



Project Manual

MetraPark South Expo Lot

Construction Project



AUGUST 2024

METRAPARK

MONTANA'S ENTERTAINMENT & TRADE CENTER

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DIVISION 0 – BIDDING AND CONTRACT REQUIREMENTS
SECTION 00100 INVITATION TO BID

Separate sealed bids for construction of the South Expo Lot Construction Project will be received by Yellowstone County, Montana at Yellowstone County Commissioner's Office, 316 N 26th Room 3101, Billings, MT until 3 pm local time on August 30th and then publicly opened and read aloud on September 3rd at the Board of County Commissioners meeting.

The project consists of asphalt reconstruction to include milling of asphalt, grading, paving, concrete removal and placement, water main and service replacement, sanitary sewer main and service replacement, and storm drain improvement and replacement.

Five (5) copies of the bid (1 original, 4 copies) must be submitted.

Digital copies of the Bidding Documents including Drawings and the Project Manual are available at Billings Builder's Exchange.

There will be a Pre-Bid Conference at the office of WWC Engineering, 550 S 24th St W Suite 201, Billings, MT, on August 22nd at 10 am local time. Interested Contractors are highly encouraged to attend.

All questions shall be submitted by August 21st at 5 pm local time.

CONTRACTOR and any of the CONTRACTOR'S Subcontractors bidding or doing work on this project will be required to be registered with the Montana Department of Labor and Industry (DLI). Forms for registration are available from the Department of Labor and Industry, PO Box 8011, 1805 Prospect, Helena MT 59604-8011. Information on registration can be obtained by calling (406) 444-7734. All laborers and mechanics employed by Contractor or Subcontractors in performance of the construction work shall be paid wages at rates as required by The Contractor must ensure that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin.

Each bid must be accompanied by a Certified Check, Cashier's Check, or Bid Bond payable to Yellowstone County, MT, in an amount not less than ten percent (10%) of the total amount of the bid. Successful Bidders shall furnish an approved Performance Bond and a Labor and Materials Payment Bond, each in the amount of one hundred percent (100%) of the contract amount. Insurance, as required, shall be provided by the successful Bidder(s) and a certificate(s) of that insurance shall be provided.

This project is funded in part or in whole with grant/loan funding from American Rescue Plan Act (ARPA) of 2021.

Award of the project will be contingent upon receiving funding and award concurrence from Yellowstone County Commissioners.

Bids may only be withdrawn as provided in Article 15 of the Instructions to Bidders.

The Montana 1% Gross Receipts Tax applies to this project.

The right is reserved to reject any or all proposals received, to waive informalities, to postpone the award of the contract for a period not to exceed sixty (60) days, and to accept the lowest responsive and responsible bid that is in the best interest of the Owner.

Yellowstone County, Montana is an Equal Opportunity Employer.

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(Title)

(Address)

END OF SECTION 00100

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.05 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader or later versions. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the

Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.056.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within seven (7) days of Owner's request, Bidder must submit the following information:

- A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
- B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
- C. Bidder's state or other contractor license number, if applicable.
- D. Subcontractor and Supplier qualification information.
- E. Other required information regarding qualifications.

~~3.02 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:~~

- ~~A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.~~
- ~~B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.~~
- ~~C. Bidder's state or other contractor license number, if applicable.~~
- ~~D. Subcontractor and Supplier qualification information.~~
- ~~E. Other required information regarding qualifications.~~

3.03 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.04 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or Invitation to Bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

- B. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- C. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

- A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:
 - 1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.
 - 2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding documents.

Owner will make copies of these other Site-related documents available to any Bidder on request.

- B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.
- C. The other Site-related documents are not part of the Contract Documents.
- D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.
- E. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

- A. A Site visit is not scheduled at this time.
- B. Bidders visiting the Site are required to arrange their own transportation to the Site.
- C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- D. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

- E. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- F. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing.
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.

- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of ten (10%) percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.

- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for portions of the Work within seven days after Bid opening.
- 11.02 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.03 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder's name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

~~13.01—Lump Sum~~

~~A. Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.~~

~~13.02—Base Bid with Alternates~~

~~A. Bidders must submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.~~

~~B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.~~

~~13.03—Sectional Bids~~

~~A. Bidders may submit a Bid on any individual section or any combination of sections, as set~~

~~forth in the Bid Form.~~

- ~~B. Submission of a Bid on any section signifies Bidder's willingness to enter into a Contract for that section alone at the price offered.~~
- ~~C. If Bidder submits Bids on individual sections and a Bid based on a combination of those sections, such combined Bid need not be the sum of the Bids on the individual sections.~~
- ~~D. Bidders offering a Bid on one or more sections must be capable of completing the Work covered by those sections within the time period stated in the Agreement.~~

13.04 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.05 *Allowances*

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents shall include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 *Evaluation of Bids*

- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. ~~In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.~~
 - C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.
 - D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS, INSURANCE, AND TAX

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner’s requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.
- 19.03 All Contractors are reminded that one percent (1%) of the total Contract sum will be withheld from all payments due to Contractors according to State Statute Title 15 Chapter 50 M.C.A.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance

documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—STATE LAWS AND REGULATIONS

All applicable laws, ordinances and the rules and regulations of authorities have jurisdiction over construction of the project shall apply to the Contract throughout. State laws and ordinances which the Contractor must comply with, include but are not limited to, those involving workers compensation insurance, contractor registration, employment preference to Montana contractors and Montana residents, and gross receipts tax.

END OF SECTION

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

MetraPark South Expo Lot Construction Project

(Name of Project)

Billings, MT

(Location)

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security.
- B. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids.
- C. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids.
- D. Contractor's certification regarding debarment.
- E. Disadvantaged Business Enterprise Utilization documents.

ARTICLE 3—BASIS OF BID—UNIT PRICES

3.01 *Unit Price Bids*

- A. Bidder will perform the following Work at the indicated unit prices:
- B. Bid Alternate 1 is included herein as additional construction for the placement of asphalt millings work to be completed in Lot 1 and the adjacent access road to Gate 2 of the MetraPark. If Bid Alternate 1 is awarded, the associated plan sheets and bid items will be included within the awarded contract.
- C. Bid Alternate 2 is included herein as additional construction for the water and concrete work to be completed in the Carnival Lot of the MetraPark. If Bid Alternate 2 is awarded, the associated plan sheets and bid items will be included within the awarded contract.

SEE FOLLOWING ATTACHED BID TAB

MetraPark Infrastructure Improvements Project
South Expo Lot Construction Project
Bid Form
Base Bid
Prepared by: WWC Engineering
August 2024

Bid Item No.	Measure & Pay Section	Item Description	Unit	Estimated Quantity	Estimated Unit Cost	Total Cost
General Items						
101	00910	Mobilization/Demobilization	LS	1		
102	00910	Taxes, Bonds, Insurance	LS	1		
103	00910	Construction Surveying	LS	1		
104	00910	Construction Traffic Control	LS	1		
105	00910	SWPPP Administration	LS	1		
106	00910	Miscellaneous Force Account	LS	1	\$ 20,000.00	\$20,000.00
107	00910	Miscellaneous Demo Items	LS	1		
108	00910	Exploratory Excavation	LS	1	\$ 5,000.00	\$5,000.00
109	00910	CCTV Inspection	LS	1	\$ 5,000.00	\$5,000.00
110	00910	Private Utility Locating	HR	40		
111	00910	Underground Utility Crossing	EA	50		
112	00910	Raise/Lower Existing Utility	EA	2		
113	00910	Relocate Existing Utility	LF	200		
114	00910	Tree Removal - Class I	EA	5		
115	MPWSS	Type II Pipe Bedding	CY	270		
116	MPWSS	Flowable Fill	CY	20		
117	00910	Rock Hammer	HR	10		
Surfacing & Site Work						
118	MPWSS	Excavation Above Subgrade	CY	3499		
119	00910	4" Asphalt Pavement - 10" Crushed Base	SY	9689		
120	00910	4" Asphalt Millings	SY	8675		
121	00910	6" Thickness Crushed Base	SY	20203		
122	00910	Sub-excavation/ Replacement Below Subgrade	SY	1938		
123	00910	Concrete Removal	SF	1772		
124	00910	Combined Concrete Curb and Gutter	LF	379		
125	00910	Concrete Sidewalk	SF	715		
126	00910	Concrete Ribbon	LF	462		
127	00910	Concrete Valley Gutters	SF	857		
128	00910	ADA Ramp	SF	101		
129	00910	Expo South Lot Service Station	EA	4		
130	00910	Pavilion Courtyard Service Station	EA	4		
131	00910	4" Steel Bollard	EA	24		
132	00910	Seeding	LS	1		

Bid Item No.	Measure & Pay Section	Item Description	Unit	Estimated Quantity	Estimated Unit Cost	Total Cost
Surfacing & Site Work (cont.)						
133	00910	Plant Tree	EA	5		
134	00910	Pond Supply Line	LS	1		
135	00910	Irrigation Supply Line	LF	904		
136	00910	Irrigation System Restoration	LS	1		
Stormwater						
201	MPWSS	6" SDR 35 PVC Storm Pipe	LF	221		
202	MPWSS	8" SDR 35 PVC Storm Pipe	LF	143		
203	MPWSS	12" SDR 35 PVC Storm Pipe	LF	549		
204	MPWSS	Basic Manhole, 5'0" Depth (48" Dia.)	EA	2		
205	MPWSS	Additional Manhole Depth (48" Dia.)	VF	25		
206	MPWSS	Basic Manhole, 5'0" Depth (72" Dia.)	EA	1		
207	00910	2'X3' Curb Inlet	EA	1		
208	00910	2'X3' Curb Inlet with 72" Dia. Manhole	EA	1		
209	00910	48" Dia. Manhole with Small Flat Inlet	EA	4		
210	00910	Trench Drain	LS	1		
Potable Water						
301	00910	Connect to Existing Water Main	EA	4		
302	00910	1" SDR9 HDPE Water Line	LF	178		
303	00910	8" C900 PVC Water Main	LF	253		
304	00910	12" C900 PVC Water Main	LF	567		
305	00910	16" C900 PVC Water Main	LF	2		
306	00910	8" Gate Valve	EA	1		
307	00910	12" Gate Valve	EA	1		
308	00910	8" Bend (All Angles)	EA	2		
309	00910	12" Bend (All Angles)	EA	5		
310	00910	16"x8" Reducer	EA	1		
311	00910	1" Water Service Connection to Nile Building	EA	1		
312	00910	1" Water Service Connection to 4-H Building	EA	1		
313	00910	Yard Hydrant	EA	8		
314	00910	6" Hydrant Assembly (Includes Risers)	EA	2		
315	00910	Removal of Existing Hydrant Assembly	EA	2		
316	MPWSS	Adjust Existing Water Valve	EA	3		
317	00910	Temporary Water Supply	LS	1		
Sanitary Sewer						
401	00910	Connect to Existing Sanitary Sewer Manhole	EA	2		
402	MPWSS	Basic Manhole, 5'0" Depth (48" Dia.)	EA	4		
403	MPWSS	Additional Manhole Depth (48" Dia.)	VF	12		
404	MPWSS	8" SDR 35 PVC Sewer Main	LF	343		

Bid Item No.	Measure & Pay Section	Item Description	Unit	Estimated Quantity	Estimated Unit Cost	Total Cost
Sanitary Sewer (cont.)						
405	MPWSS	10" SDR 35 PVC Sewer Main	LF	286		
406	MPWSS	12" SDR 35 PVC Sewer Main	LF	285		
407	MPWSS	Adjust Existing Sanitary Sewer Manhole	EA	2		
408	00910	Sanitary Cleanout	EA	8		
409	00910	Temporary Sanitary Sewer Bypass Pumping	LS	1		
Electrical						
501		Raise Existing Power Sectionalizer	LS	1		
502		Remove Existing Light Pole	EA	3		
503		Connect to Existing Power	EA	2		
504		Install Lightpole	EA	5		
505		Electrical Conductor	LF	2376		
506		Electrical Conduit	LF	594		
507		Pull Box - Type 2 Composite	EA	8		
Total Base Bid Construction Cost:						
Total Base Bid in Words:						

MetraPark Infrastructure Improvements Project
South Expo Lot Construction Project
Bid Form
Bid Addendum 1
Prepared by: WWC Engineering
August 2024

Bid Item No.	Measure & Pay Section	Item Description	Unit	Estimated Quantity	Estimated Unit Cost	Total Cost
General Items						
1101	00910	Mobilization/Demobilization	LS	1		
1102	00910	Taxes, Bonds, Insurance	LS	1		
1103	00910	Construction Surveying	LS	1		
1104	00910	Construction Traffic Control	LS	1		
Surfacing & Site Work						
1105	00910	4" Asphalt Millings	SY	14937		
Total Bid Addendum 1 Construction Cost:						
Total Bid Addendum 1 in Words:						

MetraPark Infrastructure Improvements Project
South Expo Lot Construction Project
Bid Form
Bid Addendum 2
Prepared by: WWC Engineering
August 2024

Bid Item No.	Measure & Pay Section	Item Description	Unit	Estimated Quantity	Estimated Unit Cost	Total Cost
General Items						
2101	00910	Mobilization/Demobilization	LS	1		
2102	00910	Taxes, Bonds, Insurance	LS	1		
2103	00910	Construction Surveying	LS	1		
2104	00910	Construction Traffic Control	LS	1		
2105	00910	SWPPP Administration	LS	1		
2106	00910	Miscellaneous Demo Items	LS	1		
2107	00910	Exploratory Excavation	LS	1	\$ 2,000.00	\$2,000.00
2108	00910	CCTV Inspection	LS	1	\$ 1,500.00	\$1,500.00
2109	00910	Private Utility Locating	HR	12		
2110	00910	Underground Utility Crossing	EA	24		
Surfacing & Site Work						
2111	00910	Concrete Sidewalk	SF	175		
Potable Water						
2301	00910	Connect to Existing Water Main	EA	1		
2302	00910	1" SDR9 HDPE Water Line	LF	257		
2303	00910	2" SDR9 HDPE Water Line	LF	347		
2304	00910	1" Gate Valve	EA	2		
2305	00910	1" Bend (All Angles)	EA	1		
2306	00910	1"X1" Tee	EA	3		
2307	00910	2"X1" Tee	EA	7		
2308	00910	Connection to Existing Service	EA	1		
2309	00910	Yard Hydrant	EA	7		

Total Bid Addendum 2 Construction Cost:

Total Bid Addendum 2 in Words:

D. Bidder acknowledges that:

1. Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

- 5.01 *Bid Acceptance Period*
- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.
- 5.02 *Instructions to Bidders*
- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.
- 5.03 *Receipt of Addenda*
- A. Bidder hereby acknowledges receipt of the following Addenda: **[Add rows as needed. Bidder is to complete table.]**

Addendum Number	Addendum Date

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

- 6.01 *Bidder's Representations*
- A. In submitting this Bid, Bidder represents the following:
1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

- A. The Bidder certifies the following:
 1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
 2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.: (if applicable) _____

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BID BOND (PENAL SUM FORM)

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Address <i>(principal place of business)</i> :	Bid Project: MetraPark South Expo Lot Construction Project, Billings Montana Bid Due Date: August 30 th , 2024
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
<i>(Full formal name of Bidder)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature) (Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between Yellowstone County, Montana (“Owner”) and
_____ (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2—THE PROJECT

- 2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: The project consists of asphalt reconstruction to include milling of asphalt, grading, paving, concrete removal and placement, water main and service replacement, sanitary sewer main and service replacement, and storm drain improvement and replacement located at MetraPark in Billings, MT.

ARTICLE 3—ENGINEER

- 3.01 The Owner has retained WWC Engineering (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.
- 3.02 The part of the Project that pertains to the Work has been designed by WWC Engineering.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

- A. The Work will be substantially complete within 75 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 90 calendar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also

recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion:* Contractor shall pay Owner \$1,500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Traffic Control:* Contractor shall follow area closure requirements as identified in Special Provisions 00910, SP-25: Construction Zones. Contractor shall pay Owner \$5,000 for each day that access is restricted beyond the allowances identified.
 3. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$1,500 for each day that expires after such time until the Work is completed and ready for final payment.
 4. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

4.04 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. ~~For all Work other than Unit Price Work, a lump sum of \$ _____.~~

~~All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.~~

- B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- C. Total of Unit Price Work (subject to final Unit Price adjustment) \$ _____.
- D. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. **95** percent of the value of the Work completed (with the balance being retainage).
 - b. **95** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion **of the entire construction to be provided under the construction Contract Documents**, Owner shall pay an amount sufficient to increase total payments to Contractor to percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment or return or release retainage at Substantial Completion

EJCDC® C-520, Agreement between Owner and Contractor for Construction Contract.

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or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 Interest

A. All amounts not paid when due will bear interest at the rate of percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 Contents

- A. The Contract Documents consist of all of the following:
1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Specifications as listed in the table of contents of the project manual.
 5. Drawings (not attached but incorporated by reference) with each sheet bearing the following general title: South Expo Lot Construction Project.
 6. Drawings listed on the attached sheet index.
 7. Addenda (numbers __ to __, inclusive).
 8. Exhibits to this Agreement (enumerated as follows):
 - a. _____
 9. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

A. In order to induce Owner to enter into this Contract, Contractor makes the following

representations:

1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 Contractor's Certifications

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive
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practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
2. "Fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "Collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

Owner:

Contractor:

(typed or printed name of organization)

(typed or printed name of organization)

By: _____
(individual's signature)

By: _____
(individual's signature)

Date: _____
(date signed)

Date: _____
(date signed)

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Address for giving notices:

Designated Representative:

Designated Representative:

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Address:

Phone: _____

Phone: _____

Email: _____

Email: _____

(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

License No.: _____
(where applicable)

State: _____

PERFORMANCE BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Mailing address <i>(principal place of business)</i> :	Contract Description: Project: MetraPark South Expo Lot Construction Project, Billings Montana Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows:

PAYMENT BOND

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: Mailing address <i>(principal place of business)</i> :	Contract Description: Project: MetraPark South Expo Lot Construction Project, Billings Montana Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows:

STANDARD SPECIFICATIONS, AND GENERAL & SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

The Montana Public Works Standard Specifications (MPWSS), 2021 edition, Standard General Conditions (EJCDC C-700), and Supplementary Conditions (EJCDC C-800) are incorporated by reference. Project-specific Special Provisions that further clarify the construction contract are included in the Project Manual.

SPECIAL PROVISIONS

SECTION 00910

PROJECT SPECIFIC PROVISIONS

SP - 1. FORMAT

The specifications for this project include by reference the Montana Public Works Standard Specifications (MPWSS) Seventh Edition, April 2021. The MPWSS pages are not printed in this Project Manual but are made part of these Contract Documents and the Contractor must comply with any and all such regulations, unless modified herein. Copies of the MPWSS Document can be obtained from the Montana Contractor Association (MCA) located in Helena, MT. MCA can be contacted by phone at (406) 442-4162 for more information.

The following Special Provisions include additional requirements that are specific to this project. In case of a conflict, the hierarchal order of precedence is as listed in MPWSS.

SP - 2. CONTRACT AND SCHEDULING

One (1) contract will be awarded for this project with all bid items contained in the bid forms found within this Project Manual.

The contract time allowed for this project is described in the Agreement form for this Contract.

SP - 3. SUBSTANTIAL COMPLETION

It is the responsibility of the Contractor to initially request the granting of Substantial Completion at a point in the project when it considers the project to be ready for its intended use. The date of Substantial Completion will generally be determined by the Engineer upon completion of, at a minimum of but not limited to, the following major project components which provide the Owner full beneficial use of the project area:

1. Installation, successful completion of testing, and acceptance of all water, sanitary, and storm drain improvements;
2. Installation, successful completion of testing, and acceptance of all asphalt, concrete, and surface improvements;
3. Installation of all electrical improvements.

The Engineer reserves the right to withhold the determination of Substantial Completion if there are questions that persist about completion or quality of improvements.

SP - 4. COPIES OF DOCUMENT

The Owner shall furnish to Contractor two printed copies of the Contract Documents (including one fully signed counterpart of the Agreement) and one electronic portable document format (PDF).

SP - 5. OWNER'S SITE REPRESENTATIVE

Owner will furnish an "Owner's Site Representative" to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner's Site Representative is not the Engineer's consultant, agent, or employee. Owner's Site Representative will be Hulteng, Inc., and will communicate directly with the Engineer.

SP - 6. SMALL, MINORITY AND WOMEN'S BUSINESSES

If Contractor intends to let any subcontracts for a portion of the work, Contractor will take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Affirmative steps will include:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.
6. The required forms to complete and turn in with the Bid are provided in the Contract Documents.

SP - 7. DEBARMENT AND SUSPENSION

A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. This certification form is provided in the Contract Documents.

SP - 8. SUBMITTALS - SHOP DRAWINGS AND SAMPLE REQUIREMENTS

Contractor shall confirm that the submittal is complete with respect to all related data included in the submittal, including Manufacturer's Certification letter for any item in the submittal subject to American Iron and Steel requirements and include the Certificate in the submittal. Refer to Manufacturer's Certification Letter provided in these Contract Documents.

SP - 9. WORK HOURS

Work hours shall be as outlined in the Standard General Conditions and as adjusted herein. Normal work hours requiring engineering oversight shall be between 7 a.m. and 6 p.m. Monday through Friday excluding legal holidays. Legal Holidays include:

New Year's Day, Martin Luther King Day, Presidents Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day.

The contractor may request, two working days in advance, approval from the Engineer to work Saturdays and/or Sundays. If work requiring engineering oversight is required outside of this timeframe, the costs of oversight by the Engineer shall be considered part of Contractor's liquidated damages and shall be at the rate of the Engineer's current Schedule of Charges on an hourly basis.

No work will be conducted between the hours of 8 p.m. and 7 a.m. Work may be completed outside of the accepted work times, if necessary, in case of emergencies or for the protection of equipment and finished work without prior written approval from the Owner and Engineer. The Contractor may complete work between 6 p.m. and 8 p.m. that does not require engineering oversight, such as site cleanup and staging of materials.

Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, or any legal holiday, resulting from actions caused by the Contractor (subcontractor scheduling, schedule concerns, inadequate planning, etc.). If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.01.E of the Standard General Conditions of the Construction Contract.

SP - 10. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (40 U.S.C. 3701-3708)

Where applicable, for contracts awarded by the Owner in excess of \$100,000 that involve the employment of mechanics or laborers, the Contractor will comply with 40 U.S.C. 3702 and 3704, as supplemented by the Montana Prevailing Wage Rates for Highway Construction 2024, Effective January 13, 2024, found at <https://erd.dli.mt.gov/labor-standards/state-prevailing-wage-rates/>. Under 40 U.S.C. 3702 of the Act, the Contractor will compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic will be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

SP - 11. GEOTECHNICAL REPORT

A geotechnical investigation and report were completed during the design phase for this project. Recommendations in that report shall be considered as part and parcel to these specifications unless otherwise noted. The report is included in the Contract Documents for the Contractor's reference.

SP - 12. CONSTRUCTION LIMITS

The Contractor is required to confine construction activities within the limit of the project area, unless there are specifically identified construction or staging areas, and the Engineer shall determine if construction activities occurred outside of these limits. The designated construction area is shown on the Plans and is the area of the project that is awarded, which may include the area south of the Expo Building and East of the Pavilion Building, area south of the Pavilion Building, area west of the Open Air Barn, Lot 1, and water services to the buildings east and south of the Carnival Lot.

Unless specifically designated for removal, all trees, and other improvements in or adjacent to the project shall not be touched, trimmed, or injured. All restoration outside the limits of the construction areas shall be at the Contractor's expense.

Storage of materials for completion of the work shall occur within the project area. Materials will not be stored directly in front of the Pavilion, Expo, or any other Metra facility entrances and must be located in an area agreed upon by Metra staff prior to the Work. Refer to Construction Zones Special Provision regarding parking lot closures during the work. The MetraPark property will continue operation, and events will be held throughout the duration of the project. It is the Contractor's responsibility to provide security for all equipment, tools, and materials at the property.

SP - 13. STORMWATER MANAGEMENT AND BMPS

The Contractor shall make note that this project is subject to Montana Department of Environmental Quality (MDEQ) Storm Water General Discharge Permit authorization. The Contractor shall pay the application fee, the first annual fee and additional annual fees necessary until the termination of the permit has been granted by the Montana Department of Environmental Quality. The Contractor is responsible for securing and administering the permit and installation and maintenance of the erosion control structures. All Storm Water Management and Erosion Control, and BMPs for this project shall comply with the requirements set forth by Chapter 28, Billings Municipal City Code (BMCC) and in the general permit for Storm Water Discharges Associated with Construction Activity which can be obtained from MDEQ at: [http:// www.deq.state.mt.us/wqinfo/MPDES/StormwaterConstruction.asp](http://www.deq.state.mt.us/wqinfo/MPDES/StormwaterConstruction.asp)

A Notice of Intent (NOI) and a Storm Water Pollution Prevention Plan (SWPPP) shall be required. The Contractor shall submit the NOI and SWPPP to MTDEQ. A copy of the State acceptance letter shall be submitted to the Engineer upon receipt. The NOI shall be completed with the Contractor as Applicant/Certified SWPPP Administrator. The applicant shall be responsible for achieving final stabilization and submitting the Notice of Termination (NOT).

The Contractor shall comply with all requirements and conditions of the General Permit and the Storm Water Pollution Prevention Plan (SWPPP). Failure to do so will result in the issuing of an order to suspend work in addition to the potential fines that may be assessed by the Montana Department of Environmental Quality.

The Contractor's responsibilities regarding maintenance of erosion control structures, after final project acceptance, will be limited to the areas disturbed by the project only. The Contractor will not be responsible for erosion control beyond the disturbed areas of this project due to adjacent construction. As most all of the project area doesn't have vegetation, those portions do not need to be reseeded.

