries shall be legible, written in black ink, and signed by the individual making the entries. Language shall be factual, objective, and free of personal opinions. If an error is made, corrections shall be made by crossing a single line through the error and entering the correct information. Corrections shall be dated and initialed.

C. The CONTRACTOR shall submit manifests for the designated facilities for final disposition (fully completed except for signatures and hauler truck license numbers) to the ENGINEER a minimum of one (1) calendar day prior to transporting non-hazardous waste, hazardous
waste, or VOC-impacted soil. Sufficient numbers of manifests shall be provided by the CONTRACTOR for the transport of all soils to the off-site facility(ies). The ENGINEER will obtain the authorized signatures of the OWNER’s representative on the manifests provided and will retain all copies of the manifests until the CONTRACTOR is authorized to dispose of the soils. Signed manifests shall be provided to the CONTRACTOR for each load prior to being transported off-site. The OWNER will not be responsible for additional costs incurred by the CONTRACTOR should the CONTRACTOR fail to provide sufficient manifest forms for all soils to be transported and disposed of off-site. The CONTRACTOR shall maintain one copy of the waste manifest on-site.

D. Before offloading its payload, the truck shall be weighed by the facility operator. The CONTRACTOR shall provide weight tickets to the ENGINEER after the soils have been shipped off-site for use in quantity measurement.

PART 4 – METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.01 METHOD OF MEASUREMENT

A. HASP Preparation
1. Measurement for HASP Preparation shall be made as a lump sum.

B. WYPDES Permit
1. No separate measurement and payment shall be made for the WYPDES Permit under this Section, and the cost of this work shall be included in the bid price for Sediment Erosion Control and Storm Water Management – Export (Section 01563 of the City of Cheyenne Specifications).

C. Site Control
1. No separate measurement and payment shall be made for site control under this Section and the cost of this work shall be included in the bid price for Traffic Control (Section 01050 of the City of Cheyenne Specifications).

D. Soil Sampling and Analytical Testing
1. Measurement for Soil Sampling and Analytical Testing shall be made as a lump sum.

E. Unrestricted Soil
1. No separate measurement and payment shall be made for Unrestricted Soil under this Section, and the cost of this work shall be included in the bid price for Trench Backfill and Unclassified Excavation – Export (Sections 02225 and 02210 of the City of Cheyenne Specifications).

F. Non-Hazardous Soil Disposal
1. Measurement for Non-Hazardous Soil Disposal shall be by the ton, as documented by weight tickets collected at the time of disposal for each truckload of soils disposed of as Non-Hazardous soil waste at an approved landfill or recycling facility. Weight tickets shall be provided to the ENGINEER for summation with requests for payment and approval. No measurement for Non-Hazardous Soil Disposal shall be made for disposition without corresponding weight tickets. Only soil classified and disposed of as Non-hazardous Soil shall be measured for this item. A maximum of 100 tons for Storm Sewer and for Water work may be measured. If WORK requires disposal of more than allotted tons of either bid item, WORK shall be stopped until written authorization is provided by the OWNER to proceed.

G. RCRA Hazardous Soil Disposal
1. Measurement for RCRA Hazardous Soil 55-Gallon Drum Disposal shall be made on a per each basis, as documented by total number of 55-gallon drums containing RCRA hazardous soil included on disposal manifests. No measurement for RCRA Hazardous Soil 55-Gallon Drum Disposal shall be made for disposition without corresponding disposal manifests. Only soil classified and disposed of as RCRA hazardous soil shall be measured for this item. A maximum of 75 barrels may be measured for Storm Sewer and Water work. If WORK requires disposal of more than 75 barrels of either Storm Sewer or Water Work, WORK shall be stopped until written authorization is provided by the OWNER to proceed.

H. On-site Aqueous Waste Treatment and Disposal
1. Measurement for On-site Aqueous Waste Treatment and Disposal shall be made on a per day basis for the number of calendar days the aqueous waste treatment system is on-site following commencement of work in the plume area. Upon completion of the work in the plume area, no further measurement for On-site Aqueous Waste Treatment and Disposal shall be made. In the event both storm sewer and water utility installation occur in the same day necessitating on-site aqueous waste treatment and disposal, each bid item for Storm Sewer and Water shall be measured by the one-half day. Measurement shall be no more than one day total for both bid items each day. Calendar days that work is not completed such as holidays and weekends, shall be measured to the bid item with the most days of On-site Aqueous Waste Treatment and Disposal in that week.

I. Air Ventilation
1. No separate measurement and payment shall be made for Air Ventilation under this Section, and the cost of this work shall be included in the bid price for Trench Backfill and Unclassified Excavation – Export (Sections 02225 and 02210 of the City of Cheyenne Specifications).

J. Decontamination
1. Measurement for Decontamination shall be made as a lump sum.

4.02 BASIS OF PAYMENT
A. HASP Preparation
1. HASP Preparation shall be paid for at the lump sum price listed in the bid, and shall include but not be limited to developing and implementing the HASP, training personnel, testing, provision and disposal of materials, specialized equipment or consultation, PID rental and use, and any other costs required to protect workers and the public and to complete the work.

B. WYPDES Permit
1. Costs of the WYPDES Permit shall be included in Sediment Erosion Control and Storm Water Management – Export (Section 01563 of the City of Cheyenne Specifications). No additional payment will be made for the WYPDES Permit or costs associated with the work presented in this Section.

C. Site Control
1. Costs to fence the site, control access, and any other related activities shall be included in Traffic Control (Section 01050 of the City of Cheyenne standard specifications). No additional payment will be made for site control costs associated with the work presented in this Section.

D. Soil Sampling and Analytical Testing
1. Soil Sampling and Analytical Testing shall be paid for at the lump sum price listed in the bid, and shall include but not be limited to all costs for materials, labor, freight, and professional services necessary to collect, analyze, and interpret samples and results. Samples shall be collected in accordance with applicable standards and methodologies at specified intervals and frequencies, and tested for constituents as described in this Section. The CONTRACTOR shall request laboratory turn-around time sufficient to meet its contractual schedule and WYPDES discharge requirements; however, the maximum turn-around time shall be fourteen (14) calendar days. Any incurred fees for expedited turnarounds are to be considered subsidiary to this item and no additional cost to the OWNER. Costs associated with Soil Sampling and Analytical Testing shall include preliminary soil characterization and reporting to the OWNER and ENGINEER.

E. Unrestricted Soil

1. Costs to transport or place Unrestricted Soil shall be included in Trench Backfill and Unclassified Excavation – Export (Sections 02225 and 02210 of the City of Cheyenne Specifications). No additional payment will be made for Unrestricted Soil transportation or placement costs associated with the work presented in this Section.

F. Non-Hazardous Soil Disposal

1. Non-Hazardous Soil Disposal shall be paid for at the unit price per ton listed in the bid, and shall include but not be limited to all costs for transportation and disposal of Non-Hazardous Soil, disposal site fees, and any other costs related to the work for Non-Hazardous Soil disposal as described in this Section. No over-run or under-run unit price adjustments shall be made for this bid item as site conditions and contaminated material quantities listed in the bid form are estimates based on current knowledge of the site which may differ from what is in place.

G. RCRA Hazardous Soil 55-Gallon Drum Disposal

1. RCRA Hazardous Soil 55-Gallon Drum disposal shall be paid for at the unit price per each 55-gallon drum listed in the bid, and shall include but not be limited to all costs for transportation and disposal of RCRA Hazardous Soil in 55-gallon drums, licensing, disposal site fees, and other costs related to the work for RCRA Hazardous Soil 55-Gallon Drum disposal as described in this Section. No over-run or under-run unit price adjustments shall be made for this bid item as site conditions and contaminated material quantities listed in the bid form are estimates based on current knowledge of the site which may differ from what is in place.

H. On-Site Aqueous Waste Treatment and Disposal

1. On-Site Aqueous Waste Treatment and Disposal shall be paid for at the per day unit cost rounded to the nearest full day as listed in the bid, and shall include but not be limited to all costs to treat aqueous waste as specified in this Section, sampling, testing, treatment, pumping, piping, storage of aqueous waste, and mobilization/demobilization of equipment, as well as any other related work or costs not covered by other bid items. The CONTRACTOR shall discharge the aqueous waste according to applicable regulations and the approved WYPDES permit. Any fines incurred due to improper discharge of aqueous waste shall be the responsibility of the CONTRACTOR.

I. Air Ventilation
1. Costs to ventilate excavations and work areas, monitor VOC concentrations with a PID, and any other related labor or costs necessary for Air Ventilation shall be included in Trench Backfill and Unclassified Excavation – Export (Sections 02225 and 02210 of the City of Cheyenne Specifications). No additional payment will be made for Air Ventilation related labor or costs associated with the work presented in this Section.

J. Decontamination

1. Decontamination shall be paid for at the lump sum unit price listed in the bid, and shall include but not be limited to all costs necessary to install, maintain, operate, clean up, and demobilize a decontamination area, decontaminate transportation equipment, and to perform decontamination in accordance with these special provisions. No separate payments will be made for any component of this work.

PART 5 – LIMITED SITE INVESTIGATION DOCUMENTS

The attached excerpts from “SITE INVESTIGATION REPORT: Cheyenne PCE Plume Orphan Site Cheyenne, Wyoming” (investigation in August 2009 through November 2011) and the laboratory reports from investigative drilling activities for the Capital Basin 26th Street Storm Sewer Extension Project (investigation in March 2020) provide information on detected contaminants and their concentrations within and adjacent to the site. The laboratory results include six (6) soil samples made up of three (3) composite and three (3) discrete samples. The provided information does not constitute a guarantee of uniformity of soil or groundwater conditions within the site. Information provided in the excerpts is solely for pre-characterization of subsurface soils and groundwater for bidding and health and safety considerations; the CONTRACTOR shall comply with the requirements of this Section to lawfully characterize and dispose of identified soils and groundwater as specified.

END OF SECTION – 01600
SPECIAL PROVISIONS
SECTION 02235
POZZOLAN TREATED SUBGRADE

1.01 SUMMARY

A. This item shall consist of treating the pavement subgrade by tilling the existing material with the addition of a mixture of either Type I or II Portland Cement or Class C fly ash and a portion of mixing, and compacting the mixed material to the required density. Type I or II Portland Cement or Class C fly ash will be referred to as pozzolan for this specification. This item applies to natural ground or embankment and shall be constructed as specified herein and in conformity with the typical sections, lines, and grades as shown on the plans or as established by the Engineer.

2.01 MATERIALS

A. The Contractor shall submit a pozzolan mix design of onsite soils to the Engineer for approval which provides the portions and amounts of additions meeting the following requirements:

- 10% Mixture Minimum (% Pozzolan Material)
- 12" Treatment Depth
- 150 psi Minimum Stability

2.02 EQUIPMENT

A. The machinery, tools, and equipment necessary for proper prosecution of the work shall be on the project and approved by the Engineer prior to the beginning of construction operations. All machinery, tools, and equipment used shall be maintained in a satisfactory and workmanlike manner.

3.01 PREPARATION

A. Pozzolan/Soil Mix

The Contractor shall submit a mix design to the Engineer prior to work on this item. The mix design shall be based on a 12" treatment depth, to minimum percentages or per approved mix design.

B. Preparation of the Subgrade

Prior to application of the pozzolan, any materials below the proposed bottom of the pozzolan treatment that are wet, unstable, or require special treatment shall be corrected as directed by the Engineer.

The area to be processed shall be shaped to 1 ½” (0.1’) minimum below the required
subgrade and cross section, void of all vegetation and other objectionable material.

When necessary, the soil to be processed shall be scarified and pulverized prior to the application of the pozzolan stabilized mixture.

The depth of the loosened material shall not be greater than five percent over the thickness of the pozzolan-treated layer as specified in the Contract.

3.02 APPLICATION

A. It is the purpose of this specification to secure a completed course of tested material which contains a uniform pozzolan/soil mixture, with no loose or segregated areas; has a uniform density and moisture content; is well bound to its full depth; and has a smooth surface, suitable for placing subsequent courses. It shall be the responsibility of the Contractor to regulate the sequence of his work; to process a sufficient quantity of material to provide full depth as shown on plans; to use the proper amounts of Pozzolan Material; to maintain the work; and to rework the courses as necessary to meet the above requirements.

B. Pozzolan Application

Pozzolan shall be applied dry, at the specified rate per square yard by equipment capable of uniformly distributing the pozzolan over the subgrade surface, within five percent of the designated rate. Pozzolan shall not be applied when wind conditions, are such that blowing pozzolan becomes objectionable to traffic or adjacent property owners, or is sufficient to change the rate of application outside the specified limits.

C. Mixing

Initial mixing shall take place immediately after the pozzolan application. The pozzolan, soil, and water shall be thoroughly mixed and blended by a self-propelled, rotary type, mixing machine. This machine should have the capacity to add water into the mixing chamber, until a uniform mixture throughout the required depth and width is achieved, and all clods and lumps are reduced to a maximum two-inch diameter size. There shall be a six-inch overlap between passes to assure consistent mixing and breakdown. All utilities and culverts shall be clearly marked. Any damage to underground utilities or culverts shall be the Contractor's responsibility.

The mixing machine shall make as many passes as required to uniformly mix the pozzolan, soil, and water to the full depth of the pulverized layer. Non-uniformity of color will be considered evidence of inadequate mixing. Streaks and pockets of pozzolan will also be considered evidence of inadequate mixing.

The moisture content of the mixture immediately following the blending of pozzolan, soil, and water shall be within two percent, higher or lower, of the optimum moisture content for the pozzolan modified soil.

3.03 SHAPING AND COMPACTION
A. Compaction

1. Shaping and Compaction of the mixture shall begin immediately after mixing of the pozzolan, and be completed within two hours following the addition of water to the pozzolan. The material shall be sprinkled as necessary to maintain the optimum mixture. Compaction of the moisture shall begin at the bottom and shall continue until the entire depth of mixture is uniformly compacted to the specified density.

2. All non-uniform (too wet, too dry, or insufficiently treated) areas which appear shall be corrected immediately by scarifying the areas affected, adding or removing material as required, and reshaping and re-compacting by sprinkling and rolling. The surface of the course shall be maintained in a smooth condition, free from undulations and ruts, until other work is placed thereon or the work is accepted.

3. The stabilized section shall be compacted to the extent necessary to provide the density specified below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Density</th>
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<tbody>
<tr>
<td>For pozzolan-treated subgrade, existing</td>
<td>Not less than 95% maximum dry density (ASTM 0698)</td>
</tr>
<tr>
<td>subbase or existing base that will receive subbase or base courses</td>
<td></td>
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</tbody>
</table>

4. In addition to the requirements specified for density, the full depth of the material shown on the plans shall be compacted to the extent necessary to remain firm and stable under construction equipment. After each section is completed, tests as necessary will be made by the Contractor. If the material fails to meet the requirement, the Contractor shall rework the material or change construction methods as necessary to meet density requirements. Throughout this entire operation, the shape of the course shall be maintained by blading, and the surface, upon completion, shall be smooth, in conformity with the typical section shown on the plans and to the established lines, and grades. Blading should be terminated within four hours after blending of the pozzolan. Should the material, fail to stabilize for any reason or cause, lose the required stability, density, and finish before the next course is placed or the work is accepted, it shall be reprocessed, recompacted, and refinished at the sole expense of the Contractor. Reprocessing shall follow the same pattern as the initial stabilization, including the addition of pozzolan.

B. Finishing and Curing

When initial compaction of the top layer of the pozzolan-stabilized mixture is nearing completion, the surface shall be shaped to the required lines, grades and cross sections. Compaction will continue until uniform and adequate content is satisfactory for proper curing by one of the following:
1. Sprinkling for a period of seven (7) days or until a prime, seal, or overlying course is in place, whichever occurs first.

C. Construction Joints

Construction joints will not be required after each day's work unless there is a time lapse of seven days or more between the processing of adjacent sections. If construction joints are required, they shall be formed by cutting back into the completed work to form a vertical face. Damage to completed work shall be avoided.

Any damage to treated subgrade due to other phases of construction shall be repaired at the Contractor's expense.

Paving on the completed pozzolan-treated subgrade will not be allowed for a minimum of 48 hours after final compaction occurs or as approved by the Engineer and Owner.

4.01 METHOD OF MEASUREMENT

A. Pozzolan treatment of the subgrade shall be measured by the square yard to neat lines as shown on the typical section.

4.02 BASIS OF PAYMENT

A. Work performed and materials furnished as prescribed by this item and measured as provided under "Measurement" will be paid for as follows:

1. Pozzolan-treated subgrade will be paid for at the unit price bid per square yard, per respective subgrade depth: 12". The unit price bid shall be full compensation for all correction of secondary subgrade; for loosening, mixing, pulverizing, spreading, drying, application of pozzolan, compaction, shaping and maintaining; for all curing, including all curing water and/or other curing materials; for all manipulations required; for all hauling and freight involved; for tools, equipment, labor, and for all incidentals necessary to complete the work.

2. Payment for pozzolan-treated subgrade shall be made under:

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
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<tr>
<td>Pozzolan Treated Subgrade 12&quot;</td>
<td>SY</td>
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</table>

END OF SECTION 02235
SPECIAL PROVISIONS

SECTION 02660

TEMPORARY WATER SERVICE

A. Water service both domestic and fire shall not be discontinued for more than two hours at any one time for any business, residence, or private person. The Contractor shall be responsible for coordination with the Cheyenne Board of Public Utilities to make notifications of temporary interruptions to all users impacted by the interruption of service. The Contractor shall submit a temporary water service plan to the board for approval two week prior to construction at any site. The Contractor will provide and maintain temporary water service to all active water services affected by this project. The hose and associated appurtenances shall be NSF approved. If requested, the Board will coordinate with the Contractor and provide services necessary to accomplish temporary services to users. The Contractor is required to protect the temporary water supply system from freezing and traffic.

B. All materials used to provide temporary hook ups for residents of areas affected by the work will be NSF approved for potable water use. One 2” domestic, temporary feed can serve a maximum of 15 customers based on a typical ¾” service per customer. One 6”, fire, temporary feed can serve a maximum of two 4” fire lines. As an alternative the Contractor may be required to provide 24 hour surveillance in lieu of temporary Fire Service.

C. The temporary water both domestic and fire will be connected to and provided through existing service lines. No alternates will be allowed. Metering the system will be required at the hydrants. The water consumed will not be charged to the Contractor. Each customer will continue to receive a monthly bill as water will continue to flow through each meter.

D. The system used to supply temporary water will comply with all Department of Environmental Quality, American Water Works Association, and Board rules and regulations. The temporary water will be the same quality and the same flow as the existing system. No buddy system such as house to house supply line will be permitted.

END OF SECTION 02660
SECTION 02701
TEMPORARY SEWER BYPASS PUMPING

PART 1  GENERAL

Section 1.01  SCOPE

A. Under this item the Contractor is required to furnish all materials, labor, equipment, power, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing flow around the work area for the duration of the project.

B. The design, installation and operation of the temporary pumping system shall be the Contractor’s responsibility. The Contractor shall employ the services of a vendor who can demonstrate to the engineer that he specializes in the design and operation of temporary bypass pumping systems. The bypass system shall meet the requirements of all local, State, and Federal Agencies.

Section 1.02  RELATED WORK

A. Section 02700 – Sanitary Sewer

PART 2  PRODUCTS NOT USED

PART 3  EXECUTION

Section 3.01  REQUIREMENTS FOR SUBMITTING BIDS

A. The Contractor shall submit to the Engineer detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these Contract Documents. No construction shall begin until all provisions and requirements have been reviewed by the Engineer.

B. The plan shall include but not be limited to details of the following:

1. Staging areas for pumps;

2. Sewer plugging method and types of plugs;

3. Location and method of installation of suction piping;

4. Method of installation and location of installation of discharge piping;

5. Bypass pump sizes, capacity, number of each size to be on site and power requirements;

6. Standby power generator size, location;

7. Downstream discharge plan;

8. Method of protecting discharge manholes or structures from erosion and damage;
9. Thrust and restraint block sizes and locations;
10. Method of noise control for each pump and/or generator;
11. Any temporary pipe supports and anchoring required;
12. Design plans and computation for access to bypass pumping locations indicated on the drawings;
13. Schedule for installation of and maintenance of bypass pumping lines;

Section 3.02 EQUIPMENT

A. All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.

B. The Contractor shall provide the necessary stop/start controls for each pump.

C. Discharge Piping - In order to prevent the accidental spillage of flows all discharge systems shall be temporarily constructed of rigid pipe with positive, restrained joints. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the engineer.

Section 3.03 DESIGN REQUIREMENTS

A. The Contractor shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the section to be repaired. Bypass pumping system will be required to be operated 24 hours per day.

B. The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.

C. Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performances of work.

D. The Contractor shall make all arrangements for bypass pumping during the time when the main is shut down for any reason. System must overcome any existing force main pressure on discharge.

Section 3.04 PERFORMANCE REQUIREMENTS

A. It is essential to the operation of the existing sewerage system that there be no interruption in the flow of sewage throughout the duration of the project. To this end, the Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the existing sewer downstream of his work.
B. The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

C. The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.

D. The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.

E. The Contractor shall protect water resources, wetlands and other natural resources.

Section 3.05 FIELD QUALITY CONTROL AND MAINTENANCE

A. Inspection:
   1. Contractor shall inspect bypass pumping system every two hours to ensure that the system is working correctly.

B. Maintenance Service:
   1. The Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.

C. Extra Materials:
   1. Spare parts for pumps and piping shall be kept on site as required. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

Section 3.06 PREPARATION

A. Precautions
   1. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipelines. The Contractor shall locate his bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from the City and the Engineer. All costs associated with relocating utilities and obtaining all approvals shall be paid by the Contractor.

   2. During all bypass pumping operation, the Contractor shall protect the Pumping Station and main and all local sewer lines from damage inflicted by any equipment. The Contractor shall be responsible for all physical damage to the Pumping Station and main and all local sewer lines caused by human or mechanical failure.

Section 3.07 INSTALLATION AND REMOVAL

A. The Contractor shall remove manhole sections or make connections to the existing sewer and construct temporary bypass pumping structures only at the access location indicated on the Drawings and as may be required to provide adequate suction conduit.

B. Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed
for performance and acceptance of work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

C. When working inside manhole or force main, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces.

D. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the contractor must place the bypass pipelines in trenches and cover with temporary pavement. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the Contractor shall remove all the piping, restore all property to pre-construction condition and restore all pavement. The Contractor is responsible for obtaining any approvals for placement of the temporary pipeline within public ways from the City.

PART 4 BASIS OF PAYMENT

Section 4.01 MEASUREMENT OF MATERIALS

A. No Measurement of materials shall be made.

Section 4.02 BASIS OF PAYMENT

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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<tr>
<td>Sanitary Sewer Bypass Pumping</td>
<td>LS</td>
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</table>

END OF SECTION 02701
APPENDIX A
Geotech Report
April 3, 2020

City of Cheyenne
2101 O’Neil Avenue, Room 210
Cheyenne, Wyoming 82007

Attn: Mr. Sam Berta
P: (309) 637-6279
E: sberta@cheyennecity.org

Re: Geotechnical Engineering Report
26th Street Interceptor Storm Sewer Extension
West 26th Street between O’Neil and Central Avenues
Cheyenne, Wyoming
Terracon Project No. 24205019

Dear Mr. Berta:

We have completed the Geotechnical Engineering services for the project referenced above. This study was performed in general accordance with Terracon Proposal No. P24205019 dated March 3, 2020. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of the proposed utilities and pavement for the project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.

Garret M. Martin, P.E.        Eric D. Bernhardt, P.E.
Project Engineer              Senior Engineer
REPORT TOPICS

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Note: This report was originally delivered in a web-based format. Orange Bold text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the GeoReport logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES
SITE LOCATION AND EXPLORATION PLANS
EXPLORATION RESULTS
SUPPORTING INFORMATION

Note: Refer to each individual Attachment for a listing of contents.
INTRODUCTION

A geotechnical engineering report has been completed for the proposed interceptor storm sewer extension to be constructed on West 26th Street between O’Neil and Central Avenues in the City of Cheyenne, Wyoming. Six (6) borings, designated BH-1 through BH-6, were performed to depths of about 7½ to 10½ feet below existing ground surface along the proposed storm sewer extension alignment. Borings BH-1 through BH-3 were performed for environmental sampling purposes only. Borings BH-4 through BH-6 were used for pavement design. The subsurface data obtained from all six borings was considered for earthwork and storm sewer construction recommendations. Maps showing the site and boring locations are shown in the Site Location and Exploration Plan sections, respectively. Boring logs and laboratory testing data are included in the Exploration Results section of this report.

The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Pavement design and construction
- Site preparation and earthwork
- Excavation considerations
- Dewatering considerations

The recommendations contained in this report are based on the results of field and laboratory testing, engineering analyses, experience with similar soil conditions and structures, and our understanding of the proposed project.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration.
The project is located on a five-block section of West 26th Street between O’Neil and Central Avenues in Cheyenne, Wyoming. Approximate coordinates near the center of this section are 41.1410°N and 104.8228°W. See Site Location.

The project area consists of a local two-lane roadway paved with asphalt within an area including residential and business developments.

The roadway is paved with asphaltic concrete, concrete curb and gutter, and associated concrete sidewalks.

The roadway surface is crowned to drain to the adjacent curb or pavement edge. The general topography along West 26th Street within the project site appears to be relatively flat with minor elevation variations throughout. From discussions with the project team, we understand storm surface drainage tends to collect near the intersection of 26th Street and Capitol Avenue. Based on observations in the field, a difference in elevation of about 4 feet, or less is estimated across the entire road segment.

Our final understanding of the project is as follows:

This report is based on information provided via e-mail and phone conversations starting February 20, 2020 by project team members from AVI, pc (AVI) and WWC Engineering (WWC).

We understand the proposed project includes extension of the 26th Street storm sewer from O’Neil Avenue to Central Avenue. As part of this extension, the pavement section between Carey and Central Avenues will be reconstructed (curb to curb). Approximately 650 feet of precast-concrete storm sewer is planned to be installed as part of this project.

While on-site for our exploration services, we also performed three borings for environmental testing of soils near the alignment of the existing storm sewer from O’Neil Avenue to Carey Avenue.

We assume excavations of up to about 9 to 10 feet will be required to install the new storm sewer.

Based on our understanding of the project, we anticipate final construction grades will match existing street grades.

We understand both flexible (asphalt) and rigid (concrete) pavement sections are being considered.
If project information or assumptions vary from what is described above or if location of construction changes, we should be contacted as soon as possible to confirm and/or modify our recommendations accordingly.

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. As noted in General Comments, this characterization is based upon widely spaced exploration points across the site, and variations are likely. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the Exploration Results section and the GeoModel can be found in the Figures section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

<table>
<thead>
<tr>
<th>Model Layer</th>
<th>Layer Name</th>
<th>General Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Pavement</td>
<td>About 4 to 5 inches of asphalt over about 13 to 17 inches of aggregate base course or about 12 inches of concrete.</td>
</tr>
<tr>
<td>2</td>
<td>Sand with Plasticity</td>
<td>Medium dense, dark brown, clayey sand. Trace gravel in upper stratum.</td>
</tr>
<tr>
<td>3</td>
<td>Non-Plastic Sand</td>
<td>Medium dense to dense, light brown to tan, poorly and well graded sand with silt and gravel; and dark brown to brown, silty sand with trace gravel</td>
</tr>
<tr>
<td>4</td>
<td>Clay</td>
<td>Soft to hard, brown to tan lean clay and sandy lean clay.</td>
</tr>
</tbody>
</table>

Groundwater

The boreholes were observed while drilling and for the short period of time they were allowed to remain open after completion for the presence and level of groundwater. Due to safety concerns, soil borings were backfilled upon completion of drilling activities and subsequent groundwater measurements were not obtained. The water levels observed in the boreholes can be found on the boring logs in Exploration Results and are summarized below.

<table>
<thead>
<tr>
<th>Boring Number</th>
<th>Approximate Depth to Groundwater After Completion Drilling (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-1</td>
<td>7</td>
</tr>
<tr>
<td>BH-2</td>
<td>7</td>
</tr>
</tbody>
</table>
These observations represent short-term groundwater conditions at the time of field exploration, and may not be indicative of other times, or at other locations. Groundwater levels can and should be expected to fluctuate in response to site development, irrigation demands adjacent to the streets and with varying seasonal and weather conditions. Therefore, groundwater levels during construction or at other times in the future may be higher or lower than the levels indicated on the boring logs. Seasonal fluctuations on the order of 2 to 3 feet are not uncommon; greater fluctuations are possible during extreme events.

As indicated in the table, groundwater was not observed in BH-6 while drilling. However, this does not necessarily mean this boring terminated above groundwater, or the water levels for BH-5 and BH-6 presented above are stable groundwater levels. Due to the low permeability of the clay and clayey sand soils encountered in these borings, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in the borehole.

**GEOTECHNICAL OVERVIEW**

Based on geotechnical conditions encountered in our test borings, the site appears suitable for the proposed storm sewer installation and pavement construction from a geotechnical point of view provided certain precautions and design and construction recommendations presented in this report are followed. The primary geotechnical conditions we believe will likely impact design and construction of the proposed sewer line extension is the presence of possible shallow groundwater and caving sands.

As discussed in the **Geotechnical Characterization** section of this report, groundwater was encountered in borings BH-1 through BH-5 at depths of about 7 to 10 feet below the existing pavement surface during drilling operations. Depending on the location and depth of construction, temporary dewatering will likely be required to complete storm sewer installation at some locations.

Caving sand soils are present on this site, and this condition will impact trench excavation during earthwork operations. Based on the soil classifications, required cut slope angles may be considerably shallow in order to establish a safe excavation. The use of temporary shoring, such
as a trench box, should be considered. These conditions will require particular attention in project planning, design and during construction and is discussed in greater detail in Earthwork section.

EARTHWORK

Earthwork is anticipated to include excavations, backfill placement, and pavement subgrade preparation. The following sections provide recommendations for use in the preparation of specifications for the work.

Excavation and Trench Construction

The subgrade soil conditions should be evaluated during the excavation process and the stability of the soils determined at that time by the contractor's' Competent Person. Slope inclinations flatter than the OSHA maximum values may have to be used if open cut methods are employed. The individual contractor(s) should be made responsible for designing and constructing stable, temporary excavations, as required, to maintain stability of both the excavation sides and bottom. All excavations should be sloped or shored in the interest of safety following local and federal regulations. As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, “Excavations” and its appendices, and in accordance with any applicable local, and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

For vertical cut methods, trench boxes or other shoring methods will be required for all excavations greater than 5 feet deep, due to safety concerns. Excavations into wet or saturated soils or non-plastic sand soils will likely encounter raveling or sloughing conditions. These soils will likely require trench boxes for shallow trenches less than 5 feet in depth.

Excavations that extend near to, or below groundwater level, may require dewatering and shoring to maintain the trench sidewalls. It is anticipated that vertical sumps and pumps may be utilized to control water infiltration within excavations. The bottom of the trench excavation should be sloped to a sump where water can be collected and pumped from the excavation. Groundwater should not be allowed to significantly accumulate within the trench during storm sewer installation and backfill operations. Where groundwater is encountered, shoring must be used to support the trench side slopes. It may be necessary to dewater some areas prior to the excavation proceeding below the initial water level. Groundwater conditions can change with varying seasonal and weather conditions, and other factors. The possibility of groundwater fluctuations should be
considered when developing design and construction plans for the project. Positive surface drainage should be provided to prevent infiltration of water into utility excavations.

As a safety measure for open cut trench methods, it is recommended that all vehicles and soil piles be kept to a minimum lateral distance from the crest of the slope equal to no less than the slope height. The exposed slope face should be protected against the elements. Traffic loading from the adjacent drive lanes should be considered in the selection and design of the trench construction and shoring methods.

The soils to be penetrated by the proposed excavations may vary significantly across the project alignments. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions are encountered at the time of construction, the actual conditions should be evaluated to determine any excavation modifications necessary to maintain safe conditions.

Fill Materials Types

On-site soils free of debris and other unsuitable material can be used as trench backfill, provided the required moisture content of the soil can be attained. However, lean clay materials, such as those encountered in boring BH-5 below 6 feet, should not be used within 18 inches of roadway or pavement sections.

Imported materials (if required) meeting the properties presented below should be acceptable for use on the site. All imported soils should be evaluated and approved by the Geotechnical Engineer prior to delivery to the site.

<table>
<thead>
<tr>
<th>Gradation/Property</th>
<th>Percent Finer by Weight (ASTM C136)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 4 Sieve</td>
<td>50 to 100</td>
</tr>
<tr>
<td>No. 200 Sieve</td>
<td>50 (max.)</td>
</tr>
<tr>
<td>Liquid Limit (LL)</td>
<td>30 (max.)</td>
</tr>
<tr>
<td>Plasticity Index (PI)</td>
<td>15 (max.)</td>
</tr>
</tbody>
</table>

Fill Compaction Requirements

Engineered fill/backfill should meet the following compaction requirements.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill lift thickness</td>
<td>8-inches or less in loose thickness when heavy, self-propelled compaction equipment is used</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used</td>
<td></td>
</tr>
</tbody>
</table>

**Compaction requirements**

- **Backfill:**
  - At least 95% of the standard Proctor maximum dry density (ASTM D698)
- **Aggregate Base Course:**
  - At least 95% of the modified Proctor maximum dry density (ASTM D1557)

**Moisture content on-site or import sands**

- -3 to +3% of the optimum moisture content as determined by the standard Proctor test

1. Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Suitable processing equipment will be needed to thoroughly process the materials and to aid in achieving uniform moisture content throughout the fill.
2. The contractor should expect some moisture adjustment and processing of the site soils or import materials will be needed prior to or during compaction operations.
3. Care should be taken during the fill placement process to avoid zones of dissimilar fill. Improvements constructed over varying fill types are at a higher risk of differential movement compared to improvements over a uniform fill zone.

**Earthwork Construction Considerations**

Excavations for the sewer line installation are anticipated to be accomplished with conventional construction equipment. Upon completion of trench backfilling and grading, care should be taken to maintain the subgrade water content prior to construction of pavements. Construction traffic over the completed subgrade should be avoided. The street should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to pavement construction. We suggest new pavement sections in trenched areas (i.e. areas where the entire street right-of-way will not be reconstructed) match the existing pavement section thicknesses or meet City of Cheyenne minimum section thickness requirements, whichever is less.

**PAVEMENTS**

We understand the existing pavement section along 26th Street between Carey Avenue and Central Avenue is planned to be reconstructed as part of this project. The following sections provide recommendations and considerations for design and construction of pavements for these two blocks.
Subgrade Preparation

Based on our boring data, the near surface soils found on this site are anticipated to be relatively stable and are not anticipated to “pump” or deform excessively upon initial exposure. However, cohesive soils, such as those found at some locations on this site, can lose strength when elevated in moisture content. Overall stability of the subgrade can be affected by precipitation, repetitive construction traffic, or other factors. Additionally, our experience indicates that soils below existing pavements typically have elevated moisture contents. Consequently, subgrade “pumping” and unstable conditions could develop during subgrade preparation or other construction activities.

If unstable or soft ground conditions develop during subgrade preparation, some method of soil improvement or stabilization will be needed prior to pavement construction. Details regarding stabilization are discussed in the Earthwork section of the report.

We recommend the moisture content and density of the top 12 inches of the subgrade be evaluated and the pavement subgrades be proof-rolled shortly before actual paving operations. Areas not in compliance with the required ranges of moisture or density should be moisture conditioned and re-compacted. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to the areas where the backfilled trench is located. Areas where unsuitable conditions are located should be repaired by removing and replacing the materials with properly compacted fills.

Pavement Design Considerations

Based on our boring data and anticipated grading, we expect moisture conditioned and compacted silty sand, clayey sand or sandy lean clay will support pavements on this site. These subgrade materials have “SM”, “SC” and “CL” classifications in accordance with the Unified Soil Classification System (USCS) methods. Laboratory testing performed on a sample of sandy lean clay (deemed to be the worst-case condition) indicated an R-value of 10. R-values are commonly correlated to a soil strength value, such as the soil resilient modulus, which is necessary for pavement thickness design. However, it should be noted that accepted correlations of R-values to soil resilient moduli can vary significantly depending on the method used. Based on the USCS classification, reported R-values and our experience, appropriate soil strength values were selected.

Traffic loading conditions were not provided at the time this report was prepared. However, according to the Cheyenne MPO 2016 to 2019 Traffic Counts Map, the section of 26th Street between Carey and Central Avenues is classified as a “Local” street with a maximum average daily traffic (ADT) count of about 500 vehicles per day. While a truck percentage value was not provided, we understand this portion of 26th Street is anticipated to have a somewhat greater than normal volume of bus traffic due to the recently constructed bus lane for the Herschler Building.
Considering the type of existing development in the project area, we anticipate traffic loads at the site, in addition to the increased bus traffic, will be produced primarily by automobile and pick-up trucks, package delivery trucks and occasional trash removal trucks and semi-trucks. Of the total daily volume of traffic anticipated, the following distribution of vehicle types was assumed:

- Automobiles/pick-up trucks – 90%
- Package delivery trucks – 3%
- Buses – 4%
- Semi-trucks – < 1%
- Trash-removal trucks – < 1%

In general accordance with the 1993 AASHTO Guide for Design of Pavement Structures, a total 18-kip equivalent single-axle load (ESAL) value of 70,300 was estimated for flexible (asphalt) pavement, and a value of 82,000 was estimated for rigid (concrete) pavement. Because the street segment in question carries traffic in both directions, a directional distribution factor (D_D) of 0.6 was applied to determine the ESAL values. Since there is only one lane in each direction of travel, a lane distribution factor (D_L) of 1 was applied. The estimated ESAL values are based on a performance period of 20 years.

Traffic type and volume estimates and/or design ESAL values used to determine pavement thickness for this project should be reviewed and approved by the design team prior to commencement of paving operations. If heavier trucks or more frequent truck traffic will be present, this office should be provided with the information and allowed to review the pavement sections and provide supplemental recommendations if needed. The following table presents additional design parameters used to determine pavement thicknesses.

<table>
<thead>
<tr>
<th>Pavement Thickness Design Parameters</th>
<th>Input Parameter</th>
<th>Flexible (asphalt)</th>
<th>Rigid (concrete)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reliability</td>
<td>85%</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>Serviceability Loss</td>
<td>2.2</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Standard Deviation</td>
<td>0.45</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>Asphalt Layer Coefficient</td>
<td>0.40</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Aggregate Base Coefficient 1</td>
<td>0.11</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Concrete Compressive Strength</td>
<td>N/A</td>
<td>4,500 psi</td>
</tr>
<tr>
<td></td>
<td>Concrete Elastic Modulus (Ec)</td>
<td>N/A</td>
<td>3,824,000 psi</td>
</tr>
<tr>
<td></td>
<td>Concrete Modulus of Rupture (S’c)</td>
<td>N/A</td>
<td>627 psi</td>
</tr>
<tr>
<td></td>
<td>Load Transfer Coefficient (J)</td>
<td>N/A</td>
<td>4.2</td>
</tr>
</tbody>
</table>

1. Aggregate base course must have a minimum R-value of 70 for the coefficient value to apply.
Minimum Pavement Thickness

<table>
<thead>
<tr>
<th>Traffic Area</th>
<th>Alternative</th>
<th>Asphalt Concrete</th>
<th>Aggregate Base Course</th>
<th>Portland Cement Concrete</th>
<th>Total Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>26th Street between Carey and Central Avenues</td>
<td>AC + ABC</td>
<td>5</td>
<td>7</td>
<td>--</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>PCC</td>
<td>--</td>
<td>--</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

1. Asphalt concrete (AC) should be composed of a mixture of aggregate, filler and additives, if required, and approved bituminous material. AC should conform to approved mix designs stating the Marshall properties, optimum asphalt content, job mix formula and recommended mixing and placing temperatures. Aggregate used in plant-mixed AC should meet particular gradations. Material meeting City of Cheyenne ¾” or ½” nominal maximum size specifications is recommended for AC. AC should be placed in maximum 2-inch lifts and compacted to a minimum of 92 percent of the maximum theoretical specific gravity.

2. Aggregate base course (ABC) should consist of a blend of sand and gravel which meets strict specifications for quality and gradation and should have an R-value of at least 70. Use of materials meeting Grading W or L specifications is recommended. ABC should be compacted to at least 95% of the modified Proctor maximum dry density (ASTM D1557).

3. PCC pavements are recommended for trash container pads. Trash container pads should be large enough to support the container and the tipping axle of the collection truck. The use of steel reinforcement could be considered to control cracking. Modulus of rupture of 600 psi minimum. This is roughly equivalent to a 28-day compressive strength of at least 4,200 psi. 4-inch maximum slump and 5 to 7 percent entrained air.

Longitudinal and transverse joints should be provided as needed in concrete pavements for expansion/contraction and isolation. The location and extent of joints should be based upon the final pavement geometry. Sawed joints should be cut within 24-hours of concrete placement. Joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

The pavement sections presented are based, in part, on design parameters selected by Terracon based on experience with similar projects and soils conditions and other information discussed above. Variation of these parameters may change the thickness of the pavement sections presented. Terracon is prepared to discuss the details of these parameters and their effects on pavement design and reevaluate pavement thickness as appropriate.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. Collection and diversion of surface drainage away from paved areas is critical to satisfactory performance of pavements.
Openings in pavement, such as landscape islands, are sources for water infiltration into surrounding pavements. Water collects in the islands and migrates into the surrounding subgrade soils thereby degrading support of the pavement. This is especially applicable for islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils. The civil design for pavements with these conditions should consider features to restrict or to collect and discharge excess water from the islands. Examples of features are edge drains connected to the storm water collection system or other suitable outlet and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

**Pavement Maintenance**

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer and other members of the design team should consider the following recommendations in the design and layout of pavements:

- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage
- Install pavement drainage surrounding areas anticipated for frequent wetting
- Install joint sealant and seal cracks immediately
- Use low water-demand plantings and drip irrigation for landscaped areas
- Seal all landscaped areas in, or adjacent to pavements or provide drains to reduce the risk of moisture migration to subgrade soils
- Compaction of utility trenches for landscaped areas to the same criteria as the pavement subgrade
- Place compacted, low permeability backfill against the exterior side of curb and gutter
- Place curb, gutter and/or sidewalk directly on subgrade soils rather than base course materials

The pavement sections provided in this report represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Preventive maintenance activities are intended to slow the rate of pavement deterioration.

Preventive maintenance consists of both localized maintenance (e.g. crack and joint sealing and patching) and global maintenance (e.g. surface sealing). Preventive maintenance is usually the first priority when implementing a planned pavement maintenance program. Prior to implementing any maintenance, additional engineering observation is recommended to determine the type and extent of preventive maintenance. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.
CORROSIVITY

The values presented in the table below may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

<table>
<thead>
<tr>
<th>Boring</th>
<th>Sample Depth (feet)</th>
<th>Soil Description</th>
<th>Sulfides (mg/kg)</th>
<th>Red-Ox Potential (mV)</th>
<th>Soluble Sulfate (mg/kg)</th>
<th>Chlorides (mg/kg)</th>
<th>Electrical Resistivity (Ω·cm)</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-5</td>
<td>6 to 9</td>
<td>Lean Clay</td>
<td>Nil</td>
<td>+681</td>
<td>106</td>
<td>137</td>
<td>1,067</td>
<td>7.8</td>
</tr>
<tr>
<td>BH-6</td>
<td>1½ to 9½</td>
<td>Clayey Sand</td>
<td>Nil</td>
<td>+680</td>
<td>151</td>
<td>125</td>
<td>1,261</td>
<td>7.9</td>
</tr>
</tbody>
</table>

1. Test performed on saturated soil sample.

We recommend a certified corrosion engineer be employed to determine the need for corrosion protection and to design appropriate protective measures.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client.
Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.
FIGURES

Contents:

GeoModel

Note: All attachments are one page unless noted above.
This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

<table>
<thead>
<tr>
<th>Model Layer</th>
<th>Layer Name</th>
<th>General Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Pavement</td>
<td>About 4 to 5 inches of asphalt over about 13 to 17 inches of aggregate base course or about 12 inches of concrete.</td>
</tr>
<tr>
<td>2</td>
<td>Sand with Plasticity</td>
<td>Medium dense, dark brown, clayey sand. Trace gravel in upper strata.</td>
</tr>
<tr>
<td>3</td>
<td>Non Plastic Sand</td>
<td>Medium dense to dense, light brown to tan, poorly graded sand with silt and gravel; and dark brown to brown, silty sand with trace gravel.</td>
</tr>
<tr>
<td>4</td>
<td>Clay</td>
<td>Soft to hard, brown to tan, lean clay and sandy lean clay.</td>
</tr>
</tbody>
</table>

**LEGEND**

- Asphalt
- Aggregate Base Course
- Clayey Sand
- Poorly-graded Sand with Silt and Gravel
- Well-graded Sand with Silt and Gravel
- Silty Sand
- Sandy Lean Clay
- Lean Clay

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.
ATTACHMENTS

Contents:

Exploration and Testing Procedures (2 pages)
Site Location and Exploration Plans (2 pages)
Exploration Results (10 pages)
Supporting Information (2 pages)

Note: All attachments are one page unless noted above.
EXPLORATION AND TESTING PROCEDURES

Field Exploration

<table>
<thead>
<tr>
<th>Number of Borings</th>
<th>Boring Depth (feet)</th>
<th>Planned Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>7 to 10½</td>
<td>Proposed storm sewer alignment</td>
</tr>
</tbody>
</table>

**Boring Layout:** Terracon personnel provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ± 20 feet). The accuracy of boring locations should only be assumed to the level implied by the method used to determine them.

**Subsurface Exploration Procedures:** Borings were advanced with a CME 55 truck-mounted drill rig using 4-inch diameter, solid-stem augers. For borings BH-1 through BH-3 (environmental borings), a clean set of augers was used for each boring to prevent cross contamination of samples. In the environmental borings, a bulk sample of auger cuttings was obtained from the full depth of the boring and discrete samples were obtained from the soils just above the level of ground water. Samples were also screened with a photo-ionization detector (PID). In borings BH-4 through BH-6, four samples were obtained from each boring. Soil sampling was performed using standard split-barrel sampling procedures and a modified California barrel. For the standard split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. For the modified California barrel sampling procedure, a 2½-inch outer diameter split-barrel sampler is used for sampling. Modified California barrel sampling procedures are similar to standard split-barrel sampling procedures; however, blow counts are typically recorded for 6-inch intervals for a total of 12 inches of penetration. Additionally, bulk samples were obtained from borings BH-4 through BH-6 at various depths. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion. Pavements were patched with cold-patch asphalt.

The penetration test provides a reasonable indication of the in-place density of sandy type materials, but only provides an indication of the relative stiffness of cohesive materials since the blow count in these soils may be affected by the soil’s moisture content. In addition, considerable care should be exercised in interpreting the blow counts in soils containing gravel, particularly where the size of the gravel particle exceeds the inside diameter of the sampler.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. WWC collected samples from borings BH-1 through BH-3 for environmental testing, while the samples from borings BH-4 through BH-6 were placed in appropriate containers.
and taken to Terracon’s soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer’s interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

Samples retrieved during the field exploration were returned to the laboratory for observation by the project Geotechnical Engineer and were visually classified in general accordance with the Unified Soil Classification System described in the Supporting Information section of this report.

After sample review by the project engineer, an applicable laboratory testing program was formulated to determine engineering properties of the subsurface materials. Following completion of the laboratory testing, the field and visual descriptions were confirmed or modified as necessary, and Logs of Borings were prepared. These logs are presented in the Exploration Results section of this report.

Selected samples were tested for the following physical and/or engineering properties:

- Moisture Content
- Percent Fines/Grain Size
- Atterberg Limits
- Corrosivity
- R-Value

Laboratory test results are indicated on the boring logs and are presented in depth in the Exploration Results section. The test results are used for the geotechnical engineering analyses and the development of pavement and earthwork recommendations. Laboratory tests are performed in general accordance with applicable local standards or other accepted standards. Procedural standards noted in this report are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Descriptive classifications of the soils indicated on the boring logs are in accordance with the enclosed General Notes and the Unified Soil Classification System. Also shown are estimated Unified Soil Classification Symbols. A brief description of this classification system as well as the General Notes can be found in the Supporting Information section. Classification was by visual-manual procedures. Selected samples were further classified using the results of Atterberg limit and percent fines testing. The Atterberg limit test results are also provided in the Exploration Results section.
SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.
EXPLORATION PLAN
26th Street Interceptor Storm Sewer Extension ■ Cheyenne, Wyoming
April 3, 2020 ■ Terracon Project No. 24205019

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS
EXPLORATION RESULTS

Contents:

Boring Logs (BH-1 through BH-6)
Atterberg Limits
Grain Size Distribution
Corrosivity
R-Value

Note: All attachments are one page unless noted above.
**BORING LOG NO. BH-1**

**PROJECT:** 26th Street Interceptor Storm Sewer Extension  
**CLIENT:** City of Cheyenne  
**SITE:** West 26th Street, Cheyenne, Wyoming

---

**LOCATION**
- See Exploration Plan
- Latitude: 41.1401°  
- Longitude: -104.8251°

**DEPTH**

<table>
<thead>
<tr>
<th>MODEL LAYER</th>
<th>GRAPHIC LOG</th>
<th>DEPTH (Ft.)</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>PID (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4 ASPHALT</td>
<td>about 5 inches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 AGGREGATE BASE COURSE</td>
<td>dark brown, about 13 inches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 CLAYEY SAND (SC)</td>
<td>trace fine to coarse grained gravel, brown, moist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5 POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)</td>
<td>fine to coarse grained sand and gravel, light brown, moist</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Boring Terminated at 7.5 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

**Hammer Type:** Automatic

---

**Notes:**
- **Advancement Method:** 4-inch diameter, solid-stem auger
- **Abandonment Method:** Borings backfilled with soil cuttings upon completion. Sealed with bituminous cold patch at surface.