It is the Contractor's responsibility to document the extent of disruption due to construction activities directly related to this project. The documentation should include pictures with a date stamp that is concurrent with the date of final acceptance.

SP - 14. CONSTRUCTION STAKING

The Engineer will provide one-time staking for the project to include the water, sanitary, and stormwater infrastructure (piping, inlets, manholes, services), curb and gutter, valley gutters, and light pole bases. Additionally, the Engineer will provide project control points for the Contractor's use. Further staking outside of these points or re-staking of these points will be at the expense of the Contractor. Electronic data for the project will be provided to the Contractor for survey purposes. This electronic data will be utilized for grading of the subgrade, base, and hard surfacing. It is the responsibility of the Contractor to verify the accuracy of the survey data provided and notify the Engineer of any issues that may come up. It is the responsibility of the Contractor to construct the project per the plans provided and to notify the Engineer if the electronic data or stakes differs from the plans.

The Contractor shall notify the Engineer, in writing, with all staking requests. These requests shall be made 72 hours in advance.

Due to the project's proximity to Billings-Logan International Airport, the use of unmanned aerial vehicles is prohibited.

SP - 15. NATURE OF THE WORK

Due to the nature of this project, replacing piping systems in an old or deteriorated condition or providing new piping adjacent to the old existing piping, it is not uncommon to experience leaks or other problems with the existing piping system during installation of the new or replacement pipe. If this circumstance develops during construction and repairs are needed to keep the old system in service, the Metra Facilities Manager should be contacted immediately to shut down the existing system until repairs can be completed. The Contractor will be responsible for the repair work due to the proximity of the Contractor's crew and equipment. Payment for the Contractor's repair work shall be made under the Exploratory Excavation bid item. The Engineer shall determine if repairs significantly impacted the Contractor's ability to meet the contract timeframe, and additional calendar day(s) may be awarded.

Any reference to exploration in this specification shall mean exploration and/or repair work and will be paid at the same hourly rate. Repair work shall be completed in a timely manner, and in all cases before the completion of the shift. No payment for down time for the crew or

equipment shall be made while making repairs since it is expected that the crew and/or equipment not directly needed for repairs can be utilized for other temporary tasks on this same schedule. The above discussion refers only to problems that develop due to non-negligence of the Contractor.

SP - 16. PRIVATE UTILITIES COORDINATION

The Contractor is responsible for checking with owners of underground utilities prior to construction to determine locations in the Project Area. The Contractor shall coordinate work with private utility owners throughout the completion of the work. Prior to the start of the work, a Montana One-Call ticket must be completed by the Contractor. The Contractor is advised that some utilities may not be identified by this locate. Last Call Locating, (406) 698-9850, serves as MetraPark's private utility locate company and the Contractor shall ensure they be included in all utility locate requests.

Coordination for relocation, crossing, support, or reinstallation of all private utilities is the responsibility of the Contractor. The Contractor will obtain all permits and authorizations necessary for completion of the work near private utilities. Contractor is made aware that private utilities located at the MetraPark may not be able to be located or shown on plans and Contractor is responsible to locate and excavate without damaging these utilities during the course of the work. Locating and excavating without damaging these utilities is incidental to private utility locating and dry utility crossings. Any damage incurred to private utilities due to performing work, whether shown on plans or not, are to be repaired in a timely manner and at the expense of the Contractor.

SP - 17. POTHOLE TO VERIFY EXISTING UTILITIES

The Contractor shall pothole to verify existing utility crossing depths/separation distances for all locations where proposed facilities cross existing public and/or private utility lines with separation distances anticipated to be 2 feet or less. The pothole work shall be completed prior to construction or prior to starting the next section of work (e.g., manhole to manhole). The Contractor shall notify the Engineer immediately of any grade conflicts. Utility crossings for the purposes of this Special Provision shall include crossings of mains, laterals, and services (public and private).

Pothole verification work shall be incidental to the Underground Utility Crossing bid item as indicated in the Bid Form.

SP - 18. ROCK HAMMER

The requirements of this Special Provision shall supplement MPWSS Section 02221. The Contractor shall perform rock hammer where existing boulders interfere with the utility trench path as identified on the Plans. This work can be completed through any standard rock hammer method, including standard excavation or other approved method. The Contractor shall identify the need for and obtain prior approval from the Engineer prior to beginning any rock hammer activities. The RPR shall be on-site during the entire rock hammer work, which will be quantified using prevailing wage of operator(s) and Contractor's rental and equipment rates required to complete the work. Rock hammer must be equivalent to a CAT 320 mounted rock hammer or larger.

SP - 19. EXPLORATORY EXCAVATION

The requirements of this Special Provision shall supplement MPWSS Section 02221. The Contractor shall perform exploratory excavation to identify or verify the location of underground infrastructure not associated with identifying buried utilities described in SP-17 above. This work can be completed through any standard exploratory method including standard excavation, mini-excavation, hand excavation, or other approved method. The Contractor shall identify the need for and obtain prior approval from the Engineer prior to beginning any exploratory excavation. The RPR shall be on-site during the entire exploratory excavation work, which will be quantified using prevailing wage of laborer(s) and Contractor's equipment rates required to complete the work. A specific dollar amount is dedicated to this service as identified in the bid form.

SP - 20. GAS MAIN DRESSER COUPLINGS

The Contractor shall contact a natural gas company field representative when they expose dresser couplings on the gas line, and identify and mark their location.

SP - 21. TEMPORARY CONTROLS

Temporary service shall be provided by the Contractor during any period when utility lines are disturbed unless the Contractor makes other arrangements that are satisfactory with the utility users and owner. Service of existing utility lines, if interrupted, shall be restored as quickly as possible. Utility lines include, but are not limited to: water, storm, sanitary sewer, power, telephone, gas, and cable. Unless otherwise noted, temporary service is incidental to the bid items involved in other Work.

The Contractor shall handle existing flows in the existing storm drains as required to properly construct the new improvements and make necessary connections to existing utilities as specified. The adjacent City of Billings storm drains have significant sediment built up within them. Contractor is to remove sediment as reasonably possible whenever working in or around these mains and to limit additional construction debris from entering the existing storm mains. This work shall be considered incidental to the associated Bid Item being completed, and no additional payment shall be made.

SP - 22. MATERIALS TESTING

Responsibilities of Quality Control (QC) and Quality Assurance (QA) testing shall follow MPWSS Section 01400. QA testing will be completed by a representative of the Owner and follow the tables below. The Contractor will notify Engineer and testing agency of readiness of the work for testing a minimum of 24-hours prior to required testing.

Compaction of asphalt millings will be identified by visual inspection of final surface.

The Contractor shall give the Engineer 48-hour notice of readiness of the work for testing. The Contractor shall cooperate with the QA testing agency as outlined in Section 01400 Part 3.2 of the MPWSS.

Table 1 - Materials Testing Requirements

ASPHALT CONCRETE PAVEMENT		
Test Specification/Material	Test Method	Minimum Required Frequency
Asphalt Concrete Pavement (Base Course and Surface Course)	Mix design Gradation Asphalt Oil Content Marshal Test Rice Specific Gravity (MPWSS 02510)	1 Submittal 1 test/first day or 1/1000 TN 1 test/first day or 1/1000 TN 1 test/day or 1/1500 TN 1 test/day or 1/1500 TN 3 cores/day or 3 cores/500 TN, inclusive of 1 joint core.
Compaction of Asphalt Concrete Pavement	In-Place Density/Thickness (MPWSS 02510)	1 additional core every 500 TN if paving exceeds 500 TN per day. Core locations will be randomly chosen by Engineering Inspector, same day as paving.
PORTLAND CEMENT CONCRETE		
Test Specification/Material	Test Method	Minimum Required Frequency
Portland Cement Concrete	Mix design Air, and Slump	1 Submittal First Truck of Each Day
Portland Cement Concrete Flatwork and Curb & Gutter	7-Day and 28-Day compressive strength (MPWSS 02515)	Every 50 CY
EARTHWORKS		
Test Specification/Material	Test Method	Minimum Required Frequency
Trench Backfill	Moisture-Density (MPWSS 02221)	1 Sub/soil type encountered
Trench Compaction	In-Place Density (MPWSS 02221/1.4) 97% Minimum	1 Submittal/borrow source
Trench Compaction (laterals outside the road template, structures, valves, hydrants and manholes)	In-Place Density (MPWSS 02221/1.4) 97% Minimum	1 test/lift/200 LF 1 test/for each 2 ft of vertical depth/2 ft from edge of structure, valve, hydrant, or manhole

Pipe Bedding	Type I Bedding gradation & Plasticity Index / Type II Bedding Gradation (MPWSS 02221)	1 Submittal
Subgrade and Embankment	Moisture-Density (MPWSS 02230)	1 Submittal per soil type encountered / 1 Submittal per borrow source
Compaction of subgrade under curbs, gutters, and sidewalks	In-Place Density (MPWSS 02230/1.3) 95% Minimum	1 test/lift/200 LF (C &G) or 1 test/lift/1000 SF (flatwork)
Compaction of subgrade and embankment for roadways	In-Place Density (MPWSS 02230/1.3) 95% Minimum	1 test/lift/4000 SF
EARTHWORKS		
Test Specification/Material	Test Method	Minimum Required Frequency
Sub Base Course	Gradation - Moisture Density - Fractured Faces (Crushed) - LA Abrasion, LL, PL, and PI (MPWSS 02234)	1 Submittal
Compaction of Sub Base Course for roadways	In-Place Density (MPWSS 02234/1.3) 95% Minimum	1 Test/lift/4000 SF
Crushed Base Course	Gradation - Moisture Density - Fractured Faces (Crushed) - LA Abrasion, LL, PL, and PI (MPWSS 02235)	1 Submittal
Compaction of crushed base course under curbs, gutters, and sidewalks	In-Place Density (MPWSS 02235/1.3) 95% Minimum	1 test/lift/200 LF (C &G) or 1 test/lift/1000 SF (flatwork)
Compaction of crushed base course for roadways	In-Place Density (MPWSS 02235/1.3) 95% Minimum	1 test/lift/4000 SF

SP - 23. DEWATERING

The Contractor is advised that groundwater is present at the project Site. The Contractor is responsible for providing dewatering equipment and methods for this project as outlined in MPWSS Section 02221. Dewatering costs are incidental to the pipeline and appurtenance costs, as per MPWSS Section 02221(3.4)(3). A geotechnical report is included in the Contract Documents. Bore logs included in the geotechnical report indicate observed groundwater at the time of field exploration and may not be indicative of other times at other locations. The Contractor is advised that groundwater elevations can be expected to fluctuate with varying seasonal, irrigation, and weather conditions. Groundwater was observed at the shallowest point at 9 feet below ground surface. Groundwater shall be removed from the open trench area to

satisfactorily prevent the rising of water into the new or any existing piping that may be exposed during the work. Pipe, bedding, or backfill materials shall not be placed below the groundwater elevation established by dewatering operations. The Contractor shall promptly remove all temporary electrical and dewatering systems upon completion of the work. Other areas requiring dewatering may be encountered throughout the Project depending on irrigation, operation of canals and ditches, local precipitation, seasonality, and other factors. The contractor shall provide a dewatering plan and provide it to the Engineer prior to dewatering.

Control of groundwater shall be accomplished in a manner that will not negatively impact adjacent structures foundation soils, will not cause instability of the excavation slopes and will not result in damage to existing structures. Damage caused to adjacent structures or wells will be repaired at the Contractors expense. Temporary water shall be provided for wells that are reduced in capacity as a result of dewatering at the Contractor's expense.

Contractor is responsible for all aspects of dewatering including preconstruction surveys, design, operation, monitoring, and post construction surveys. Dewatering saturated fine-grained soils may initiate consolidation of load bearing soils and contribute to potential differential settlement of foundations. The Contractor shall limit open trench lengths requiring dewatering as practicable when in proximity to existing structures.

The Contractor shall conduct structure surveys prior to construction and following construction at a minimum of 200 feet from any dewatering activity. The surveys shall, at a minimum, include photographic and narrative documentation of foundations, flatwork, patios, fences, curbs, and pavement and shall also document the operation of all windows and doors. This survey shall be incidental to the project and no additional payment will be made. A copy of the completed structure surveys following construction shall be provided to the Engineer.

SP - 24. CONSTRUCTION TRAFFIC CONTROL

Traffic control within the MetraPark property related to the Work is addressed in the Construction Zones Special Provision. The Contractor will provide pedestrian signage and control markings including, but not limited to, fencing, signs, cones, and barriers as necessary to direct pedestrians around the work and to the entrances of the Pavilion and Expo throughout the work.

SP - 25. CONSTRUCTION ZONES

The following construction zones are shown on the attached exhibit and are intended to provide general concepts and descriptions for the Contractor to follow. All work described herein are part of the Construction Traffic Control bid items. MetraPark owns two programable signage boards that may be utilized by Contractor during events for directing traffic. Programable boards will not be used for extended periods of time, such as for roadway shutdown notices. Utilities within each zone are considered part of that zone unless specifically identified. The Contractor will provide updates at the weekly construction meeting regarding closures and traffic routing related to the project zones listed below. Construction traffic control for the purpose of the Work includes vehicular traffic and pedestrian traffic within the project.

- Zone 1: Carnival Lot Entrance
- Zone 2: South Expo Lot

- Zone 3: Open Air Barn
- Zone 4: Lot 1 and water services to buildings adjacent to Carnival Lot

The initial work for the project will include Zones 1 and 2 within the South Expo and Carnival Lot Entrance areas. Service to all facilities will be maintained throughout the project, excepting limited shutdowns as identified within these SPs for completion of the work including, but not limited to, utility tie ins asphalt placement.

Zone 1 will not be fully closed without traffic rerouting to allow continued operation of MetraPark. Contractor must maintain access to the back of the Pavilion and Carnival Lot. This access will be in the form of a traversable road of no less than 30-foot width. The access may be closed down for the purposes of utility installation or surfacing placement, but these closures should be no more than one day and will be approved by Metra staff prior to closure such that they do not impact MetraPark events. Should access to either area be restricted beyond the allowances identified herein, liquidated damages in the amount of \$5,000 per calendar day will be charged to the Contractor.

Zone 2 full shutdown time is to be minimized to reduce the impact to the Metra of not having that parking lot available for events. This zone shall only be partially shut down for installation of utilities or concrete flatwork. Full shutdown of the lot will include grading and paving activities. Contractor shall maintain limited building access each weekend via marked pedestrian pathways and a traversable road of no less than 30-foot width. Contractor shall also be aware that they will be responsible for sequencing of work and cleanup/preparation in this zone for up to 3 major events in the Expo. Coordination for these events shall be done with MetraPark staff.

Zone 3 may be closed during the duration of the work within the zone.

Zone 4 includes a common entrance/ exit for the MetraPark property at Gate 2. At shutdown of this roadway, Contractor will provide signage to redirect entrance and exit traffic.

Pedestrian traffic is to be maintained to the Metra facilities throughout the duration of the project. If pathways are to be shut down for construction, alternative pedestrian routes must be identified to bypass pedestrians around the active Work zones. Pedestrian rerouting plans must be provided to the Engineer for review and approval prior to commencement of the work.

Shutdown of areas for construction is defined as when Work restricts vehicles from driving on or parking within that Zone. Shoulder work or clean-up activities may be conducted in any of the work Zones throughout the project, so long as the current use is re-established for each of these areas.

The Contractor is to determine their areas of scheduling and sequencing of the work, so long as it meets the guidelines established herein. The Contractor is also to determine their area of laydown at the Metra property for the purposes of the Work. The Contractor may utilize an area within the Project area or, by request, may elect to utilize an area on the eastern portion of the Metra property.



SP - 26. PIPE BEDDING

Locations where trench subgrade for installation of water, sanitary sewer, or storm drain piping is unsuitable for Type 1 bedding only, up to 18" of Type 2 bedding, or down to the depth of stiffer/ denser soils, shall be placed beneath Type 1 bedding, whichever is less. Unsuitable trench subgrade soils would be loose/very soft sand and clays. It is anticipated that 50-60% of the utilities will require this, with an average thickness of 12" of Type 2 bedding. Extents will be determined by engineering observations in the field during construction.

As recommended in the Geotech Report, Type 1 bedding shall be the same well-graded material as Type 2 bedding to reduce the risk of fines pumping due to groundwater fluctuations. Contractor may also decide to wrap the bedding (top, bottom, and sides) with a 6-ounce non-woven geotextile fabric to further reduce the risk of pumping fines within the bedding. Contractor may select well-graded pipe bedding material or fabric wrap of trenches, either option is incidental to the associated pipe installation Bid Item. The Contractor shall refer to the geotechnical report completed by SK Geotechnical, which is attached and made part of contract documents.

SP - 27. FLOWABLE FILL

Flowable fill shall be installed above utility crossings where standard subgrade preparation (8" or less from subgrade) cannot be completed, or as directed by the Engineer. In addition, when crossing under or over existing utilities where it is not possible to get compaction equipment between the existing utilities and new pipe or the necessary required clearances, the Contractor shall use flowable fill in lieu of the specified bedding gravels or trench backfill. This item is intended to be used as a "diggable" solid separation layer between utilities where clearances cannot be met. Flowable fill shall be placed 6" vertically above and below excavated utility and shall be placed 18" horizontally from utility.

In the event that the water main must cross sanitary main or storm main and is unable to be installed with a minimum of 18 inches of vertical separation, the Contractor shall install flowable fill according to the Montana DEQ Circular 1, Section 8.8.3.

Where indicated on the Drawings, flowable fill shall be installed for backfill in lieu of standard trench backfill or specified aggregates. At the storm culvert crossings, provide a minimum of 10 feet in length or as shown on the Drawings, and extend from the crown (top) of the lower pipe to springline (middle) of the upper pipe. Where a new storm drain crosses over or under an existing water main or sanitary sewer main with less than 18 inches separation, flowable fill shall be installed.

In all locations where the water main separation is less than 18 inches from the sanitary sewer main or storm drain main, one full pipe section of the new utility shall be centered at the crossing such that both joints will be as far from the crossing as possible. In any location where the water main separation is less than 6 inches from the sanitary sewer main or storm drain main, the Contractor shall notify the Engineer before installing the crossing.

SP - 28. STORM DRAIN PIPE JOINTING

Where PVC storm drain pipe is connected without a bell and gasket, or where PVC storm drain pipe is connected to a pipe of another material, including storm drain mains, services and laterals, a stainless steel reinforced flexible coupling Fernco Model Strong Back RC or approved equal shall be used. The connection shall be encased in flowable fill.

The existing storm drain main, services, and inlet pipe sizes may vary from what is shown on the plans and the Contractor shall have various sizes of pipe and couplers available as necessary to complete the required repairs or connections to the existing storm drain pipe. Work outlined in this Special Provision shall be considered incidental to the associated Bid Item being completed, and no additional payment shall be made.

SP - 29. ABANDONED UTILITIES - CCTV INSPECTION

Abandoned underground installations such as water mains, gas mains, sanitary sewers, storm drains, storm laterals, storm manholes, telephone lines, power lines, and buried structures relating to these utilities in the vicinity of the work shall be expected. Should unknown infrastructure be discovered during construction, the Engineer may request Closed-Circuit Television (CCTV) of the piping to determine its viability. After CCTV inspection, the Engineer may elect to have the pipe be abandoned in-place, which shall be completed as outlined in the Special Provisions. The Contractor shall locate the alignment of the underground facilities on the surface during the CCTV inspection, and provide the Engineer with sufficient time to survey the alignment for inclusion in record drawings.

The Contractor shall notify the Engineer immediately upon discovery of unknown infrastructure and obtain prior approval from the Engineer before commencing CCTV inspections. The RPR shall be on-site during this, which will be quantified using the hourly rate CCTV Inspection. The Contractor shall provide the Engineer with the CCTV subcontractor's hourly rates prior to commencing work. A specific dollar amount is dedicated to this service as identified in the bid form.

If existing sanitary sewer or storm drain laterals or mains are found to be silted in or full of debris that would prohibit access with the CCTV camera, the Contractor may be required to clean the pipe for inspection. If pipe cleaning is requested, it will be tracked at the hourly rate for labor prevailing wages and Contractor's equipment rates.

In locations where the existing storm drain is called out to be jetted and cleaned, it will be tracked as identified above and the hourly rate identified on the Bid Form shall be used for payment.

SP - 30. ABANDONING/REMOVAL OF EXISTING PIPE & APPURTENANCES

Where the existing water main, storm drain, sanitary main, and associated appurtenances including services, laterals, etc. are located within the trench limits of the new pipe, the existing pipes and associated appurtenances (valves, fittings, manholes, inlets, etc.) shall be removed and legally disposed of off-site. Removal and disposal of all pipe types shall be incidental to the pipe being installed.

Where the existing water main, fire hydrant assemblies, sanitary main, or storm drain is located outside the trench limits of the new main(s), the existing piping shall be abandoned in place. The ends of all abandoned pipe shall be plugged with Class M-3000 concrete, which shall be considered incidental to the work.

All valve boxes and curb boxes on abandoned water mains or service lines outside the trench limits for new construction shall be removed and surface restoration completed. At a minimum, the top two feet of boxes shall be removed, and the remainder filled with gravel. Gravel shall be consolidated to fill all voids.

The Contractor shall be aware that existing water valves and fittings such as bends, tees, reducers, etc. are expected to be restrained with concrete thrust blocks under the valves and around the fittings. Removal, disposal, or preserving (if required) of concrete thrust blocks or concrete encased valves, fittings or other appurtenances include any rebar anchors, shall be considered incidental to the work.

SP - 31. STORM DRAIN SYSTEM MATERIALS

Storm inlet grates shall be as follows:

- 2'x3' Curb Inlet shall be D&L Foundry I-3516 (Type II), I-3517 (Type III), or approved equal. Inlet shall be a 2'x3' box matching the City of Billings Standard Modifications to MPWSS drawing number Sm_M02720-1a.
- 48" Dia. Manhole w/ Small Flat Inlet shall be D&L Foundry C-1172-02 or approved equal.

Mainline storm manholes not capturing stormwater runoff shall have a frame and cover (D&L Foundry A-1172 or approved equal). Storm manhole covers shall be stamped as "STORM".

SP - 32. REMOVABLE GRATE

Contractor shall install a Removable Grate as shown on the Plans. Grate shall meet H-20 load rating requirements. Grate maximum clear opening between bars shall be 1" and maximum section length of 10 feet. Installation of the grate shall follow manufacturers recommendations. Grate shall have reinforced concrete drain as shown on the Plans. All work and materials necessary to complete the grate installation shall be incidental to the Bid Item.

SP - 33. WATER DISTRIBUTION SYSTEM

A. PIPE MATERIALS

1. 6-inch to 12-inch diameter: Shall be C900 DR18 PVC (AWWA C900).

B. THRUST BLOCKS

All bends, tees, reducers, and valves 6-inch diameter and larger shall be installed with thrust blocks. The Contractor and the Engineer will determine size of thrust blocks to be cast-in-place in the field. Valve thrust blocks shall be sized for 200 psi. Thrust blocks for gate valves shall be formed and pre-poured. If assemblies are precast, do not lift or move using valve.

C. Type I Pipe Bedding

Type I Pipe Bedding shall be installed along the pipe and fittings per MPWSS Section 02221. Type I Pipe Bedding shall be included within the price of the pipe and fittings.

D. PIPE DEFLECTION

Pipe deflection is only allowed as approved by the Engineer or as called out on the plans. Pipe deflection shall be done per manufacturer's recommendations.

E. FIRE HYDRANTS

The Contractor shall notify the MetraPark staff and City of Billings Fire Department 48 hours in advance of any hydrant shutdowns and tag each fire hydrant that is out of service. The Contractor shall limit the downtime of any hydrants taken out of service to the greatest extent possible.

F. OPERATION AND SAMPLING REQUESTS

Notifications to the Owner for requests involving valve operation, hydrant operation, live tapping, flushing, water quality sampling, or any other activity that requires Owner personnel on site, shall be in accordance with the Montana Public Works Standard Specifications. The Contractor shall notify the City of Billings Fire Department prior to any valve closures or operations that affect the usage of any hydrants.

In the case of valve closures, the Contractor shall anticipate that a reasonable amount of time is needed by the Owner to operate all valves necessary to make zone closures. Additional time may also be needed to allow for draining of the existing main. In certain cases, where 100% kill cannot be achieved on existing valves, the Contractor may be required to conduct the connection work in a "wet" condition at no additional cost to the Owner.

G. WATER LINE ACCEPTANCE TESTING

Pressure testing, flushing, and disinfection shall be performed for all new water lines greater than 2-inch diameter, including service lines meeting this size criterion.

Any water required for pressure testing, flushing, disinfection, and filling shall be provided by the Owner at no cost to the Contractor.

H. PRESSURE TESTING

It is the Contractor's responsibility to ensure that all valves, bends, and other fittings are sufficiently restrained prior to performing pressure testing.

I. FLUSHING

Prior to chlorination, all new water mains shall be flushed in accordance with AWWA C651 and achieve the required flushing velocity of 2.5 feet per second. The required flushing set-up shall be prepared by the Contractor. All flushing shall be performed only by Contractor under supervision of Owner, and all flushing requests shall be submitted in accordance with Montana Public Works Standard Specifications. The flush water shall be directed to storm drain inlets and/or manholes and shall not be allowed to flow within any designated travel lane. If fire hose or piping is used to direct the flush water, the maximum length of hose or pipe shall be 20 feet.

J. DISINFECTION & BACTERIOLOGICAL TESTING

All flushing, testing, and disinfection shall be in accordance with the Montana Public Works Standard Specifications. All water quality sampling and laboratory testing of the water for acceptance shall be performed, by or in the presence of, Owner personnel, and all sampling

requests shall be submitted in accordance with Montana Public Works Standard Specifications. Bacteriological samples will require 48 hours laboratory time between test set up and available results to determine acceptability. Upon delivery of a sample to the testing laboratory, the bacteriological test will be set up as soon as practical by Owner staff. Previous tests may need to be completed prior to set up of new tests.