---

**WATER LEVEL OBSERVATIONS**
- 7 feet after completion of drilling

---

**Supporting Information** for explanation of symbols and abbreviations.

---

**City of Cheyenne / Bid S-14-21 / Page 128 of 289**
PROJECT: 26th Street Interceptor Storm Sewer Extension

SITE: West 26th Street
Cheyenne, Wyoming

CLIENT: City of Cheyenne
Cheyenne, Wyoming

LOCATION
See Exploration Plan
Latitude: 41.1406° Longitude: -104.8239°

MODEL LAYER
GRAPHIC LOG
DEPTH

1
0.4
ASPHALT, about 5 inches

1.5
AGGREGATE BASE COURSE, dark brown, about 13 inches

2
2.5
CLAYEY SAND (SC), trace fine to coarse grained gravel, brown, damp

3
7.5
WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM), fine to coarse grained sand and gravel, light brown, damp

Boring Terminated at 7.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

ADVANCEMENT METHOD:
4-inch diameter, solid-stem auger

ABANDONMENT METHOD:
Borings backfilled with soil cuttings upon completion. Sealed with bituminous cold patch at surface.

WATER LEVEL OBSERVATIONS

7.2 feet after completion of drilling

Notes:

See Supporting Information for explanation of symbols and abbreviations.

Boring Started: 03-13-2020
Boring Completed: 03-13-2020

DRL RIG: CME 55
Driller: Drilling Engineers, Inc.

Project No.: 24205019
## BORING LOG NO. BH-3

**PROJECT:** 26th Street Interceptor Storm Sewer Extension  
**SITE:** West 26th Street  
**CLIENT:** City of Cheyenne  
**LOCATION:** Cheyenne, Wyoming

### MODEL LAYER

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>ASPHALT, about 5 inches</td>
</tr>
<tr>
<td>1.4</td>
<td>CONCRETE, about 12 inches</td>
</tr>
<tr>
<td>2.5</td>
<td>CLAYEY SAND (SC), trace fine to coarse grained gravel, brown, moist</td>
</tr>
<tr>
<td>9.0</td>
<td>POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), fine to coarse grained sand and gravel, light brown, moist</td>
</tr>
</tbody>
</table>

Boring Terminated at 9 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

<table>
<thead>
<tr>
<th>WATER LEVEL OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 feet after completion of drilling</td>
</tr>
</tbody>
</table>

### Advancement Method:
4-inch diameter, solid-stem auger

### Abandonment Method:
Borings backfilled with soil cuttings upon completion. Sealed with bituminous cold patch at surface.

### Notes:
See Supporting Information for explanation of symbols and abbreviations.

###水位观察

<table>
<thead>
<tr>
<th>深度 (英尺)</th>
<th>水位 (英尺)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>5</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Hammer Type: Automatic

City of Cheyenne / Bid S-14-21 / Page 130 of 289
**BORING LOG NO. BH-4**

**PROJECT:** 26th Street Interceptor Storm Sewer Extension  
**SITE:** West 26th Street, Cheyenne, Wyoming

**CLIENT:** City of Cheyenne, Cheyenne, Wyoming

---

**GRAPHIC LOG**

**MODEL LAYER**

**DEPTH**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3</td>
<td>ASPHALT, about 4 inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>AGGREGATE BASE COURSE, dark brown, about 14 inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>SILTY SAND (SM), trace fine to coarse grained gravel, fine to coarse grained sand, dark brown, moist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.5</td>
<td>WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM), fine to coarse grained sand and gravel, light brown to tan, damp, dense to medium dense</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**FIELD TEST RESULTS**

- 10-11-15 N=26
- 18-13-12 N=25
- 13-20-27 N=47
- 9-12-16 N=28

---

**Boring Terminated at 10.5 Feet**

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

---

**Advancement Method:**
- 4-inch diameter, solid-stem auger

**Abandonment Method:**
- Borings backfilled with soil cuttings upon completion. Sealed with bituminous cold patch at surface.

**NOTES:**

- See Supporting Information for explanation of symbols and abbreviations.

---

**WATER LEVEL OBSERVATIONS**

- 10 feet after completion of drilling

---

**Explanatory Information**

- This boring log is not valid if separated from original report.

---

City of Cheyenne / Bid S-14-21 / Page 131 of 289
**BORING LOG NO. BH-5**  

**PROJECT:** 26th Street Interceptor Storm Sewer Extension  

**SITE:** West 26th Street  
Cheyenne, Wyoming  

<table>
<thead>
<tr>
<th>MODEL LAYER</th>
<th>GRAPHIC LOG</th>
<th>LOCATION</th>
<th>WATER LEVEL OBSERVATIONS</th>
<th>FIELD TEST RESULTS</th>
<th>WATER CONTENT (%)</th>
<th>ATTERBERG LIMITS</th>
<th>PERCENT FINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.3</td>
<td>ASPHALT</td>
<td>about 4 inches</td>
<td>dark brown, about 17 inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>AGGREGATE BASE COURSE</td>
<td>dark brown, about 17 inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>SANDY LEAN CLAY (CL)</td>
<td>fine to medium grained sand, brown, damp to moist, soft to hard, varies to CLAYEY SAND (SC)</td>
<td></td>
<td></td>
<td>34-12-22</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)</td>
<td>fine to coarse grained sand and gravel, light brown to tan, damp, dense to medium dense</td>
<td></td>
<td>10-17-20</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>LEAN CLAY (CL)</td>
<td>trace fine grained sand, tan, moist to wet, stiff</td>
<td></td>
<td>8-18-12</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.5</td>
<td>Boring Terminated at 10.5 Feet</td>
<td></td>
<td></td>
<td>5-5-10</td>
<td>41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Stratification lines are approximate. In-situ, the transition may be gradual.**  

**Hammer Type:** Automatic  

**Advancement Method:**  
4-inch diameter, solid-stem auger  

**Abandonment Method:**  
Borings backfilled with soil cuttings upon completion. Sealed with bituminous cold patch at surface.  

**Notes:**  
See Supporting Information for explanation of symbols and abbreviations.  

**WATER LEVEL OBSERVATIONS**  

10 feet after completion of drilling  

**Project No.: 24205019**  

City of Cheyenne / Bid S-14-21 / Page 132 of 289
BORING LOG NO. BH-6

PROJECT: 26th Street Interceptor Storm Sewer Extension

SITE: West 26th Street
Cheyenne, Wyoming

CLIENT: City of Cheyenne
Cheyenne, Wyoming

LOCATION

See Exploration Plan
Latitude: 41.1419° Longitude: -104.8203°

MODEL LAYER

GRAPHIC LOG

DEPTH

0.4 ASPHALT, about 5 inches

AGGREGATE BASE COURSE, dark brown, about 13 inches

1.5 CLAYEY SAND (SC), trace fine to coarse grained gravel, fine to coarse grained sand, dark brown, moist, medium dense

2.0 POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), fine to coarse grained sand and gravel, light brown to tan, moist to damp, dense

3.0 CLAYEY SAND (SC), fine to coarse grained sand, light brown to tan, very moist, medium dense

7.0 Boring Terminated at 10 Feet

WATER LEVEL OBSERVATIONS

5

FIELD TEST RESULTS

3-3-3
N=6
20

10-12-18
N=30
14

13-17-20
N=37
2

15/12"

Notes:

Project No.: 24205019
Drill Rig: CME 55
Driller: Drilling Engineers, Inc.

Advancement Method:
4-inch diameter, solid-stem auger

Abandonment Method:
Borings backfilled with soil cuttings upon completion.
Sealed with bituminous cold patch at surface.

WATER LEVEL OBSERVATIONS

None encountered after completion of drilling

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

City of Cheyenne / Bid S-14-21 / Page 133 of 289
ATTERBERG LIMITS RESULTS
ASTM D4318

<table>
<thead>
<tr>
<th>Boring ID</th>
<th>Depth</th>
<th>LL</th>
<th>PL</th>
<th>PI</th>
<th>Fines</th>
<th>USCS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-4</td>
<td>4 - 5.5</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
<td>5.9</td>
<td>SW-SM</td>
<td>WELL-GRADED SAND with SILT and GRAVEL</td>
</tr>
<tr>
<td>BH-5</td>
<td>2</td>
<td>34</td>
<td>12</td>
<td>22</td>
<td>53.5</td>
<td>CL</td>
<td>SANDY LEAN CLAY</td>
</tr>
<tr>
<td>BH-5</td>
<td>9 - 10.5</td>
<td>47</td>
<td>17</td>
<td>30</td>
<td>90.3</td>
<td>CL</td>
<td>LEAN CLAY</td>
</tr>
</tbody>
</table>
GRAIN SIZE DISTRIBUTION
ASTM D422 / ASTM C136

COBBLES | GRAVEL | SAND | SILT OR CLAY

<table>
<thead>
<tr>
<th>Boring ID</th>
<th>Depth</th>
<th>USCS Classification</th>
<th>WC (%)</th>
<th>LL</th>
<th>PL</th>
<th>PI</th>
<th>Cc</th>
<th>Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-4</td>
<td>4 - 5.5</td>
<td>WELL-GRADED SAND with SILT and GRAVEL (SW-SM)</td>
<td>2</td>
<td>NP</td>
<td>NP</td>
<td>NP</td>
<td>1.00</td>
<td>19.12</td>
</tr>
<tr>
<td>BH-5</td>
<td>2</td>
<td>SANDY LEAN CLAY (CL)</td>
<td>34</td>
<td>12</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH-5</td>
<td>9 - 10.5</td>
<td>LEAN CLAY (CL)</td>
<td>41</td>
<td>47</td>
<td>17</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Boring ID</th>
<th>Depth</th>
<th>D_{100}</th>
<th>D_{60}</th>
<th>D_{30}</th>
<th>D_{10}</th>
<th>%Cobbles</th>
<th>%Gravel</th>
<th>%Sand</th>
<th>%Silt</th>
<th>%Fines</th>
<th>%Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH-4</td>
<td>4 - 5.5</td>
<td>19</td>
<td>3.295</td>
<td>0.755</td>
<td>0.172</td>
<td>27.5</td>
<td>63.0</td>
<td></td>
<td></td>
<td></td>
<td>5.9</td>
</tr>
<tr>
<td>BH-5</td>
<td>2</td>
<td>19</td>
<td>0.095</td>
<td></td>
<td></td>
<td>0.0</td>
<td>6.7</td>
<td>39.8</td>
<td></td>
<td></td>
<td>53.5</td>
</tr>
<tr>
<td>BH-5</td>
<td>9 - 10.5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>9.7</td>
<td></td>
<td></td>
<td>90.3</td>
</tr>
</tbody>
</table>

PROJECT: 26th Street Interceptor Storm Sewer Extension

SITE: West 26th Street
Cheyenne, Wyoming

PROJECT NUMBER: 24205019

CLIENT: City of Cheyenne
Cheyenne, Wyoming
## Results of Corrosion Analysis

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Sample Location</th>
<th>Sample Depth (ft.)</th>
<th>pH Analysis, ASTM G 51</th>
<th>Water Soluble Sulfate (SO4), ASTM C 1580 (mg/kg)</th>
<th>Sulfides, AWWA 4500-S D, (mg/kg)</th>
<th>Chlorides, ASTM D 512, (mg/kg)</th>
<th>Red-Ox, AWWA 2580, (mV)</th>
<th>Total Salts, AWWA 2540, (mg/kg)</th>
<th>Resistivity, ASTM G 57, (ohm-cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BH-5</td>
<td>6.0-9.0</td>
<td>7.82</td>
<td>106</td>
<td>Nil</td>
<td>137</td>
<td>+681</td>
<td>880</td>
<td>1067</td>
</tr>
<tr>
<td></td>
<td>BH-6</td>
<td>1.0-9.0</td>
<td>7.88</td>
<td>151</td>
<td>Nil</td>
<td>125</td>
<td>+680</td>
<td>820</td>
<td>1261</td>
</tr>
</tbody>
</table>

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.
# RESISTANCE R-VALUE & EXPANSION PRESSURE OF COMPACTED SOIL

**ASTM D2844**

## SAMPLE DATA TEST RESULTS

<table>
<thead>
<tr>
<th>TEST SPECIMEN NO.</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMPACATION PRESSURE (PSI)</strong></td>
<td>30</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td><strong>DENSITY (PCF)</strong></td>
<td>107.6</td>
<td>108.1</td>
<td>115.2</td>
</tr>
<tr>
<td><strong>MOISTURE CONTENT (%)</strong></td>
<td>20.1</td>
<td>18.9</td>
<td>15.7</td>
</tr>
<tr>
<td><strong>EXPANSION PRESSURE (PSI)</strong></td>
<td>-0.02</td>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td><strong>HORIZONTAL PRESSURE @ 160 PSI</strong></td>
<td>143</td>
<td>142</td>
<td>129</td>
</tr>
<tr>
<td><strong>SAMPLE HEIGHT (INCHES)</strong></td>
<td>2.83</td>
<td>2.83</td>
<td>2.59</td>
</tr>
<tr>
<td><strong>EXUDATION PRESSURE (PSI)</strong></td>
<td>162.6</td>
<td>269.5</td>
<td>485.4</td>
</tr>
<tr>
<td><strong>CORRECTED R-VALUE</strong></td>
<td>8.0</td>
<td>9.0</td>
<td>16.3</td>
</tr>
<tr>
<td><strong>UNCORRECTED R-VALUE</strong></td>
<td>7.1</td>
<td>7.9</td>
<td>15.8</td>
</tr>
</tbody>
</table>

**R-VALUE @ 300 PSI EXUDATION PRESSURE =** 10

![Graph showing R-value vs. Exudation Pressure](image-url)
SUPPORTING INFORMATION

Contents:

General Notes
Unified Soil Classification System

Note: All attachments are one page unless noted above.
GENERAL NOTES
DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING

| Auger Cuttings | Modified California Ring Sampler | Standard Penetration Test |

WATER LEVEL

- Water Initially Encountered
- Water Level After a Specified Period of Time
- Water Level After a Specified Period of Time
- Cave In Encountered

FIELD TESTS

| N | Standard Penetration Test Resistance (Blows/Ft.) |
| HP | Hand Penetrometer |
| T | Torvane |
| DCP | Dynamic Cone Penetrometer |
| UC | Unconfined Compressive Strength |
| PID | Photo-Ionization Detector |
| OVA | Organic Vapor Analyzer |

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

RELATIVE DENSITY OF COARSE-GRAINED SOILS

(50% or more passing the No. 200 sieve.) Density determined by Standard Penetration Resistance

<table>
<thead>
<tr>
<th>Descriptive Term (Density)</th>
<th>Standard Penetration or N-Value Blows/Ft.</th>
<th>Ring Sampler Blows/Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Loose</td>
<td>0 - 3</td>
<td>0 - 6</td>
</tr>
<tr>
<td>Loose</td>
<td>4 - 9</td>
<td>7 - 18</td>
</tr>
<tr>
<td>Medium Dense</td>
<td>10 - 29</td>
<td>19 - 58</td>
</tr>
<tr>
<td>Dense</td>
<td>30 - 50</td>
<td>59 - 98</td>
</tr>
<tr>
<td>Very Dense</td>
<td>&gt; 50</td>
<td>&gt; 99</td>
</tr>
</tbody>
</table>

STRENGTH TERMS

<table>
<thead>
<tr>
<th>Descriptive Term (Consistency)</th>
<th>Unconfined Compressive Strength Qu. (psf)</th>
<th>Standard Penetration or N-Value Blows/Ft.</th>
<th>Ring Sampler Blows/Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Soft</td>
<td>less than 500</td>
<td>0 - 1</td>
<td>&lt; 3</td>
</tr>
<tr>
<td>Soft</td>
<td>500 to 1,000</td>
<td>2 - 4</td>
<td>3 - 4</td>
</tr>
<tr>
<td>Medium Stiff</td>
<td>1,000 to 2,000</td>
<td>4 - 8</td>
<td>5 - 9</td>
</tr>
<tr>
<td>Stiff</td>
<td>2,000 to 4,000</td>
<td>8 - 15</td>
<td>10 - 18</td>
</tr>
<tr>
<td>Very Stiff</td>
<td>4,000 to 8,000</td>
<td>15 - 30</td>
<td>19 - 42</td>
</tr>
<tr>
<td>Hard</td>
<td>&gt; 8,000</td>
<td>&gt; 30</td>
<td>&gt; 42</td>
</tr>
</tbody>
</table>

CONSISTENCY OF FINE-GRAINED SOILS

(50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

<table>
<thead>
<tr>
<th>Descriptive Term (Density)</th>
<th>Standard Penetration or N-Value Blows/Ft.</th>
<th>Ring Sampler Blows/Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Loose</td>
<td>0 - 3</td>
<td>0 - 6</td>
</tr>
<tr>
<td>Loose</td>
<td>4 - 9</td>
<td>7 - 18</td>
</tr>
<tr>
<td>Medium Dense</td>
<td>10 - 29</td>
<td>19 - 58</td>
</tr>
<tr>
<td>Dense</td>
<td>30 - 50</td>
<td>59 - 98</td>
</tr>
<tr>
<td>Very Dense</td>
<td>&gt; 50</td>
<td>&gt; 99</td>
</tr>
</tbody>
</table>

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.
## UNIFIED SOIL CLASSIFICATION SYSTEM

### Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests

<table>
<thead>
<tr>
<th>Soil Classification</th>
<th>Group Symbol</th>
<th>Group Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravels: More than 50% of coarse fraction retained on No. 4 sieve</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sands: 50% or more of coarse fraction passes No. 4 sieve</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Silts and Clays: Liquid limit less than 50</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Silts and Clays: Liquid limit 50 or more</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Highly organic soils: Primarily organic matter, dark in color, and organic odor</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Coarse-Grained Soils:

- More than 50% retained on No. 200 sieve

**Gravels:**

- More than 50% retained on No. 200 sieve

**Clean Gravels:**

- Less than 5% fines

**Gravels with Fines:**

- More than 12% fines

**Clean Sands:**

- Less than 5% fines

**Sands with Fines:**

- More than 12% fines

### Fine-Grained Soils:

- 50% or more passes the No. 200 sieve

**Sands:**

- 50% or more of coarse fraction passes No. 4 sieve

**Clean Sands:**

- Less than 5% fines

**Sands with Fines:**

- More than 12% fines

### For classification of fine-grained soils and fine-grained fraction of coarse-grained soils

**Equation of “A” - line**

Horizontal at PI=4 to LL=25.5.

- Then PI=0.73 (LL-20)

**Equation of “U” - line**

Vertical at LL=16 to PI=7.

- Then PI=0.9 (LL-6)

### Highly Organic Soils

- Primarily organic matter, dark in color, and organic odor

### Notes

A. Based on the material passing the 3-inch (75-mm) sieve

B. If field sample contained cobbles or boulders, or both, add “with cobbles or boulders, or both” to group name.

C. Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

D. Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

E. Cu = \( \frac{D_{60}/D_{10}}{D_{10} \times D_{60}} \)

F. If fines classify as CL-MH, use dual symbol GC-GM, or SC-SC.

G. If fines classify as ML or MH, use dual symbol GC-GM, or SC-SC.

H. If fines are organic, add “with organic fines” to group name.

I. If Atterberg limits plot in shaded area, soil is a CL-MH, silty clay.

J. If soil contains 15% or more gravel, add “with gravel” to group name.

K. If soil contains 30% or more of No. 200 predominantly gravel, add “gravely” to group name.

L. If soil contains 30% or more of No. 200 predominantly sand, add “sandy” to group name.

M. If soil contains 30% or more of No. 200 predominantly sand, add “sandy” to group name.

N. If soil contains 15% or more sand, add “with sand” to group name.

O. If fines classify as CL-MH, use dual symbol GC-GM, or SC-SC.

P. If Atterberg limits plot in shaded area, soil is a CL-MH, silty clay.

Q. If soil contains 30% or more of No. 200 predominantly gravel, add “gravely” to group name.

R. If soil contains 30% or more of No. 200 predominantly sand, add “sandy” to group name.

S. If fines classify as CL-MH, use dual symbol GC-GM, or SC-SC.
APPENDIX B
Health and Safety Plan
HEALTH AND SAFETY PLAN

FOR THE

CAPITAL BASIN 26\textsuperscript{TH} STREET STORM SEWER EXTENSION DESIGN PROJECT

May 2020
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<td>Hazard Assessment by Task</td>
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<td>Emergency Contact Numbers and Locations</td>
</tr>
</tbody>
</table>

## LIST OF ATTACHMENTS

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<th>Description</th>
</tr>
</thead>
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<td>B</td>
<td>Personnel Responsibilities</td>
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<tr>
<td>C</td>
<td>Site Map</td>
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</tbody>
</table>
1.0 PROJECT DESCRIPTION

This Health and Safety Plan (HASP) has been prepared in accordance with 29 Code of Federal Regulations (CFR) 1910.120(b)(4) by WWC Engineering (WWC). As specified, this HASP addresses, as a minimum, the topics outlined in sections (A) through (J) of 1910.120(b)(4).

Site: Capital Basin West 26th Street Storm Sewer Extension, Cheyenne, Wyoming

Location: Along West 26th Street from Carey Avenue to O’Neil Avenue in Cheyenne, Wyoming.

Project Objectives: Installation of a storm sewer pipe will occur through a known contaminated area.

Anticipated Project Dates: Third Quarter 2020 through Fourth Quarter 2020

NOTE: A Site Characterization and Analysis is provided as Attachment A.

2.0 PROJECT RESPONSIBILITIES

Project Manager: Tristan Cordier (AVI)

Health and Safety Manager: Greg Reid (WWC)

Site Health and Safety Supervisor: Tristan Cordier (AVI)

Project Personnel (as applicable): WWC Engineering

AVI

Diversified Underground (Potholing)

Terracon (Drilling)

NOTE: Specific descriptions of personnel responsibilities are outlined in Attachment B.

Pre-Initiation Meeting: Prior to work activities initiating and entry of the Site, the Site Health and Safety Supervisor will conduct a Pre-Initiation Meeting. All employees and contact personnel must attend.

HASP Implementation: The Site Health and Safety Supervisor will conduct inspections to confirm the implementation and effectiveness of the HASP. Any deficiencies in implementation or effectiveness of the HASP will be amended.

3.0 ELEMENTS

3.1 Hazard Analysis by Task and PPE Requirements
Hazard analysis by task and the Personal Protective Equipment (PPE) required for each task are based on the discoveries made by the Site Characterization and Analysis provided in Attachment A.

Table 1. PPE Requirements by Task

<table>
<thead>
<tr>
<th>Activities</th>
<th>Hazardous Substances and Physical Hazards</th>
<th>Hazard Analysis (Low, Medium, High)</th>
<th>PPE Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation of construction</td>
<td>Moving Equipment, Power Lines, Underground Utilities, Street Traffic, Slip, Trip, Fall, VOCs/Hazardous Gases, Cold Exposure, contaminated soils, contaminated groundwater</td>
<td>Low to Medium</td>
<td>D</td>
</tr>
<tr>
<td>Potholing</td>
<td>Moving Equipment, Power Lines, Underground Utilities, Street Traffic, Slip, Trip, Fall, VOCs/Hazardous Gases, Cold Exposure</td>
<td>Low to Medium</td>
<td>D</td>
</tr>
<tr>
<td>Drilling</td>
<td>Moving Equipment, Power Lines, Underground Utilities, Street Traffic, Slip, Trip, Fall, VOCs/Hazardous Gases, Cold Exposure</td>
<td>Low to Medium</td>
<td>D</td>
</tr>
</tbody>
</table>

NOTES: Upgrading to Level A or Level B PPE with a SCBA is not authorized or required by this HASP. Entry into Permit-Required Confined Spaces is not authorized by this HASP. Refer to Section 5.0.