All flushing, water sampling, and laboratory testing of the water for acceptance shall be performed during the normal work time. Two samples will be taken by, or in the presence of, Owner personnel. One sample will be taken after flushing, and the second sample will be taken 24 hours later. The first sample shall be taken no later than 1:00 PM on Wednesday of a given week. The second sample will be taken no later than 1:00 PM on Thursday of a given week. Test results will be available 24 hours following the second sampling. No sampling, testing, or result readings will be done on weekends and holidays. Any sampling, testing, or result readings requested outside of the identified timeframes must be approved by the Owner.

There will be no charge to the Contractor for accepted passing tests. The Owner will charge a standard fee to the Contractor for any re-test of a failing test, which shall be deducted from payments due to the Contractor.

SP - 34. CARNIVAL LOT WATER SERVICES

The Contractor shall pull new line through the existing water service alignments as directed on the Plans. If that is not feasible, the Contractor may utilize alternative alignments, as approved by the Engineer. If an alternative alignment is selected, all disturbed areas must be restored to previous or better condition, and will be considered incidental to the associated bid items.

SP - 35. SANITARY SEWER COLLECTION SYSTEM

A. PIPE MATERIALS

1. 6-inch to 12-inch diameter: Shall be PVC SDR35 (ASTM D-3034).

B. MANHOLE GROUT

The Contractor shall not place grout, or any other filler material, on the inside circumference of the adjusting rings, casting, or any barrel section. Only where necessary, grout between the rings to adjust height. The Contractor shall plug with grout all picking holes, or any other penetration into the manhole, prior to backfilling the manhole. All grout plugs shall be constructed to ensure that the grout does not dislodge from the hole or penetration. The Contractor shall immediately remove any and all grout that falls into the manhole.

C. PIPE NOTCHING

At all new sewer mains entering and exiting manholes, the Contractor shall notch the top half of the pipe, from the crown to the springline, flush with the inside face of the manhole. The bottom half of the pipe shall remain un-notched and shall be set home as required for typical installation.

D. PIPE CONNECTIONS TO MANHOLES

Contractor shall core drill openings or larger openings into manholes or box culverts where new pipe connections are shown on the Drawings that require core drilling. The connection should use an approved resilient connector meeting ASTM C923-00. The Contractor shall plug any holes

remaining from abandoned lines with grout to form a watertight plug. The downstream pipe in manholes shall be screened to prevent entry of mortar or other debris from entering the system. The connection shall be watertight.

SP - 36. TEMPORARY WATER SUPPLY

The requirements of this Special Provision shall supplement MPWSS Section 01580. Water service is required to be provided to MetraPark at all times during construction, except for brief periods of time connecting to existing water mains. The Contractor shall coordinate construction with all affected parties to fulfill this requirement. A scheduled construction plan shall be provided to the Engineer and Owner showing how the Contractor plans to fulfill this requirement. Existing valves within the property shall be used to isolate sections of water main and Contractor is to coordinate with Metra staff and Engineer to locate.

Should the Contractor require temporary valves to fulfill this requirement, the valves and the work required to install and remove valves shall be incidental to the Project. When shutdowns are necessary to complete connections, the Contractor shall coordinate with the Engineer and Owner prior to all temporary disruptions in water service to any facilities within MetraPark.

Mainline valves may be utilized to provide continued service to buildings on the property during construction of new mainline watermain. Rehabilitation of services will require disruption of service to the associated buildings. Contractor may complete a temporary shut down of those services, if approved by the building owner/user in writing upon their review of a proposed timeline provided by the Contractor.

SP - 37. TEMPORARY SANITARY SEWER BYPASS PUMPING

This item includes provisions for bypass pumping required during the installation of all sanitary sewer pipe, fittings, service lines, and other appurtenant structures as specified in the Contract Documents and this section.

It shall be the Contractor's responsibility to determine the extent of sanitary sewer system to be taken out of service to perform the work and the subsequent design, construction, and operation of an adequate and properly functioning bypass system.

Submittals

At least seven (7) days prior to beginning work, the Contractor shall submit a Bypass Pumping Plan (described below) detailing the methods and equipment proposed to bypass sewer for approval by the Engineer. The submittal shall include the following information:

Shop drawings and product data shall be submitted for temporary piping, fittings, pumps, structures, and appurtenances.

Contractor is responsible for obtaining all permits required for bypass pumping operation, and shall provide a copy to the Engineer.

A. Bypass Pumping Plan (Standard)

1. Prepare a detailed Bypass Pumping Plan, which describes the measures to be used to control flows. Submit the Plan to and obtain approval of the Plan from

the Owner/Engineer prior to beginning bypass pumping work. Contractor's Plan shall include, but not be limited to the following:

- a. Site layout showing all major components.
 - i. Drawing indicating the scheme and location of pumps, suction manhole, suction piping, discharge manhole, discharge piping, temporary sewer plugs, flow diversion structures, dams, odor control, overflow prevention monitors, and other related equipment.
 - ii. Plan shall show location of all bypass pumping systems, including odor control, and shall discuss phasing, reuse, and movement of systems during construction as applicable.
 - iii. Sewer plugging method and type of plug. Method of securing and bracing of sewer plug shall be submitted. At a minimum, the plug must attach to a cable/chain which is then connected/tied off to an immobile object, as approved by the Engineer.
 - iv. Provide location of plug-in manhole (upstream or down-stream of manhole).
 - b. Schedule including installation/replacement schedules, durations, and dates for each sequence.
 - i. Plan shall show the sewer installation or sewer alterations to be accomplished during each bypass pump set up. The plan shall list the order of work requiring bypass pump set ups to verify downstream sewers are ready to accept bypass flows. The order of work shall correspond with the over Project Schedule.
 - ii. Bypass pumping plan shall designate which system/setup will be used, where and when applicable.
 - iii. The Contractor shall sequence the work to maintain flow flow through the existing sewer mains while installing the new sewer mains such that bypass pumping is minimized.
2. Emergency response and contingency plan
 - a. An emergency response plan that addresses containment, notification procedures, and equipment failure procedures. An emergency contact list with 24-hour phone numbers shall be submitted and updated as needed.
 - b. Contingency plan for cleanup and disinfection procedures in the event of a sewer spill. Contingency plan will identify equipment, tools, and labor necessary to complete clean up, disinfect, and repair.
 - c. Secondary power source.
 - d. Wet weather event procedures.
 3. Vehicular and pedestrian access to public and private facilities shall be coordinated with the traffic control plan.
 4. Staffing plan including name, qualifications, and contact information for on-site operators of bypass pumping system.
 5. Based on the Contractor's preliminary submitted Bypass Pumping Plan, the following items of information may be requested to further detail the procedures:
 - a. Method of noise control for each pump and generator.
 - b. Design calculations proving adequacy of the system and selected equipment.
 - c. Thrust restraint block sizes and locations where space is limited.
 - d. Temporary pipe supports and anchoring, if required.

- e. Protection method for existing utilities.

In addition to providing the Bypass Pumping Plan, Contractor shall notify the Owner/Engineer and receive written approval from the Owner/Engineer prior to each bypass operation. Contractor shall provide written notice to affected properties both 7 days and 24 hours prior to bypass work. The written notice shall list the date and times when sewer service will be affected and when it will be returned to normal service along with a phone number that the Owner can call for information.

Testing

A. Hydrostatic Pressure Test

1. Bypass lines, fittings, and accessories shall withstand twice the maximum pressure of the system or 50 psi, whichever is greater.
2. The test shall run for a period of 2-hours.
3. Contractor shall fill the line with water.
4. The line shall be sealed on the discharge end.
5. The line may be put into service if after the 2-hour period the pressure has been maintained and there are no observable leaks.
6. Notify the Engineer 48-hours prior to testing.

B. Inspection

1. Operator shall inspect temporary bypass pumping and piping system at a minimum of every hour during operation.
2. Inspection log: Keep at each pumping location.

C. Technical Provisions

1. In lieu of hydrostatic pressure testing as specified in Part 1 of this subsection, the bypass pumping lines and fittings shall be operated using clean water for a minimum of 5-minutes and visually inspected for leaks in the presence of the Engineer prior to being placed into service.

Products

Supply the pumps, conduits, piping, and other equipment to divert the flow of sewage around the sewer(s) or manhole(s) in which work is to be performed as specified in the Contract Documents and meeting the materials and testing requirements included herein.

Furnish the necessary labor and supervision to set up and operate the pumping and bypassing system.

The Contractor shall maintain on-site a sufficient number of valves, tees, elbows, connections, tools, sewer plugs, piping, and any other spare parts or system hardware to ensure immediate repair or modification of any part of the bypass system as necessary.

Temporary bypass pumping facility shall comply with all applicable laws and regulations.

A. Pumps

1. Pumps used for bypassing shall be capable of passing at least a 3-inch solid sphere.
2. If pumping is required on a 24-hour basis:
 - a. The number and size of pumps used in bypass pumping shall be such that if the largest pump is out of service, bypass flows will be maintained during the bypass operation.

- b. The engines shall be equipped in a manner to keep noise to a minimum, and a spare backup pump shall be required.
- B. Piping and Conduit
 1. Piping and conduit shall be sized and provided to handle the minimum and maximum expected flows during temporary bypass pumping operations.
 2. All bypass pumping shall have a minimum size of 4-inch diameter.
 3. All bypass pumping pipes and conduit shall be provided in good condition and free of leaks.
 4. Flexible hoses, if allowed, shall be abrasion resistant and capable of handling external and internal loads such as vehicular traffic and pumping operations.
 5. Technical Provisions
 - a. In the event long term and/or high-volume bypass pumping is required, Contractor shall include 100% redundancy for bypass pumping; two or more pipes (same size or larger) shall be provided. Redundancy shall be such that if one line is damaged during operation, a second or third pipe can immediately take its place.
- C. Plugs
 1. Plugs shall be selected and installed according to size of line to be plugged, pipe, and manhole configurations based on specific site.
- D. Overflow Monitors
 1. Overflow prevention monitors shall be field-ready corrosion resistant housings meeting IP67/NEMA 4, 4X standards with cellular communication capability, the ability to send text alerts to at least three user-designated phone numbers, non-confined space installation, and maintenance free operation.
 2. Overflow prevention monitors shall be programmed to alert the Contractor, the Engineer, and designated Metra staff.

Execution

Sewer service shall not be stopped and shall be maintained to all buildings. Service shall not be interrupted, and no bypass operations shall occur during special events, if any, as identified by the Owner/Engineer. Work stoppage may be required due to a large storm event common to the seasons for which the Work is being performed.

Contractor shall notify the Engineer 48-hours prior to bypassing or diverting flow in any of the pipelines or laterals. Do not suspend work for more than 24 hours during operation of a bypassing system, unless otherwise permitted by the Owner/Engineer.

- A. Site and Utility Protection
 1. Take precautions to ensure that bypass pumping shall not cause damage to public or private properties.
 2. In the event damage occurs, make provisions to correct such damage at no additional cost to the Owner.
 3. Contractor's sewage bypass pumping operations shall not harm the Owner or its collection system, nor any other public or private party. Any and all penalties, fines, judgements, or injunctions levied due to Sanitary Sewer Overflow (SSO) spills or any other problems caused or related to Contractor's bypass pumping operations, monetary and otherwise, shall be borne and paid by Contractor.
 4. No bypassing to the ground surface, receiving waters, storm drains, or bypassing which results in soil or groundwater contamination or any potential health hazards shall be permitted. In the event of any sewage spill, Contractor shall be

responsible for the prompt notification of the Owner/Engineer, cleanup, and disinfecting of the spill as called for in the bypass plan. Contractor shall compensate the Owner for the cost of fines levied as the result of a spill or unauthorized discharge.

B. Preparation and Setup

1. Bypass pumping shall be located with the least impact on vehicular and pedestrian traffic, shall have no visible leaks, and shall be restrained as necessary to prevent any movement of the pipe.
2. At each bypassing site, the Contractor shall have the entire bypassing system in place, functional, and tested before bypassing any sewage.
3. All pumps, generators, and other equipment shall be placed in a secondary containment or on a plastic tarp to protect against spills of petroleum products used by the equipment.
4. In establishing a bypass pumping facility on private property under a right-of-entry and/or right-of-access agreement, Contractor shall provide preference to an existing access location (manhole and/or cleanout) on the private property to establish the bypass pumping facility. Where an existing access location is utilized, no payment for temporary or permanent bypass pumping facilities will be authorized by the Engineer.
5. Where an existing access location on private property is not available or would be practical to use and a right-of-entry and/or right-of-access agreement from the property owner has been obtained, as approved by the Owner/Engineer, Contractor shall construct such temporary or permanent access as may be required to establish the bypass pumping facility.
6. Technical Provisions
 - a. If bypass pumping pipe as specified in Part a of this subsection must run perpendicular to traffic, the pipe shall be buried to prevent traffic restrictions, or furnished with roadway ramps for vehicular access and pipe protection. Alternative methods for perpendicular methods shall be submitted to Owner/Engineer for concurrence.

C. Noise Control

1. Contractor shall comply with all local and agency noise limitation requirements.
2. Contractor shall be required to limit noise production by using special mufflers, barriers, enclosures, equipment positioning, and other approved methods.

D. Diversion and Bypass

1. Contractor shall be responsible for all bypass flows. Contractor shall inspect each bypass pumping, piping system, and odor control system (if applicable) in its entirety for leaks or spills on an hourly basis.
2. All flows shall be re-established at the end of each and day prior to the Contractor leaving the site, unless special provisions have been made and plans approved to provide bypass pumping on a 24-hour basis.
3. Bypass shall be made by diversion of the flow from at least one manhole upstream from section where work is taking place, around the section to be taken from service for new construction, to an existing downstream location, at least one manhole beyond the section where work is taking place.
4. Only one pipe segment, and the associated laterals, may be affected at any given time unless otherwise approved by the Owner/Engineer.
5. Lateral lines into manholes shall be bypassed from the next upstream structure in which no work is required or has been or is yet to be completed. If the

structure upstream is private, Contractor shall notify the Engineer and receive written approval from the Owner/Engineer prior to bypass operations.

6. Lateral lines tying directly into the pipe shall be bypassed to the next downstream structure in which no work is required for that segment.
 7. Install plugs in upstream portion of pipe in manhole, if operation allows. If not, a bag or plug shall be secured with length of cable that will extend to the next downstream manhole for retrieval. This is to prevent rogue/runaway bags/plugs from entering the collection system. Opening in retrieval manhole shall be large enough to allow bag/plug removal. Also take into consideration the invert/base construction, 90-degree manholes, offset/angle points, and so forth when determining the retrieval manhole.
 8. Technical Provisions
 - a. Upstream manhole and pipe as specified in part 7 of this subsection may be utilized for temporary storage during short-term bypass operations given the sewerage flows and provided pumping system or installation methods will not cause sewerage backup into buildings upstream of the plugged manhole. Sewage level in manhole shall be monitored frequently and be maintained at as low a level as possible to prevent odor problems.
- E. Long Term and/or High-Volume Bypass Pumping
1. Long term and/or high-volume bypassing systems shall not be shut down between shifts, on holidays or weekends, or during work stoppages without written permission from the Owner/Engineer.
 2. When performing bypass work, ensure that pumping redundancy is on-site with all appurtenances (suction/discharge pipe) attached so that a pump can immediately be started when another pump has to be taken out of service.
 3. Provide on-site a minimum of one trained and qualified operator for each bypass pumping and odor control systems operation who shall provide 24/7 coverage and possess the experience and knowledge to operate, maintain, repair, refuel, and so forth at all times while bypass pumping systems are required.
 - a. The operator shall be qualified to both operate and repair any and all problems that may occur. The attendant shall have a cell phone for communication between the Owner/Engineer and the site in the event of emergencies.
 4. Pumping systems for laterals shall be designed for frequent pump operation in accordance with the following requirements:
 - a. Contractor shall maintain existing working level in existing lift station wet wells.
 - b. Sewage level in manholes shall be maintained at as low a level as possible to prevent odor problems and the bypass pumping equipment shall at a minimum pump at the same rate as the flow rate into the manhole.
 5. All fuel tanks for pump or generator motors shall be filled by Contractor prior to leaving the job site if bypass pumping must continue.
- F. Removal and Cleanup
1. Remove and/or relocate bypass pumping system when no longer needed. The Contractor shall notify the Owner/Engineer 48-hours prior to shutting down the bypass system.
 2. Bypass pumping system shall be cleaned and drained prior to being dismantled and moved to the next location.
 3. After completion of bypass pumping operations, Contractor shall clean disturbed areas, restoring them to their original condition. This operation shall include,

but not be limited to, pavement restoration and landscaping, at least equal to that which existed prior to the start of Work.

SP - 38. INSULATION BOARD

The Contractor shall install insulation board where water main is within 2.5 feet of storm drain at crossings or when minimum burial depths cannot be met. Insulation board shall be the width of the water main trench and extend 4 feet either side of crossing location and be a minimum of 2-inches thick. Insulation board is considered incidental to the work and no additional payment will be made.

SP - 39. PAVEMENT SECTION

The project area has multiple paving section alternatives and are listed in the Geotechnical Report based upon traffic patterns. The lots are separated and identified by name on the Plans and have the following surface sections. The quantity provided in the bid form for Asphalt Millings is estimated based on the asphalt to be removed from the overall project, assuming a thickness of 3" may be salvaged and reused. This quantity is expected to be adjusted during measurement of completed work.

- The South Expo Lot and Carnival Lot Entrance are a full depth construction with proposed 4" Asphalt Pavement - 10" Crushed Base for the expected paving section. Within the full reconstruction area, digout areas may be identified during construction, and will be repaired under the Sub-excavation/Replacement Below Subgrade bid item.
- Lot 1: 6" thickness of $\frac{3}{4}$ " or 1 $\frac{1}{2}$ " Minus Crushed Base.

Asphalt, crushed base, and geosynthetic for the above outlined areas and remaining areas shall be selected from one of the options presented in the Geotechnical Report. The Contractor may select the option that, in their opinion, provides least cost to the Owner. The Contractor shall notify Engineer of selected pavement section as part of submittal process. Quantity estimates are based on an 14-inch total depth (asphalt and base) for all paving areas except trench restoration of the Back Access Road.

- Asphalt shall conform to Section 02510 Type-B PG64-22.
- Crushed base shall conform to Section 02235 and have a gradation of $\frac{3}{4}$ " or 1 $\frac{1}{2}$ " minus.

The Contractor shall refer to the geotechnical report completed by SK Geotechnical, which is attached and made part of contract documents.

SP - 40. EXCAVATION ABOVE SUBGRADE

The excavation above subgrade quantity includes the removal of the existing pavement section. Full depth excavation above subgrade areas utilized a 14" asphalt and base section for determination of the subgrade elevation. This thickness corresponds to one of the asphalt and base thickness options provided in the Geotechnical Report for each of the paving areas. If the Contractor selects a different total paving section, any increase or decrease in earthwork quantities will be considered incidental to the bid items and the earthwork quantities will not

be revised for the selected pavement section on pay applications. Clarification of quantities for the excavation above subgrade bid items is included within the summary sheets in the Project Plans.

The excavation above subgrade is for the area within the paving extents, regrading of edges of the project to tie to existing is incidental to the excavation above subgrade bid items. Concrete curb and gutter, ribbon, valley gutters, and sidewalk are not included in the excavation above subgrade and are incidental to the bid item being completed, as outlined in the Measure and Pay Special Provision.

SP - 41. UNSUITABLE BACKFILL

The Contractor is responsible for stabilizing all excavated areas before backfilling. Any excavated material that is unsuitable for backfill, due to moisture content (either excessively wet or dry), shall be conditioned in a manner acceptable to the Engineer to render its suitable for backfill in accordance with Section 02221 of MPWSS, Seventh Edition. All costs associated with this work shall be considered incidental. If the Contractor chooses not to condition the unsuitable materials, imported material approved by the Engineer shall be substituted for backfill. All costs associated with imported material and disposal of unsuitable materials shall be considered incidental.

Trench imported backfill shall meet the following criteria:

Gradation	Percent Finer by weight (ASTM C136)
3-Inch	100
No. 4 Sieve	40-85
No. 200 Sieve	35 (max)
Liquid Limit	30 (max)
Plasticity Index	10 (max)

On-site materials may be found to be unsuitable for use as Embankment in Place. Should the Contractor be unable to find suitable materials within any of the excavated materials at the time of the Work, Imported Borrow Materials may be allowed with approval of Engineer. Suitable materials for Embankment in Place shall be gravel, sand, silt, or clay having a plasticity index less than 20.

SP - 42. TRENCH RESTORATION

Locations within the project will have utility installation that do not include full surfacing replacement above it. These areas will be restored based on the following scenarios. If restoration is within a construction area with identified paving thickness per the Plans, those thicknesses shall be used.

- a. Concrete shall be 6" unless otherwise specified and shall conform to Section 02529 requirements for installation. Crushed base shall be 6" thickness unless otherwise specified. Crushed base shall conform to Section 02235 and have a gradation of 1 ½" minus.
- b. Native ground - Contractor shall restore disturbed areas to match existing ground in areas of utility installation that do not have a specified surfacing section, including, but not limited to, grass areas as defined in SP-49.

SP - 43. SUB-EXCAVATION/ REPLACEMENT BELOW SUBGRADE

The project may require additional subgrade stabilization in select areas where soft subgrade soils are found. The Geotechnical Report identifies proof rolling methods to determine failed subgrade requiring stabilization.

A proof roll must be performed on the subgrade for all paving areas in the presence of the Engineer. Engineer shall be notified a minimum of 24-hours in advance. If the proof roll fails, Subgrade Stabilization will be required at the approval of the Engineer. In areas Subgrade Stabilization is used, ¾" or 1-½" minus crushed base course shall be used as backfill with all other requirements meeting the MPWSS. The section for Subgrade Stabilization will be to increase the crushed base to a thickness of 16" over TX5 or BX1200 geogrid, plus adding 6-ounce non-woven fabric directly on the soft subgrade, beneath the geogrid. Failed compaction or proof rolling of the subgrade without requiring further excavation or re-compaction may be approved by the Engineer. Subgrade stabilization will be paid under the Sub-excavation/Replacement Below Subgrade bid item.

The project will have areas of geosynthetics installed as required by these Special Provisions or at the discretion of the Geotechnical Engineer. Refer to the Geotechnical Report for approved geosynthetics and stabilization methods.

The Contractor shall also be aware that buried building waste materials may be present in portions of the Project and discovered during excavation work. Should debris be found, Contractor is to remove and dispose of as reasonably possible.

SP - 44. ON-SITE STOCKPILES AND MATERIALS

The MetraPark staff will remove on-site stockpiles and materials that will impact Contractor activities within the Construction Zones identified in SP-25. Contractor shall notify MetraPark of their schedule to complete surfacing and grading work a minimum of two weeks prior to commencement of work.

SP - 45. TRACER WIRE

All buried conduits installed as part of the Project shall have tracer wire installed and properly secured to the top of the conduit. Tracer wire shall be Copperhead™ HS-CCS HDPE 30 mil, or approved equal, with the following properties:

- #12 AWG high-strength copper clad steel conductor (HS-CCS)
- 30-mil HDPE insulation minimum

- Rated for direct burial use at 30 volts.

Tracer wire installation shall be incidental to the conduit installation it is associated with. Stormwater or sanitary runs in straight sections between accessible manholes does not require tracer wire installation.

SP - 46. CONCRETE ACCESSIBILITY RAMPS (ADA RAMPS)

Concrete accessibility ramps (ADA Ramps) will be constructed as shown on the Plans and will follow Public Right-of-Way Accessibility Guidelines, unless otherwise noted,

SP - 47. CONCRETE FLATWORK CRUSHED BASE

Crushed base depth beneath concrete valley gutters, concrete sidewalks, concrete ribbons, and combined curb and gutter will be 6”.

SP - 48. SURVEY MONUMENTS

The Contractor shall be aware that there are multiple survey control points throughout the project area, in addition to boundary line monuments at the property boundaries. Any survey marker or monument that is disturbed or destroyed by the Contractor outside of the work zone shall be replaced at the Contractor’s expense by a Professional Land Surveyor registered in the State of Montana.

SP - 49. LANDSCAPE SURFACE RESTORATION

Landscape features consisting of grass (including native grass and sod) and landscape rock or mulch that are disturbed shall be restored to original or better condition unless otherwise directed in the plans or by the Engineer. Trees, shrubs, and other landscape elements not specifically referenced herein will not be replaced unless specifically referenced in the contract plans. No additional payment for landscape restoration will be made and shall be incidental to the project. There shall be no measurement and payment of crossing lawn sprinkler systems if encountered. These shall be considered incidental to the work.

SP - 50. TREE AND SHRUB TRIMMING AND REMOVALS

The Contractor shall remove the trees and shrubs within the project limits in accordance with all OSHA and ANSI specifications pertaining to tree work and not endanger life or damage adjacent trees or property, either public or private. Trim back all trees, bushes, shrubs, etc. as necessary to complete the work. Trimming shall be incidental to the work item being completed and no additional payment shall be made. No trimming shall be allowed unless approved by the Engineer. If trimming occurs, the Contractor shall clean up the trimming site and all debris shall be removed and disposed of properly.

In cases where trees are to be removed, if the Contractor utilizes equipment for digging of a stump, care shall be taken to protect surrounding buried utilities from damage.

All stumps and roots shall be removed by digging, cutting, or grinding to a depth sufficient for construction of planned improvements or a minimum of 6 inches below the top of existing or planned curb and gutter grade for trees removed in boulevard areas.

All stump shavings, twigs, and other organic debris shall be removed. These materials shall not remain on site and in no case be incorporated into the subgrade or placed onto private property. Backfill all areas where stumps and roots have been removed to the level of the adjoining grade with topsoil. The topsoil shall be properly leveled and lightly compacted, so as to ensure a minimum of settlement. All adjacent disturbed areas and areas where backfill material was placed shall be seeded per the requirements of Section 02910.