3.2 Training Requirements
Table 2. Personnel Training Requirements

<table>
<thead>
<tr>
<th>Personnel</th>
<th>40-Hour OSHA/HAZWOPER&lt;sup&gt;1&lt;/sup&gt;</th>
<th>First Aid/CPR&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>Not Required&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Not Required</td>
</tr>
<tr>
<td>Health and Safety Manager</td>
<td>Required</td>
<td>Not Required</td>
</tr>
<tr>
<td>Site Health and Safety Supervisor</td>
<td>Required</td>
<td>Not Required</td>
</tr>
<tr>
<td>Project Personnel</td>
<td>Required</td>
<td>Not Required</td>
</tr>
</tbody>
</table>

NOTES:  
<sup>1</sup>Annual refresher training is also required to maintain compliance status.  
<sup>2</sup>First Aid/CPR training is required every two years.  
<sup>3</sup>Project Manager is not allowed on Site within the exclusion area.

3.3 Medical Surveillance Requirements

Due to only Level D PPE being required for the project, medical surveillance will not be required.

3.4 Air Monitoring Requirements

Table 3. Air Monitoring Requirements By Task

<table>
<thead>
<tr>
<th>Activities</th>
<th>Air Monitoring Device</th>
<th>Frequency</th>
<th>Action Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation of construction&lt;sup&gt;1&lt;/sup&gt;</td>
<td>ppbRAE 3000</td>
<td>Approximately 15- minute intervals</td>
<td>10 ppm</td>
</tr>
<tr>
<td>Potholing</td>
<td>None</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Drilling</td>
<td>None</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

NOTE:  
<sup>1</sup>Air monitoring during observation of potholing and drilling activities will only be required if an air-vac truck is utilized.

If the specified Action Levels are reached, the Health and Safety Manager will be immediately contacted. Likely, PPE will need to be upgraded from that specified in Section 3.1, or work will temporarily be stopped until the Health and Safety Manager determines the proper action. If personnel are at risk due to oxygen deficiency or inhalation of hazardous chemicals or particulates, air monitoring will occur in the breathing zone. In the case of potentially explosive conditions, air monitoring will occur at or near the source. Readings from air monitoring will be taken and recorded at the frequency specified in the previous table.

The Site Health and Safety Supervisor has the authority to issue temporary Stop Work orders to investigate and take safety measures in any situation in which an Action Level has been exceeded. Air will continue to be closely monitored until the Site Health and Safety Supervisor determines that conditions are no longer threatening, or that hazards may be mitigated by an increase in PPE level. Aforementioned, upgrades to Level A or Level B PPE protection utilizing a SCBA is not authorized by this HASP. Should Level A or Level B protection be required, the HASP will be substantially revised.
3.5 Site Control Measures

The Site will be controlled in a variety of methods. Site control measures will include work zones, Site communication, use of the “Buddy System”, use of standard operating procedures/safe work practices and procedures, and knowledge of the Site with accessible maps of the Site and to locations of importance (such as nearby hospitals).

3.5.1 Work Zones

The use of work zones is necessary if the work to be performed could present a hazard to the general public and/or people not familiar with the work activities due to the accessibility of the immediate work area. Three work zones are standard. The following discussion of the work zones is specific to this HASP:

Exclusion Zone

The Exclusion Zone (also called the Hot Zone) is typically the contaminated area that requires decontamination. Due to this Site not having areas of high contamination to be isolated, the Exclusion Zone will be modified to the 20-foot radius around any excavation. The exclusion zone will be marked with orange cones to signify the area unauthorized people must not enter. All persons entering the Exclusion Zone must meet minimum requirements for training and use of PPE.

Contamination Reduction Zone

The Contamination Reduction Zone is the area immediately adjacent to the Exclusion Zone. Due to limited available area at this Site, an established Contamination Reduction Zone will not be utilized. In the event of an upgrade to Level C PPE, a Contamination Reduction Zone will be established, as required, for personnel decontamination.

Support Zone

The Support Zone includes all other areas accessible by personnel not involved directly with operations. Due to limited available area at this Site, an established Support Zone will not be utilized.

3.5.2 Site Communication

Site communication will be chosen appropriately for the specific Site. In this case, Site communication will include unaided verbal and visual communication and cellular telephones. Site maps will be available to all on-site personnel. A Site map is provided in Attachment C.
3.5.3 Buddy System

Most work in potentially hazardous areas should be conducted using the “Buddy System”. The Buddy System uses a minimum of two personnel in the event that one individual should be in contact with hazards, a second individual will be available to:

- Provide assistance,
- Observe his/her partner for symptoms of chemical exposure, heat/cold stress, and/or injury,
- Periodically inspect the integrity of PPE, and
- Notify the Site Health and Safety Supervisor or others if emergency help is needed.

Work activities considered non-hazardous may be conducted by a single worker. Work activities requiring contracted services (e.g., potholing, drilling, etc.), the contractors may serve as the “buddy” for the purposes of the HASP. Buddy System requirements are listed in the following table.

Table 4. Hazard Assessment by Task

<table>
<thead>
<tr>
<th>Activities</th>
<th>Hazard Assessment</th>
<th>Buddy System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation of construction</td>
<td>Low to Medium</td>
<td>Yes</td>
</tr>
<tr>
<td>Potholing</td>
<td>Low to Medium</td>
<td>Yes</td>
</tr>
<tr>
<td>Drilling</td>
<td>Low to Medium</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3.5.4 Knowledge of the Site Area

All personnel on-site will have a general understanding of the Site and the routes to safe areas and the nearest hospital. All personnel will have access to this HASP, which includes a Site map (Attachment C) and directions to the nearest hospital. Verbal directions to the nearest hospital are as follows:

Route to Nearest Hospital (Cheyenne Regional Medical Center) –

1. From anywhere on the Site, proceed to the intersection of Randall Avenue and West 26th Street.
2. Travel northeast on West 26th Street on the north side of the Herschler Building to the intersection of West 26th Street and Central Avenue.
3. Turn right (travel southeast) on Central Avenue to the intersection of Central Avenue and East 22nd Street.
4. Turn left (travel northeast) on East 22nd Street to the intersection of East 22nd Street and House Avenue.
5. Turn left (travel northwest) on House Avenue.
6. Follow hospital signs to the Cheyenne Regional Medical Center Emergency Room.

3.6 Personnel Decontamination

Personnel decontamination will occur in the Contamination Reduction Zone (refer to Section 3.5). Decontamination must occur before eating, drinking, smoking, or leaving the Site for the day. Used PPE and any disposable items used during decontamination will be containerized for proper disposal.

4.0 EMERGENCY RESPONSE PLAN

All injuries or emergencies will be immediately reported to the Site Health and Safety Officer and, as appropriate, the proper authorities. Any injury or emergency will also be reported to the Project Manager and the Health and Safety Manager as soon as possible. Should an injury result in a fatality or the hospitalization of three or more individuals, the incident will be reported within 8 hours of the occurrence to local Occupational Safety and Health Administration (OSHA) office, as required by 29 CFR 1904. Should an injury require the services of a physician, hospital, or paramedic, it will be verbally reported to the Project Manager within 8 hours. An Accident Report form will be filed with the Health and Safety Manager by the Site Health and Safety Supervisor for all reported accidents.

Should an emergency occur, the Site Health and Safety Supervisor and related personnel should take action to care for any injured and to minimize other personnel’s and the general public’s exposure to danger. The Site Health and Safety Supervisor is in charge of directing safety procedures during an emergency. However, the Site Health and Safety Supervisor shall relinquish control of the emergency situation once appropriate authorities have arrived on the Site.
### 4.1 Emergency Numbers and Locations

<table>
<thead>
<tr>
<th>Name/Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital/Ambulance</strong></td>
<td></td>
</tr>
<tr>
<td>Cheyenne Regional Medical Center</td>
<td>(307) 634-2273</td>
</tr>
<tr>
<td>214 East 23rd Street</td>
<td>Or</td>
</tr>
<tr>
<td>Cheyenne, WY 82001</td>
<td>911</td>
</tr>
<tr>
<td><strong>Fire/Police/Sheriff</strong></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>911</td>
</tr>
<tr>
<td><strong>Utilities (Gas, Electric, Water)</strong></td>
<td></td>
</tr>
<tr>
<td>One Call of Wyoming</td>
<td>811</td>
</tr>
<tr>
<td>1740H Dell Range Boulevard #511</td>
<td></td>
</tr>
<tr>
<td>Cheyenne, WY 82009</td>
<td></td>
</tr>
<tr>
<td><strong>National Response Center</strong></td>
<td>(800) 424-8802</td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td><strong>OSHA Area Office</strong></td>
<td></td>
</tr>
<tr>
<td>1244 Speer Blvd, Ste. 551</td>
<td>(720) 264-6550</td>
</tr>
<tr>
<td>Denver, CO 80204</td>
<td></td>
</tr>
<tr>
<td><strong>Local Response Center</strong></td>
<td></td>
</tr>
<tr>
<td>Wyoming Department of Environmental Quality</td>
<td>(307) 777-7781</td>
</tr>
<tr>
<td><strong>Project Manager</strong></td>
<td></td>
</tr>
<tr>
<td>Tristan Cordier</td>
<td>(307) 637-6017</td>
</tr>
<tr>
<td>1103 Old Town Lane, Suite 101</td>
<td></td>
</tr>
<tr>
<td>Cheyenne, WY 82009</td>
<td></td>
</tr>
</tbody>
</table>

### 4.2 First Aid and Fire Prevention/Protection

The following measures will be taken to provide timely first aid and fire prevention/protection in the event that an injury occurs or a fire should start:

- A first aid kit will be kept in every vehicle or on every piece of equipment on the Site at all times. This will facilitate in timely first aid in the event of an injury.
- A fire extinguisher will be required on every vehicle or piece of equipment.
- Smoking is prohibited in the Exclusion Zone (described in Section 3.5) and all other areas designated by the Project Manager, Health and Safety Manager, or Site Health and Safety Supervisor as “No Smoking” areas.

### 5.0 CONFINED SPACE ENTRY

A confined space is defined by OSHA in 29 CFR 1910.146(b) as a space that:

1. Is large enough and so configured that an employee can bodily enter and perform assigned work;
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
3. Is not designed for continuous employee occupancy.
Confined spaces are further separated into “permit-required confined space (permit space)” and “non-permit confined space”. The definitions of these spaces are as follows:

**Non-permit confined space:** A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

**Permit-required confined space:** A confined space that has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere;
2. Contains a material that has the potential for engulfing an entrant;
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section; or
4. Contains any other recognized serious safety or health hazard.

Examples of permit-required confined spaces may include:
- Tanks
- Silos
- Utility Vaults
- Pipelines
- Cisterns
- Manholes
- Sewers
- Septic Tanks

**NOTE:** CONFINED SPACE ENTRY (NON-PERMIT OR PERMIT) IS NOT AUTHORIZED BY THIS HASP. NO CONFINED SPACE ENTRY IS REQUIRED FOR THIS PROJECT.
6.0 **SPILL CONTAINMENT**

All reasonable measures should be taken to prevent the spread of contamination and minimize exposures to additional personnel or the public. However, intentional exposure to higher concentrations of contamination (such as that experienced in a spill) is not covered by this HASP. Personnel under this HASP are not authorized to participate in Spill Containment procedures. If a significant release of contaminants occurs, the Site Health and Safety Supervisor will contact the Local Response Center (provided in Section 4.1), the Facility Supervisor, and the Project Manager.

The following individuals will read the HASP and sign this sheet, verifying they understand the HASP, and will comply with the safety stipulations made by the HASP.

- Greg Reid (WWC Engineering) (not on-site personnel)
- Tristan Cordier (AVI) (not on-site personnel)
- [Name] (Diversified Underground) (not on-site personnel)
- Zach St Jean (Terracon) (not on-site personnel)
- Garret Martin (Terracon)

Any other personnel associated with utilities locating and investigative drilling.

Printed Name

Signature
Site Characterization and Analysis

Location: Capital Basin 26th Street Storm Sewer Extension, Cheyenne, WY

Date: May 01, 2020

Expected Duration: Third Quarter 2020 to Fourth Quarter 2020

Conducted By: Greg Reid

Specific Tasks Performed at this Location: Oversight of installation of a storm sewer pipe. The activities will take place in an area with low levels of PCE and TCE contamination.

NOTE: A site map is attached to this Site Characterization and Analysis.

Overhead Hazards

☐ Suspended loads that could fall
☒ Overhead beams or loads that could be hit against
☐ Energized wires or equipment that could be hit against
☒ Employees work at elevated site who could drop objects on others below
☐ Sharp objects or corners at head level

Head Protection: Hard Hat: Yes X No ________ Type: MSA Plastic Hard Hat

Eye and Face Hazards

☑ Chemical splashes
☑ Dust
☐ Smoke and fumes
☐ Welding operations
☐ Lasers/optical radiation
☐ Bioaerosols
☐ Projectiles
Eye Protection

Safety glasses or goggles: Yes ___ X ___ No ___ Type: NIOSH-approved w/ side shields
Face shield: Yes ___ No ___ X ___

Hand Hazards

✓ Chemicals
✓ Sharp edges, splinters, etc.
✓ Temperature extremes
☐ Biological agents
☐ Exposed electrical wires
✓ Sharp tools, machine parts, etc.

Hand Protection: Yes ___ X ___ No ___
Type required: Leather gloves around sharp objects and machine parts.
Insulated gloves in cold weather. Chemical resistant gloves if placing hands in contaminated groundwater.

Foot Hazards

✓ Heavy materials handled by employees
✓ Sharp edges or points (puncture risk)
☐ Exposed electrical wires
✓ Unusually slippery conditions
✓ Wet conditions
☐ Construction or demolition project

Foot Protection (Safety shoes): Yes ___ X ___ No _______
Type(s): Hard-toed boots, potentially muck boots if very wet.
Toe protection: Steel-toed boots or equivalent should be used at this site.
Metatarsal protection: Not required.
Puncture resistant: Boots should be puncture resistant.
Electrical insulation: Not required.
Other (Explain): Chemical-resistant boots will not be required at this site.
Muck boots may be desired if conditions are very wet.
Fire, Flash Fire, or Explosion Hazards

- Well heads
- Gas pipelines, drill rigs, pump stations, or gas related infrastructure
- Flammable gas and fuels storage & dispensing facilities
- Water pipeline outfalls where flammable gas may be present

Smoking or ATV use is prohibited in the immediate vicinity of these facilities.

Flame Resistant Clothing (FRC)

FRC includes long sleeve shirts, long pants or coveralls with long sleeves, and hard hat liner, all meeting FRC requirements. FRC must be the outer layer of clothing in an FRC–required situation.

- Required for oil or gas drilling, well servicing, or production-related operations, where exposure to conditions that could produce an ignition of flammable materials are present.

- Not Required - Why? The work will not be conducted in an area of high fire, flash fire, or explosion hazard.

Other Identified Safety and/or Health Hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Recommended Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>Prevent skin and eye contact. Wash skin or eyes when contaminated. Provide eyewash on site.</td>
</tr>
<tr>
<td>(PCE)</td>
<td></td>
</tr>
<tr>
<td>Trichloroethylene</td>
<td>Prevent skin and eye contact. Wash skin or eyes when contaminated. Provide eyewash on site.</td>
</tr>
<tr>
<td>(TCE)</td>
<td></td>
</tr>
<tr>
<td>Cold Stress</td>
<td>Wear warm clothing in layers. Constantly monitor all project personnel for signs of cold stress.</td>
</tr>
<tr>
<td>Heat Stress</td>
<td>Take appropriate rest breaks and monitor hydration. Constantly monitor all project personnel for signs of heat stress.</td>
</tr>
<tr>
<td>Street Traffic</td>
<td>Wear high visibility clothing. Use traffic control measures such as signs, safety cones, etc. when appropriate.</td>
</tr>
</tbody>
</table>

Conditions Immediately Dangerous to Life or Health (IDLH)

Are IDLH conditions known or suspected at the site? Yes______ No______ X____

If “Yes,” attach available information. If “No,” provide evidence: The site has been investigated previously and concentrations of PCE and TCE were found to be low. Additionally, the site is in an area accessible by the general public with some residences nearby. Therefore, the site cannot be an IDLH atmosphere.
Anticipated Contaminants

<table>
<thead>
<tr>
<th>Anticipated Contaminants</th>
<th>FINAL RULE LIMITS (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA</td>
</tr>
<tr>
<td>Tetrachloroethylene (PCE)</td>
<td>100</td>
</tr>
<tr>
<td>Trichloroethylene (TCE)</td>
<td>100</td>
</tr>
</tbody>
</table>

Note:  
1. For 5 minutes in any 3-hour period.  
2. For 5-minute maximum peak in any 2 hours.

Personal Protective Equipment Summary

The following provides a summary of the PPE required for all of the hazards expected at the site. The PPE selected has been chosen to ensure that workers will have suitable protection to a level below permissible exposure limits (PELs) for known or suspected hazardous substances.

Does the available information indicate a need for respiratory protection? Yes ______ No ______

If “No,” list/describe evidence for no respiratory protection: The work is to be performed in an area that has been previously examined and the contaminants have been analyzed. The site is also located in an area where the general public is constantly present without acute health effects. Therefore, it can be surmised that respiratory protection will not be needed.

If respiratory protection is not required, the HASP will specify the use of LEVEL D PPE. Should conditions change or seem to be more hazardous than expected, an upgrade to LEVEL C PPE may be required. No work requiring supplied air (Level A or Level B PPE) is allowed by this HASP. Components of Level D and Level C PPE are provided in the following table. The components recommended for this site are indicated.

<table>
<thead>
<tr>
<th>PPE Component</th>
<th>Level D</th>
<th>Level C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boots – Protective Toe</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Boots – Chemical Resistant</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Hard Hat</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Reflective Safety Vest</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ear Plugs</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Work Gloves</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gloves (inner) – Chemical Resistant</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Gloves (outer) – Chemical Resistant</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Safety Glasses/Goggles</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Face Shield</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Full/Half Respirator (w/ appropriate filters)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chemical Resistant Apron</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Monitoring

Monitoring for potential a) ionizing radiation or b) IDLH conditions, as appropriate, could be accomplished the following ways:

- Monitoring with a direct-reading radiation-sensing instrument (e.g., scintillometer);
- Monitoring with other direct-reading instruments which will indicate the presence of hazardous atmospheres, such as combustible or explosive mixtures, oxygen deficiencies, or toxic substances;
- Visually monitoring for signs of IDLH or other dangerous conditions;
- Continuous air monitoring during work activities.

Is there an indication of ionizing radiation? Yes_____ No__ X___

Is there an indication of an IDLH atmosphere? Yes_____ No__ X___

Is there an indication of explosive, low-oxygen, or toxic atmospheres? Yes_____ No__ X___

Risk Identification

In compliance with the Hazard Communication Standard (29 CFR 1910.120), all personnel on site (including contractors) will be made aware of any risks that have been identified. Risks to consider include, but are not limited to:

- Exposures exceeding PELs or other published exposure levels;
- IDLH conditions;
- Potential skin absorption and irritation sources;
- Potential eye irritation sources;
- Explosion sensitivity and flammability ranges; and
- Oxygen deficiencies.

Are any such conditions anticipated? Yes_____ No__ X___

If “Yes,” list/describe the anticipated conditions: _N/A________________________________________

________________________________________

Based on the identification of anticipated risks, the following Hazard Assessment and PPE level for each work task is deemed appropriate for this work site:
<table>
<thead>
<tr>
<th>Activities</th>
<th>Hazardous Substances and Physical Hazards</th>
<th>Hazard Analysis (Low, Medium, High)</th>
<th>PPE Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation of construction</td>
<td>Moving Equipment, Power Lines, Underground Utilities, Street Traffic, Slip, Trip, Fall, VOCs/Hazardous Gases, Cold Exposure</td>
<td>Low to Medium</td>
<td>D</td>
</tr>
<tr>
<td>Potholing</td>
<td>Moving Equipment, Power Lines, Underground Utilities, Street Traffic, Slip, Trip, Fall, VOCs/Hazardous Gases, Cold Exposure</td>
<td>Low to Medium</td>
<td>D</td>
</tr>
<tr>
<td>Drilling</td>
<td>Moving Equipment, Power Lines, Underground Utilities, Street Traffic, Slip, Trip, Fall, VOCs/Hazardous Gases, Cold Exposure</td>
<td>Low to Medium</td>
<td>D</td>
</tr>
</tbody>
</table>
Employee Notification

Any available information pertaining to the chemical, physical, and toxicological properties of each substance known or expected to be present on the site (that is available to the employer and relevant to the duties of the employees) will be made available to the affected employees prior to the execution of their work duties.

Is any substance-specific information (e.g., SDS) available at this time?
Yes ___ X ___ No_____

If “Yes,” attach the substance-specific information.
SDS forms and/or fact sheets are attached.

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on the Capital Basin 26th Street Storm Sewer Extension Project, Cheyenne, WY.

_______________________________  Name (print):_______Greg Reid________
(Signature)

Title: ___ Health and Safety Manager___  Office: ____ Billings, MT________

Others Present:

_______________________________  Name(s) – Sign & Print
1. Identification

Product Name: Tetrachloroethylene

Cat No.: AC445690000; ACR445690010; AC445690025; AC445691000

CAS-No: 127-18-4
Synonyms: Perchloroethylene

Recommended Use: Laboratory chemicals.
Uses advised against: Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet:

Company: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Company: Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

2. Hazard(s) identification

Classification: This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

- Skin Corrosion/Irritation: Category 2
- Serious Eye Damage/Eye Irritation: Category 2
- Skin Sensitization: Category 1
- Carcinogenicity: Category 1B
- Specific target organ toxicity (single exposure): Category 3
- Target Organs - Central nervous system (CNS).
- Target Organs - Kidney, Liver, Blood.
- Specific target organ toxicity - (repeated exposure): Category 2

Label Elements

Signal Word: Danger

Hazard Statements
Tetrachloroethylene

Revision Date 23-Jan-2018

Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazard not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>127-18-4</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
If symptoms persist, call a physician.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists,
call a physician.

Inhalation
Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects
None reasonably foreseeable. May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Unsuitable Extinguishing Media
No information available

Flash Point
No information available

Autoignition Temperature
No information available

Explosion Limits
Upper
No data available
Lower
No data available

Hazardous Combustion Products

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated.

NFPA
Health 2
Flammability 0
Instability 0
Physical hazards N/A

6. Accidental release measures

Personal Precautions
Use personal protective equipment as required. Ensure adequate ventilation.

Environmental Precautions
Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling
Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight.