The Contractor shall not cut tree roots or trim tree branches on trees that are not being removed without the approval of the City Forester or the Engineer. Trees shall not be removed until marked with a painted "X" by the Engineer.

SP - 51. IRRIGATION SYSTEM RESTORATION AND IMPROVEMENTS

Contractor shall be responsible for installation of an irrigation system in the Pavilion Courtyard area as shown in the Plans. This includes, but is not limited to, the installation of irrigation vaults, sprinkler heads, and other irrigation infrastructure to finished grade conditions, and connection to existing irrigation supply line. Existing irrigation systems that are disturbed shall be restored to original or better condition unless otherwise directed in the plans or by the Engineer. Payment for work identified shall be made under the associated bid items.

SP - 52. EXPLANATION OF METHOD OF MEASUREMENT AND PAYMENT

The following Special Provision clarifies the method of measurement and payment for those items that necessitate further information or are not included within the Montana Public Works Standard Specifications. All quantity measurements will be completed by the neat line method according to the Plans and Specifications. Bid items not included within this Special Provision shall be measured and paid for according to Montana Public Works Standard Specifications. No other bid items are to be included for the work beyond those included in the bid form to provide a complete project meeting the intent of the plans. All Work not included within the bid items on the bid form is to be considered incidental to the bid items provided.

Bid Items 101, 1101, & 2101- Mobilization/Demobilization - Twenty five percent (25%) of the amount bid for mobilization/demobilization shall be paid when five percent (5%) of the contract amount is paid for contract items and for invoiced materials in storage. Subsequent mobilization/demobilization payments shall be made based on the percent of construction completed, excluding previous mobilization/ demobilization payments.

Mobilization shall consist of preparatory work and operations performed by the Contractor including, but not limited to, those necessary for the movement of his personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings, and other facilities necessary for all work on the project; and for other work and operations that must be performed or costs incurred before beginning work on the various items on the project site.

Mobilization/demobilization costs for subcontracted work shall be considered to be included. Mobilization for this project shall also include submission and approval of the Contractor's

Traffic Control Plan and Quality Control Plan. No payment shall be made for mobilization/demobilization until these plans are reviewed and approved by the Owner.

Bid Items 102, 1102, & 2102 - Taxes, Bonds, Insurance - The lump sum (LS) bid for Taxes, Bonds and Insurance shall be paid on the first progress payment one hundred percent (100%) upon mobilization to begin construction of a particular schedule, only if the bid price for this item is less than five percent (5%) of the total price of that schedule. For that portion of the taxes, bonds and insurance greater than five percent (5%), if any, payment shall be made in increments on the basis of the percentage of work completed of each progress payment for that schedule.

Bid Items 103, 1103, & 2103 - Construction Surveying - This item will be paid on a lump sum (LS) basis. Progress payments shall be made to the Contractor in proportion to total construction completed.

Bid Items 104, 1104, & 2104 - Construction Traffic Control - This item will be paid on a lump sum (LS) basis. Progress payments shall be made to the Contractor in proportion to total construction completed.

Bid Items 105 & 2105 - SWPPP Administration - Payment for this bid item shall include all permit, monitoring, and reporting fees, adherence to SWPPP water quality requirements associated with all construction activities, including dewatering, and shall be 25% on the initial pay application. Subsequent payments shall be made based on the percent of construction completed, excluding previous payments.

Bid Item 106 - Miscellaneous Force Account - Payment for this item shall be based on approved Engineer's Field Order - Force Account prepared by the ENGINEER in accordance with the General Conditions Article 11 - Changes to the Contract.

Bid Items 107 & 2106 - Miscellaneous Demo Items - Payment for this bid item will be full compensation for removing and reinstalling or relocating, at the direction of the Owner, miscellaneous items within the Work area. These items shall include, but not be limited to, items listed within Engineering Plans without a specific bid item to complete said demolition, removal of existing block retaining walls, temporarily relocating ticket booths, sheds, and dumpsters, removing and reinstalling existing boulders, Jersey Barriers, bollards, and other non-permanent structures that may impact completion of the work. The contract price for the various components of this work shall include all miscellaneous labor, tools, equipment use, temporary storage, and other incidentals that may be required. This item will be paid on a lump sum (LS) basis to be requested at the completion of site demo work.

Bid Items 108 & 2107 - Exploratory Excavation - Measurement of this bid item shall be made for the actual time, to the nearest one-half hour, during which equipment is used (authorized prior to the Work or directed by the Engineer) for exploratory excavation and backfilling operations as documented by the RPR. Payment will be made at the unit prices as identified in the Special Provisions, which price shall include the equipment and labor used for the digging and backfilling operation, including excavation and compaction equipment and labor required for the exploratory excavation including no more than one operator and one laborer.

Bid Items 109 & 2108 - CCTV Inspection - Payment for CCTV inspections shall be on an hourly basis based on the approved CCTV inspection subcontractor's standard hourly rates. Payment

shall include all equipment, labor, and materials to complete CCTV inspection as identified herein.

Bid Items 110 & 2109 - Private Utility Locating - Payment for Private Utility Locating shall be on an hourly basis, based on the approved locating subcontractor's standard hourly rates. Payment shall include all equipment, labor, and materials to complete the location of private utilities, as identified herein.

Bid Items 111 & 2110 - Underground Utility Crossing - This bid item shall include each existing underground utility crossing to remain in place during construction in accordance with the locations shown on the Construction Plans. Compensation includes labor, tools, materials, equipment, and incidentals necessary to protect and support the existing utilities during construction.

Measurement will be by numerical count of underground utility crossings. Payment for this bid item shall be at the contract bid price per each (EA), which price shall include full compensation for production slowdown, locating utilities, costs to repair any utility damaged by the Contractor when such utility is shown on the plans, of a known location, or not shown on the plans or of an unknown location but located in the field, utility relocation costs to the utility company if relocation is requested by the Contractor, and all other costs associated with the utility crossing, including excavation, removal and replacement of unsuitable backfill materials, backfill, dewatering, hand compaction, specified sand materials, and appurtenances necessary to complete the bid item. No payment will be made for utility crossings which are either to be abandoned as a result of this Project or have been abandoned prior to the start of this Project. Payment will be made for utility crossings which are a part of this Project and are constructed prior to the water/sewer/storm line installation. No separate payment will be made for crossing utilities that are lowered as part of this contract and paid for under separate bid items. If multiple utilities lie within 12 inches of one or more other utilities, payment for one utility crossing will be made. If multiple utilities are closer than 12 inches and the total width is greater than 12 inches, payment will be made to each 1-foot width containing multiple utilities.

There shall be no measurement and payment for utilities that are crossed over (whether exposed or not). There shall be no measurement and payment of surface or overhead utility crossings, nor of services of the facility type being replaced. There shall be no measurement and payment of private lawn sprinkler systems if encountered. These shall be considered incidental to the work. No measurement will be made for crossing utilities installed by Contractor.

No payment shall be made for paralleling adjacent utilities, regardless of the space horizontally or vertically between the existing utility and the improvement and shall be considered incidental to the work.

If the paralleled utility crosses from one side of the trench to the other side of the trench for the improvements, it will be paid for as a utility crossing. If the utility runs diagonally, it will be paid the same as a perpendicular cross of the utility.

Bid Item 112- Raise/Lower Existing Utility - Bid Item shall be measured and paid for on an each (EA) dry utility raised or lowered, complete in place, which price and payment shall constitute full compensation for all asphalt removal, excavation and backfill, furnishing and

installing all materials required (including new conduit and reconnection if existing utility conduit must be replaced), crushed base, asphalt patch, compaction, labor, tools and incidentals necessary to complete the item.

Bid Item 113 - Relocate Existing Utility - Bid Item shall be measured and paid for on a lineal foot (LF) basis for relocated dry utility, complete in place, which price and payment shall constitute full compensation for all asphalt removal, excavation and backfill, furnishing and installing all materials required (including new conduit and reconnection if existing utility conduit must be replaced), crushed base, asphalt patch, compaction, labor, tools and incidentals necessary to complete the item. Lineal foot measurement will be on the alignment of the relocated dry utility.

Bid Item 114 - Tree Removal - Class 1 - Measurement of trees for classification shall be made four (4) feet above the ground, or where more than one stem exists below four (4) feet above the ground, to the lowest stem.

No separate payment will be made for removal of trees less than 10 inches in circumference. The cost of performing this work shall be included in other items in the contract. Grinding or removal of stumps found on the property is incidental to tree removal bid item. Measurement of larger trees shall be by four ranges of circumference and classified as follows:

- Over 10 inches up to and including 36 inches, Class I
- Over 36 inches up to and including 72 inches, Class II
- Over 72 inches up to and including 126 inches, Class III
- Over 126 inches, Class IV

The unit contract price per each (EA) tree shall be full compensation for furnishing all labor, equipment, and material to completely remove and dispose of the tree, removal and grinding of tree stump and roots, topsoil, placement and raking of topsoil, and seeding or sodding in accordance with these specifications and as directed by the Engineer.

Bid Item 117 - Rock Hammer - Measurement of this bid item shall be made on an hourly basis (HR) for the actual time, to the nearest one-half hour, during which equipment is used (authorized prior to the Work or as directed by the Engineer) for rock hammer operations as documented by the RPR. Payment will be made at the unit prices as identified in the Special Provisions, which shall include all work required for the rock hammer operation, including all excavation equipment, rentals, and labor required, including no more than one operator.

Bid Item 119 - 4" Asphalt Pavement - 10" Crushed Base - Payment for this bid item is full compensation for all materials, equipment, tools, labor, and the performance of all work and incidentals necessary to complete the bid item. Payment for section will include, but not be limited to subgrade preparation, geosynthetic, crushed base course, and asphalt section. Measurement shall be the square yard (SY) of accepted area. Contractor is to refer to plan details and geotechnical report for optional sections for this area. No additional payment will be made if a different section is used.

Bid Items 120 & 1105 - 4" Asphalt Millings - Payment for these bid items is full compensation for furnishing, loading, hauling, spreading, shaping, watering, and compacting the asphalt millings, and for all materials, equipment, tools, labor, and the performance of all work and

incidentals necessary to complete the bid item. Measurement shall be the square yard (SY) of accepted area.

Bid Item 122 - Sub-excavation/Replacement Below Subgrade - Payment for this bid item shall include, but not be limited to, equipment, excavation, geogrid, geosynthetic fabric, crushed base, and all work necessary to provide complete in place repaired unstable subgrade section as identified in the Geotechnical Report. This bid item shall be measured on a square yard (SY) basis. This bid item will provide for only the thickened portion of the paving section with the original paving section (crushed base, haul and placement, and asphalt) being quantified in the original bid items. Any soft or failed areas that fall within trenched areas are excluded from this bid item.

Bid Item 123 - Concrete Removal - This item is measured by the square yard (SY) of all Portland cement concrete identified to be removed on the plans or identified in the field by the Engineer. Payment for this bid item is full compensation for all equipment, tools, labor, hauling, disposal, and incidentals necessary to complete the item.

Bid Item 124 - Combined Concrete Curb and Gutter - Payment for this bid item is full compensation for all materials, excavation, crushed base course material, compaction, hot and cold weather curing, expansion joint material, epoxy coated dowels, all equipment, tools, labor, and for the performance of all work and incidentals necessary to complete the item. This item, inclusive of spill curb and catch curb, is measured along the flow line of the gutter and paid for by the lineal foot (LF) of combined curb and gutter in place.

Bid Items 125 & 2111 - Concrete Sidewalk - This item is measured and paid for by the square foot (SF) at the contract unit price for "Concrete Sidewalk". Price and payment are full compensation for all material, excavation, crushed base course material, backfill, hot and cold weather curing of concrete, isolation joint material, equipment, tools, and labor, and for the performance of all work and incidentals necessary to complete this item.

Bid Item 126 - Concrete Ribbon - Payment for this bid item is full compensation for all excavation, compacted base, materials, curing of concrete, painting face of ribbon with primer, all pre-molded mastic material for expansion joints, contraction joints, steel dowels and sleeves, all equipment, tools, labor, and for the performance of all work and incidentals necessary to complete the item. Payment for this bid item is per lineal foot (LF) of concrete ribbon installed. Measurement is the horizontal distance measured along the middle of the concrete ribbon.

Bid Item 127 - Concrete Valley Gutters - This item is measured and paid for by the square foot (SF) at the contract unit price for "Concrete Valley Gutters". Price and payment is full compensation for all material, excavation, crushed base course material, backfill, hot and cold weather curing of concrete, isolation joint material, equipment, tools and labor, and for the performance of all work and incidentals necessary to complete this item.

Bid Item 128 - ADA Ramp - This item shall be measured and paid for per square foot (SF) of ramp completed and accepted in place. Measurement shall be based on concrete placed behind top back of curb, with the curb being paid under a separate bid item. This item shall include all materials, including concrete, truncated dome mats, pre-molded mastic material for expansion joints, sealant for all mastic material, construction joints; curing of concrete; excavation, placing and compaction of crushed base, subgrade preparation; and all equipment,

tools, and labor for the performance of all work and incidentals necessary to complete the item in accordance with standard specification and Special Provision direction.

Bid Items 129 & 130 - Service Station - Bid Items shall be measured and paid for on a per each (EA) basis for the Service Station surfacing completed and accepted. The price includes all gravel, concrete, material, equipment, and labor required to complete the surfacing in-place as shown in the Engineering Plans. Sanitary cleanouts, bollards, electrical components, and yard hydrants will be paid separately under the appropriate associated bid items.

Bid Item 131 - 4" Steel Bollard - Payment for this bid item shall include excavation, steel bollard, installation of materials, concrete, rebar, primer and yellow paint, and all other incidentals to provide a complete in-place steel bollard. Bollard shall be measured on a per each (EA) basis that will be counted as each singular metal bollard structure.

Bid Item 132 - Seeding - Seeding shall follow the requirements of MPWSS 02910, with the exception of being measured as lump sum (LS).

Bid Item 133 - Plant Tree - This item shall be measured and paid for by the number (EA) of trees planted as specified in the Plans.

Bid Item 134 - Pond Supply Line - Payment for this bid item is full compensation for furnishing and installing all materials required (including 2" line, isolation valves, connection to existing, pipe screen, surfacing patch), labor, tools and incidentals necessary to complete the item. Measurement shall be on a lump sum (LS) basis.

Bid Item 135 - Irrigation Supply Line - Payment for this bid item is full compensation for furnishing and installing all materials required (including 2" line, sprinkler heads, valve boxes, connection to existing), labor, tools and incidentals necessary to complete the item. Measurement shall be on a lineal foot (LF) basis.

Bid Item 136 - Irrigation System Restoration - This item shall be measured and paid on a lump sum (LS) basis. This item shall include all materials, labor, and equipment to restore existing irrigation systems within the work area.

Bid Item 207 - 2'X3' Curb Inlet - Bid item shall be measured and paid for by the number (EA) of 2'X3' Curb Inlets installed, complete in place, at the contract unit price bid for the various types of inlets listed in the Contract documents, which price and payment shall constitute full compensation for all excavation and backfill, furnishing and installing all materials required (including grates), compaction, grading, labor, tools and incidentals necessary to complete the item.

Bid Item 208 - 2'X3' Curb Inlet with 72" Dia. Manhole - Bid item shall be measured and paid for by the number (EA) of 2'X3' Curb Inlet with 72" Dia. Manholes installed, complete in place, at the contract unit price bid for the various types of inlets listed in the Contract documents, which price and payment shall constitute full compensation for all excavation and backfill, furnishing and installing all materials required (including grates), compaction, grading, labor, tools and incidentals necessary to complete the item.

Bid Item 209 - 48" Dia. Manhole with Small Flat Inlet - Bid Item shall be measured and paid for by the number (EA) of 48" diameter manholes with Small Flat Inlets installed, complete in

place, at the contract unit price bid for the various types of inlets listed in the Contract documents, which price and payment shall constitute full compensation for all excavation and backfill, furnishing and installing all materials required (including grates and concrete collar), compaction, grading, labor, tools and incidentals necessary to complete the item.

Bid Item 210 - Trench Drain - Payment for this bid item is full compensation for all materials, equipment, tools, labor, and for the performance of all work including, but not limited to, furnishing and installing a removable grate, excavation, crushed base, concrete support structure, mounting steel, and all incidentals required to provide a complete in place Removable Grate. Measurement shall be on a lump sum (LS) basis.

Bid Items 301 & 2301 - Connect to Existing Water Main - Shall include each connection to existing water lines in the distribution system. Measurement will be by numerical count (EA) of connections. Payment shall include full compensation for cutting existing water main, dewatering and cleaning existing water main, furnishing and using all temporary plugs, disinfectant to prevent contamination of the existing water main, connecting the new water main to the existing water main, pipe specials, gaskets, fittings, joints, hardware, hot tapping sleeves, curb stops, gravel drains, thrust blocks, protective coating, restrained joints, plugging the abandoned water main with concrete, pavement saw cutting, leak testing, modifying existing fittings, and furnishing all labor, material, and equipment necessary to complete the work. Payment for installation of a tee or cross into the existing water main shall be considered as one connection. Contractor shall be aware that locations of existing water mains are approximate based upon field locates and shall be field verified by Contractor prior to Work.

Bid Items 302, 2302 & 2303 - XX" Water Lines - Measurement of water mains is made in lineal feet along the centerline of pipe through all valves, fittings and appurtenances. Payment for water main will be made at the contract unit price bid per lineal foot (LF) of the various sizes called for, which includes furnishing and installing pipe, furnishing and placing Type 1 pipe bedding, trench excavation and backfill, cleaning, testing and disinfecting the water main, all materials, tools, labor and equipment necessary to complete the item and all incidental work related thereto.

Bid Items 303, 304 & 305 - XX" Water Mains - Measurement of water mains is made in lineal feet along the centerline of pipe through all valves, fittings and appurtenances. Payment for water main will be made at the contract unit price bid per lineal foot (LF) of the various sizes called for, which includes furnishing and installing pipe, furnishing and placing Type 1 pipe bedding, trench excavation and backfill, cleaning, testing and disinfecting the water main, all materials, tools, labor and equipment necessary to complete the item and all incidental work related thereto.

Bid Items 306, 307, & 2304 - XX" Valves - Measurement of water valves is made by numerical count of the sizes and types of valves listed in the Contract Documents. Payment for water valves is made at the contract unit price bid each (EA); which includes furnishing and installing the valve and valve box, all excavation, backfill, and special compaction required for the installation, thrust and anchor blocking (if required), and all other work necessary or incidental for completion of the item.

Bid Items 308, 309, 310, 2305, 2306, & 2307 - XX" Fittings - Measurement of water main fittings is by numerical count of the various types listed in the Contract Documents. Payment for fittings is made at the contract unit price bid for each (EA) fitting, and includes furnishing

and installing the fittings as required, thrust blocking and any other work necessary or incidental for completion of the item.

Bid Items 311 & 312 - 1" Water Service Connection to Buildings - Measurement is by each (EA) water service(s) connection to existing building and shall include all labor, materials, tools, equipment, and any other work and incidentals necessary to locate services, coordinate with Owner, restore surfacing, and provide a complete in-place connection. Service alignments shown are not final and Contractor may modify location in field with Engineer approval. No additional payment will be made for Contractor requested alignment modifications.

Bid Item 2308 - Connection to Existing Service - Measurement is by each (EA) connection to existing water service(s) and shall include all labor, materials, tools, equipment, and any other work and incidentals necessary to locate services, coordinate with Owner, and provide a complete in-place connection. Service alignments shown are not final and Contractor may modify location in field with Engineer approval. No additional payment will be made for Contractor requested alignment modifications.

Bid Items 313 & 2309 - Yard Hydrant - Bid Item shall be measured and paid per each (EA) yard hydrant assembly installed and accepted in-place. The price includes all saddles, corporation stops, piping, fittings, equipment, labor, and any other work or materials necessary to complete installation from the water main to the yard hydrant location.

Bid Item 314 - 6" Hydrant Assembly (Includes Risers) - Measurement of fire hydrant assemblies is by numerical count. Payment is made at the contract unit price bid each (EA), which includes furnishing and installing the fire hydrant and auxiliary gate valve, fitting required to connect to the main (bend, tee, valve), piping from main waterline to hydrant, riser or hydrant extension, all excavation, backfill, and special compaction required for the installation, thrust and anchor blocking, drain gravel, and all other work necessary or incidental for completion of the item.

Bid Item 315 - Removal of Existing Hydrant Assembly - Bid Item shall be measured and paid per each (EA) hydrant assembly removed. The price includes all material, equipment, and labor to remove, abandon, cap existing line, and dispose of the hydrant assembly.

Bid Item 317 - Temporary Water Supply - Measurement for this item shall be as a percentage of the contract amount completed and shall be paid as a lump sum (LS), with the percentage based on the amount of work complete to date. Payment shall be full compensation for providing temporary water supply including pump system, pipe, pump operating expenses, and all necessary maintenance, equipment, labor, materials, tools, supplies, testing, and incidentals necessary to complete the work.

Bid Item 401 - Connect to Existing Sanitary Sewer Manhole - Measurement and payment for this item shall be made on a per each (EA) basis and include, but not be limited to, all labor, materials, and equipment necessary to provide a complete in-place connection. Contractor shall be aware that locations of existing sanitary sewer mains are approximate based upon field locates and shall be field verified by Contractor prior to Work.

Bid Item 408 - Sanitary Cleanout - Bid Item shall be measured and paid per each (EA) connection to the main with one (1) cleanout installed and accepted in-place. The price

includes all fittings, piping, material, equipment, labor, and incidentals necessary to complete installation from the sewer main to the sanitary cleanout location.

Bid Item 409 - Temporary Sanitary Sewer Bypass Pumping - Measurement for this item shall be as a percentage of the contract amount completed and shall be paid as a lump sum (LS), with the percentage based on the amount of work complete to date. No separate payment shall be made if the existing sanitary sewer system is used as the Sanitary Sewer Bypass System. Payment shall be full compensation for providing sanitary sewer bypass, including pump system, pipe, pump operating expenses, and all necessary maintenance of the sanitary sewer bypass system, equipment, labor, materials, tools, supplies, testing, and incidentals necessary to complete the work.

END SECTION 00910

CONTRACTOR'S INSURANCE GUIDE

Commercial General Liability

_____	Occurrence Policy	
_____	Claims Made Policy (follow-up date _____)	
_____	Each Occurrence	\$1,500,000.00
_____	General Aggregate Including Umbrella	\$3,000,000.00
_____	Products/Completed Operations Aggregate	\$3,000,000.00

Coverages

_____	Premises/Operations	
_____	Products/Completed Operations	
_____	Contractual Liability	
_____	Underground	
_____	Explosion and Collapse	PER PROJECT AGGREGATE ENDORSEMENT
_____	Blasting	
_____	Independent Contractors Coverages	
_____	Broad Form Property Damage	
_____	Personal Injury	
_____	Property Damaged Deductible (not to exceed \$5,000.00) \$ _____	
_____	Railroad Protective Policy	
	<u>Commercial Automobile</u>	
_____	All-owned, adequate limits including umbrella	\$1,500,000.00
_____	Hired Automobile Liability including umbrella	\$1,500,000.00
_____	Non-Owned Automobile Liability including umbrella	\$1,500,000.00
	<u>Workers' Compensation</u>	
_____	Occupational Accident/Disease	Statutory
_____	Employer's Liability including umbrella	\$1,500,000.00
	(Attach certificate)	
	<u>Other Requirements</u>	
_____	Company Rating (A.M. Best) B+ VI or Better	
_____	30-Day Cancellation Clause	
	<u>Additional Insured's</u>	
_____	Owner/Architect/Engineer Named as Additional Insured (all named as an additional primary and non-contributory insured.)	

Builder's Risk and Other Property Insurance

_____	<u>Coverages</u>	
_____	Physical loss or damage	
_____	Temporary buildings, materials and equipment stored and in transit	
_____	As insured property; work and all materials, supplies, machinery, apparatus, equipment, fixtures, other property required to complete the Work	
_____	Expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects)	
_____	Maintained in effect until Work is complete	
	<u>Additional Insured's</u>	
_____	Owner/Architect/Engineer/Contractor/Subcontractor (of every tier) named as Additional Insured (all named as an additional primary and non-contributory insured.)	

Owners and Contractors Protective

_____	\$1,000,000.00 Each Occurrence, \$2,000,000.00 Aggregate	
	Circle One (Endorsement) or (Separate Policy)	
	A separate policy shall have Yellowstone County as the named insured. Attach Certificate to this checklist.	

DISADVANTAGED BUSINESS ENTERPRISE UTILIZATION

1. General

Owner and Contractor/Bidder are required to make good faith efforts with adequate documentation to include disadvantaged business enterprises (DBEs) as subcontractors or suppliers on this project. More detailed regulations are published under 40 CFR Part 33.

2. DBE Certification

DBEs include minority business enterprises (MBEs) and women's business enterprises (WBEs). MBEs and WBEs must be certified as such in order to participate as a DBE. Certification can be through the Montana Department of Transportation (MDT) under its DBE program, through the Small Business Administration (SBA) under its 8(a) Business Development Program or its Small Disadvantaged Business (SDB) Program, or through other valid government or private organizations. SBA maintains a database of certified firms at http://dsbs.sba.gov/dsbs/search/dsp_dsbs.cfm.

3. Good Faith Efforts

Owner and Contractor/Bidder must make the following good faith efforts when soliciting contractors, subcontractors, or suppliers to procure construction, equipment, services, and supplies on this project:

(a) Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.

(b) Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

(c) Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.

(d) Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.

(e) If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs (a) through (e) of this section.

4. Documentation for Bidder to Submit with Bid

(a) Contractor/Bidder shall submit the DBE Good Faith Effort Documentation form (use the form provided), and supporting documentation, with its bid to demonstrate compliance with good faith effort requirements.