8. Exposure controls / personal protection
Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>TWA: 25 ppm</td>
<td>(Vacated) TWA: 25 ppm</td>
<td>IDLH: 150 ppm</td>
<td>TWA: 25 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 100 ppm</td>
<td>(Vacated) TWA: 170 mg/m³</td>
<td>Ceiling: 200 ppm</td>
<td>STEL: 100 ppm</td>
</tr>
</tbody>
</table>

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures
Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State Liquid
Appearance Colorless
Odor Characteristic, sweet
Odor Threshold No information available
pH No information available
Melting Point/Range -22 °C / -7.6 °F
Boiling Point/Range 120 - 122 °C / 248 - 251.6 °F @ 760 mmHg
Flash Point No information available
Evaporation Rate 6.0 (Ether = 1.0)
Flammability (solid,gas) Not applicable
Flammability or explosive limits
Upper No data available
Lower No data available
Vapor Pressure 18 mbar @ 20 °C
Vapor Density No information available
Density 1.619
Specific Gravity 1.625
Solubility 0.15 g/L water (20°C)
Partition coefficient; n-octanol/water No data available
Autoignition Temperature No information available
Decomposition Temperature > 150°C
Viscosity 0.89 mPa s at 20 °C
Molecular Formula C2 Cl4
Molecular Weight 165.83

10. Stability and reactivity
Tetrachloroethylene  

**Reactive Hazard**  
None known, based on information available

**Stability**  
Stable under normal conditions.

**Conditions to Avoid**  
Incompatible products. Excess heat. Exposure to moist air or water.

**Incompatible Materials**  
Strong acids, Strong oxidizing agents, Strong bases, Metals, Zinc, Amines, Aluminium

**Hazardous Decomposition Products**  
Chlorine, Phosgene, Hydrogen chloride gas

**Hazardous Polymerization**  
Hazardous polymerization does not occur.

**Hazardous Reactions**  
None under normal processing.

## 11. Toxicological information

### Acute Toxicity

**Product Information**

**Component Information**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>LD50 = 2629 mg/kg (Rat)</td>
<td>LD50 &gt; 10000 mg/kg (Rat)</td>
<td>LC50 = 27.8 mg/L (Rat) 4 h</td>
</tr>
</tbody>
</table>

**Toxicologically Synergistic Products**  
No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation**  
Irritating to eyes and skin

**Sensitization**  
No information available

**Carcinogenicity**
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>127-18-4</td>
<td>Group 2A</td>
<td>Reasonably Anticipated</td>
<td>A3</td>
<td>X</td>
<td>A3</td>
</tr>
</tbody>
</table>

- **IARC (International Agency for Research on Cancer)**  
  - Group 1 - Carcinogenic to Humans
  - Group 2A - Probably Carcinogenic to Humans
  - Group 2B - Possibly Carcinogenic to Humans

- **NTP: (National Toxicity Program)**
  - Known - Known Carcinogen
  - Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

- **ACGIH: (American Conference of Governmental Industrial Hygienists)**
  - A1 - Known Human Carcinogen
  - A2 - Suspected Human Carcinogen
  - A3 - Animal Carcinogen

- **Mexico - Occupational Exposure Limits - Carcinogens**
  - Mexico - Occupational Exposure Limits - Carcinogens
  - A1 - Confirmed Human Carcinogen
  - A2 - Suspected Human Carcinogen
  - A3 - Confirmed Animal Carcinogen
  - A4 - Not Classifiable as a Human Carcinogen
  - A5 - Not Suspected as a Human Carcinogen

**Mutagenic Effects**  
No information available

**Reproductive Effects**  
No information available.

**Developmental Effects**  
No information available.

**Teratogenicity**  
No information available.

**STOT - single exposure**  
Central nervous system (CNS)
STOT - repeated exposure  Kidney Liver Blood

Aspiration hazard  No information available

Symptoms / effects, both acute and delayed  Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information

<table>
<thead>
<tr>
<th>Component</th>
<th>EU - Endocrine Disrupters Candidate List</th>
<th>EU - Endocrine Disruptors - Evaluated Substances</th>
<th>Japan - Endocrine Disruptor Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>Group II Chemical</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Other Adverse Effects  Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>EC50: &gt; 500 mg/L</td>
<td>LC50: 4.73 - 5.27 mg/L, 96h</td>
<td>EC50 = 100 mg/L 24 h</td>
<td>EC50: 6.1 - 9.0 mg/L, 48h</td>
</tr>
<tr>
<td></td>
<td>(Pseudokirchneriella subcapitata)</td>
<td>flow-through (Oncorhynchus mykiss)</td>
<td>EC50 = 112 mg/L 24 h</td>
<td>Static (Daphnia magna)</td>
</tr>
</tbody>
</table>
|                     | LC50: 11.0 - 15.0 mg/L, 96h static (Leponis macrochirus) | LC50: 8.6 - 13.5 mg/L, 96h static (Pimephales promelas) | EC50 = 120.0 mg/L 30 min
|                     | LC50: 12.4 - 14.4 mg/L, 96h flow-through (Pimephales promelas) | | |

Persistence and Degradability  Insoluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation  No information available.

Mobility  Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>2.88</td>
</tr>
</tbody>
</table>

13. Disposal considerations

Waste Disposal Methods  Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - U Series Wastes</th>
<th>RCRA - P Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene - 127-18-4</td>
<td>U210</td>
<td></td>
</tr>
</tbody>
</table>

14. Transport information

DOT  UN-No  UN1897
    Proper Shipping Name  TETRACHLOROETHYLENE
    Hazard Class  6.1
    Packing Group  III
    TDG  UN-No  UN1897
Tetrachloroethylene

Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1
Packing Group: III

IATA
UN-No: UN1897
Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1
Packing Group: III

IMDG/IMO
UN-No: UN1897
Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1
Packing Group: III

15. Regulatory information

United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active/Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>127-18-4</td>
<td>X</td>
<td>ACTIVE</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export
Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>127-18-4</td>
<td>X</td>
<td>-</td>
<td>204-825-9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-33294</td>
</tr>
</tbody>
</table>

U.S. Federal Regulations

SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>127-18-4</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
See section 2 for more information

CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

OSHA - Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)
California Proposition 65
This product contains the following Proposition 65 chemicals.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>127-18-4</td>
<td>Carcinogen</td>
<td>14 µg/day</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroethylene</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant: Y
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations
Mexico - Grade: No information available

16. Other information

Prepared By: Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date: 10-Dec-2009
Revision Date: 23-Jan-2018
Print Date: 23-Jan-2018
Revision Summary: This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of SDS
SAFETY DATA SHEET

Product Name: Trichloroethylene

Cat No.: T340-4; T341-4; T341-20; T341-500; T403-4

Synonyms: Trichloroethene (Stabilized/Technical/Electronic/Certified ACS)

Recommended Use: Laboratory chemicals.

Uses advised against:

Details of the supplier of the safety data sheet:

Company: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number:
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

Classification:
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Statement</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Skin Sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1A</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Target Organs - Central nervous system (CNS)</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity - (repeated exposure)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Target Organs - Kidney, Liver, Heart, spleen, Blood.</td>
<td></td>
</tr>
</tbody>
</table>

Label Elements:

Signal Word: Danger

Hazard Statements:
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May cause drowsiness or dizziness
Suspected of causing genetic defects
May cause cancer
May cause damage to organs through prolonged or repeated exposure
Precautionary Statements

Prevention
- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Contaminated work clothing should not be allowed out of the workplace
- Do not breathe dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Wear protective gloves/protective clothing/eye protection/face protection

Response
- IF exposed or concerned: Get medical attention/advice

Inhalation
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
- IF ON SKIN: Wash with plenty of soap and water
- Take off contaminated clothing and wash before reuse
- If skin irritation or rash occurs: Get medical advice/attention

Eyes
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- If eye irritation persists: Get medical advice/attention

Storage
- Store locked up
- Store in a well-ventilated place. Keep container tightly closed

Disposal
- Dispose of contents/container to an approved waste disposal plant

3. Composition / Information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>79-01-6</td>
<td>100</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation
Move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a
Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects

None reasonably foreseeable. May cause allergic skin reaction. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

Notes to Physician

Treat symptomatically

---

5. Fire-fighting measures

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media

No information available

Flash Point

No information available

Method -

No information available

Autoignition Temperature

410 °C / 770 °F

Explosion Limits

Upper

10.5 vol %

Lower

8 vol %

Oxidizing Properties

Not oxidising

Sensitivity to Mechanical Impact

No information available

Sensitivity to Static Discharge

No information available

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Hydrogen chloride gas Chlorine Phosgene Carbon monoxide (CO) Carbon dioxide (CO₂)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions

Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light. Do not store in aluminum containers.
8. Exposure controls / personal protection

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
</table>
| Trichloroethylene  | TWA: 10 ppm  
                        STEL: 25 ppm  
                        (Vacated) TWA: 50 ppm  
                        (Vacated) STEL: 270 mg/m³  
                        Ceiling: 200 ppm  
                        (Vacated) STEL: 200 ppm  
                        (Vacated) STEL: 1080 mg/m³  
                        TWA: 100 ppm  
                        STEL: 535 mg/m³  
                        STEL: 200 ppm  
                        STEL: 1080 mg/m³ |
| IDLH: 1000 ppm    |           |          |            | TWA: 100 ppm    |

Legend

- ACGIH: American Conference of Governmental Industrial Hygienists
- OSHA: Occupational Safety and Health Administration
- NIOSH IDLH: The National Institute for Occupational Safety and Health

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Long sleeved clothing.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-85 °C / -121 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>87 °C / 188.6 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>0.69 (Carbon Tetrachloride = 1.0)</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>10.5 vol %</td>
</tr>
<tr>
<td>Lower</td>
<td>8 vol %</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>77.3 mbar @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>4.5 (Air = 1.0)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.460</td>
</tr>
<tr>
<td>Solubility</td>
<td>Slightly soluble in water</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>410 °C / 770 °F</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>&gt; 120°C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.55 mPa.s (25°C)</td>
</tr>
</tbody>
</table>
Trichloroethylene

Molecular Formula: C2HCl3
Molecular Weight: 131.39

10. Stability and Reactivity

Reactive Hazard: None known, based on information available

Stability: Light sensitive.

Conditions to Avoid: Incompatible products. Excess heat. Exposure to light. Exposure to moist air or water.

Incompatible Materials: Strong oxidizing agents, Strong bases, Amines, Alkali metals, Metals,

Hazardous Decomposition Products: Hydrogen chloride gas, Chlorine, Phosgene, Carbon monoxide (CO), Carbon dioxide (CO2)

Hazardous Polymerization: Hazardous polymerization does not occur.

Hazardous Reactions: None under normal processing.

11. Toxicological Information

Acute Toxicity

Product Information
Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>LD50 = 4290 mg/kg ( Rat )</td>
<td>LD50 = 20 g/kg ( Rabbit )</td>
<td>LC50 = 26 mg/L ( Rat ) 4 h</td>
</tr>
<tr>
<td></td>
<td>LD50 = 4920 mg/kg ( Rat )</td>
<td>LD50 = 29000 mg/kg ( Rabbit )</td>
<td></td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products: None information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation: Irritating to eyes and skin

Sensitization: No information available

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>79-01-6</td>
<td>Group 1</td>
<td>Reasonably Anticipated</td>
<td>A2</td>
<td>X</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Possibly Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

Mutagenic Effects: Mutagenic effects have occurred in humans.

Reproductive Effects: No information available.

Developmental Effects: No information available.

Teratogenicity: No information available.
STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver Heart spleen Blood

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological Information

Ecotoxicity
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is: Harmful to aquatic organisms. Toxic to aquatic organisms.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>EC50: = 175 mg/L, 96h (Pseudokirchneriella subcapitata)</td>
<td>LC50: = 39 - 54 mg/L, 96h static (Lepomis macrochirus)</td>
<td>EC50 = 0.81 mg/L 24 h</td>
<td>EC50: = 2.2 mg/L, 48h (Daphnia magna)</td>
</tr>
<tr>
<td></td>
<td>EC50: = 450 mg/L, 96h (Desmodesmus subspicatus)</td>
<td>LC50: = 31.4 - 71.8 mg/L, 96h flow-through (Pimephales promelas)</td>
<td>EC50 = 115 mg/L 10 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EC50 = 190 mg/L 15 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EC50 = 235 mg/L 24 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EC50 = 410 mg/L 24 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EC50 = 975 mg/L 5 min</td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>2.4</td>
</tr>
</tbody>
</table>

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - U Series Wastes</th>
<th>RCRA - P Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene - 79-01-6</td>
<td>U228</td>
<td>-</td>
</tr>
</tbody>
</table>

14. Transport information

DOT

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1710
Proper Shipping Name TRICHLOROETHYLENE
**15. Regulatory Information**

All of the components in the product are on the following Inventory lists:  X = listed

### International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>201-167-4</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
- **X** - Listed
- **E** - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- **F** - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- **N** - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- **P** - Indicates a commenced PMN substance
- **R** - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- **S** - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- **T** - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- **XU** - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- **Y1** - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- **Y2** - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

### U.S. Federal Regulations

**TSCA 12(b)**

Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA 12(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>Section 5</td>
</tr>
</tbody>
</table>

**SARA 313**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>79-01-6</td>
<td>100</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories**

- Acute Health Hazard: Yes
- Chronic Health Hazard: Yes
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

**CWA (Clean Water Act)**

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>X</td>
<td>100 lb</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**Clean Air Act**

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depleters</th>
<th>Class 2 Ozone Depleters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trichloroethylene</td>
<td>X</td>
<td></td>
<td></td>
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</tbody>
</table>

**OSHA** Occupational Safety and Health Administration

Not applicable

---

City of Cheyenne / Bid S-14-21 / Page 175 of 289
CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
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California Proposition 65
This product contains the following proposition 65 chemicals

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U.S. State Right-to-Know Regulations

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U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations
Mexico - Grade
No information available

16. Other information
Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 03-Feb-2010
Revision Date 14-Jul-2016
Print Date 14-Jul-2016
Revision Summary
This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS
ATTACHMENT B

PERSONNEL RESPONSIBILITIES
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<table>
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<th>Position</th>
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<tbody>
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<tr>
<td>HEALTH AND SAFETY MANAGER</td>
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<tr>
<td>SITE HEALTH AND SAFETY SUPERVISOR</td>
<td>3</td>
</tr>
<tr>
<td>PROJECT PERSONNEL</td>
<td>3</td>
</tr>
</tbody>
</table>
ATTACHMENT B
PERSONNEL RESPONSIBILITIES

As discussed in Section 2.0 of the Health and Safety Plan (HASP), project responsibilities will be delegated to the Project Manager, the Health and Safety Manager, the Site Health and Safety Supervisor, and the Project Personnel. Responsibilities of personnel are provided in the following discussion:

PROJECT MANAGER

- Confirm all personnel are aware of the obligations of the HASP, are trained properly in work practices necessary to work safely, and are accustomed to the procedures used in emergency situations;
- Ensure the completion of HASP-related forms;
- Approve any changes to the HASP;
- Verify all project personnel are in compliance with the Occupational Safety and Health Administration’s (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training in accordance with 29 CFR 1910.120;
- Verify all personnel are aware of the hazards and potential hazards associated with the site;
- Obtain permission for site access, and coordinate with site owner/manager;
- Verify the correction of any unsafe work practices or conditions that could result in injury; and
- Verify the preparation and completion of any necessary forms in relation to the HASP such as accident forms or job exposure forms.

HEALTH AND SAFETY MANAGER

- Develop or review and approve the HASP(s);
- Resolve any conflicts with health and safety issues or stipulations made by the HASP with the Project Manager and the site owner/manager;
- Ensure implementation of the HASP;
- Conduct safety audits at the site, or assigning others to conduct the audits; and
- Notify the Project Manager of any Stop Work Orders issued, and the reasoning behind the issuance.
SITE HEALTH AND SAFETY SUPERVISOR

- Implement the HASP;
- Report any deviations from the HASP to the Project Manager and/or the Health and Safety Manager;
- Enforce the requirements of the HASP;
- Consult the Health and Safety Manager and the Project Manager if site conditions change and the HASP has to be updated or modified;
- Conduct intermittent inspections to verify compliance with the HASP by Project Personnel, and report the results of the inspection to the Project Manager and the Health and Safety Manager;
- Issue a Stop Work Order at any time unsafe conditions are encountered, and report the Stop Work Order and the reasoning behind it to the Health and Safety Manager;
- Monitor site conditions and hazards;
- Verify all monitoring equipment is working properly, calibrated, properly maintained, and in use as required;
- Conduct safety briefings and site-specific safety training for Project Personnel;
- Consult Health and Safety Manager for appropriate PPE selection;
- Inspect PPE on Project Personnel periodically to ensure that it is being used properly, is in suitable condition, is being maintained properly, and is being stored properly;
- Define zones of limited access, such as the Exclusion Zone, on a daily basis as the project advances;
- Monitor Project Personnel for signs of heat or cold stress;
- Coordinate emergency care, evacuation, and rescue in the event of an accident;
- Investigate and document accidents, illnesses, and incidents on the appropriate forms;
- Enforce the “Buddy System” when necessary; and
- Escort any safety agency inspectors visiting the site in response to health and safety issues.

PROJECT PERSONNEL

- Comply with the HASP;
- Make all reasonable measures and take all reasonable precautions to avoid injury or harm to themselves and other Project Personnel;
- Perform only tasks they are comfortable with doing safely;
- Report any accidents or unsafe conditions to the Site Health and Safety Supervisor immediately upon discovery; and
- Notify the Site Health and Safety Supervisor of any medical conditions that could be aggravated by work conditions, and make any other Project Personnel aware of the concern, if appropriate.
APPROXIMATE AREA OF CONTAMINATION

NOTES:
APPENDIX C
Force Account
Record Instruction
**FORCE ACCOUNT RECORD INSTRUCTIONS**

**Instructions**

1. The Engineer will number each force account payment sequentially, starting with number one.
2. When work is encountered in the field and when said work is not covered by any pay item, the engineer will request from the contractor a force account record form.
3. No work shall begin on any force account work prior to this form being approved by the Engineer and City of Cheyenne Project Manager.
4. Force account form may be eliminated from requirements at the discretion of the Engineer or City of Cheyenne Project Manager.

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<td>Project Number:</td>
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<tr>
<td>Contractor:</td>
<td>Related Bid Item No.:</td>
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</table>

**Nature of Work** (include additional sheets as necessary):

---

**Location of Work:**

---

**Time Frame of Work:**

---

**Total Proposed Force Account Cost:**

---

**Contractor**

<table>
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**Engineer**

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**City Project Manager**

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Final
Drainage Design
Report

Capitol Basin - 26th Street
Interceptor Storm Sewer
Extension

100% Construction Documents
Cheyenne, WY

Prepared for:

City of Cheyenne
City Engineer’s Office
2101 O’Neil Avenue
Room 206
Cheyenne, Wy 82001

January 7, 2021
January 7, 2021

Mr. Tom Cobb, P.E.
City Engineer
City of Cheyenne
2101 O’Neil Ave.
Room 206
Cheyenne, WY 82001

RE: Final Drainage Design Report – 100% Design
26th Street Interceptor – Phase 2
CivilWorx Project Number: C19029

Dear Tom:

CivilWorx, LLC is pleased to submit the Final Drainage Design Report for the proposed Capitol Basin – 26th Street Interceptor Storm Sewer Extension Project. The project is located along 26th Street between O’Neil Avenue and Central Avenue. This report includes assessments based on the final pipeline and inlet configurations of the storm sewer project based on the final construction plans. The hydrological models used for analysis are included for your department’s review.

The intent of the Final Drainage Design Report is to accompany the 100% Construction Document submittal for the Capitol Basin – 26th Street Interceptor Storm Sewer Extension Project.

If you have any questions or comments as you review this report, please feel free to contact me at your convenience.

Sincerely,

Kelly W. Hafner, PE
Senior Project Manager
CivilWorx, LLC
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APPENDICES

APPENDIX A - SWMM Drainage Models
I. General Location and Description

A. Location

The Capitol Basin - 26th Street Interceptor Storm Sewer Extension Project is part of a multi-component, multi-phased plan for flood mitigation improvements within the Lower Capitol Basin Drainage Basin of Cheyenne. The initial phase of project, the Capitol Basin 26th Street Interceptor Storm Sewer began construction 2017 and was completed in 2018. The initial phase ended at West 26th Street and O'Neil Avenue with planning to continue east in the future. The current project is referenced as Phase 2 of the 26th Street Interceptor Storm Sewer for this report, will continue drainage improvements east towards Central Avenue.

As previously mentioned, the Capitol Basin 26th Street Interceptor Storm Sewer Extension Project is part of a series of projects that are designed to work together to reduce the flooding potential for much of the central downtown area. Other components of this drainage system include improvements along West Pershing Blvd and the Snyder Avenue corridor. The Snyder Avenue Reconstruction Project installed a new 9-foot diameter storm drainage outlet to Crow Creek (upstream of 19th Street). Storm sewer improvements were made to the Snyder Avenue corridor and runoff collection efficiencies were included in the West Pershing Blvd area as well. The initial phase of the 26th Street Interceptor Storm Sewer connected to stubouts from the Snyder Avenue Reconstruction Project and utilize this new outfall to Crow Creek.

Other additional drainage projects that impact the lower Capitol Basin included the 19th Street Rehabilitation Project(2015-2016) and the Civic Center Commons(2015-2019) project. These two projects are interconnected and collect runoff bypassing the Snyder Avenue Reconstruction Project and Phase 1 of the 26th Interceptor Storm Sewer. The combined influence area of these project is largely concentrated in the lower westside of the Capitol Basin with the net result being a significant level of flood control improvements for a sizable part of the west-central and lower Capitol Basin. The current Phase 2 of the 26th Interceptor Storm Sewer project provides the opportunity to reach into the central portion of the Lower Capitol Basin which has moderate flood potential before spilling into the lower Capitol Basin. The Phase 2 project will work conjunction with the Pando Park facility (upstream of this project) and the Civic Center Commons downstream of this project. The result will divert more overland flood flows that would have otherwise propagated through the Capitol Square facility and continued southeasterly into the downtown business district.

The Phase 2 project is located within the west half of Section 31, Township 14 North, Range 66 West of the 6th Principal Meridian. A vicinity map outlining Phase 1 and Phase 2 is shown with Figure 1.
B. Background Information

The Capitol Basin 26th Street Interceptor Storm Sewer Project and the other recent drainage improvements have been extensively modeled with the previous projects. The original basis was a comprehensive EPA Stormwater Management Model (SWMM) computer program model developed in 2004 by Ayres Associates for the Lower Capitol Basin. This was one of the first detailed hydrological models developed for the City of Cheyenne and greatly improved the ability to look at problem areas and potential improvement scenarios. This model integrated both street flow with the various detention and storm sewer networks in the area of study. This model suggested a significant flooding potential for most of the major buildings in the Capitol Basin including the State Capitol & Herschler Building campus (Capitol Square), the Cheyenne Regional Medical Center campus, the City of Cheyenne Municipal Building and Cheyenne Civic Center, the Laramie County Courthouse Building, and most of the downtown residential & commercial blocks between Maxwell Avenue and O’Neil Avenue within several blocks of Lincolnway. In addition, essentially all the major drainage paths for the Lower Capitol Basin converge near the historic Cheyenne Depot and Plaza facility. The potential for major flood damage and a history of repetitive local damages throughout this area is the primary reason why flood mitigation improvements were pursued.

It should be noted that significant revisions were made to the 2004 SWMM model with Phase 1 of the 26th Street Interceptor Storm Sewer project. The goal was to correlate with more recent recommendations related to modeling parameters and also add additional local flow paths that may influence drainage flow concentrations within the area of study. The hydrological models used for this report (Phase 2) are continuations of the final modeling completed with the Phase 1 project. There has been no significant upstream (of 26th Street) influences that we are aware of since the development of the Phase 1 models. The Capitol Basin 26th Street Interceptor Storm Sewer Engineering Design Report, by
BenchMark Engineers, PC dated December 21, 2016 summarized the Phase 1 design. This report references that report as the BME 2016 report or the 2016 referenced report. The EPA SWMM computer project has also been revised and updated several times since the initial modelling and this report utilizes the most current version published by the US Environmental Protection Agency.

II. Drainage Basins and Sub-Basins

A. Major Basin Description

The Capitol Basin is a relatively large, 11.7 square mile drainage basin that begins west of the FE Warren Airforce Base. Drainage is primarily southeasterly then south through the major urban areas of downtown Cheyenne prior to being conveyed to Crow Creek via storm sewer collection systems.

![Figure 2. Capitol Basin (From 2016 reference report)](image)

Phase 2 of the 26th Street Interceptor Storm Sewer Project is located within the Lower Capitol Basin (see Figure 2). A breakdown of the local drainage sub-areas within the Lower Capitol Basin is shown with Figure 3. As shown with Figure 3, most of the drainage improvements have been focused in the ‘West’ Lower Capitol Basin.
Drainage facilities that impact the ‘Central’ Lower Capitol Basin include the Pando Park facility. This facility has some influence on 79 acres north of East Pershing Blvd. Runoff bypassing the Pando Park facility merges with other local drainages in the Central Lower Capitol Basin. These drainages converge at the intersection of Capitol Avenue and 26th Street. This intersection is a local sump, currently drained by a small storm sewer. Runoff has been observed to fill this intersection for decades. The development of the Herschler Building in the 1980s created an elevated pad which saw flood flows propagate around the facility. The large underground parking structure and other facilities of the Capitol Square campus were known to have been heavily inundated during the 1985 flood. Runoff can enter the underground parking garage entrances at both Carey Avenue at 25th Street and Central Avenue at 25th Street. Based on the elevation of the streets, the Carey Avenue drainage path is the primary outlet for runoff overtopping the sump at 26th Street and Capitol Avenue. At high depths, runoff will also begin flowing around the eastern portion of newly renovated Herschler Building towards Central Avenue. The west parking garage entrance at Carey Avenue has the highest flooding potential for the underground portion of the Capitol Square facility. The recent reconstruction of the Capitol Square facility installed a floodgate system on the Carey Avenue entry to mitigate the flooding potential.
Other influences in the Central Lower Capitol Basin include the high street crown of Randell Avenue. The current street geometry moves a large amount of runoff southeast (following the street crown) towards the 26th Street and Carey Avenue intersection. This concentrates runoff at the NE corner of the Capitol Square facility.

Another factor that became known with the planning for the 26th Street Interceptor project was the crossing of the Cheyenne Orphan Plume (COP). The COP is an area of residual PCE pollution (within the local groundwater) that is a remnant of past era dry cleaning operations in and around the Randell Avenue corridor. The presence of the COP requires special testing, safety procedures, and potentially special disposal procedures for materials disturbed with construction. The 26th Street Interceptor passes through the COP starting roughly at O’Neil Avenue and continues east to Pioneer Avenue. The COP is the primary reason the project was broken into phases. The full scope of contamination is to be assessed as the project construction progresses but is planned for with the design. Another item of concern (with Phase 1) was the presence of many fiber optic duct banks and other major telecommunications lines located in the eastern side of Carey Avenue. These utilities would have potentially interfered with gravity storm sewer lines. These utilities were potholed in the spring of 2020 (with this project) and the locates found elevations that will allow larger storm sewer lines through. This allows for alternatives for various pipe sizes to be considered based on the project budget and design goals.