(b) Contractor/Bidder shall submit its Bidders List with its bid, using the form provided. It shall include all entities that provided Contractor/Bidder a bid or quote on this project. It shall include both DBE and non-DBE bidders. Required information for each entity includes 1) entity's name and point of contact, 2) entity's mailing address, telephone number, and e-mail address, 3) procurement on which entity bid or quoted and when, and 4) entity's status as a MBE/WBE or non-MBE/WBE.

(c) Contractor/Bidder shall have each DBE subcontractor/supplier it proposes to use complete EPA Form 6100-3—DBE Program Subcontractor Performance Form and shall include all completed forms as part of the bid or proposal package. This form is not needed if Contractor/Bidder has no DBE participation.

(d) Contractor/Bidder shall complete and submit EPA Form 6100-4—DBE Program Subcontractor Utilization Form as part of the bid or proposal package. This form is not needed if Contractor/Bidder has no DBE participation.

5. Other Requirements and Information

(a) Contractor must pay its subcontractors for satisfactory performance no more than 30 days from Contractor's receipt of payment from Owner

(b) Contractor must notify Owner in writing prior to any termination of a DBE subcontractor for Contractor's convenience.

(c) If a DBE subcontractor fails to complete work under the subcontract for any reason, Contractor must employ the six good faith efforts if soliciting a replacement subcontractor.

(d) Contractor must employ the six good faith efforts even if Contractor has achieved its fair share objectives.

(e) Contractor must provide EPA Form 6100- 2—DBE Program Subcontractor Participation Form to all of its DBE subcontractors. EPA Form 6100-2 gives a DBE subcontractor the opportunity to describe the work the DBE subcontractor received from the prime contractor, how much the DBE subcontractor was paid and any other concerns the DBE subcontractor might have, for example reasons why the DBE subcontractor believes it was terminated by the prime contractor. DBE subcontractors may send completed copies of EPA Form 6100-2 directly to the appropriate EPA DBE Coordinator.

(f) Copies of EPA Form 6100-2—DBE Program Subcontractor Participation Form, EPA Form 6100-3—DBE Program Subcontractor Performance Form, and EPA Form 6100-4—DBE Program Subcontractor Utilization Form may be obtained from EPA OSDBU's Home Page on the Internet or directly from EPA OSDBU. Copies of these forms are also attached to this contract.

DBE Good Faith Effort Documentation

Project: _____

Bidder: _____

Bid date: _____

Bidder: This form (2 pages) must be turned in with your bid to document your good faith effort to solicit DBE participation. Advertisements to solicit DBE quotes are still encouraged, but are not a substitute for direct contacts by fax, mail, e-mail, or phone. Make additional copies of each page if needed. Attach additional documentation (faxes, letters, e-mails, quotes) or explanation if needed to back up any item.

In table below, list all areas of opportunity for subcontractors and suppliers to provide quotes for your consideration on this project. You do not need to list areas you will not consider quotes because you self perform those areas.

Subcontract/supply opportunity	# of Potential DBEs (see note #1)	# of DBEs you contacted (see note #2)	Who will perform this work or supply this material? (see note #3)	Is this a certified DBE?
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No

Note #1: Those listed in MDT DBE Directory, plus any other certified DBEs you will consider, such as from SBA database or surrounding state DOT DBE lists.

Note #2: Contact a minimum of 3 DBEs for each subcontract/supply opportunity (or all DBEs if less than 3 in MDT DBE Directory). Document all contacts on table on next page.

Note #3: You can enter "not yet determined" only if there are no potential DBEs for that item; otherwise you must make a decision on which subcontractor/supplier you are using. No "bid shopping" is allowed after the bid date if it may be detrimental to a DBE.

In table below, document all DBEs contacted. Contact a minimum of 3 DBEs for each subcontract/supply opportunity (or all DBEs if less than 3 in MDT DBE Directory). Make additional copies of page as needed.

DBE name	Potential subcontract/supply scope	Contact person name	Contact method (fax/ mail/e-mail: attach copies; phone: list ph#)	Contact date (min 7 days before bid)	Quote given?	Using? (see note #4)	Reason not using	Comments or additional explanation
			___Fax ___Mail ___E-mail ___Phone ph#_____		___Yes ___No	___Yes ___No		
			___Fax ___Mail ___E-mail ___Phone ph#_____		___Yes ___No	___Yes ___No		
			___Fax ___Mail ___E-mail ___Phone ph#_____		___Yes ___No	___Yes ___No		
			___Fax ___Mail ___E-mail ___Phone ph#_____		___Yes ___No	___Yes ___No		
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			___Fax ___Mail ___E-mail ___Phone ph#_____		___Yes ___No	___Yes ___No		
			___Fax ___Mail ___E-mail ___Phone ph#_____		___Yes ___No	___Yes ___No		

Note #4: For each DBE that you are using, submit filled out forms 6100-3 and 6100-4 with bid, and give form 6100-2 to DBE.

Bidders List

Project: _____

Owner: _____

Bid Date: _____

Contractor/Bidder should list itself first. Then list all entities that provided Contractor/Bidder a bid or quote on this project. Include all subcontractors and suppliers, both DBE and non-DBE, regardless of whether you propose to use them. Add additional sheets as necessary.

Bidding entity name:

Contact person name:

Mailing address:

Telephone:

E-mail:

Work bid: bid contract as prime

Status: ___MBE ___WBE ___non-DBE

Bidding entity name:

Contact person name:

Mailing address:

Telephone:

E-mail:

Work bid:

Status: ___MBE ___WBE ___non-DBE

Bidding entity name:

Contact person name:

Mailing address:

Telephone:

E-mail:

Work bid:

Status: ___MBE ___WBE ___non-DBE

Bidding entity name:

Contact person name:

Mailing address:

Telephone:

E-mail:

Work bid:

Status: ___MBE ___WBE ___non-DBE

Bidding entity name:
Contact person name:
Mailing address:
Telephone:
E-mail:
Work bid:
Status: ___MBE ___WBE ___non-DBE

Bidding entity name:
Contact person name:
Mailing address:
Telephone:
E-mail:
Work bid:
Status: ___MBE ___WBE ___non-DBE

Bidding entity name:
Contact person name:
Mailing address:
Telephone:
E-mail:
Work bid:
Status: ___MBE ___WBE ___non-DBE

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Contact person name:
Mailing address:
Telephone:
E-mail:
Work bid:
Status: ___MBE ___WBE ___non-DBE

Bidding entity name:
Contact person name:
Mailing address:
Telephone:
E-mail:
Work bid:
Status: ___MBE ___WBE ___non-DBE



Environmental
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

**Disadvantaged Business Enterprise Program
DBE Subcontractor Participation Form**

NAME OF SUBCONTRACTOR ¹	PROJECT NAME
ADDRESS	CONTRACT NO.
TELEPHONE NO.	E-MAIL ADDRESS
PRIME CONTRACTOR NAME	

Please use the space below to report any concerns regarding the above EPA-funded project (e.g., reason for termination by prime contractor, late payment, etc.).

CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES RECEIVED FROM THE PRIME CONTRACTOR	AMOUNT SUBCONTRACTOR WAS PAID BY PRIME CONTRACTOR

_____	_____
Subcontractor Signature	Title/Date

¹Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.



Environmental
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

Disadvantaged Business Enterprise Program DBE Subcontractor Participation Form

The public reporting and recordkeeping burden for this collection of information is estimated to average fifteen (15) minutes. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Participation Form to this address.



Environmental
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

**Disadvantaged Business Enterprise Program
DBE Subcontractor Performance Form**

NAME OF SUBCONTRACTOR ¹		PROJECT NAME
ADDRESS		BID/PROPOSAL NO.
TELEPHONE NO.		E-MAIL ADDRESS
PRIME CONTRACTOR NAME		
CONTRACT ITEM NO.	ITEM OF WORK OR DESCRIPTION OF SERVICES BID TO PRIME	PRICE OF WORK SUBMITTED TO PRIME CONTRACTOR
Currently certified as an MBE or WBE under EPA's DBE Program? ____ Yes ____ No		
_____ Signature of Prime Contractor		_____ Date
_____ Print Name		_____ Title
_____ Signature of Subcontractor		_____ Date
_____ Print Name		_____ Title

¹Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.



Environmental
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

Disadvantaged Business Enterprise Program DBE Subcontractor Performance Form

The public reporting and recordkeeping burden for this collection of information is estimated to average fifteen (15) minutes. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Performance Form to this address.



Environmental
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

**Disadvantaged Business Enterprise Program
DBE Subcontractor Utilization Form**

BID/PROPOSAL NO.	PROJECT NAME
NAME OF PRIME BIDDER/PROPOSER	E-MAIL ADDRESS
ADDRESS	
TELEPHONE NO.	FAX NO.

The following subcontractors¹ will be used on this project:

COMPANY NAME, ADDRESS, PHONE NUMBER, AND E-MAIL ADDRESS	TYPE OF WORK TO BE PERFORMED	ESTIMATE D DOLLAR AMOUNT	CURRENTLY CERTIFIED AS AN MBE OR WBE?

I certify under penalty of perjury that the forgoing statements are true and correct. In the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302(c).

Signature Of Prime Contractor

Date

Print Name

Title

¹Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.



Environmental
Protection Agency

OMB Control No: _____
Approved: _____
Approval Expires: _____

Disadvantaged Business Enterprise Program DBE Subcontractor Utilization Form

The public reporting and recordkeeping burden for this collection of information is estimated to average fifteen (15) minutes. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA DBE Subcontractor Utilization Form to this address.



United States Department of Agriculture

AD-1048

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
 Lower Tier Covered Transactions**

The following statement is made in accordance with the Privacy Act of 1974 (5 U.S.C. § 552(a), as amended). This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, and 2 C.F.R. §§ 180.300, 180.355, Participants' responsibilities. The regulations were amended and published on August 31, 2005, in 70 Fed. Reg. 51865-51880. Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction.

According to the Paperwork Reduction Act of 1995 an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0505-0027. The time required to complete this information collection is estimated to average 0.25 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The provisions of appropriate criminal and civil fraud privacy, and other statutes may be applicable to the information provided.

(Read Instructions On Page Two Before Completing Certification)

- A. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency;
- B. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

ORGANIZATION NAME

PR/AWARD NUMBER OR PROJECT NAME

NAME(S) AND TITLE(S) OF AUTHORIZED REPRESENTATIVE(S)

SIGNATURE(S)

DATE

Instructions for Certification

- (1) By signing and submitting this form, the prospective lower tier participant is providing the certification set out on page 1 in accordance with these instructions.
- (2) The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension or debarment.
- (3) The prospective lower tier participant shall provide immediate written notice to the person(s) to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- (4) The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549, at 2 C.F.R. Parts 180 and 417. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.
- (5) The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- (6) The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- (7) A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the System for Award Management (SAM) database.
- (8) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- (9) Except for transactions authorized under paragraph (5) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

GEOTECHNICAL REPORT



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P. O. Box 80190
Billings, Montana 59108-0190
p: 406.652.3930; f: 406.652.3944
www.skgeotechnical.com

January 15, 2024

Project 23-4360G

Mr. Greg Reid, PE
WWC Engineering
Via Email: greid@wwc.com

Dear Mr. Greg Reid:

Re: Geotechnical Evaluation, Proposed East Half Metra Park Improvements, Billings, Montana

We have completed the geotechnical evaluation for the above-referenced project, authorized on September 1, 2023. The purpose of this evaluation was to assist WWC Engineering by providing general soil and groundwater conditions along the proposed utility, pavement, and retaining wall areas to assist them in preparing plans and specifications for the project. This evaluation was completed in general accordance with our proposal to you dated August 24, 2023.

Project Information

General. WWC is assisting Yellowstone County with design of the proposed improvements along the east half of the Metra Park facility. The proposed improvements will consist of installing new water and sewer lines, storm drains, pavement reconstruction and realignment, and a new retaining wall. The east half Metra Park project is broken into three main sections listed below.

- Arena backlot- the portion south of the Arena and just east of the Expo Center.
- Lot 1- the southernmost portion of the area.
- Lot 3B- the easternmost portion of the area.

Scope. Our scope of services for the proposed Metra Park improvements was limited to:

- Conducting thirteen penetration test borings to a depth of 5 feet or 15 feet at the locations shown on the attached sketch along the proposed improvement areas.
- Conducting two test pits to a depth of 10 feet along the proposed retaining wall area.
- Returning the samples to our laboratory for visual classification and logging by an Engineering Geologist.
- Conducting laboratory tests, including moisture content, Atterberg limits, grain size analysis, and corrosion.

- Analyzing the results and formulating recommendations for utilities, pavement design, and retaining wall design.
- Submitting a geotechnical evaluation report containing logs of the borings, showing subsurface soil and groundwater conditions at each boring location, our analysis of the field and laboratory tests, and recommendations for utilities, pavement, and the retaining wall.

Documents Provided. WWC provided us with a map showing the general location of the proposed improvements. This drawing was used to establish desired boring locations for the project, as well as our Site and Boring Location Sketches attached to this report. The boring locations were generally selected by WWC to avoid numerous existing underground utilities associated with previous developments.

Locations and Elevations. Boring locations ST-22 through ST-36 were selected and staked by SK Geotechnical and WWC personnel. Borings are numbered ST-22 through ST-36 to avoid confusion with the borings performed for the upper and main parking lot projects. Some borings had to be moved due to utility issues. During staking, it was decided to change the two 10-foot test pits to 15-foot soil borings to primarily avoid tearing up the existing asphalt in the vicinity of the Boring ST-35 as well as the inherent disturbance associated with excavating test pits.

Site Conditions. The proposed improvements will be constructed within active lots and roadways throughout the Metra Park in Billings, Montana. The lots and roads are currently paved or have gravel surfacing. Previous developments and projects have occurred at the Metra Park facility for decades. The grandstand and horse track were recently demolished, and the area has been used for agricultural purposes. Alkali Creek used to run through the facility and the site has likely been used by Yellowstone County for many other purposes. Existing fill associated with these previous developments is prevalent throughout the project.

Results

General. Log of Boring sheets indicating the depth and identification of the various soil strata, the penetration resistance, laboratory test data, and water level information are attached. It should be noted that the depths shown as boundaries between the strata are only approximate. The actual changes may be transitions and the depths of changes vary between borings.

Geologic origins presented for each stratum on the boring logs are based on the soil types, blows per foot, and available common knowledge of the depositional history of the site. According to readily available Geologic Map of the Billings Area, Yellowstone County, Montana, Montana Bureau of Mines and Geology (2002), the project is located within Alluvial Terrace Deposits over the Eagle Creek Sandstone Member. A Partial Geologic Sketch with the approximate project extents is included in the attachments. The general soil profile encountered at the borings was existing fill and pavement underlain by alluvial soils over bedrock. These strata are discussed more below.

Arena Backlot Soils. Borings ST-22 through ST-26, ST-35 and ST-36 were performed in the Arena backlot area. Borings ST-23 and ST-25 were in the existing pavement behind the newer Expo Center and encountered 2 3/4 and 3 inches of asphalt pavement over base course to 2 feet. Borings ST-35 and ST-36 were behind the Arena in older pavement and encountered 3 and 3 1/4 inches of asphalt pavement over base course to 0.8 feet.

Existing fill was encountered in all of the borings beneath the existing pavement or at the surface. The existing fill consisted of silty sand, silty clayey sand, and sandy lean clay to depths ranging from 4 to 6 feet. The existing fill contained concrete, wood, metal, and mulch, indicating it is highly variable. Penetration resistances generally ranged from 8 to 44 blows per foot (BPF) indicating it was loose to dense.

Existing fill behind the Arena also contains boulders. WWC provided us photographs of a recent storm drain trench cutting through the area, and these boulders are up to 4- to 6-feet in diameter. As the photos indicate, hydraulic jackhammers were necessary to break up numerous boulders so they could be removed from the storm drain trench.

Fine grained alluvium consisting of silty clayey sand, silty sand, and sandy lean clay were encountered beneath the existing fill, primarily to the boring termination depths ranging from 5 1/2 to 15 1/2 feet. Penetration resistances in the alluvium ranged from 3 to 11 BPF indicating the sands were loose and the clays were soft. Beneath the alluvium, boring ST-35 encountered decomposed shale consisting of fat clay at a depth of 13 1/2 to 15 1/2 feet. Penetration resistance was 5 BPF indicating the clay was rather soft.

Lot 3B Soils. Borings ST-29, ST-32, ST-33, and ST-34P were performed in the Lot 3B area furthest east portion of the site. Existing fill was encountered in all of the borings to depths ranging from 4 to 7 1/2 feet. The existing fill consisted of silty sand, poorly-graded gravel, silty clayey sand, and silty gravels, and contained wood and metal. Penetration resistances in the existing fill ranged from 4 to 31 BPF indicating it was very loose to dense, but primarily very loose to loose, i.e., not likely compacted when placed.

Beneath the existing fill, Boring ST-29 encountered fine-grained silty clayey sand to the boring's termination depth of 5 1/2 feet. The sand had a penetration resistance of only 3 BPF indicating it was very loose. Borings ST-32, ST-33, and ST-34 encountered coarse-grained silty gravel with sand and cobbles below the existing fill to the boring's termination depths ranging from about 10 to 15 1/2 feet. Penetration resistances in the gravels ranged from 34 BPF to 50 blows for only 2 inches of penetration. These values indicate the silty gravel was medium dense to very dense and contains boulders.

Lot 1 Soils. Borings ST-27, ST-28, ST-30, and ST-31 were performed in the Lot 1 area, the furthest south portion of the site. Existing fill was encountered in all of the borings to depths ranging from 4 to 8 1/2 feet. The existing fill consisted of lean clay, clayey sand, silty sand, and poorly-graded gravel.

Penetration resistances ranged from 7 to 15 BPF indicating the clays were medium to stiff and the sands and gravels were loose to medium dense, i.e., not likely compacted when placed.

Beneath the existing fill, Boring ST-27 encountered lean clay alluvium to the boring’s termination depth of 5 1/2 feet. Boring ST-28 was also only 5 1/2 feet deep and terminated in the existing fill. Borings ST-30 and ST-31 encountered fine-grained lean clay and clayey sand alluvium to 7 and 11 1/2 feet, respectively, over coarse-grained clayey gravel alluvium to the boring’s termination depth of 15 1/2 feet. The lean clay was rather soft and the clayey sand was very loose to loose, penetration resistances in the clayey gravel ranged from 19 to 46 BPF indicating it was medium dense to dense.

Groundwater Observations. Groundwater was encountered in some of the borings at the time of our fieldwork. Groundwater ranged from 7.4 feet to 14.7 feet. Groundwater could fluctuate several feet or more in unison with water levels in Alkali Creek and the Yellowstone River. It should be noted, groundwater levels can also fluctuate depending on snow melt, run-off, precipitation, irrigation, leaking utilities, subsurface characteristics, and other factors not evident at the time of our fieldwork. Table 1 summarizes the groundwater observations in the borings.

Table 1. Summary of Groundwater Depths and Elevations

Boring	Surface Elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Waterbearing Stratum
ST-30	3103.7	8.1	3095.6	Alluvial Gravels
ST-31	3103.4	7.4	3095.0	Lean Clay Fill
ST-32	3098.7	11.3	3087.4	Alluvial Gravels
ST-34P	3099.7	10.2	3089.5	Alluvial Gravels
ST-36	3107.5	14.7	3092.8	Lean Clay Alluvium

A piezometer was installed in Boring ST-34P with flush-mount manhole cover. The piezometer can be checked for current groundwater levels and assist in evaluating the depth of dewatering in that area for the project.

Laboratory Tests

The results of the laboratory tests are summarized on the Log of Boring sheets and are presented in the attachments of this report. The results are also discussed in more detail below.

Classification Tests. Classification tests consisting of Atterberg limits and full sieve analysis were performed on select bag samples obtained from the borings at the subgrade pipe invert depth range. Table 2 below provides a summary of the classification tests.

Table 2. Summary of Laboratory Tests

Boring	Depth (feet)	Atterberg Limits			P ₂₀₀ (%)	ASTM Symbol
		LL	PL	PI		
ST-22	1 1/2 - 3	23	17	6	40.9	SC-SM
ST-23	2 – 3 1/2	31	15	16	62.2	CL
ST-26	2 – 3 1/2	33	17	16	74.0	CL
ST-27	1 1/2 - 3	41	19	22	80.8	CL
ST-30	1 1/2 - 3	34	16	18	88.1	CL
ST-31	3 - 4	46	19	27	93.3	CL
ST-33	1 1/2 - 3	25	18	7	46.9	SC-SM
ST-35	2 – 3 1/2	NP	NP	NP	18.5	SM
ST-35	6 1/2 – 8	NP	NP	NP	20.8	SM
ST-36	4 – 5 1/2	22	17	5	39.4	SC-SM

The tests indicate the soils consist of primarily low to medium plasticity lean clay with sand, silty sand, and silty clayey sand. American Society for Testing Materials (ASTM) symbols CL, SM, and SC-SM.

Moisture Content Tests. Moisture content profiles were performed on all the samples obtained from the borings. The moisture contents of the soils ranged from 4.2 to 36.9 percent. The results of the moisture content tests are presented on the boring logs attached. There were three lower moisture content values found in the gravels that likely lost moisture during sampling and are not representative of the actual moisture content within the gravels. The moisture contents across the project were in excess of about 5 percent indicating wetter soils throughout the whole project, most likely over optimum moisture content.

Corrosion. Corrosion test results from three borings across the project indicate the soil is moderately corrosive to concrete and severely corrosive to metal.

Analyses and Recommendations

Proposed Construction. Yellowstone County is working to improve the east half of the Metra Park facility by adding new utility lines and improving pavement in parking lots and roadways. The project will also include installing new water lines, sanitary sewer lines, and storm drains in different areas of the facility. Table 3 below shows, location, type of utility, pipe size, pipe type, and range in pipe invert depth for water, sanitary sewer, and storm lines.

Table 3. Summary of Utilities

Location	Utility Type	Size (inches)	Type	Pipe Invert Depth (feet)		
Lot 1	Water	3	HDPE	6	-	8
	Sanitary Sewer	8	PVC	6	-	8
Lot 3B	RV Water	3	HDPE	7	-	9
	Water	12	PVC	9	-	10
	Sanitary Sewer	6, 12	PVC	5	-	10
	Storm	36	Concrete	0	-	9
Arena Back Lot	Water	12	PVC	6	-	9
	Sanitary Sewer	8, 10, and 12	PVC	5	-	11
	Storm	15	IPVC	3		10

The project also includes pavement improvements and a new retaining wall. The pavement improvements are planned to improve the traffic flow along the east half of the Metra Park facility. The area directly behind the Arena is used by delivery and transport trucks. The remaining portion of the east half of the project will be used primarily by recreation vehicles (RVs), automobiles, and trucks with trailers.

A new retaining wall is planned along the south side of the Arena backlot, so the dumpsters can be set at the bottom. The retaining wall will be a conventional cast-in-place reinforced concrete wall set on a frost-depth footing.

If the information indicated above is incorrect, we should be informed. Additional analysis and recommendations may be necessary.

Discussion. A major concern for the project is the existing fill prevalent across the site and encountered in all of the borings. The existing fill was highly variable in soil type and was up to 8 1/2 feet deep. Notably, there was metal and concrete debris mixed in the fill in the Arena backlot and in Lot 3B. Existing fill having deleterious materials (foreign, compressible, and decompressible materials) will need to be removed from being reused as backfill. During a past storm drain project in the Arena backlot area, large boulders in the existing fill were found during excavation and had to be jackhammered to be taken out in pieces. Pictures from the storm drain placement are attached. During excavation, the boulders will likely be encountered during trench excavation of utility lines in the Arena backlot. Jackhammering should be expected to breakup and remove the boulders from the excavations, and a unit cost should be included in the bid documents. Existing fill must also be subexcavated from beneath the retaining wall footing, and replaced with structural backfill. We also recommend removing deleterious existing fill from beneath pavement improvements, if encountered.

Utilities

Open Excavations. Fine-grained soils and existing fill were encountered in all the borings in the upper 5- to 15-feet. The Occupational Safety and Health Administration (OSHA) guidelines indicate cohesive soils with an unconfined compressive strength of less than 1/2 tons per square foot (tsf), granular soils such as sands and gravels, and all existing fill classify as Type C soils. Based on the results of our soil borings and the variability of the soils above pipe invert, we recommend all soils be considered Type C on the project. All earthwork and construction should be performed in accordance with OSHA guidelines.

As indicated above, trench excavations in the Arena backlot could encounter 4- to 6- foot diameter boulders requiring jackhammering to breakup and remove. Some boulders were also encountered in the alluvial gravels, which could be difficult to excavate and require special handling.

Corrosion. The planned utilities mostly are using a type of polyethylene pipe, but there will be one concrete pipe for the storm drain near Lot 3B. The soils across the project identified to be moderately corrosive to concrete. We recommend Type I-II cement be used for the project. The soils were found to be severely corrosive to metal pipes and corrosive protection is recommended if any are included in the project.

Dewatering. Groundwater was encountered in some of our borings during fieldwork and therefore dewatering may be necessary across the whole project, especially trenches over 6 feet deep. A piezometer was installed in Boring ST-34P to allow personnel to check groundwater levels and fluctuations over time. If groundwater is encountered during construction, we recommend immediately pumping the water out and away from the excavation to reduce the risk of creating unstable subgrade. The actual method of dewatering will need to be determined by the contractor based on their experience and available equipment.

Trench Subgrade and Type 2 Bedding. The borings indicate the anticipated trench subgrade in the improvements will primarily be loose/very soft to medium dense/stiff sand and clays. It is our opinion the loose/very soft soils such as these encountered in Boring ST-31 below 8 1/2 feet and Boring ST-35 below 6 feet will not be suitable for only Type 1 bedding and will require Type 2 bedding as well. We recommend providing up to 18-inches of Type 2 bedding beneath Type 1 bedding. Type 2 bedding should be up to 18-inches below Type 1 bedding, or down to stiffer/denser soils, whichever is encountered first. For example, Type 2 bedding should be provided in Boring ST-32 in the loose silty sand, but can stop once the medium dense silty gravel is encountered. We recommend planning for fine-grained unstable subgrades across 50 to 60 percent of the utilities, and using an average thickness of 12 inches for Type 2 bedding. The actual extent and placement of Type 2 bedding will need to be determined by engineering observations during construction.

Pipe Bedding. We recommend providing well-graded Type 1 bedding as described in *Montana Public Works* Drawing No. 02221-2 beneath the entire utility lengths. We recommend using the same well-graded material as Type 2 bedding. Using well-graded Type 1 and Type 2 bedding will reduce the risk of fines piping due to groundwater fluctuation. Another option to reduce the risk of piping fines within standard open-graded bedding would be to completely wrap (top, bottom, and sides) the open graded Type 1 and Type 2 bedding with a 6-ounce non-woven geotextile fabric.

Drainage and Impermeable Trench Plugs. It is critical good drainage of surface water be provided long-term along the project limits. To reduce the risk of water flowing in bedding, we recommend placing low permeability trench backfill plugs along the pipe alignments. We recommend the plugs be placed in intervals of approximately 300 feet along the alignments and at each service connection. If the utility lines break, water or sanitary sewer could flow into service trenches, potentially causing settlement to adjacent structures. These plugs should meet the requirements of MPWSS Section 02222.

Backfill and Compaction. The following requirements should be used during the trench backfilling.

- The majority of the on-site soils can be used as trench backfill, provided all deleterious materials are removed. In the Arena backlot and Lot 3B, we encountered existing fill with deleterious materials and boulders, and we recommended these soils not be reused in backfill. We recommend separating the clays and sands from the gravels as the soils are excavated and replaced accordingly.
- Due to shallow groundwater, excavated soils are likely wet and above optimum moisture content (OMC). It will likely be necessary to spread these soils out and allow them to dry, as well as favorable weather, to achieve a moisture content ± 2 percent of optimum.
- Quality Assurance (QA) and Quality Control (QC) testing should be performed within the active backfilling process to monitor compaction. Compaction testing is recommended to confirm equipment and number of passes are consistently being applied to properly compact backfill to specification. Compaction tests in test pits behind the active installation are not recommended. We refer to this as “hind-sight compaction testing” and the approach results in misleading test results, i.e., the test pit backfill is intentionally recompacted before testing.
- Lift thicknesses should not exceed 8 inches loose thickness. Depending on the QA and QC testing described above, thinner lifts may be necessary.
- Next to risers, valves, manholes, and for services lines, we recommend thinner lifts (4 to 6 inches) and using nimble compaction equipment, such as hand-operated wacker compactors or vibratory plate compactors attached to a smaller backhoe to achieve compaction. Sheepsfoot rollers attached to backhoes are too big for these areas and are not recommended.

- We recommend all backfill be placed be compacted in accordance with the most recent MPWSS Type A Trench Backfill requirements and those recommendations indicated above.

If imported material is used, it should generally be similar to the on-site soils, i.e. lean clay should be replaced with imported lean clay and gravel alluvium replaced with imported gravels that can be compacted to specification. Additionally, thicker lifts will generally result in increased settlement.

Trench Settlement. Trench settlement of utility excavations is a common problem and is often difficult to avoid. Even well compacted backfill will settle, in our opinion, and we anticipate normal trench settlement will be approximately 1 percent of the total trench depth. If the backfill is poorly compacted, excessively thick lifts are placed, large oversize materials are left in place, contains frozen materials, or surface water infiltrates into the trench, several inches of settlement could occur. Full-time inspection during placement of backfill helps reduce the risk of these issues occurring during construction.

Retaining Wall

General. The proposed retaining wall is to be a cast-in-place concrete wall about 150-feet long in total. The wall will connect to the existing retaining wall and varies in height throughout. At the connection point, the wall will be 6 1/2-feet tall and drop down to 4-feet at the proposed loading dock location then about 1 1/2 feet to end the wall.

Depth. We recommend the retaining wall footing bear a minimum of 4 1/2 feet below exterior grades (front side) for frost protection.

Footing Subgrades. We recommend footings bear on undisturbed natural soils or compacted backfill placed over undisturbed natural soils. Where existing fill is present beneath proposed footings, we recommend it be subexcavated from beneath the footings and oversize zones extending 1/2 foot (horizontal) beyond the footing for every foot of subexcavation below the footing. It is best to use 3-inch minus sandy gravel or non-frost-susceptible material (as described below) as backfill beneath footings, placed in lifts not exceeding 8-inches, and compacted to a minimum of 95 percent of its standard proctor maximum dry density.

Bearing Capacity. It is our opinion the retaining wall footing can be designed for a net allowable bearing capacity of up to 2000 psf (pounds per square foot).

Backfill. We recommend placing 5 feet (horizontal) of nonfrost-susceptible sand or sandy gravel backfill behind the retaining walls for three reasons: (1) to provide a relatively free-draining backfill, which will not impede downward percolation of water to seep holes, (2) to reduce the lateral earth pressures on the wall, and (3) to reduce the risk of frost penetrating the backfill behind the wall, causing it to move outward. Imported sand or sandy gravel with less than 5 percent of its particles by weight passing a 200 sieve is generally considered nonfrost-susceptible. Backfill behind the retaining walls should be placed in

lifts and at a moisture content at or slightly above optimum moisture content. The backfill should be compacted to a minimum of 95 percent of its standard Proctor maximum dry density.

Lateral Earth Pressure. Assuming nonfrost-susceptible sand or sandy gravel backfill compacted to 95 percent will be placed behind retaining walls, we recommend using the following parameters for estimating lateral forces.

- Active earth pressure (wall free to move away from backfill): 35 pounds per square foot per foot of depth (psf/ft) plus 0.31 times surcharge load.
- At-rest earth pressure (wall restrained): 55 psf/ft plus 0.5 times surcharge load.
- Passive earth pressure: 650 psf/ft plus 5.8 times surcharge load.
- Coefficient of sliding friction: 0.50.

The values indicated above do not include factors of safety. Appropriate factors of safety should be included when designing retaining walls to resist lateral earth forces.

Pavement

General. The current surfacing sections across the project limits varies. There is pavement sections and gravel surfacing used in the parking lots and roadways. The existing pavement ranges from 2 3/4 inches to 4 3/4 inches followed by base course to 2 feet. ST-35 had what looked like base course to 0.8 feet followed by gravel fill with concrete to 2 feet.

Recommended Pavement Sections. The recommended pavement sections are shown below in Table 4 below. The sections vary based on the type of vehicles and the option of geosynthetics and geogrid.

Table 4. Recommended Pavement Sections.

Material	Autos Only		Auto and RVs		Autos, RVs, and Trucks	
	CBC Section	Geogrid Section	CBC Section	Geogrid Section	CBC Section	Geogrid Section
Asphalt Pavement (inches)	3	3	3	3	4	4
Crushed Base Course (inches)	10	8	12	9	10	9
Geosynthetics	6 oz. NW	BX1200	6 oz. NW	BX1200	6 oz. NW	BX1200
Total Thickness (inches)	13	11	15	12	14	13

*either 6 oz. NW (nonwoven) or BX1200 geogrid or better

In the Arena backlot, some isolated boulders may be encountered when trying to reach subgrade elevation. The cost of entirely removing these boulders is probably not justified, but a minimum of 6-inches of base course must be provided over the boulders.

Subgrade. The pavement subgrade across the project limits varies significantly, mostly associated with the type of existing fill present. Due to significant previous projects and developments, considerable variation should be expected. There is mostly clay and sand fill that is wet and rather loose and soft. There is also some gravel fill found that is loose to dense. Due to past agricultural events, there could be isolated areas of deleterious materials such as wood chips, hay, and silage that will require subexcavation and replacement.

There is a chance the subgrade can become unstable if more water is introduced to the soils during construction or in existing areas having poor surface water drainage. One method of determining unstable subgrades is to perform proof rolling observations directly on the exposed subgrade. Proof rolling should be performed with a loaded dump truck or water truck. Unstable areas are those subgrade soils where proof rolling indicates 3/4-inch or more of subgrade deflection is occurring. When this occurs, we recommend using the following pavement section.

<u>Material</u>	<u>Thickness</u>
Asphalt Pavement	4 inches
Crushed Base Course	16 inches
BX 1200 Geogrid	Yes
Separation Fabric (6 ox. NW)	Yes

Construction

Excavation. It is our opinion the soils encountered by the borings can be excavated with a conventional excavation equipment. As previously indicated, however, boulders exist in the Arena backlot that will require jackhammering to break up. Boulders and concrete rubble could be encountered in other areas as well. All earthwork and excavations should be performed in accordance with OSHA requirements. The borings indicate the alluvial soils and existing fill in the sidewalls of the water line trench excavations will be Type C soils under OSHA guidelines.

Dewatering. As previously indicated, groundwater was encountered in some of the borings at the time of our fieldwork, and dewatering will likely be necessary across the whole project. The method of dewatering will need to be determined by the contractor based upon their experience and available equipment. The relatively clean alluvial gravels are considered highly transmissive, and result in a significant volume of groundwater to be managed.

Observations. We recommend excavations of the new utility lines be observed. These observations should be performed by a geotechnical engineer or an engineering assistant under the direction of a geotechnical engineer. The purpose of these observations is to evaluate if the subgrade soils are similar to those encountered in the borings, and suitable for the proposed construction.

Testing. Testing of materials during construction should meet the requirements of MPWSS. We recommend compaction tests be performed on the proposed water line trench backfill. Samples of proposed backfill and fill materials should be submitted to our testing laboratory at least five days *prior* to placement on the site for evaluation and determination of their optimum moisture contents and maximum dry densities. Asphalt pavement should also be tested for strength properties and compaction in accordance with MPWSS.

Cold Weather Construction. If site grading and construction is anticipated during cold weather, we recommend good winter construction practices be observed. All snow and ice should be removed from fill materials prior to placement. No fill should be placed on soils that have frozen or contain frozen material. No frozen soils should be used as fill.

If used, concrete delivered to the site should meet the temperature requirements of ASTM C 94. Concrete should not be placed on frozen soils or soils that contain frozen material. Concrete should be protected from freezing until the necessary strength is attained.

Procedures

Drilling and Sampling. The penetration test borings were performed on the dates indicated on the boring logs with a CME 75HT core and auger drill rig. Sampling for the borings was conducted in accordance with ASTM D 1586, "Penetration Test and Split-Barrel Sampling of Soils." Using this method, we advanced the borehole with hollow-stem auger to the desired test depth. Then a 140-pound hammer falling 30 inches drove a standard, 2-inch OD, split-barrel sampler a total penetration of 1 1/2 feet below the tip of the hollow-stem auger. The blows for the last foot of penetration were recorded and are an index of soil strength characteristics.

Soil Classification. The drill crew chief visually and manually classified the soils encountered in the borings in accordance with ASTM D 2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedures)." A summary of the ASTM classification system is attached. All samples were then returned to our laboratory for review of the field classifications by a geotechnical engineer. Representative samples will remain in our office for a period of 60 days to be available for your examination.

Groundwater Observations. Approximately ten minutes after taking the final sample in the bottom of a boring, the driller probed through the hollow-stem auger to check for the presence of groundwater. Immediately after withdrawal of the auger, the driller again probed the depth to water or cave-in. The boring was then backfilled to the bottom-of-asphalt and patched with cold mix asphalt patch.

General Recommendations

Basis of Recommendations. The analyses and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated on the attached sketch. Often, variations occur between these borings, the nature and extent of which do not become evident until additional exploration or construction is conducted. A re-evaluation of the recommendations in this report should be made after performing on-site observations during construction to note the characteristics of any variations. The variations may result in additional earthwork and construction costs, and it is suggested a contingency be provided for this purpose.

It is recommended we be retained to perform the observation and testing program for the site preparation phase of this project. This will allow correlation of the soil conditions encountered during construction to the soil borings and will provide continuity of professional responsibility.

Review of Design. This report is based on the anticipated construction of the proposed water lines as related to us for preparation of this report. It is recommended we be retained to review the geotechnical aspects of the designs and specifications. With the review, we will evaluate whether any changes in design have affected the validity of the recommendations, and whether our recommendations have been correctly interpreted and implemented in the design and specifications.

Groundwater Fluctuations. We made water level observations in the borings at the times and under the conditions stated on the boring logs. These data were interpreted in the text of this report. The period of observation was relatively short, and fluctuation in the groundwater level may occur due to rainfall, flooding, irrigation, spring thaw, drainage, and other seasonal and annual factors not evident at the time the observations were made. Clay soils typically require longer periods of time (days/weeks) for groundwater elevations to stabilize. Design drawings and specifications and construction planning should recognize the possibility of fluctuations.

Use of Report. This report is for the use of WWC Engineering, Yellowstone County, and selected contractors to design the proposed water lines and prepare construction documents as well as construction. In the absence of our written approval, we make no representation and assume no responsibility to other parties regarding this report. The data, analyses, and recommendations may not be appropriate for other structures or purposes. We recommend parties contemplating other structures or purposes contact us.

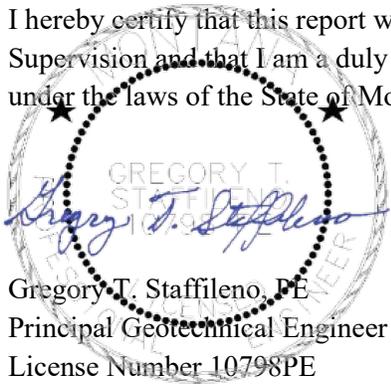
Level of Care. Services performed by SK Geotechnical Corporation personnel for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area under similar budget and time restraints. No warranty, express or implied, is made.

We appreciate the opportunity to provide these services for you, if we can be of further assistance, please contact us at your convenience.

Sincerely,

Professional Certification

I hereby certify that this report was prepared under my direct Supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Montana.



Gregory T. Staffileno, PE
Principal Geotechnical Engineer
License Number 10798PE

A handwritten signature in blue ink, appearing to read "Jaye M. Wells".

Jaye M. Wells
Geologist

Attachments:

- Site Location Sketch
- Boring Location Sketch
- Partial Geologic Sketch
- Descriptive Terminology
- Log of Boring Sheets – ST-22 through ST-36
- Atterberg Limit Tests
- Sieve Analysis (10)
- Sulfates
- Pictures from storm drain installation



SITE LOCATION SKETCH
Metra Park Improvements
Billings, Montana

Drawn by:	SKGeo/Google Earth	Date	1/10/2024
Project:	23-4360G		
Scale:	On image		FIGURE
Sheet	1	of	3
			1



Legend
 📍 Soil Borings

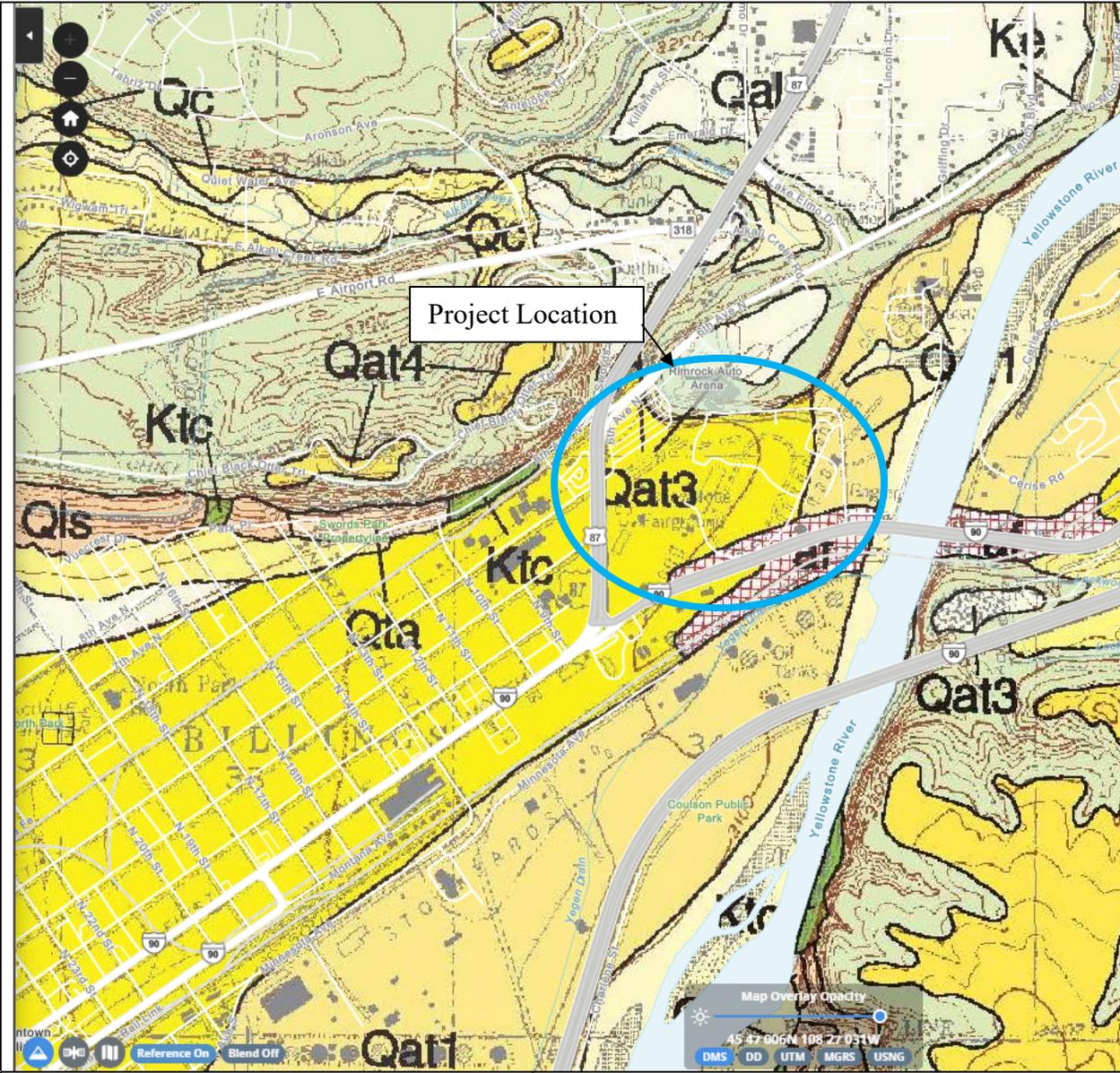
Google Earth

600 ft



BORING LOCATION SKETCH
Metra Park Improvements
Billings, Montana

Drawn by:	SKGeo/Google Earth	Date	1/10/2024
Project:	23-4360G		
Scale:	On image	FIGURE	
Sheet	2	of	3
			2



- Artificial fill**—Compacted and uncompacted fill along roads and highways; locally covers bedrock contacts. At Billings Landfill (sections 29 and 30, T. 1 S., R. 26 E.), artificial fill constantly increasing at expense of shale bedrock and colluvium, which are strip mined and used for fill over refuse
- Qat1** Alluvial terrace gravel 1 (Holocene and Pleistocene)—Gravel underlying terraces about 10 to 20 feet above present elevation of Yellowstone River. Mostly cobbles and pebbles with minor amounts of sand and silt. Clasts predominantly granitic igneous rocks, granitic gneiss, schist, and quartzite, with much less limestone and sandstones. Twenty to 40 feet thick (Gosling and Pashley, 1973)
- Qat2** Alluvial terrace gravel 2 (Pleistocene)—Gravel underlying terraces about 20 to 40 feet above present elevation of Yellowstone River. Mostly cobbles and pebbles with minor amounts of sand and silt. Clasts predominantly granitic igneous rocks, granitic gneiss, schist, and quartzite, with much less limestone and sandstones. Forty to 60 feet thick (Gosling and Pashley, 1973)
- Qat3** Alluvial terrace gravel 3 (Pleistocene)—Gravel underlying terraces about 50 to 90 feet above present elevation of Yellowstone River. Mostly cobbles and pebbles with minor amounts of sand and silt. Clasts predominantly granitic igneous rocks, granitic gneiss, schist, and quartzite, with much less limestone and sandstones. This deposit grades from about 20 to 30 feet of clean gravel at its southern edge to about five feet at its northern limit (Gosling and Pashley, 1973), where overlain by colluvial and alluvial fan deposits of silty clay
- Qat4** Alluvial terrace gravel 4 (Pleistocene)—Gravel underlying terraces about 200 to 300 feet above present elevation of Yellowstone River and Pryor Creek. These terraces exhibit a relatively steep gradient toward the Yellowstone River Valley or Pryor Creek. Cobble- and pebble-size clasts are mainly granite, granitic gneiss, schist, quartzite, and volcanic rocks. Thickness up to about 20 feet
- Ke** Eagle Sandstone (Upper Cretaceous)—Light-brownish-gray (5YR6/1) to very-pale-orange (10YR8/2), very-fine to fine-grained, cross-bedded sandstone, burrowed to bioturbated in part. Locally contains calcareous, light-brown (5YR6/4) sandstone concretions up to 15 feet in diameter. Three to four sandstone intervals 10 to 50 feet thick can be present with intervening sandy shale intervals as thick as 50 feet. In area southeast of Pictograph Caves State Park, a well-developed upper sandstone pinches out to north; inter-tonguing relationship of this sandstone with Claggett Shale shown in section 8, T. 1 S., R. 27 E. Farther north this upper sandstone continues as sandy shale zone in Claggett. Upper contact placed at change from sandstone to shales of Claggett Shale. Thickness from 250 to 350 feet



PARTIAL GEOLOGIC MAP SKETCH
Metra Park Improvements
Billings, Montana

Drawn by:	SKGeo/NGDMB	Date	1/10/2024
Project:	23-4360G		
Scale:	On image	FIGURE	3
Sheet	3 of 3		



Standard D 2487 Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification	
				Group Symbol	Group Name ^B
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines ^C	$C_u \geq 4$ and $1 \leq C_c \leq 3$ ^E	GW	Well graded gravel ^F
		Gravels with Fines More than 12% fines ^C	$C_u < 4$ and/or $1 > C_c > 3$ ^E	GP	Poorly graded gravel ^F
			Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines ^D	$C_u \geq 6$ and $1 \leq C_c \leq 3$ ^E	SW	Well graded sand ^I
		Sands with Fines More than 12% fines ^D	$C_u < 6$ and/or $1 > C_c > 3$ ^E	SP	Poorly graded sand ^I
			Fines classify as ML or MH	SM	Silty sand ^{G, H, I}
Fine-Grained Soils 50% or more passes the No. 200 sieve	Sils and Clays Liquid Limit less than 50	Inorganic	PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{K, L, M}
		Organic	Liquid limit – oven dried < 0.75 Liquid limit – not dried	OL	Organic silt ^{K, L, M, N} Organic silt ^{K, L, M, O}
	Sils and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}
		Organic	PI plots below "A" line	MH	Elastic silt ^{K, L, M, P}
			Liquid limit – oven dried < 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit – not dried		Organic silt ^{K, L, M, Q}
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor		PT	Peat	

- ^A Based on the material passing the 3" (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-SC well-graded sand with clay
 SP-SM poorly graded sand with silt
 SP-SC poorly graded sand with clay
^E $C_u = D_{60} / D_{10}$
 $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
 If soil contains $\geq 15\%$ sand, add "with sand" to group name.
^F If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
^H If fines are organic, add "with organic fines" to group name.
^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
^J If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.
^M If soil contains $\geq 30\%$ plus No. 200 predominantly gravel, add "gravelly" to group name.
^N PI ≥ 4 and plots on or above "A" line.
^O PI < 4 or plots below "A" line.
^P PI plots on or above "A" line.
^Q PI plots below "A" line.

Particle Size Identification

Boulders over 12"
 Cobbles 3" to 12"
 Gravel
 coarse 3/4" to 3"
 fine No. 4 to 3/4"
 Sand
 coarse No. 4 to No. 10
 medium No. 10 to No. 40
 fine No. 40 to No. 200
 Silt No. 200 to .005 mm
 Clay less than .005 mm

Relative Density of Cohesionless Soils

very loose 0 to 4 BPF
 loose 5 to 10 BPF
 medium dense 11 to 30 BPF
 dense 31 to 50 BPF
 very dense over 50 BPF

Consistency of Cohesive Soils

very soft 0 to 1 BPF
 soft 2 to 3 BPF
 rather soft 4 to 5 BPF
 medium 6 to 8 BPF
 rather stiff 9 to 12 BPF
 stiff 13 to 16 BPF
 very stiff 17 to 30 BPF
 hard over 30 BPF

Moisture Content (MC) Description

rather dry MC less than 5%, absence of moisture, dusty
 moist MC below optimum, but no visible water
 wet Soil is over optimum MC
 waterbearing Granular, cohesionless or low plasticity soil with free water, typically near or below groundwater table
 very wet Cohesive soil well over OMC, typically near or below groundwater table

Drilling Notes

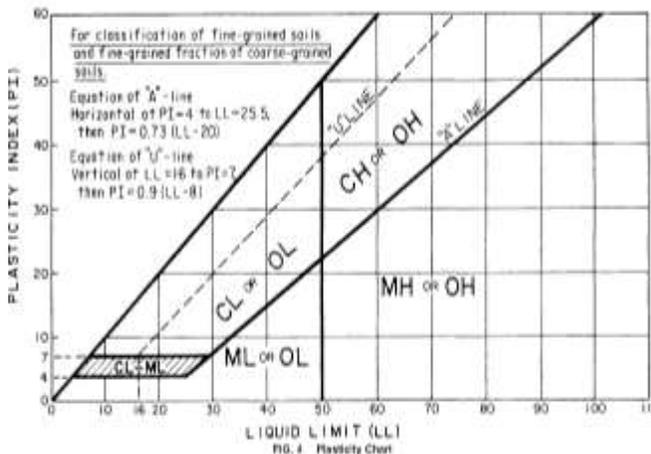
Standard penetration test borings were advanced by 3/4" or 4/4" ID hollow-stem augers, unless noted otherwise. Standard penetration test borings are designated by the prefix "ST" (split tube). Hand auger borings were advanced manually with a 2 to 3" diameter auger to the depths indicated. Hand auger borings are indicated by the prefix "HA."