Outside of Crow Creek, the urban core of the Lower Capitol Basin was never mapped for FEMA. This results in no current regulatory Special Flood Hazard Areas that would be influenced by this project.

B. Local Drainage Conditions (See Figures 4-7)

The existing conditions assessed with this report are outlined on the Existing Conditions Drainage Plan Map (Figure 7) on the following page. The design points and listed flows represent an estimate of surface (street) flows at the various locations. Note the convergence of flow and large peaks on Carey Avenue at the 25th Street intersection. A large portion of these flows would exceed the street containment capacity and be diverted (via weir flow) down the Capitol Square parking garage ramp. Excessive runoff volume into the underground structure has the potential to flood the underground facilities of the Capitol.

To assist with the existing conditions drainage planning, a 2-dimensional analysis surface flow model is added with the final report assessment for existing conditions. The basis for this model is recent lidar topography made available from the City of Cheyenne. The goal of this assessment is to outline the localized drainage paths and areas of pooling. The following figures 5-7 show the results of those assessments.
26TH STREET INTERCEPTOR - PHASE 2
EXISTING CONDITIONS DRAINAGE PLAN MAP
26TH STREET - ONEIL AVE TO CENTRAL AVE

Figure 4
January 2021
Figure 5. Initial Storm Flowpaths and Ponding

A: Initial deeper ponding at 26th Street and Capitol Avenue
B: Runoff ponding against the curblines near 26th Street and Carey Avenue

Figure 6. Large Storm Ponding
The results of the overland flood simulations and Figures 5 & 6 suggested the placement of inlets along the NE and NW quadrants of the 26th Street and Carey Avenue intersection will be able to pick up large quantities of runoff traveling south along Randell Avenue and Carey Avenue. The simulation also confirmed that the sump at 26th Street and Capitol Avenue is the primary concentration point for surface runoff prior to continuing south along Carey Avenue and past the underground entrances to the Capitol Square facility. Runoff transfer from Carey Avenue to Capitol Avenue is anticipated starting at 28th Street and will occur at increasing rates at 27th Street and 26th Street. The portion of 26th Street, east of Randall Avenue to Central Avenue, is anticipated to be fully inundated during a major storm event under existing conditions. Carey Avenue, south of 26th Street is anticipated to be inundated once the storage capacity of the sump at 26th Street and Capitol Avenue is exceeded. Note the influence of the high street crowns of Central Avenue and portions of Randall Avenue is shown with Figure 7.
III. 26th Street Interceptor Storm Sewer Extension Assessments

A. Drainage Assessments

The Phase 2 design assessments are made using the US EPA Stormwater Management Model (SWMM, ver. 5.1.015) software with modeling scenarios specific to the various options. The performance of the street gutter systems, final storm sewer inlets and piping networks are estimated in the SWMM model for the various return periods. Runoff hydrographs were estimated using EPA SWMM sub-catchment rainfall-to-runoff algorithms. Dynamic wave routing within the SWMM model was used to address interconnections and interactions between all collection, conveyance, storage, and regulatory elements. The SWMM model is a 1-dimensional model that has been developed to estimate the 2-dimensional field conditions. As with any model, this model contains idealized elements (i.e. drainage basins, street sections, pipes, and inlets) based on the parameters outlined in the 2016 referenced report. Given the nature of the project which is flood mitigation, the scenarios presented with this report focused on the major storms. These are the 50-Year (2.92” in 2 hours), 100-Year (3.68” in 2 hours), and 500-Year (6” in 2 hour) rainfall events.

Known design constraints include the capacity limitations on the 26th Street storm sewer at the UPRR crossing at Snyder Avenue and 23rd Street (connection with the Snyder Avenue system). The initial phase of the 26th Street Interceptor and planning for Phase 2 designed around these limitations. Other system specific limitations include the capacity shared with other inflows (i.e. 24th Street and the storm sewer inflows at O’Neil Avenue). In general, the limiting peak flow capacity of the Phase 2 system is in the 120 cfs to 140 cfs range depending on the level of surcharging.

B. Design Options

The Phase 2 final design, assessed with this report, is a 54” storm sewer from O’Neil Avenue to Carey Avenue then a 36” storm sewer to the sump at Capitol Avenue and 26th Street.

To estimate the relative effectiveness of the final design, the volume of runoff transfer to the Phase 1 point of connection is estimated. A summary of the local flow conditions and the volume of runoff transferred are listed with Figure 5 on the following page. In general, the volume of runoff transferred is considerable and on target with the initial planning for the overall project. The estimated peak HGL along the 26th Street corridor is shown on the design plan set. The peak HGL at 26th Street and Capitol Avenue and is summarized below. For reference, the main 1st floor level of the Herschler Building is 6096.9’ +/-.

<table>
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</tr>
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<td>100-Year</td>
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<tr>
<td>500-Year</td>
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The use of the volumetric transfer as the key variable for assessment is from a simple but true observation that it takes an accumulation of runoff volume to create a flood condition.
IV. Conclusions

A. Discussion on the Final Design

A review of the 100% design found the performance of the system is in-line with the initial planning for the overall project. The proposed design extends the 54” storm sewer from Phase 1 to Carey Avenue and transitions to a 36” storm sewer from Carey Avenue to Capitol Avenue. This option provides good volumetric transfers out of the 26th Street and Capitol Avenue Sump and the greater Central Lower Capitol Basin. The local sump condition at 26th and Capitol Avenue increases the capture efficiency of inlets located near this intersection. This results in shorter duration outflow back into Carey Avenue and south by the west entry of the Capitol Square underground parking facility. The shorter duration outflow will attenuate in the downstream street networks which reduces the peak loading on the subsequent storm sewers farther south. The proposed plan uses dual 15’ Type ‘R’ inlets which, are known for high intake capacity, at the low-point of Capitol Avenue and 26th Street. Additional inlets are provided west of 26th Street and Carey Avenue to provide higher potential for inflow. The general goal of the design is to maintain theoretical inlet efficiencies (including clogging) well above the individual pipe reach efficiencies. High-capacity inlets are also located on the NW quadrant of the 26th Street and Carey Avenue intersection to collect ponding from runoff down the west side of Carey Avenue and runoff following the street crown of Randall Avenue. In addition, this is a storm sewer designed to be heavily surcharged to maximize the volume transfer potential. New storm sewer manholes in the inundated areas of 26th Street include grated lids to prevent airlock on the system and allow for inflow and should major ponding occur. In summary the system has been optimized to transfer runoff volume from the collection area for a wide range of storm and from a variety of inlet locations.

Most major storms in the Cheyenne area come with hail which adds to the clogging potential of inlets so having a high inlet capacity available will be of great benefit during the larger storm events. The current assessment shows a marked decrease in the flow for the 100-Year and smaller storms in Carey Avenue near the 25th Street intersection. High surface flow, along Carey Avenue, poses the highest risk of flooding to the Capitol Square complex.

B. Remarks

The performance and drainage summaries provided are based on estimates using 1-dimensional idealized SWMM hydrological models and design rainfall events developed with the 1988 Drainage Master Plans. The biggest drawback of a 1-d model is that the flow paths are prescriptive and alternative flows paths can be missed which may result in skewed predictions. The SWMM program, however, is the current industry standard for drainage assessments of very complex systems such as found in the Lower Capitol Basin.

The final remark is that there has been only one relatively larger storm event observed by the author in the Lower Capitol Basin since 2012. The observations from this event suggested a reasonable correlation (location and magnitude) of observed flow as compared to what was predicted. It is our opinion the results presented with this report will also correlate reasonably well with the performance of installed system. The goal of the design of this system has been hinged on the premise that it takes an accumulation and concentration of diffuse runoff volumes to produce a flood. The goal of this design is to significantly reduce the volume of runoff in the local street network to reduce the potential for flooding to the facilities downstream of this project.
V. References


VI. Certification

"I hereby attest that the Final Drainage Design Report for the Capitol Basin - 26th Street Interceptor Storm Sewer was prepared by me, or under my direct supervision, in accordance with the provisions of City of Cheyenne Unified Development Code for the responsible parties thereof and that I am a duly registered Professional Engineer under the laws of the State of Wyoming. I understand that the City of Cheyenne does not and shall not assume liability for drainage facilities designed by others."

<stamped pending review and comment>

___________________________________
Kelly W. Hafner
Registered Professional Engineer
State of Wyoming # 10514
APPENDIX A

SWMM Drainage Model Input Data and Output Summaries

- SWMM Models (digital only)
  - Capitol Basin 26th Street SWMM Model 100% Design 1-7-2020.inp
26th STREET
TYPICAL SECTION
STA. 140+75 - 151+25
(ONEIL AVE - CAREY AVE)

1) CRUSHED BASE SHALL BE GRAVING 'W' OR 'L' GRANITE QUARRY MATERIALS

2) IN AREAS NOT RECEIVING '12 POZZOLAN TREATMENT - LE SIDE STREETS OR
   OTHER CONSTRUCTED AREAS, THE SUBGRADE SHALL BE SCARIFIED IF
   AND MOISTURE CONTENT CONTROLLED (MCC) COMPACTED TO 95% AASHTO T99. PROOF ROLLED, AND
   CONSIDERED SUBGRADE,

3) HOT PLANT MIX SHALL BE PLACED IN TWO LIFTS, WITH GRAVING 'A' AS
   BOTTOM LIFT AND GRAVING 'C' AS TOP LIFT.

4) TYPICALS ARE NOT TO SCALE.

5) CONTRACTOR SHALL salvage existing topsoil, store, and place topsoil
   TO PROVIDE POSITIVE DRAINAGE BEHIND CURBS, SIDEWALKS, ETC.

6) ANY DISTURBANCES TO ADJACENT PROPERTIES AND BOULEVARD AREAS
   DUE TO CONSTRUCTION SHALL BE COMPLETED TO THEIR ORIGINAL
   CONDITION OR BETTER.

7) OUTSIDE EDGE OF NEW SIDEWALK SHALL MATCH THE OUTSIDE EDGE OF
   THE EXISTING SIDEWALK.

8) FOR LANE WIDTHS REFER TO THE TYPICAL SECTION, AND_striping

9) SIDEWALKS AND DRIVEWAYS SHALL HAVE TRANSITIONS
   TO SMOOTHLY MATCH ADJOINING WALKWAY AND DRIVEWAY
   SURFACES.

10) SIDEWALKS TO BE REPLACED IN EXISTING LOCATIONS,
    SIDEWALK ALIGNMENTS AND WIDTHS MAY REQUIRE ADJUSTMENTS, AS
    DIRECTED BY THE ENGINEER TO ACCOMMODATE EXISTING LANDSCAPE
    FEATURES (TREES, LANDSCAPE BARRIERS, WALLS, ETC).

11) REMOVE AND REPLACE EXISTING LANDSCAPE BARRIER WALLS, EDGING,
    SHRUBS, ROCK OR WOOD MULCH, AND IRRIGATION SYSTEMS DISTURBED
    DURING CONSTRUCTION ACTIVITY. IRRIGATION SYSTEM, SEED, ROCK OR
    WOOD MULCH, AND PLANTING AREAS DISTURBED SHALL BE REPLACED
    IN KIND.

12) SIDEWALKS AND INTERSECTION CROSSINGS SHALL MEET ADA REQUIREMENTS.

13) EXISTING SIDEWALK WIDTHS VARY,

NOTES:

1) CRUSHED BASE SHALL BE GRAVING 'W' OR 'L' GRANITE QUARRY MATERIALS

2) IN AREAS NOT RECEIVING '12 POZZOLAN TREATMENT - LE SIDE STREETS OR
   OTHER CONSTRUCTED AREAS, THE SUBGRADE SHALL BE SCARIFIED IF
   AND MOISTURE CONTENT CONTROLLED (MCC) COMPACTED TO 95% AASHTO T99. PROOF ROLLED, AND
   CONSIDERED SUBGRADE.

3) HOT PLANT MIX SHALL BE PLACED IN TWO LIFTS, WITH GRAVING 'A' AS
   BOTTOM LIFT AND GRAVING 'C' AS TOP LIFT.

4) TYPICALS ARE NOT TO SCALE.

5) CONTRACTOR SHALL salvage existing topsoil, store, and place topsoil
   TO PROVIDE POSITIVE DRAINAGE BEHIND CURBS, SIDEWALKS, ETC.

6) ANY DISTURBANCES TO ADJACENT PROPERTIES AND BOULEVARD AREAS
   DUE TO CONSTRUCTION SHALL BE COMPLETED TO THEIR ORIGINAL
   CONDITION OR BETTER.

7) OUTSIDE EDGE OF NEW SIDEWALK SHALL MATCH THE OUTSIDE EDGE OF
   THE EXISTING SIDEWALK.

8) FOR LANE WIDTHS REFER TO THE TYPICAL SECTION, AND_striping

9) SIDEWALKS AND DRIVEWAYS SHALL HAVE TRANSITIONS
   TO SMOOTHLY MATCH ADJOINING WALKWAY AND DRIVEWAY
   SURFACES.

10) SIDEWALKS TO BE REPLACED IN EXISTING LOCATIONS,
    SIDEWALK ALIGNMENTS AND WIDTHS MAY REQUIRE ADJUSTMENTS, AS
    DIRECTED BY THE ENGINEER TO ACCOMMODATE EXISTING LANDSCAPE
    FEATURES (TREES, LANDSCAPE BARRIERS, WALLS, ETC).

11) REMOVE AND REPLACE EXISTING LANDSCAPE BARRIER WALLS, EDGING,
    SHRUBS, ROCK OR WOOD MULCH, AND IRRIGATION SYSTEMS DISTURBED
    DURING CONSTRUCTION ACTIVITY. IRRIGATION SYSTEM, SEED, ROCK OR
    WOOD MULCH, AND PLANTING AREAS DISTURBED SHALL BE REPLACED
    IN KIND.

12) SIDEWALKS AND INTERSECTION CROSSINGS SHALL MEET ADA REQUIREMENTS.

13) EXISTING SIDEWALK WIDTHS VARY,
PHASE 3 (2021 CONSTRUCTION)

1. 26TH STREET HARD CLOSURE CAREY AV TO PIONEER AV
   (AUGUST 1ST, SEPTEMBER 2021)

2. 26TH STREET PARTIAL CLOSURE. FOR LOCAL ACCESS ONLY.
   MAINTAIN ACCESS FOR RESIDENTS AND BUSINESSES TO 26TH
   STREET. VAN VECK AND CROSSING STREETS, PLAN DESIGNATION
   OR IN PARTIAL CLOSURE AREAS WILL REQUIRE "LOCAL ACCESS
   O.K." IN ADDITION TO ROAD CLOSED.

3. PHASE 1 DETOUR ROUTES
   26TH STREET EASTWARD DETOUR SOUTH TO 24TH EAST TO
   WARREN AV, NORTH TO 26TH STREET,
   26TH STREET WESTWARD DETOUR SOUTH ON CENTRAL AV
   TO 24TH STREET, WEST TO CAREY AV, RANDALL AV AND TO 26TH
   STREET,
   RANDALL AV, PIONEER AV AND CAREY AV OPEN

4. ELECTRONIC MESSAGE BOARDS PLACEMENT ONE WEEK PRIOR
   TO 26TH STREET CLOSURE
   ACTUAL LOCATIONS TO BE SHOWN ON THE TRAFFIC
   CONTROL PLAN SUBMITTED TO CITY OF CHEYENNE TRAFFIC
   ENGINEERING FOR APPROVAL.
   ADDITIONAL USAGE OF ELECTRONIC MESSAGE BOARDS FOR
   CHANGE ON COMPLETION OF WORK AREAS THAT WILL RESULT
   IN SIGNIFICANT TRAFFIC ROUTE CHANGES REQUIRE MESSAGE
   BOARD USAGE PRIOR TO ROUTE ADJUSTMENTS.

5. ARROW BOARDS SHALL BE UTILIZED IN WORK AREAS WHERE
   TRAFFIC IS REDUCED TO ONE LANE OF TRAVEL.

6. ACCESS TO THE HERSHEY COMPANY LOOKING AREA WILL BE
   DISRUPTED WITH PHASE 3 CONSTRUCTION. CONTRACTOR
   SHALL PROVIDE SIGNAGE DIRECTING FOR TEMPORARY LOOKING
   AND WALKING AREAS WITH CONSTRUCTION ENCUMBERANCE
   AND COORDINATE WITH THE STATE OF WYOMING.

7. SURFACING FOR ANY PHASE SHALL BE COMPLETE PRIOR TO
   ROAD CLOSURES FOR FOLLOWING PHASES.

8. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL UPDATES TO
   CITY PUBLIC INFORMATION OFFICER AND STATE OF WYOMING.

9. CONTRACTOR SHALL COORDINATE TRAFFIC CONTROL EFFORTS,
   SIGNAGE, ETC. WITH OTHER PLANNED CITY PROJECTS DURING
   CONSTRUCTION. ADJUSTMENTS TO TRAFFIC CONTROL MAY BE
   REQUIRED TO COORDINATE WITH OTHER PLANNED CITY
   PROJECTS WITHIN THE CONSTRUCTION ZONE. ANY
   REASON THE WORK SHALL BE MORE UNDER TRAFFIC
   CONTROL MODIFICATIONS, ALL NEEDS WORK UNDER THIS
   PHASE ITEM SHALL ONLY BE COMPLETED FOLLOWING A DETAILED
   ESTIMATE BY THE CONTRACTOR FOR ADJUSTMENT AND
   APPROVED BY THE ENGINEER AND CITY OF CHEYENNE.
### Road & Surfacing Summary

#### Street Name: City of Cheyenne / Bid S-14-21 / Page 213 of 289

<table>
<thead>
<tr>
<th>Sheet Number</th>
<th>HOT PLANT MIX</th>
<th>CONCRETE PAVING</th>
<th>CRUSHED BASE GRADING</th>
<th>PIGMENTED BASE</th>
<th>CONCRETE VALLEY FILL</th>
<th>CONCRETE APPROACH</th>
<th>CONCRETE RAMP</th>
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<td>1</td>
<td>Sprinkler Heads - access 3 vacant lots belonging to church (not in use)</td>
<td>NA</td>
<td>520 W 28th St.</td>
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<td>To Remain</td>
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<td>2</td>
<td>Sprinkler Head w/ changes 3 vacant lots belonging to church (not in use)</td>
<td>NA</td>
<td>518 W 28th St.</td>
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<td>3</td>
<td>Large Tree pulling up sidewalk</td>
<td>142-10</td>
<td>514 W 28th St.</td>
<td>X</td>
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<td>Trim Root</td>
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<td>4</td>
<td>Tree pulling up curb</td>
<td>143-00</td>
<td>5212 Pioneer Ave.</td>
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<td>X</td>
<td>Trim Root</td>
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<td>5</td>
<td>Sign - Dorothy Hoffert Way</td>
<td>146-05</td>
<td>2610 Pioneer Ave.</td>
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<td>6</td>
<td>Sign - AGA Parking</td>
<td>146-50</td>
<td>2610 Pioneer Ave.</td>
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<td>7</td>
<td>Sign - AGA Parking</td>
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<td>2610 Pioneer Ave.</td>
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<td>8</td>
<td>Sign - No Parking</td>
<td>147-15</td>
<td>2610 Pioneer Ave.</td>
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<td>9</td>
<td>Sign - STDE / W 28th St. x 2 / One Way x 2 / Pioneer Ave x 2 / Capital North Ave. Dist.</td>
<td>147-15</td>
<td>2512 Pioneer Ave.</td>
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<td>10</td>
<td>Sign - Speed limit 30 MPH</td>
<td>147-20</td>
<td>2512 Pioneer Ave.</td>
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<td>Sign - 3 HR Parking</td>
<td>147-79</td>
<td>321 W 28th St.</td>
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<td>12</td>
<td>Sign - 2 HR Parking</td>
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<td>13</td>
<td>Sign - W 28th St. x 2 / STDE / Randal Ave. x 2 / One Way x 2</td>
<td>149-30</td>
<td>305 Randal Ave.</td>
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<td>Sign - Capital North Historic District / 2 HR Parking</td>
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<td>305 Randal Ave.</td>
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<td>Sign - No Parking</td>
<td>150-00</td>
<td>Carey Ave. &amp; 28th Median</td>
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<td>Carey Ave. &amp; 28th Median</td>
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<td>Sign - Carey Ave. x 2 / W 36th St. x 2 / STDE / One Way x 2</td>
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<td>Carey Ave. &amp; 28th Median</td>
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<td>Sign - W 28th St. x 2 / Randal Ave. x 2 / STDE / One Way x 2</td>
<td>149-85</td>
<td>300 W 28th St.</td>
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<tr>
<td>35</td>
<td>Sign - One Way /生物</td>
<td>52-30</td>
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<td>36</td>
<td>Sign - No Parking</td>
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<td>37</td>
<td>Sign - Coastal North Historic District / Speed limit 30 MPH</td>
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<td>39</td>
<td>Tree</td>
<td>152-30</td>
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<td>To Remain or Reset</td>
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1. Where existing concrete meets new, the existing shall be sawcut full depth one foot to two foot on either side of the original joint. The width and side of joint will be decided by the engineer at the time of construction. This one foot to two feet section will be removed last, after all the other pavement has been removed. This shall be accomplished with small equipment to prevent damaging existing pavement.

2. Initial 1/8-inch weakened plane sawcut to be cut within the specified time limit.

3. The bars to be placed within 1 inch of the midpoint of the pavement section.

4. Construction joints with dowel bars shall be used at all construction joints and elsewhere if ordered by the engineer.

5. Dowel bars shall not be placed within 6 inches of intersection joints.

6. Ratio of the depth to width of joint sealant shall be as recommended by manufacturer.

7. All backer rod shall be closed cell polyethylene foam.

8. No joint shall deviate more than 1° from edge of a 12' X 8' straight edge.

9. Tie bars shall be placed perpendicular to the joint. The first tie bar shall be set 6" from the end of the joint.

10. Expansion dowel bars shall be placed parallel to the direction of movement. The first dowel shall be placed 6" from the end of the joint.

11. When necessary to prevent loss of joint sealant, the joint ends shall be taped or otherwise closed.

12. If transverse joints do not fracture at the joint on the outer edges of the slab, the engineer may direct that the saw cut depth be increased for no additional payment.

13. All joints shall be sealed with hot poured elastic joint sealant.

14. All bars shall be epoxy coated.

15. Expansion joint materials shall be located around building foundations, screen walls, loading dock walls, enclosure walls and at interface with pavement. All expansion joints shall be sealed with polyethylene, sealant.
1. WHERE EXISTING CONCRETE MEETS NEW, THE EXISTING SHALL BE SAWCUT FULL DEPTH ONE FOOT TO TWO FOOT ON EITHER SIDE OF THE ORIGINAL JOINT. THE WIDTH AND SIDE OF JOINT WILL BE DECIDED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. THIS ONE FOOT TO TWO FEET SECTION WILL BE REMOVED LAST, AFTER ALL THE OTHER PAVEMENT HAS BEEN REMOVED, THIS SHALL BE ACCOMPLISHED WITH SMALL EQUIPMENT TO PREVENT DAMAGING EXISTING PAVEMENT.

2. INITIAL 1/8-INCH WEAKENED PLANE SAWCUT TO BE CUT WITHIN THE SPECIFIED TIME LIMIT.

3. THE BARS TO BE PLACED WITHIN 1-INCH OF THE MIDPOINT OF THE PAVEMENT SECTION.

4. CONSTRUCTION JOINTS WITH DOWEL BARS SHALL BE USED AT ALL CONSTRUCTION JOINTS AND ELSEWHERE IF ORDERED BY THE ENGINEER.

5. DOWEL BARS SHALL NOT BE PLACED WITHIN 6 INCHES OF INTERSECTION JOINTS.

6. RATIO OF THE DEPTH TO WIDTH OF JOINT SEALANT SHALL BE AS RECOMMENDED BY MANUFACTURER.

7. ALL BACKER ROD SHALL BE CLOSED CELL POLYETHYLENE FOAM.

8. NO JOINT SHALL DEVIATE MORE THAN 1" FROM EDGE OF A 12'-0" STRAIGHT EDGE.

9. TIE BARS SHALL BE PLACED PERPENDICULAR TO THE JOINT. THE FIRST TIE BAR SHALL BE SET 6" FROM THE END OF THE JOINT.

10. EXPANSION DOWEL BARS SHALL BE PLACED PARALLEL TO THE DIRECTION OF MOVEMENT. THE FIRST DOWEL SHALL BE PLACED 6" FROM THE END OF THE JOINT.