Sampling. All samples were taken with the standard 2" OD split-tube sampler, except where noted. TW indicates thin-walled tube sample. CS indicates California tube sample. BS indicates bulk sample.

BPF. Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments and added to get BPF. Where they differed significantly, they were separated by backslash (/). In very dense/hard strata, the depth driven in 50 blows is indicated.

WH. WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

Note. All tests were run in general accordance with applicable ASTM standards.



Laboratory Tests

DD	Dry density, pcf	WD	Wet density, pcf	OC	Organic content, %
LL	Liquid limit	PL	Plastic limit	PI	Plasticity index
P ₂₀₀	% passing 200 sieve	MC	Natural moisture content, %		
MDD	Maximum dry density (Proctor), pcf	OMC	Optimum moisture content (Proctor), %		
qu	Unconfined compressive strength, psf	UCS	Unconfined compressive strength, psi		
qp	Pocket penetrometer strength, tsf				



2511 Holman Avenue
 P. O. Box 80190
 Billings, MT 59108-0190
 Phone: 406.652.3930
 Fax: 406.652.3944

LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana				BORING: ST-22			
				LOCATION: See Attached Sketch			
DRILLED BY: E. Hollibaugh		METHOD: CME 75HT, Automatic		DATE: 11/22/23		SCALE: 1" = 3'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3105.8	0.0						
			FILL: Silty Clayey Sand, slightly plastic, fine- to coarse-grained, few organics, trace salts, olive brown, moist, loose.	9	12.1		LL=23, PL=17, PI=6, P ₂₀₀ =40.9%
				5/10	9.2		Mulch like appearance
3100.3	5.5			8	18.9		6.7% organics
			END OF BORING				
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 1.8' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-23
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/22/23	SCALE: 1" = 3'
---------------------------	-----------------------------	----------------	----------------

Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3106.1	0.0						
3105.8	0.3		Asphalt: (3") Base Course: Silty Gravel with Sand.				
3104.1	2.0		FILL: Sandy Lean Clay, low plasticity, gray, moist, medium to rather stiff.	34	5.8		
				9	13.0	4	LL=31, PL=15, PI=16, P ₂₀₀ =62.2%
3100.6	5.5		END OF BORING	8	18.5	2	
			Groundwater not encountered				
			Water not observed to dry cave-in depth of 1.3' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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 Billings, MT 59108-0190
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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-24
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/22/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3103.6	0.0						
			FILL: Silty Clayey Sand, slightly plastic, fine- to coarse-grained, trace gravel and wood, olive brown, moist, loose to medium dense.	3/9	20.6		
				13	9.0		
3099.6	4.0						
		CL	SANDY LEAN CLAY, low plasticity, olive brown, moist, rather soft. (Alluvium)	4	22.8		
3098.1	5.5		END OF BORING				
			Groundwater not encountered				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-25
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/21/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3105.5	0.0						
3105.3	0.2		Asphalt: (2 3/4")				
			Base Course: Silty Gravel with Sand, fine- to coarse-grained, brown, moist. medium dense.	16	4.3		
3103.5	2.0		FILL: Silty Sand, fine- to coarse-grained, few organics, trace gravel, dark gray to black, moist, loose.	8	35.9		Mulch like appearance
3101.5	4.0		SILTY CLAYEY SAND, slightly plastic, fine- to medium-grained, olive brown, moist, very loose.				
3100.0	5.5	SC	(Alluvium)	4	14.2		
			END OF BORING				
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 1.3' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana				BORING: ST-26					
DRILLED BY: E. Hollibaugh				METHOD: CME 75HT, Automatic		DATE: 11/21/23		SCALE: 1" = 3'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks		
3107.1	0.0								
3106.7	0.4		Asphalt: (4 3/4")						
3106.2	0.9		Base Course: Silty Sand with Gravel						
3105.1	2.0		Subbase Course: Clayey Gravel with Sand, fine- to coarse-grained, brown, moist, medium dense.	13	4.5				
			FILL: Lean Clay with Sand, low to medium plasticity, brown, moist, rather stiff.	9	15.1		LL=33, PL=17, PI=16, P ₂₀₀ =74.0%		
3101.6	5.5		END OF BORING	10	17.1				
			Groundwater not encountered.						
			Water not observed to dry cave-in depth of 1.8' immediately after withdrawal of auger.						
			Boring then backfilled.						

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-27
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/21/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3105.1	0.0		FILL: Lean Clay with Sand, medium plasticity, brown, moist, rather stiff to medium.	11	12.4		
				7	16.8	4	LL=41, PL=19, PI=22, P ₂₀₀ =80.8%
3101.1	4.0	CL	LEAN CLAY with SAND, medium plasticity, some salts, brown, moist, rather soft. (Alluvium)	4	29.1	1	
3099.6	5.5		END OF BORING				
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 7.0' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-28 LOCATION: See Attached Sketch
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DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/21/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3101.8	0.0						
		[Symbol: Dotted pattern]	FILL: Clayey Sand with Gravel, slightly plastic, fine-to coarse-grained, trace salts, brown, moist, medium dense.	15	8.9		
3098.3	3.5	[Symbol: Dotted pattern]	FILL: Poorly Graded Gravel with Sand, fine- to coarse-grained, brown, moist, medium dense.	15	17.7	4½	
3096.3	5.5	[Symbol: Dotted pattern]	END OF BORING	26	4.5		
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 1.8' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-29
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/22/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3098.6	0.0						
			FILL: Silty Sand, slightly plastic, fine- to coarse-grained, trace gravel, lenses of clay, olive brown, moist, loose to very loose.	9	8.3		
				4	9.1		
3094.6	4.0						
		SC SM	SILTY CLAYEY SAND, slightly plastic, fine- to medium-grained, gray to olive brown mottled rust, moist, very loose. (Alluvium)	3	26.4		
3093.1	5.5		END OF BORING				
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 2.9' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-30
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/20/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3103.7	0.0						
			FILL: Lean Clay, low to medium plasticity, some sand, brown, moist, stiff.	13		4+	
				11		2 3/4	LL=34, PI=16, PI=18, P ₂₀₀ =88.1%
3099.7	4.0						
		CL	LEAN CLAY with SAND, low plasticity, olive brown, moist to wet, rather soft. (Alluvium)	4		2 1/4	
					29.3		
3096.7	7.0						
		GC	CLAYEY GRAVEL with SAND, fine- to coarse-grained, olive brown, wet to waterbearing, medium dense to dense. (Alluvium)	19		1 1/4	
					23.2		
				22		7.3	
				31		7.5	
3088.2	15.5		END OF BORING	23		10.8	
			Water observed at a depth of 8.1' with 9' of hollow-stem auger in the ground.				
			Water observed at a depth of 8.7' with 14' of hollow-stem auger in the ground.				
			Water not observed to dry cave-in depth of 7.6' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-31
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/21/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3103.4	0.0						
			FILL: Silty Sand with Gravel, fine- to coarse-grained, olive brown, moist, medium dense to loose.	28	7.2		
3100.9	2.5		FILL: Lean Clay, medium plasticity, few sand, trace salts, gray, moist to waterbearing, medium to stiff.	7	19.1	2	LL=46, PL=19, PI=27, P ₂₀₀ =93.3%
				7	23.5		
				7	23.8		
				15	26.4		
3094.9	8.5		CLAYEY SAND with layers of Sandy Lean Clay, slightly plastic, fine- to coarse-grained, trace organics, dark gray, waterbearing, very loose to loose. (Alluvium)	1/4	36.9	0	
		SC					
3091.9	11.5		CLAYEY GRAVEL with SAND, fine- to coarse-grained, gray, waterbearing, medium dense to dense. (Alluvium)	27	8.0		
		GC					
3087.9	15.5		END OF BORING	46	6.0		
			Water observed at a depth of 8.5' with 11.5 of hollow-stem auger in the ground.				
			Water observed at a depth of 7.4' with 14.0' of hollow-stem auger in the ground.				
			Water not observed to wet cave-in depth of 10.3' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana				BORING: ST-32					
DRILLED BY: E. Hollibaugh				METHOD: CME 75HT, Automatic		DATE: 11/21/23		SCALE: 1" = 3'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks		
3098.7	0.0		FILL: Poorly Graded Gravel with Sand, fine- to coarse-grained, brown, moist, medium dense.	14	10.7				
3096.7	2.0		FILL: Silty Sand, trace gravel, fine- to coarse-grained, trace wood, olive brown, moist, medium dense to loose.	14	12.8				
				6	14.5				
					11.4		1.9% Organics		
3091.2	7.5		SILTY GRAVEL with SAND and COBBLES, fine- to coarse-grained, trace Boulders, olive brown, moist to waterbearing, medium dense to very dense. (Alluvium)	4/12	22.1				
				53	2.2				
		GM			▽				
				43	7.1				
3083.2	15.5		END OF BORING	34	7.5				
			Water observed at a depth of 11.3' with 11.5' of hollow-stem auger in the ground.						
			Water not observed to dry cave-in depth of 5.7' immediately after withdrawal of auger.						
			Boring then backfilled.						

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 11/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-33
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/21/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3102.5	0.0						
			FILL: Silty Clayey Sand, slightly plastic, fine- to coarse-grained, some gravel, brown, moist, medium dense to dense.	22			LL=25, PL=18, PI=7, P ₂₀₀ =46.9%
				31	10.4		
3098.5	4.0		FILL: Silty Gravel with Sand, fine- to coarse-grained, some metal pieces, dark brown, moist, loose.	6/3	4.1		
3096.0	6.5		SILTY GRAVEL with SAND and COBBLES, fine- to coarse-grained, trace boulders, dark brown, moist, very dense. (Alluvium)	29/50-5"	3.8		
		GM					
3092.8	9.7		END OF BORING - Auger Refusal	50-2"	1.1		
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 5.3' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana				BORING: ST-34P					
DRILLED BY: E. Hollibaugh				METHOD: CME 75HT, Automatic		DATE: 11/20/23		SCALE: 1" = 3'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks		
3099.7	0.0		FILL: Silty Clayey Sand, fine- to medium-grained, trace gravel, olive brown, moist to wet, loose.	7	11.2				
				5	12.7				
					17.6				
				10	21.0				
3093.7	6.0		SILTY GRAVEL with SAND and COBBLES, fine- to coarse-grained, trace Boulders, brown, moist to waterbearing, medium dense to very dense. (Alluvium)	66	1.9				
		GM		52	▽4.6				
				29	8.2				
3084.2	15.5		END OF BORING	44	7.5				
			Water observed at a depth of 10.2' with 14' of hollow-stem auger in the ground.						
			Boring completed as a piezometer.						
			Backfilled with sand to 3', bentonite to 2', cuttings to 1', concrete and manhole to ground surface.						

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-35
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/20/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3114.0	0.0						
3113.7	0.3		Asphalt: (3")				
3113.2	0.8		Base Course: Poorly Graded Gravel				
3112.0	2.0		FILL: Poorly Graded Gravel with Sand, fine- to coarse-grained, some concrete, brown, moist, medium dense.	14/6		4.4	Possible recycled concrete mixed with Fill.
			FILL: Silty Sand with Gravel, fine- to coarse-grained, some concrete, trace cobbles, olive brown, moist, medium dense to dense.	8/4		9.7	P ₂₀₀ =18.5%
				44		8.9	Metal piece in split-spoon sampler
3108.0	6.0		SILTY SAND with GRAVEL, fine- to coarse-grained, some lenses of Clayey Sand, olive brown, moist, very loose to loose. (Alluvium)	4		19.8	P ₂₀₀ =20.8%
		SM		4		23.6	
				10		11.1	
3100.5	13.5		FAT CLAY with SAND and trace gravel, high plasticity, olive brown, moist, rather soft. (Decomposed Shale)				
		CH		5		20.4	¾
3098.5	15.5		END OF BORING				
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 6.6' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



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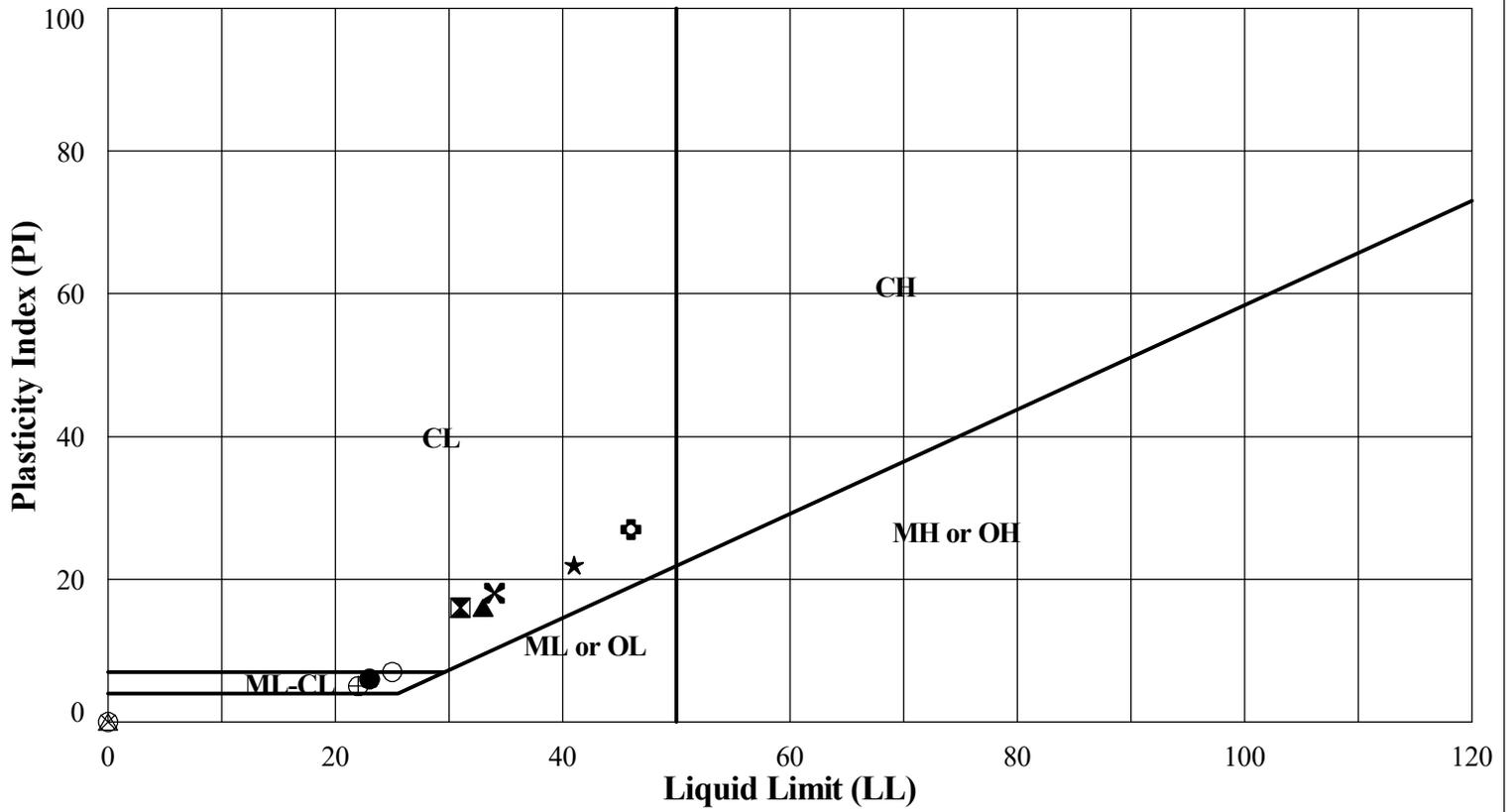
LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-36
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/20/23	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3107.5	0.0						
3107.2	0.3		Asphalt: (3/4")				
3106.7	0.8		Base Course: Poorly Graded Gravel				
			FILL Silty Gravel with Sand, fine- to coarse-grained, brown, moist, medium dense.	17	6.5		
3105.5	2.0		FILL: Silty Gravel with Sand, fine- to coarse-grained, dark olive brown, moist, medium dense.	24	7.0		
3103.5	4.0		SILTY CLAYEY SAND with GRAVEL, slightly plastic, fine- to coarse-grained, olive brown, moist, medium dense. (Alluvium)	11	14.6		
		SC SM		11	11.5	1 1/4	LL=22, PL=17, Pi=5, P ₂₀₀ =39.4%
				4	14.0		
3096.5	11.0		SANDY LEAN CLAY, low plasticity, some lenses of Clayey Sand, gray, moist to wet, soft. (Alluvium)	2/1	25.6		
		CL					
3092.0	15.5		END OF BORING	1/2	14.4		
			Water observed at a depth of 14.7 with 14.0' of hollow-stem auger in the ground.				
			Water not observed to dry cave-in depth of 10.2' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 1/15/24



Legend	Boring	Sample No.	Depth	LL	PL	PI	P 200, %	MC	Classification
●	ST-22	Jar #64	1½'-3'	23	17	6	40.9	9.2%	SC-SM
⊠	ST-23	Jar #61	2'-3½'	31	15	16	62.2	13.0%	CL
▲	ST-26	Jar #55	2'-3½'	33	17	16	74.0	15.1%	CL
★	ST-27	Jar #52	1½'-3'	41	19	22	80.8	16.8%	CL
✕	ST-30	Jar #23	1½'-3'	34	16	18	88.1	19.6%	CL
⊕	ST-31	TW	3'-4'	46	19	27	93.3	23.5%	CL
○	ST-33	Jar #37	1½'-3'	25	18	7	46.9	10.4%	SC-SM
△	ST-35	Jar #9	2'-3½'	NP	NP	NP	18.5	9.7%	SM
⊗	ST-35	Jar #11	6½'-8'	NP	NP	NP	20.8	19.8%	SM
⊕	ST-36	Jar #17	4'-5½'	22	17	5	39.4	14.6%	SC-SM

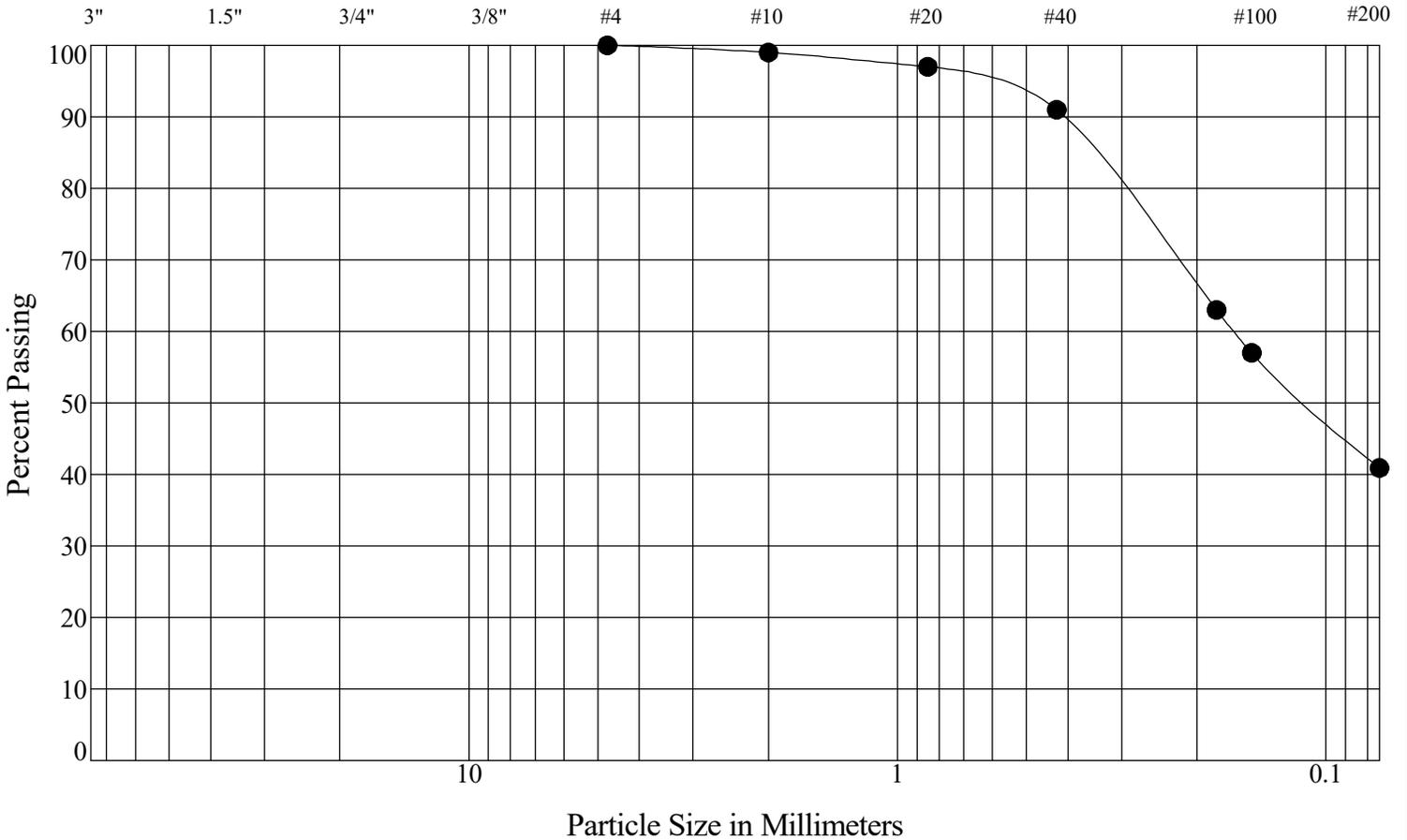


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Atterberg Limits Tests

Project Number: 23-4306G
Metra Park Improvements
Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
				100	99	97	91	63	57	40.9

Sample: ST-22
 Sample No.: Jar #64
 Depth: 1 1/2'-3'

Date Received: 12/8/23

Liquid Limit: 23

Plastic Limit: 17

Plasticity Index: 6

Classification: SC-SM

Moisture Content: 9.2%

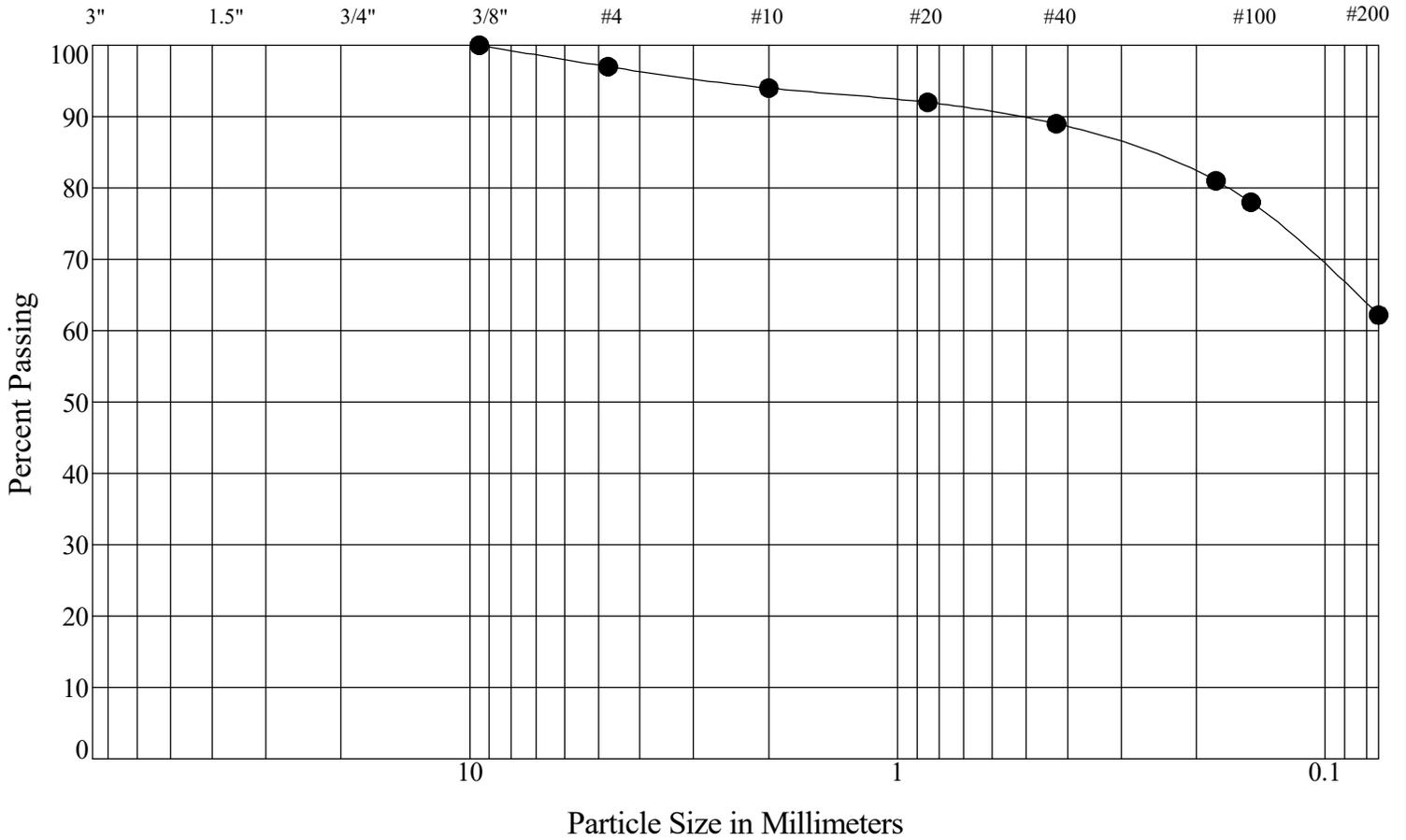
Percent Gravel: 0.0
 Percent Sand: 59.1
 Percent Silt + Clay: 40.9
 ASTM Group Name: SILTY, CLAYEY SAND