11. WHEN NECESSARY TO PREVENT LOSS OF JOINT SEALANT, THE JOINT ENDS SHALL BE TAPED OR OTHERWISE CLOSED.

12. IF TRANSVERSE JOINTS DO NOT FRACTURE AT THE JOINT ON THE OUTER EDGES OF THE SLAB, THE ENGINEER MAY DIRECT THAT THE SAW CUT DEPTH BE INCREASED FOR NO ADDITIONAL PAYMENT.

13. ALL JOINTS SHALL BE SEALED WITH HOT POUR ELASTIC JOINT SEALANT.

14. ALL BARS SHALL BE EPOXY COATED.

15. EXPANSION JOINT MATERIALS SHALL BE LOCATED ALL AROUND BUILDING FOUNDATIONS, SCREEN WALLS, LOADING DOCK WALLS, ENCLOSURE WALLS AND AT INTERFACE WITH PAVEMENT, ALL EXPANSION JOINTS SHALL BE SEALED WITH POLYETHYLENE SEALANT.
ADA Ramp and Sidewalk Notes:
1. Spot elevations for general reference only. Contractor shall verify ADA grades meet City and Federal Standards.
2. City construction inspection shall be required prior to any concrete placement in ramp areas. Contractor shall make note on each sheet, city inspectors name and date for each inspection.
3. ADA Retainer curbs shall be installed where required and shall be considered subsidiary to 4" ADA concrete pay item.

Contamination Area
STA. 143+56 - STA. 151+25

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ADA RAMP AND SIDEWALK NOTES:

1. Spot Elevations for general reference only. Contractor shall verify ADA grades meet city and federal standards.
2. City construction inspection shall be required prior to any concrete placement in ramp areas. Contractor shall mark note on each sheet, city inspectors name and date for each inspection. ADA Retainer Curbs shall be installed where required and shall be considered subsidiary to ADA Concrete Pay Item.
ADA RAMP AND SIDEWALK NOTES:
1. SPOT ELEVATIONS FOR GENERAL REFERENCE ONLY. CONTRACTOR SHALL VERIFY ADA Grades meet City and Federal Standards.
2. CITY CONSTRUCTION INSPECTION SHALL BE REQUIRED PRIOR TO ANY CONCRETE PLACEMENT IN RAMP AREAS. CONTRACTOR SHALL MAKE NOTE ON EACH SHEET, CITY INSPECTORS NAME AND DATE FOR EACH INSPECTION.
3. ADA RETAINER CURBS SHALL BE INSTALLED WHERE REQUIRED AND SHALL BE CONSIDERED SUBSIDIARY TO 4" ADA CONCRETE PAY ITEM.

PROPOSED NEW 3" TYPE A CURB
EXISTING CURB TO BE REMOVED
CONTRACTOR TO REPAIR LIGHT FIXTURE
SEE SUPPLEMENTARY SPECIFICATIONS

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PROPOSED NEW 3" TYPE A CURB
EXISTING CURB TO BE REMOVED
CONTRACTOR TO REPAIR LIGHT FIXTURE
SEE SUPPLEMENTARY SPECIFICATIONS
### TABLE ONE ~ BAR LIST FOR CURB INLETS, TYPE "R"

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### TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

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**NOTES:**
- Sizes 3/50, 2/50, and 1/50 are used for exterior curbs.
- Sizes 3/50, 2/50, and 1/50 are used for interior curbs.
- All bars are placed in 3/8" diameter steel conduit.
GENERAL NOTES:

1. CONCRETE SLABS AND WALLS SHALL BE NORMAL WEIGHT CONCRETE WITH A 28 DAY STRENGTH OF f_c = 4000 psi. WATER CEMENT RATIO 0.45-0.53, TYPE III CEMENT, SLUMP OF 5-7 IN. 70% AIR CONTENT @ 90% MAX. AGRGATE SIZE = 3/4" (0.75" AGRGATE).

2. EPOXY-COATED REINFORCED BARS: ASTM A 811A-83M, GRADE 50 ASTM A 775A 775M OR ASTM A 334 334M FOR BARS THAT MAY BE FIELD BENT, DEFORMED BARS: ASTM A 775A 775M OR ASTM A 334 334M FOR BARS THAT ARE PREFABRICATED, EPOXY COATED, WITH LESS THAN 2 PERCENT DAMAGED COATING IN EACH (1" CHN) BAR LENGTH.

3. STEEL REINFORCEMENT SHOP DRAWINGS, PLACING DRAWINGS THAT DETAIL FABRICATION, SIZING, AND PLACEMENT. INCLUDE BAR SIZES, LENGTHS, MATERIAL, GRADE, BARS SCHEDULES, STIRRUP SPACING, RENT BAR, DIAGRAMS, BAR ARRANGEMENT, SPLICED AND UPS, MECHANICAL CONNECTIONS, TIE SPACING, HOOK SPACING, AND SUPPORTS FOR CONCRETE REINFORCEMENT.

4. FORM TIE FACTORY FABRICATED, REMOVABLE OR SNAP-OFF METAL OR PLASTIC FORM TIES DESIGNED TO RESIST LATERNAL PRESSURE OF FRESH CONCRETE ON FORMS AND TO PREVENT SPALING OF CONCRETE ON REMOVAL, PRODUCE UNITS THAT WILL LEAVE NO METAL CLOSER THAN 1/2 INCHES TO THE PLANE OF THE EXPOSED CONCRETE SURFACE.

5. AIR ENTAINING ADJUVANT: ASTM C 290, CERTIFIED BY MANUFACTURER TO BE COMPATIBLE WITH OTHER REQUIRED ADJUVANTS.

6. WATER REDUCING ADJUVANT: ASTM C 494C 494M, TYPE A.

STEEL:

1. PLATE AND BAR: ASTM A 36A 36M.

2. HELDING ELECTRODES: COMPARE WITH WIRE REQUIREMENTS, 70 SERIES.

3. HOT-DIPPED GALVANIZED FINS. APPLY ZINC COATING BY THE HOT-DIPPED PROCESS TO STRUCTURAL STEEL ACCORDING TO ASTM A 123A A23M.

CONCRETE TOP SLAB STANDARD LAYOUT:
See TOP SLAB REINFORCEMENT SCHEDULE BELOW

TRANSVERSE REINF.

LONGITUDINAL REINF.

DIAGONAL REINF.

EDGES REINF.

STRUCTURE DIMENSIONS

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REINFORCEMENT SPICE (LAP) LENGTH

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City of Cheyenne
200 Old AVE
Cheyenne, WY 82009

1103 OLD TOWN LANE, SUITE 101
CHEYENNE, WY  82009

AVI@AVIPC.COM

307.637.6017

307.601.7000

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# ADMINISTRATIVE INSTRUCTIONS

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9.00 MOBILIZATION
1.00 VALUE ENGINEERING

A Value Engineering Proposal (“VEP”) is a creative proposal initiated by the Contractor to amend the Contract to use an alternate method, design, material, or similar element, to reduce the project’s cost or improve its outcome for both the City of Cheyenne’s (the “City’s”) and the Contractor’s benefit.

The Contractor may submit a VEP for consideration by the City and the City Engineer (the “Engineer”) after the City awards the contract. The Contractor shall submit a VEP in accordance with the procedure outlined in the current edition of the Wyoming Department of Transportation Standard Specifications for Road and Bridge Construction (“WYDOT Standard Specifications for Road and Bridge Construction”), Subsection 104.3.4, “Submitting a VEP”.

The City will not consider VEPs that are cost reductions resulting from corrections to design errors; that are inconsistent with the City’s design policies and criteria for the project; or that may require excessive time or cost for review.

If the City and the Engineer accept a VEP which results in a net reduction in the contract price, the Contractor will share proportionally with the City in the net savings (City 50%; Contractor 50%), less the cost of the Engineer’s time required to evaluate the VEP. Net savings are defined as savings available after deducting VEP evaluation costs.

2.00 REFERENCES

2.01 Coordination of Contract Documents. Revise City of Cheyenne & Board of Public Utilities Standard Construction Specifications and Standard Drawings, 2014 Edition (“City Standard Specifications and Drawings” or separately as “Standard Specifications” or “Standard Drawings”) Section 01090, REFERENCES, item 1.01.A. as follows, by deleting the hierarchy list included (items 1 thru 4), and replace with the following in order of precedence:

1. Permits from other agencies as required by law;
2. Successive change orders and contract modifications in order of issuance, most recent first;
3. Addenda;
4. Contract;
5. City-obtained agreements;
6. Special Provisions;
7. General Conditions;
8. Project Plans;
9. Standard Drawings;
10. Standard Specifications;
11. Electronic CADD Files; and

Detailed plans shall have precedence over general plans.

2.02 Reference Specifications. The City Standard Specifications and Drawings, and all revisions through the advertisement date, constitute the current Standard Specifications and Standard Drawings for this project. They are an integral part of the Contract and are incorporated herein by reference. The Contractor shall adhere to all requirements and provisions of said City Standard Specifications and Standard Drawings in the performance of this Contract, except where otherwise provided herein or otherwise shown on the Contract Drawings.

Contract references to standard test methods or specifications such as those from the American Association of State Highway and Transportation Officials (“AASHTO”), the American Society for Testing and Materials (“ASTM”), or similar professional organizations, refer to the methods and specifications in effect on the advertised date of the public bid opening. If a later change to a cited document affects successful completion of the project, the City will incorporate the new reference with a contract modification.

All work shown on the Contract Drawings and Standard Specifications which refer to the Wyoming Department of Transportation (“WYDOT”) shall be constructed in accordance with the current editions of the WYDOT Standard Specifications for Road and Bridge Construction and WYDOT Standard Plans and all revisions through the date of advertisement.

It is the bidder’s responsibility to acquire the latest editions of all the Specifications, Standard Drawings, and Manuals.

3.00 TRAFFIC CONTROL

3.01 Construction Phasing. When a construction phasing or traffic control plan is included in the project plans, this plan shall govern unless an alternate plan, acceptable to the City, is submitted to the Engineer by the Contractor. If no traffic control plan is provided or if the Contractor desires to deviate from the provisions for maintaining traffic as described in the contract documents, the Contractor shall submit to the Engineer for approval a proposed sequence of operations and a compatible method of maintaining vehicle, pedestrian, and bicycle traffic. The Contractor shall submit the proposal for review and approval at least ten (10) Working Days prior to its intended implementation. The City reserves the right, in its sole discretion, to reject any construction phasing or traffic control proposal for any reason whatsoever.
3.02 **Traffic Control Requirements.** The Contractor shall provide adequate signs, barricades, lights, flares, flaggers, take all necessary precautions to prevent accident or injury, and minimize the public’s inconvenience while the work is in progress. Any traffic control or construction phasing drawings shown in the project plans are conceptual only. The Contractor shall submit a detailed traffic control diagram to the City for prior approval before work begins. The diagram shall indicate location and type of signs, cones, flashers, flagging, reflective barricades, and all other devices the Contractor deems necessary for the proper protection of the work area. The Contractor shall install and maintain all traffic control and protective devices in accordance with the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (“MUTCD”).

3.03 **Notifying Affected Parties.** The Contractor shall notify all homeowners and businesses it anticipates will be affected by any work no less than two (2) Working Days, as defined by section 7.04, “Working Days and Time”, before work is scheduled to commence. All written notifications shall be approved by the City prior to distribution. The Contractor shall notify all homeowners and businesses again if the work does not begin on the specified day, as anticipated. The notice shall be a written posting, hand delivered to the property, stating the anticipated start-date and duration of such work containing parking restriction information, and a phone number for the Superintendent or Project Manager. The Contractor shall not place notices in mailboxes.

3.04 **Parking Restrictions.** If work requires parking restrictions, the Contractor shall place “No Parking” signs along the affected area a minimum of forty-eight (48) hours prior to the beginning of work. The Contractor shall place “No Parking” signs a maximum of seventy-five (75) feet apart, but at no time fewer than two per block, per side. The City will only tow vehicles from the work area if they remain parked on the street after the Contractor provided proper written notice and placed “No Parking” signs. If the Contractor provides insufficient notice to affected parties, the Engineer must approve towing vehicles parked on the street, and such towing shall be at the Contractor’s expense.

3.05 **Traffic Disruption and Obstructions.** The Contractor shall minimize obstructions to vehicle, pedestrian, and bicycle traffic; minimize disruption to transit routes; and give consideration to the location of detours and provisions for handling traffic. The Contractor shall provide for the safety and convenience of both the general public and residents near the work. The Contractor’s travel rights do not supersede the public’s travel rights.

Whenever, in the Engineer’s opinion, the Contractor has not provided sufficient or proper safety precautions, the Contractor shall do so immediately and to whatever extent the Engineer requires. This provision shall not be construed as creating any duty on the part of the Engineer for traffic safety.

Fire hydrants on or near the site of the work shall be accessible at all times.
The Contractor shall not close any streets, driveways, access points, or any transit stops without prior consent of the City, Engineer, and proper governmental authorities affected by the closure or having authority over such area. The Contractor is required to request approval from the Engineer at least five (5) Working Days prior to the planned date of physical closure of any street or transit stop. Submittal or approval of a traffic control plan alone does not constitute notice or approval of the date of start of closure.

3.06 **Property Access.** The Contractor shall provide temporary approaches to businesses and residences adjacent to the roadway, intersections, detours, crossings, or similar features or facilities to safely accommodate customary vehicular or pedestrian traffic affected by the work.

3.07 **Emergency Access.** The Contractor shall be prepared at all times to provide immediate access for emergency vehicles to any buildings or other areas adjacent to the project and shall, upon emergency personnel request, construct temporary ramps and other facilities required for such emergency access. The City will make no additional payment to the Contractor for any delays or cost incurred by the Contractor in providing such emergency access.

4.00 **CONTROL OF WORK**

4.01 **Construction Stakes, Lines, and Grades.** The Contractor shall provide all construction surveying and stakeout required to accurately build and complete the project. The Engineer will establish primary project control only, but if the Engineer determines that additional project control is needed, the Engineer may direct the Contractor to establish additional project control under the direct supervision of a licensed Wyoming Professional Land Surveyor. The Engineer may provide an electronic point file or CADD files to the Contractor for use in construction staking.

The Contractor shall preserve all survey stakes and marks. If any of the primary project control survey marks are destroyed or disturbed due to the Contractor’s construction activities or negligence, the Contractor shall be charged at the Engineer’s established hourly crew rate for replacing them, with payment for this extra work made directly to the City’s Consultant by deduction from the monthly periodic estimate payments to the Contractor. The Contractor shall also be responsible for any mistakes or damage resulting from the unnecessary loss or disturbances of control points, offset line points, and stakes.

The Contractor is responsible for scheduling all surveying and shall consider all phasing, sequencing, and construction limits required by all specifications. The Contractor shall review the survey stakes to ensure there is no discrepancy between the drawings and the survey stakes. If there is a discrepancy, the Contractor shall stop work immediately and notify the Engineer without delay.
The Contractor shall provide the survey data to the Engineer to verify elevations, resolve grade issues, and to otherwise use as the Engineer deems necessary or appropriate. The Engineer has the right to review the project stakeout prior to staking. The Contractor shall arrange work to allow forty-eight (48) hours advance notice for the Engineer to review the lines and grades of those stakes set for the next step of the Contractor’s work. The Engineer shall have the right to make reasonable changes in the grades as shown on the drawings. The Engineer will be available for consultation and interpretations for staking operations.

The Contractor shall call to the Engineer’s attention any reference lines, points, or bench marks, which may have been disturbed or appear off line or grade.

A licensed Wyoming Professional Land Surveyor shall directly supervise all construction surveys. The costs for providing all construction surveying and staking shall be considered included in the cost of contract items.

4.02 Land Provided by the City. The City or Engineer will obtain all easements and franchises required for the work. The Contractor shall limit operations to the area obtained and shall not trespass on private property. The City may provide access to certain lands, as indicated in connection with the work under the contract. The Contractor shall not conduct any activity on any land which may result in the imposition of any lien or encumbrance. The Contractor shall use said land in accordance with conditions established by the City.

4.03 Land Provided by the Contractor. If the Contractor requires additional area required for temporary construction facilities or storage of materials, the Contractor shall obtain written consent and agreement from the landowner on whose land the Contractor seeks to expand the Contractor’s operation. The Contractor must provide a copy of this agreement to the Engineer, who may grant or deny permission to expand to additional land. The agreement, if accepted by the Engineer, must describe the activity for which the land will be used and how the Contractor will restore the land.

The Contractor shall construct all access roads, detour roads, or other temporary works, as required by the operations. The Contractor shall confine its equipment, materials storage, and worker operations to those areas shown and described, and such additional areas as the Contractor may provide. The Contractor shall provide such land, and access thereto, without liability to the City.

Prior to final payment, the Contractor shall furnish the Engineer with a written statement of clearance from the landowner for those properties on which work, equipment, or material staging took place.
4.04 Protection and Restoration of Property, Markers, and Landscape.

General: All construction work under this contract on rights-of-way, easements, or franchise, shall be confined to the limits of such rights-of-way, easements, or franchise. The Contractor shall accomplish all work so as to cause the least amount of disturbance and a minimum amount of damage. The Contractor shall take all necessary precautions to preserve and protect adjacent roadways, public and private properties and improvements, and underground facilities during work on the project. The Contractor shall take responsibility for any damage or injury resulting from:

1. Any act, omission, negligence, or misconduct in the execution of the work;
2. Defective work or materials; and
3. The work of a Subcontractor.

Except for damage due to unforeseeable causes beyond the control of, and without fault of negligence of the Contractor, the Contractor shall rebuild, repair, restore, and make good damages to any portion of the project or real property injured in the course of the work, from any cause before final acceptance, and without additional cost to the City.

The Contractor shall coordinate such repairs, replacements, or both, of real property with the affected property owner, and obtain the property owner’s written approval when the final work is complete. A copy of the property owner’s approval shall be submitted to the City. If the Contractor fails to perform such restoration within a reasonable time, the City may do so and deduct the cost from monies due the Contractor or bill the Contractor, as appropriate.

The Contractor’s responsibility for the work lasts until final written acceptance of the project by the City, in accordance with General Conditions regarding Completion and Warranty.

Site security: The Contractor shall provide site security in accordance with Special Provisions Section 01231, SAFETY. Suspension of work does not relieve the Contractor of responsibility for the project, except in accordance with General Conditions provisions on Suspension of Work.

Vehicle Damage Claims: If a vehicle owner makes a vehicle damage claim, the Contractor shall send a written response to the claimant addressing the claim and the actions the Contractor has taken or intends to take. The Contractor shall send a copy of the response letter to the following address:

City of Cheyenne Risk Management
Attn: Risk Manager
2101 O’Neil Ave
Cheyenne, WY 82001
**Trenches:** The Contractor shall not leave trenches open across travel ways for more than twenty-four (24) hours or over weekends or holidays. Trenches that present a danger to vehicular or pedestrian traffic shall be backfilled or barricaded at the end of each day's work.

**Structures:** The Contractor shall remove such existing structures as may be necessary for the performance of the work and, if required, shall rebuild the structures thus removed in as good a condition as found with minimum requirements as herein specified. The Contractor shall also repair all existing structures damaged as a result of the work under this contract.

**Cultivated Areas and Other Surface Improvements:** All cultivated areas, either agricultural or lawns, and other surface improvements damaged by Contractor’s actions shall be restored as nearly as possible to their original condition and in accordance with Standard Specification, Section 02900, Landscaping. Prior to excavation on an easement or private right-of-way, the Contractor shall strip topsoil from the trench or construction area and stockpile it in such a manner that it may be replaced by the Contractor upon completion of construction. Ornamental trees and shrubbery shall be carefully removed, with the earth surrounding their roots, wrapped in burlap and replanted in their original positions within twenty-four (24) hours. The Contractor shall replace all shrubbery or trees destroyed or damaged with material of equal quality at no additional cost to the City or property owner.

In the event that it is necessary to trench through any lawn areas, the sod shall be carefully cut, rolled, and replaced after the trenches are backfilled. The Contractor shall then clean the lawn area of debris by raking or other means. All fences, markers, mail boxes, or other temporary structures shall be removed by the Contractor and immediately replaced after the trench has been backfilled, in their original positions. The Contractor shall notify the Engineer and property owner at least twenty-four (24) hours in advance of any work done on easements or private rights-of-way.

**Streets:** The Contractor shall assume all responsibility for restoration of the surface of all streets (travel ways) used by the Contractor and damaged.

**4.05 Cooperation by the Contractor.** Contact and Emergency Response: The Contractor shall maintain a telephone for the duration of the contract, at the Contractor’s own expense, where the Contractor or the Contractor’s authorized representative may be reached directly or by message at all times, including weekends and holidays. The Contractor shall cooperate with the Engineer and inspectors at all times and shall respond to requests for emergency repairs to the contract work no later than two (2) hours of the request.

If the Contractor does not respond to requests for emergency repairs within the time allotted, the City reserves the right to enter the work area and conduct repairs with
City forces or City-hired forces. The Contractor will be responsible for all costs incurred by the City in responding to the emergency repairs and will also be responsible for restoring all work back to the required contract conditions. The City will not be responsible for any damages to the Contractor’s work or equipment that results from the City responding to the emergency repair.

**Superintendence:** When work is underway, including work by a Subcontractor, the Contractor shall ensure the presence of a competent project superintendent, who is an employee of the Contractor, at the worksite at all times, unless otherwise agreed to by the City. The project superintendent shall have the ability to communicate clearly; to read, interpret, and implement the relevant contract documents; have experience in the work included in the project; have authority to represent and act for the Contractor, including authority to execute the Engineer’s directions; and authority to obtain and provide sufficient materials, equipment, tools, labor, and incidentals to complete the project as specified.

### 4.06 Cooperation between Contractors

The City may contract with separate Contractors for additional work on or near the worksite. When separate contracts are let, the City requires each Contractor to cooperate with and work without hindering each other.

Each Contractor assumes liability, financial or otherwise, for its own errors, acts, or omissions and holds the City harmless, in accordance with the General Conditions of the Contract, from damages or disputes arising from inconvenience, delay, or loss due to the presence and operations of other persons, contractors or public entities on or near the worksite.

### 4.07 Maintenance during Construction

The following shall be added to Standard Specification Section 01054.1.09:

The Contractor is responsible for snow removal within all barricaded areas of the project. The Contractor will be responsible for snow removal within the travel way of the project area unless a minimum of a 16’ lane is provided for the City plows.

### 5.00 CONTROL OF MATERIAL

#### 5.01 Inspection and Testing for Quality Control

**Requirements:** All materials and work shall be tested and inspected in accordance with the specifications. The Contractor shall provide testing and inspection services to verify compliance with requirements specified or indicated. The Contractor shall be responsible for scheduling inspections and tests and notifying the laboratory.

The Contractor shall provide advance notification to the Engineer of any testing or sampling to be conducted. The Engineer may provide Quality Assurance testing to prevent against defects and deficiencies in the Contractor’s work by verifying that
the Contractor’s Quality Control testing is accurate and adequate. However, furnishing such Quality Assurance testing shall not relieve the Contractor of responsibility for providing Quality Control testing or responsibility for the Contractor’s failure to perform the work in accordance with the contract documents.

**Laboratory Requirements:** The Contractor shall retain the services of an Independent AASHTO-accredited testing laboratory to inspect, sample and test the related work. The testing laboratory shall cooperate with the Engineer and the Contractor in performing its duties and shall provide qualified and/or certified personnel to perform inspections and tests.

Tests shall be performed in accordance with the most recent cited standard methods of AASHTO or ASTM, approved AASHTO Interim Specifications, or ASTM Tentative Specifications in effect on the advertised date of the public bid opening or more stringent Quality Control requirements where specified in the Special Provisions.

The testing laboratory shall promptly notify the Engineer and the Contractor of deficiencies in the work observed during the performance of its duties. The testing laboratory shall not approve or accept any portion of the work nor shall it perform any duties of the Contractor.

**Submittals:** The testing laboratory shall submit a certified written report of each inspection and test to the Engineer, Contractor, and any other entities designated by the City. Copies of all test results shall be provided to the City within twenty-four (24) hours of the availability of the test results with written report to follow within seven (7) Working Days. Reports of each inspection, test, or similar service shall include the following:

1. Name, address, and telephone number of testing laboratory.
2. Project title and project number.
3. Date of report and designation (number).
4. Dates of testing and maps with sufficient detail to accurately identify locations where samples were taken or inspections and field tests made.
5. Ambient conditions at the time of sample taking and inspecting, or field testing.
6. Names of individuals taking the sample or making the inspection or test.
7. Product and test method.
8. Inspection or test data including interpretation of test results and comments or professional opinion on whether inspected or tested work complies with requirements.
9. Recommendations on retesting or re-inspections.
10. Name and signature of laboratory inspector.

**5.02 Unacceptable Materials.** The Contractor shall not undertake any work in which untested or non-conforming materials are used without prior, written, express approval from the Engineer. Any such work undertaken using untested or non-
conforming materials without the prior, written, express approval of the Engineer may be considered in material breach of this contract and, if directed by the City, shall be removed at no additional cost to the City.

5.03 **Storage of Materials.** Materials shall be stored, in accordance with manufacturer’s recommendations, and handled in a manner that facilitates inspections and preserves the materials’ quality and suitability for use. Material shall be transported in vehicles built to prevent loss, contamination, or segregation after loading and measuring. The Engineer may re-inspect stored, previously inspected materials before approving their use in the work.

As approved by the City, that portion of the right-of-way within the project limits not required for public travel may be used for storage purposes and for placing of the Contractor’s plant and equipment. Material stored on or adjacent to public streets shall not create a safety hazard, obstruct, or inconvenience the traveling public. Any additional space required must be provided by the Contractor at the Contractor’s expense. Private or public property shall not be used for storage purposes without written permission of the owner or lessee. All storage sites shall be restored to their original condition by the Contractor at the Contractor’s sole expense. Construction materials may not be stored in streets, roads, or highways for more than five (5) days after unloading. All materials or equipment not installed or used in the construction within five (5) days after unloading shall be stored elsewhere by the Contractor at the Contractor’s expense, unless the Engineer authorizes additional storage time.

Excavated material, except that which is to be used as backfill in the adjacent trench, may not be stored in public streets, roads, or highways unless the Engineer authorizes such storage. Erosion control shall be provided around all excavated or backfill material. After placing backfill, all excess material shall be removed immediately from the site.

5.04 **City-Furnished Material.** If specified in the Special Provisions, the City will provide material for incorporation into the project. Materials furnished by the City will be delivered, or made available to the Contractor, at the locations specified in the Special Provisions.

The cost of handling and placing all materials supplied by the City shall be considered as included in the contract price for the item in connection with which they are used.

The Contractor shall be held responsible for all material delivered to him, and deductions shall be made from any money due to make good any shortages or deficiencies, from any cause whatsoever and for any damage which may occur after such delivery and for any demurrage charges.

5.05 **Rights In and Use of Material Found in the Work.** The City may authorize the
use of aggregate or other material found in excavation for use in another pay item. The City will pay the established contract unit price for excavation of such material and for the pay item for which it was used. If the excavated material is used for another pay item but was otherwise needed for embankments, backfills, approaches, or other purposes, the Contractor shall provide an acceptable replacement at no additional cost to the City.

The Contractor shall not excavate or take material outside the slope stake limits without the City’s prior written approval. The right to use and process material found within the project limits excludes use and processing for noncontract work. If the Contractor produces or processes more material from the project than is required for the contract, without additional compensation to the Contractor, the City may take possession of the excess material and direct its use; or require removal of the material and restoration of the land to a satisfactory condition.

5.06 Removal and Salvage of Materials. Any equipment, hardware, structures, inlet grates, valve boxes, manhole rings, covers and lids, traffic control standards, signs and posts, fence and any other miscellaneous items designated for removal from the site and salvage to the City shall be removed from the site and taken to a location designated by the City. All such materials shall be the property of the City unless otherwise specified. Diligent care shall be taken during the removal of all materials to prevent damage.

Manhole covers and manhole rings designated for salvage shall be both plainly marked with a durable, exterior paint for easy identification as individual pairs.

5.07 Material Spoil Area/Waste Site. The Contractor shall notify the Engineer at the preconstruction conference as to the location selected to dispose of the excess, waste and unsuitable materials and a map indicating the haul route for the removal from the project.

Lost and spilled materials onto the route taken by the Contractor shall be promptly removed. The route shall be maintained as deemed necessary by the Engineer by the use of water trucks, motor grader, hand labor and related equipment to alleviate the problem of lost spills, tracked mud, and dust control. Prompt restoration of the route is required.

No extra compensation shall be allowed for the disposal of the waste and surplus material; including but not exclusively; dump fees, extra haul distances and time, changed haul routes, and haul road maintenance.

5.08 Load Restrictions. The Contractor shall be responsible for all damage to the work caused by the Contractor’s hauling equipment. The Contractor shall comply with legal load restrictions when moving equipment or hauling materials on public roads that remains in service. A permit to operate an overweight, oversized, or over-width vehicle does not relieve the Contractor of liability for damage to public roads due
to the moving of equipment or materials.

The Contractor shall not allow loads on concrete pavement, base, or structures before the strength or time requirements for the concrete have been met. In case of pipes, the Contractor shall not allow loads before placing the specified cover fill.

6.00 RESPONSIBILITY FOR UTILITY PROCEDURES AND SERVICES

6.01 Location. Where underground main distribution conduits such as water, gas, sewer, electric power, telephone or cable are shown on the plans, the Contractor, for the purpose of preparing the Contractor’s bid, shall assume that every property parcel is served by a service connection for each type of utility. Failure by the Engineer to show the location of any utility on the plans shall not relieve the Contractor from the responsibilities below.

Before proceeding with the work, the Contractor shall confirm the final grade and locations of such facilities in accordance with the “Wyoming Underground Facilities Notification Act” and the “Wyoming High Voltage Power Lines and Safety Restrictions Act.”

The Contractor shall notify utility and pipeline companies of the proposed construction schedule at least two (2) Working Days before the start of work. The Contractor shall ask for the nature, location, and depth of pipes and cables and areas where they may conflict with the work. If a company cannot or will not provide this information, the Contractor shall obtain it by alternate means. Where conflicts may exist, the Contractor shall locate the relevant pipes or cables in three dimensions.

The Contractor shall not begin excavation until all such features have been located, their owners notified, and the Engineer has approved. The Contractor shall not interrupt the service function or disturb the supporting base of any utility without authority from the utility owner or an order from the City. Where protection is required to ensure support of utilities, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at no cost to the City.

6.02 Utility Line Conflicts and Damage. If utility lines are determined to be in conflict with or are damaged during the work, the Contractor shall stop work in the immediate area, notify the Engineer and the utility owner, and cooperate with the owner to move or repair the utility. The Contractor shall be solely responsible for any damage done to such utilities due to failure to preserve original locate marks or to properly protect the utilities when their location is known.
7.00 WORK SCHEDULE AND CONDITIONS

7.01 **Pre-Construction Conference.** The Contractor will schedule and convene, at a mutually convenient time before the start of work, a Preconstruction Conference with, all Subcontractors, Design Engineer and/or City’s Representative, Board of Public Utilities, Power Company, Telephone Company, Gas Company, Cable Television, and other interested parties. Before or at the meeting, the Contractor shall provide the following, if applicable:

1. A letter providing the names, phone numbers and addresses, of material suppliers and Subcontractors;
2. Project Schedule in accordance with the item 7.05 Schedule below;
3. Spill contingency and storm water pollution prevention plans in accordance with Standard Specification Section 01563 Erosion Control and Storm Water Management;
4. A traffic control plan in accordance with Section 01050 Traffic Control;
5. A list with names and phone numbers of key personnel, including the project superintendent and subordinates, authorized to sign contract documents and project records;
6. A list of phone numbers for the Contractor’s personnel the Engineer should call in case of emergency in accordance with item 4.05 Cooperation by the Contractor above; and
7. Other items the Engineer may request.

7.02 **Weekly Conference.** Subsequently a representative of the Contractor and the Contractor’s Subcontractors (if requested) shall attend a weekly conference at a mutually convenient time and at a place designated by the City to review progress and discuss any problems that may arise or have incurred.

7.03 **Work Progress.** The Contractor shall make every effort to complete work in a manner and fashion that minimizes roadway closures and inconveniences to the traveling public and adjacent property owners. Progress will be continuously prosecuted on all roadways and drive approaches that have been closed for construction in accordance with Section 01041.1.01.1. of the Standard Specifications.

The Contractor shall not open up work to the prejudice or detriment of work already started. The City may require the Contractor to finish a section on which the work is in progress before work is started on any additional sections if the opening of such section is essential to public convenience.

7.04 **Working Days and Time.** Normal working hours shall be 7:00 am to 6:00 pm. No work shall be allowed on Saturdays without the City’s prior written permission. For the purposes of time limitations specified in these instructions, a Saturday shall count as a “Working Day” if the City has approved work on that Saturday. No work, except for City-approved emergency repairs, shall be allowed on Sundays or
Holidays. For the purposes of the time limitations in these instructions, neither a Sunday nor a Holiday will count as a “Working Day” even if the City has authorized emergency repairs to be performed on that Sunday or Holiday. If the Contractor desires to perform work beyond the City’s normal working hours, the Contractor must obtain the City’s written approval forty-eight (48) hours in advance of scheduled work. In an emergency situation, verbal approval will suffice until the next working day at which time written approval shall be obtained before further inspection work beyond normal working hours will be provided.

Holidays. Normal City holidays are as follows:

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<th>HOLIDAY</th>
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<tr>
<td>New Year’s Day</td>
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<td>Martin Year’s Day</td>
<td>Third Monday in January</td>
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<td>President’s Day</td>
<td>Third Monday in February</td>
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<tr>
<td>Memorial Day</td>
<td>Last Monday of May</td>
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<td>Independence Day</td>
<td>July 4th</td>
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<td>Labor Day</td>
<td>First Monday in September</td>
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<td>Veteran’s Day</td>
<td>November 11th</td>
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<td>Thanksgiving Day</td>
<td>Fourth Thursday in November</td>
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<td>Day after Thanksgiving</td>
<td>Day after Thanksgiving</td>
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<tr>
<td>Christmas Day</td>
<td>December 25th</td>
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With the Engineer’s prior written approval, no work shall be permitted the day before, during, and the day after said holidays. The Engineer may require the Contractor to cease construction operations at any other time if the Contractor’s operations are of such nature, the project is so located, or the traffic is of such volume that the Engineer deems it expedient to do so.

Frontier Days. During Cheyenne Frontier Days (CFD), typically the last full week in July, and the week immediately preceding, special rules shall apply in the following designated areas:

1. All roadways contained in the area bounded by 15th St. on the south, Snyder Ave. on the west, Pershing Blvd. on the north, and Van Lennen Ave. on the east, including the roadways making up the boundaries.

2. All roadways contained in the area bounded by Pershing Blvd. on the south, Interstate 25 on the west, the extensions of Manewal Dr. on the north, and Warren Ave./Yellowstone Rd. on the east, including the roadways making up the boundaries.

3. All roadways designated on the functional classification map as “Principal Arterial” or “Minor Arterial.”
4. All roadways located north of the Union Pacific Railroad tracks designated on the functional classification map as “Major Collector” or “Minor Collector”.

Functional classification maps are available from the Engineer’s Office or the Cheyenne Metropolitan Planning Organization’s website at [www.plancheyenne.org](http://www.plancheyenne.org).

During the week immediately preceding CFD, the special rules are as follows:

1. Work in the designated areas shall be in a state whereby all facilities are available to the public no later than 5 pm Wednesday of the week immediately preceding CFD;

2. After Wednesday of the week immediately preceding CFD, the only work allowed in designated areas are emergency repairs and operations having a duration of less than one (1) hour (including moving operations, such as striping or street sweeping).

3. All equipment, materials, traffic control devices, and other construction items shall be removed from the designated areas prior to 5 pm Wednesday of the week immediately preceding CFD.

4. All roadways and pedestrian ways shall be in such a condition that there shall be no interference with parades or other CFD event operations.

During CFD:

1. No work will be allowed in the designated areas with the exception of City-approved emergency repairs and moving operations, such as striping or street sweeping.

2. All moving operations must be approved in writing, in advance by the Engineer.

3. Work and traffic control operations can recommence during normal working hours on the Monday morning following the end of CFD.

Exceptions to the above will be made at the Engineer’s sole discretion.

7.05 **Schedule.** The Contractor shall submit a project schedule to the Engineer for review and discussion at the Pre-Construction meeting. This schedule shall be sufficiently detailed to show the following:

1. The activities needed to perform and complete the work, activities that might delay contract completion, and critical activities such as street closures or major traffic restrictions.
2. Sequence of each activity required to complete the project within the contract time allotted and in the manner specified. Interrelationships among activities shall be shown without lead or lag time.

3. The planned start and completion dates for each activity, the duration of each activity with activities of more than fifteen (15) Working Days in duration broken into two or more activities distinguished by location or some other feature.

4. Interim, milestone, and project completion dates specified in the contract.

5. An indication of how the schedule accommodates adverse weather days for each month.

6. Dates related to the procurement of materials, equipment, articles of special manufacture, etc.

7. Dates related to the submission of working drawings, plans, and other data specified for review or approval by the Engineer.

8. Dates related to required special inspections of structural steel fabrications and other specified activities by the City or third parties.

The Contractor shall submit monthly updates to the Project Schedule at the time of the submittal of the monthly Pay Estimate. The schedule update shall include any revised planned start and finish dates for each activity shown on the most recent accepted schedule. For newly started or finished activities, the Contractor shall include the actual start or finish date. For activities previously started and still ongoing, the Contractor shall show the remaining duration and planned finish dates. The City may withhold processing the monthly Pay Estimate until the Contractor submits the monthly update to the Project Schedule.

The Engineer may request a schedule revision at any time for any reason. Circumstances leading to such a request include, but are not limited to, the following:

1. A delay (actual or projected) of partial or contract completion dates by fourteen (14) calendar days or more;

2. A difference between the actual rate of progress and that depicted in the schedule; and

3. Issuance of a contract modification that, by adding, deleting, or revising activities, changes the planned sequence of work or the method and manner of its performance.
7.06 Requirements for Workers, Methods, and Equipment. The Contractor shall at all times provide enough qualified labor and enough capable equipment to complete the project in accordance with the contract.

The Contractor shall provide workers that are sufficiently skilled to perform the work assigned to them. In writing, the City may direct removal from the project of any person, regardless of employer, who is unsafe, incompetent, intemperate, disorderly, or insubordinate. Through written notice, the City may suspend the work for failure of the Contractor to comply with such a directive or for failure to provide enough qualified workers.

All equipment proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other improvement will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that the Contractor demonstrates to the satisfaction of the Engineer will accomplish the contract work in conformity with the requirements of the contract. When the contract specifies that the construction be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer.

If the Contractor desires to use methods or types of equipment other than those specified in the contract, the Contractor may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. Approval does not relieve the Contractor from the requirement to produce work in accordance with the contract documents. The use of alternative methods or equipment resulting in work that fails to meet contract requirements may lead the Engineer to, in writing:

1. Direct a stop in their use;

2. Order the completion of remaining work using the original specified methods or equipment; or

3. Require the removal, at no additional cost to the City, of the unsatisfactory work and its replacement using the original specified methods and equipment.

7.07 Suspension of Work. The City shall have the authority to suspend the work wholly or in part, for such period as may be deemed necessary due to unsuitable weather, due to such other conditions as are considered unfavorable for the suitable prosecution of the work, for failure of the Contractor to correct unsafe conditions,
for failure of the Contractor to carry out orders given, or for failure of the Contractor
to perform any provision of the contract.

If the City suspends the work for more than ninety (90) days, through no fault of the
Contractor, the Contractor may apply, in writing, for a price adjustment to
compensate for reasonable expenses caused by the suspension. Any application for
price adjustment or contract time extension will be submitted to the governing body
of the City for its consideration in the form of a Contract Modification. It will be the
responsibility of the Contractor to provide sufficient documentation to substantiate
any claim.

The City will not grant or consider contract modifications based upon City-ordered
suspension:

1. Without timely written notice from the Contractor;

2. To the extent that the suspension is overlapped or falls within a suspension
or delay due to any other cause, including delays caused by the Contractor; or

3. That includes profit.

The Contractor may ask the City to suspend the project in writing due to unsuitable
weather or due to such other conditions as are considered unfavorable for the suitable
prosecution of the work. The Contractor shall not suspend operations or remove
necessary equipment or materials without approval from the City.

During delays or suspensions, if the traveling surface is a leveling course or non-
paved surface, the Contractor shall maintain the roadway for traffic use (including
snow removal and placing of sand) and the quality of the surface course until the
placement of additional course or temporary surfacing, at no additional cost to the
City. If placement of concrete pavement or a full lift of plant mix pavement is not
completed before delays or suspension of work, the Contractor shall provide, place,
and maintain the temporary plant mix pavement and then remove it at the end of the
suspension.

During suspensions, the Contractor shall store materials and equipment, at no
additional cost to the City as far from the travel way as possible; at a location that
will not cause maintenance or safety problems for the roadway; and at a location
where they will be protected from damage. The Contractor shall maintain all living
material in new plantings, seeding, and sods in an acceptable growing condition and
protect from injury, at no additional cost to the City.

During suspensions, the Contractor shall provide roadway drainage, temporary
structures needed for public travel throughout the project, any required temporary
traffic control, along with removal of such temporary structures, traffic control, and
surfacing, at the end of the suspension at no additional cost to the City. Before
suspension, the Contractor shall protect slopes without vegetation in accordance with Section 01563 Erosion Control and Storm Water Management.

If during a suspension the Contractor fails to accommodate traffic or maintain the project, including temporary traffic control devices, the Engineer may direct other organizations to do so. The City shall deduct the cost from monies due the Contractor or bill the Contractor, as appropriate.

During suspensions, the Contractor shall complete necessary measures to protect the work and the roadway during the suspension. The Contractor shall repair or replace materials lost or damaged during the suspension at no additional cost to the City.

The Contractor shall resume work when conditions are favorable or when approved by the Engineer.

7.08 **Extension of Contract Completion Date.** The contract time for completion shall be fixed by the City and stated in the Contract Agreement, either as a calendar date or as a specified number of calendar days.

The Contractor shall perform the work in an acceptable manner within the time stated in the contract except that the contract time for completion may be adjusted as follows:

1. If the satisfactory completion of the contract shall require performance of work in greater quantities than those set forth in the proposal, the time allowed for performance shall be increased in the same ratio as the final estimate bears to the original contract amount, except that the final monetary amount of any contract modification for which an extension of contract time was previously allowed shall be deducted from the final estimate prior to making the pro-rata time adjustment.

2. If delays beyond the Contractor’s control are caused solely by action or inaction by the City, or are for unforeseen causes beyond the control and without fault or negligence of the Contractor, such delays will entitle the Contractor to an extension of time which will be based upon the effect of delays to the project as a whole and will not be granted for non-controlling delays to minor included portions of work, unless it can be shown that such delays did, in fact, delay the progress of the project as a whole. Written request for such extension of time must be made by the Contractor within ten (10) calendar days after the beginning of such delay.

No allowance shall be made for delay or suspension of the work due to fault of the Contractor. Nor will the City grant an extension based on pleas that the contract specified insufficient time for completion of the project.

7.09 **Concurrent Delays.** Concurrent delays are delays occurring at the same time to separate critical activities. When concurrent delays occur, the City will use only the
longer delay, and/or the excusable delay, to determine extensions to the contract completion date. Non-excusable delays will not be considered for extensions.

7.10 **Weather Days.** The Adverse Weather Table shows the number of working days included in the contract time in anticipation of weather that may preclude work. If the Contractor believes that it is entitled to additional time for adverse weather, the Contractor must submit written documentation to the Engineer and City within five (5) working days of the end of month that adverse weather was experienced. The Engineer may extend the completion date if the actual number of adverse weather days exceeds the expected number and the Contractor has pursued the work diligently during the month. The determination as to whether a day is to be considered an adverse weather day shall be at the discretion of the Engineer for when work on critical path items cannot be accomplished. The Engineer shall not count or treat Sundays or holidays as adverse weather days. Any weather days not used during any month are invalid and cannot be considered cumulative. For partial months, the Engineer shall prorate the number of expected lost workdays due to adverse weather.

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8.00 **MEASUREMENT AND PAYMENT**

8.01 **Measurement of Quantities.** The Engineer shall measure pay items in the units of measure specified in the contract using methods of measurement and computation that meet generally recognized good engineering practice. The Engineer shall measure pay items when in place and complete. The actual work performed shall be measured, excluding work outside the construction limits unless adjusted by the City. The Engineer shall measure pay item quantities using the following methods, unless otherwise provided elsewhere in the contract documents:

1. Area. Computed from linear distances measured horizontally. Individual fixtures occupying areas equal to or less than 9 sq. ft. shall not be deducted from the computation.

2. Linear. Items measured by the foot shall be measured parallel to the surface on which the items are installed.

3. Lump Sum. Although actual quantities of the components in a lump sum pay item used in the work may differ from the estimated quantities specified, the City will not change the amount of payment.
4. Volumes of Excavation, Embankment, and Similar Pay Items. The average end area method shall be used unless otherwise specified or agreed to.

5. Asphalt Materials. Measured by the gallon or short ton, subject to correction for foaming, shipping loss, or other reasons for nonuse.

6. Delivery Tickets. All delivery tickets that are required for the purpose of calculating quantities for payment must be received by the Engineer at the time of delivery. Payment shall not be made for delivery tickets which do not show type of material, gross weight, tare weight, truck number, and date. Delivery tickets shall utilize automatic printer systems. Scale certification shall be submitted before their use. In no case shall materials weighed on non-certified scales be accepted for payment.

8.02 Compensation for Altered Quantities. Unless otherwise provided, payments to the Contractor shall be made for the actual quantities of contract items performed in accordance with the plans and specifications, and if, upon completion of the construction, these actual quantities show either an increase or decrease from quantities given in the bid schedule, the contract unit prices shall still prevail. Except as provided otherwise, the City shall not allow for increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor from any cause, including directly from alterations or indirectly from unbalanced allocation by the bidder of overhead expense among the pay items.

8.03 Monthly Progress Payment. The City shall make payments at least once each month in accordance with Article 4, Compensation and Method of Payment of the Contract Agreement as work progresses. The Contractor shall supply supporting billing documentation, including as a minimum, a spreadsheet (form to be approved by the Engineer) which lists each item of work included in the Bid Proposal form and shows quantities and amounts currently being invoiced and previously invoiced. Payments shall be based on the Engineer’s approval of the estimate of the value of work performed and materials complete-in-place, in accordance with the contract, and for materials delivered, in accordance with item 8.04 Payment for Material on Hand below.

8.04 Payment for Material on Hand. The City may pay for materials stockpiled or stored for later use on the project and for which the Contractor provides acceptable documentation indicating the materials meet contract requirements. Stockpiled or stored materials may be located on the project or at facilities approved by the City, which the City reserves the right to inspect. Materials shall be stored in accordance with manufacturer’s recommendations. The City shall not make such payment without a written request received at least ten (10) calendar days before the date of the next scheduled progress payment, and in no case will it pay more than fifty (50) percent of the item’s original bid extension. The Contractor shall include with the written request documentation, such as copies of invoices, freight bills, or other information required by the Engineer, that supports material and shipping costs.
9.00 MOBILIZATION

Payment shall be made for mobilization to cover the costs of preparatory work and operations including but not limited to those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all field offices, storage buildings, and other facilities necessary for the work on the project, and for all other work and operations which must be performed, or costs incurred, prior to beginning work on the various items on the project.

Mobilization shall be measured on a lump sum basis and payment shall be made with the monthly estimate based on the percentage of the original contract amount earned in accordance with the following:

1. On the first estimate following award, 10 percent of the Mobilization pay item or 1 percent of the original contract amount, whichever is less will be paid.

2. When 5 percent of the original contract amount is earned, 25 percent of the amount bid for Mobilization or 2 percent of the original contract amount, whichever is less will be paid.

3. When 10 percent of the original contract amount is earned, 50 percent of the amount bid for Mobilization or 5 percent of the original contract amount, whichever is less will be paid.

4. When 25 percent of the original contract amount is earned, 60 percent of the amount bid for Mobilization or 6 percent of the original contract amount, whichever is less will be paid.

5. When 50 percent of the original contract amount is earned, 70 percent of the amount bid for Mobilization or 7 percent of the original contract amount, whichever is less will be paid.

6. When 70 percent of the original contract amount is earned, 100 percent of the amount bid for Mobilization or 10 percent of the original contract amount, whichever is less will be paid.

7. Upon completion of all work on the project, payment on any amount bid for Mobilization in excess of 10 percent of the original contract amount will be paid.

The total sum of all payments will not exceed the original contract amount bid for Mobilization, regardless of the fact that the contractor may have shut down work on the project or moved equipment away from the project and then back again.

Mobilization is subject to the retainage that shall be withheld for final payment.
The payment schedule for mobilization shall be utilized for construction staking, contractor materials testing, and similar items, when the method of measurement and basis of payment is not otherwise specified in the contract documents.