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Sieve Analysis
 Project Number: 23-4306G
 Metra Park Improvements
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
			100	97	94	92	89	81	78	62.2

Sample: ST-23
 Sample No.: Jar #61
 Depth: 2'-3 1/2'

Date Received: 12/8/23

Liquid Limit:	31
Plastic Limit:	15
Plasticity Index:	16
Classification:	CL
Moisture Content:	13.0%

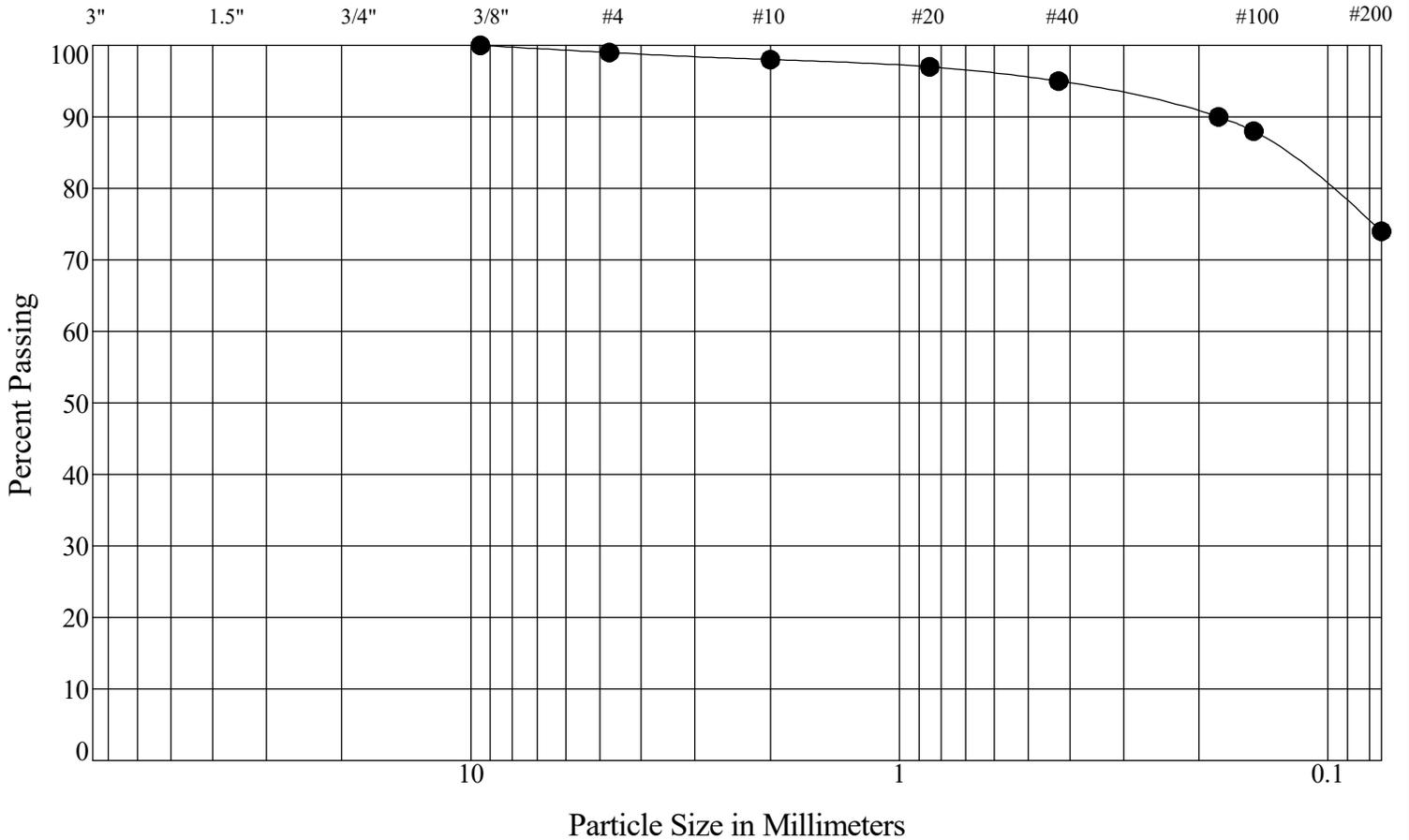
Percent Gravel: 3.0
 Percent Sand: 34.8
 Percent Silt + Clay: 62.2
 ASTM Group Name: SANDY LEAN CLAY



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Sieve Analysis
 Project Number: 23-4306G
 Metra Park Improvements
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
			100	99	98	97	95	90	88	74.0

Sample:	ST-26	Date Received:	12/8/23	Liquid Limit:	33
Sample No.:	Jar #55			Plastic Limit:	17
Depth:	2'-3 1/2'			Plasticity Index:	16
				Classification:	CL
				Moisture Content:	15.1%

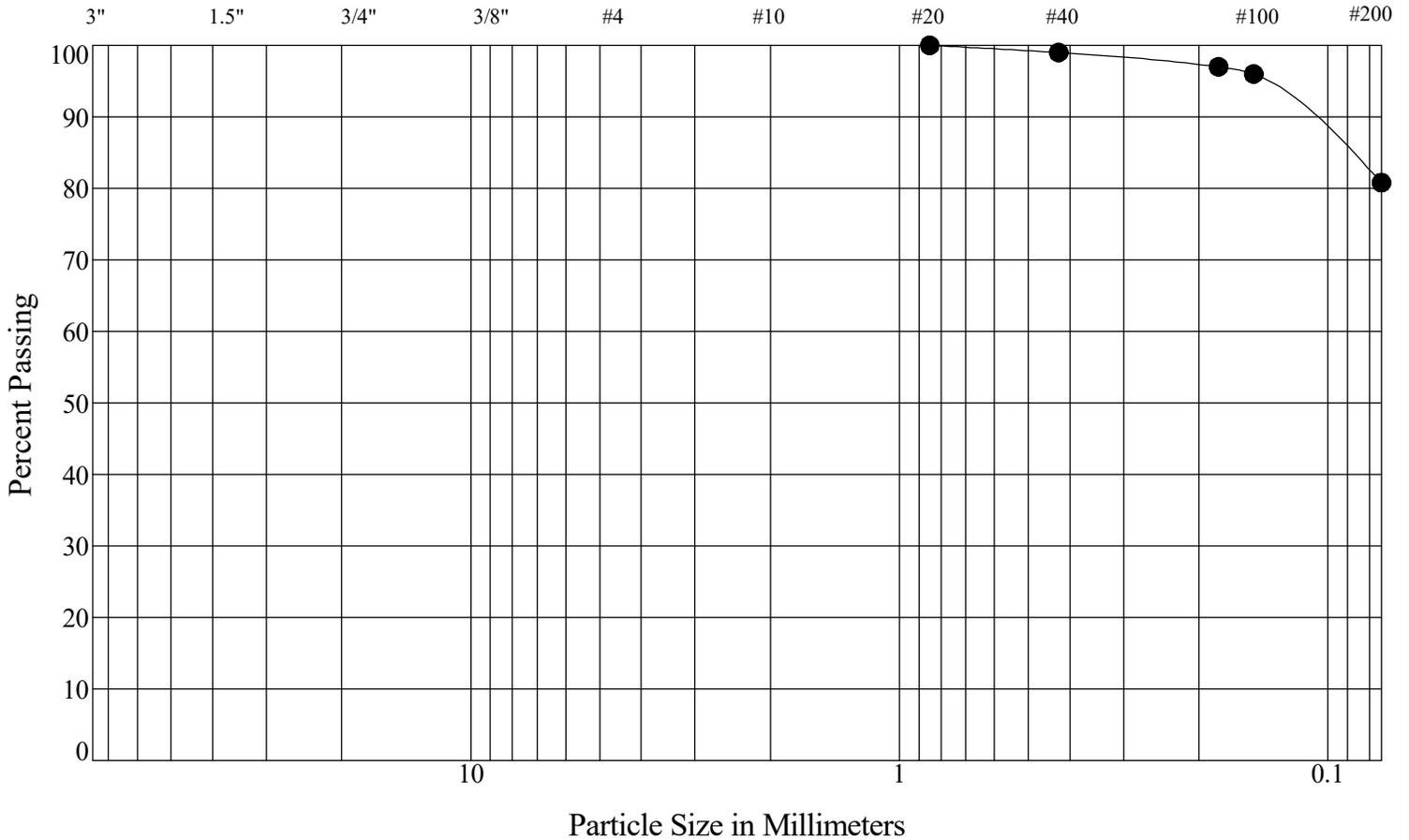
Percent Gravel: 1.0
 Percent Sand: 25.0
 Percent Silt + Clay: 74.0
 ASTM Group Name: LEAN CLAY with SAND



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Sieve Analysis
 Project Number: 23-4306G
 Metra Park Improvements
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
						100	99	97	96	80.8

Sample: ST-27
 Sample No.: Jar #52
 Depth: 1 1/2'-3'

Date Received: 12/8/23

Liquid Limit:	41
Plastic Limit:	19
Plasticity Index:	22
Classification:	CL
Moisture Content:	16.8%

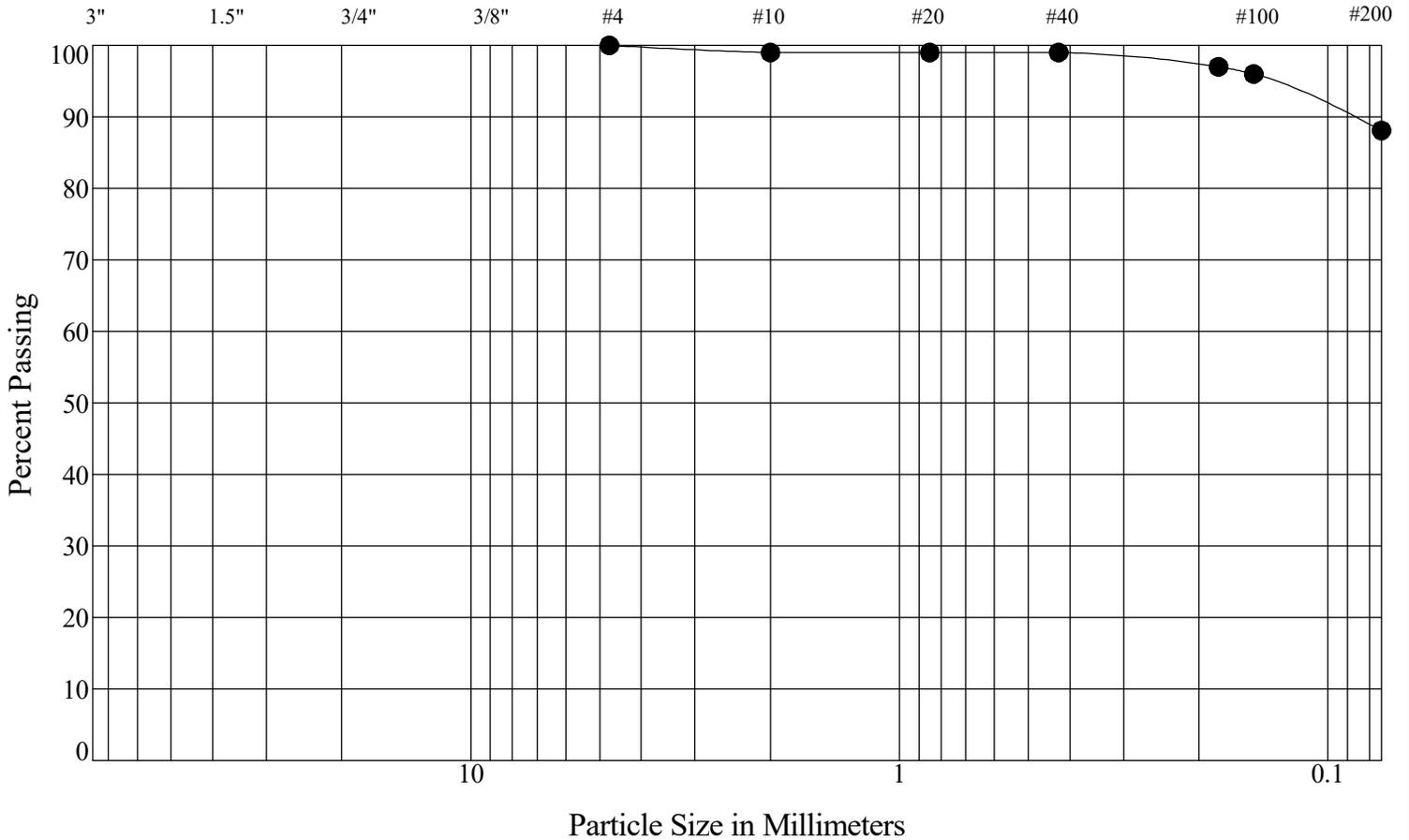
Percent Gravel: 0.0
 Percent Sand: 19.2
 Percent Silt + Clay: 80.8
 ASTM Group Name: LEAN CLAY with SAND



2511 Holman Avenue
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 Billings, MT 59108-0190
 Phone: 406.652.3930
 Fax: 406.652.3944

Sieve Analysis
 Project Number: 23-4306G
 Metra Park Improvements
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
				100	99	99	99	97	96	88.1

Sample: ST-30
 Sample No.: Jar #23
 Depth: 1 1/2'-3'

Date Received: 12/8/23

Liquid Limit:	34
Plastic Limit:	16
Plasticity Index:	18
Classification:	CL
Moisture Content:	19.6%

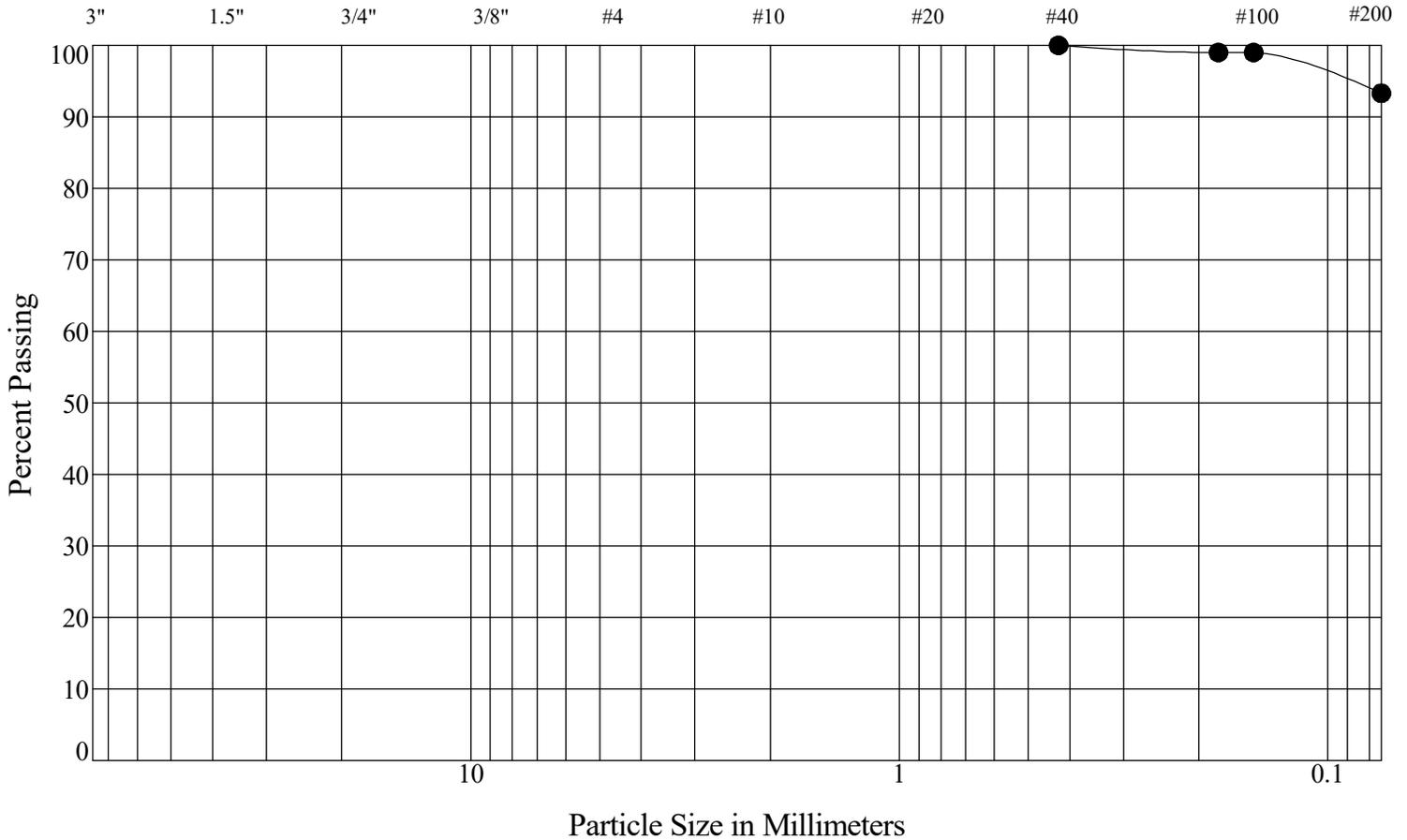
Percent Gravel: 0.0
 Percent Sand: 11.9
 Percent Silt + Clay: 88.1
 ASTM Group Name: LEAN CLAY



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Sieve Analysis
 Project Number: 23-4306G
 Metra Park Improvements
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
							100	99	99	93.3

Sample: ST-31
 Sample No.: TW
 Depth: 3'-4'

Date Received: 12/8/23

Liquid Limit:	46
Plastic Limit:	19
Plasticity Index:	27
Classification:	CL
Moisture Content:	23.5%

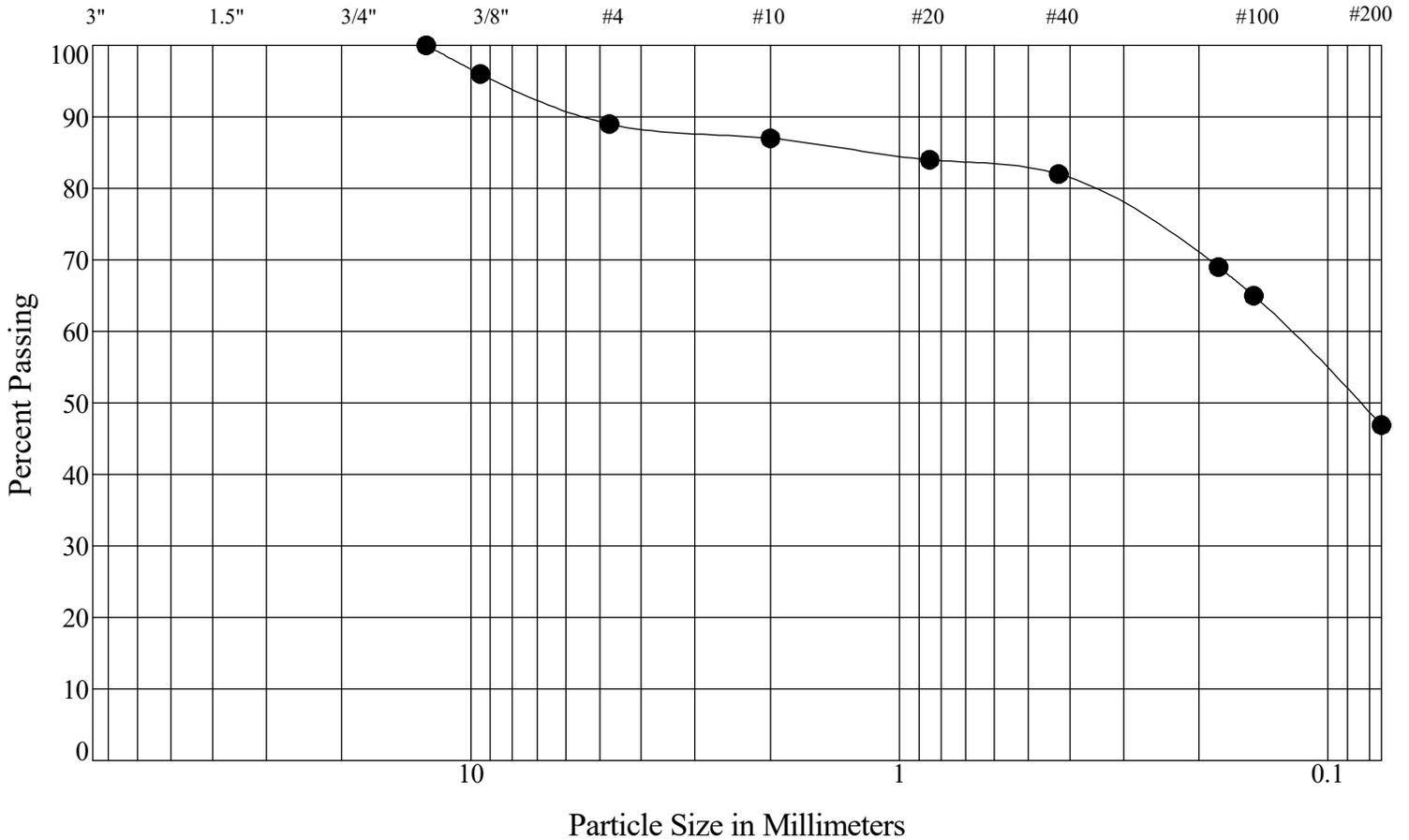
Percent Gravel: 0.0
 Percent Sand: 6.7
 Percent Silt + Clay: 93.3
 ASTM Group Name: LEAN CLAY



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Sieve Analysis
 Project Number: 23-4306G
 Metra Park Improvements
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
			96	89	87	84	82	69	65	46.9

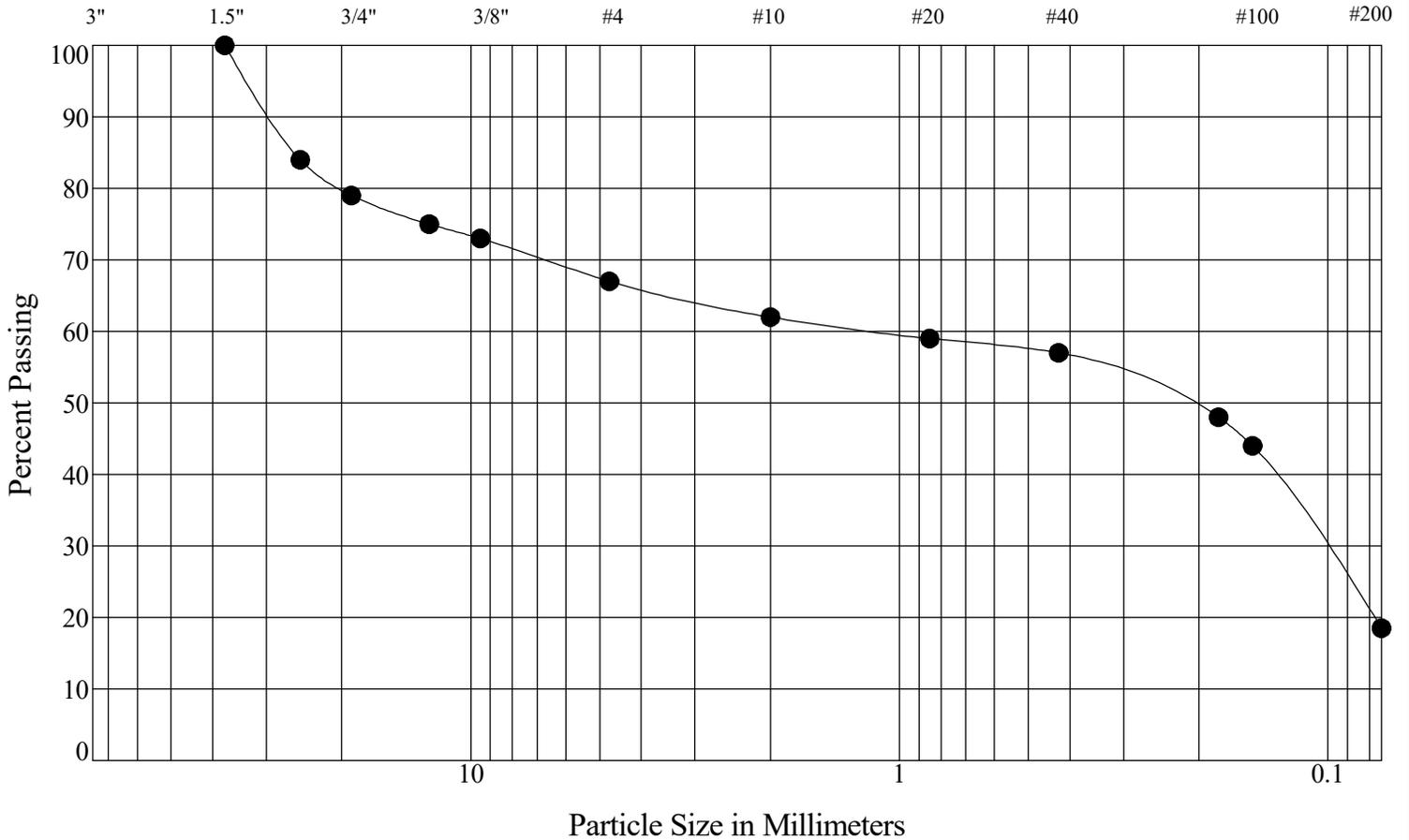
Sample:	ST-33	Date Received:	12/8/23	Liquid Limit:	25
Sample No.:	Jar #37			Plastic Limit:	18
Depth:	1 1/2'-3'			Plasticity Index:	7
Percent Gravel:	11.0			Classification:	SC-SM
Percent Sand:	42.1			Moisture Content:	10.4%
Percent Silt + Clay:	46.9				
ASTM Group Name:	SILTY, CLAYEY SAND				



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Sieve Analysis
 Project Number: 23-4306G
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 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
		79	73	67	62	59	57	48	44	18.5

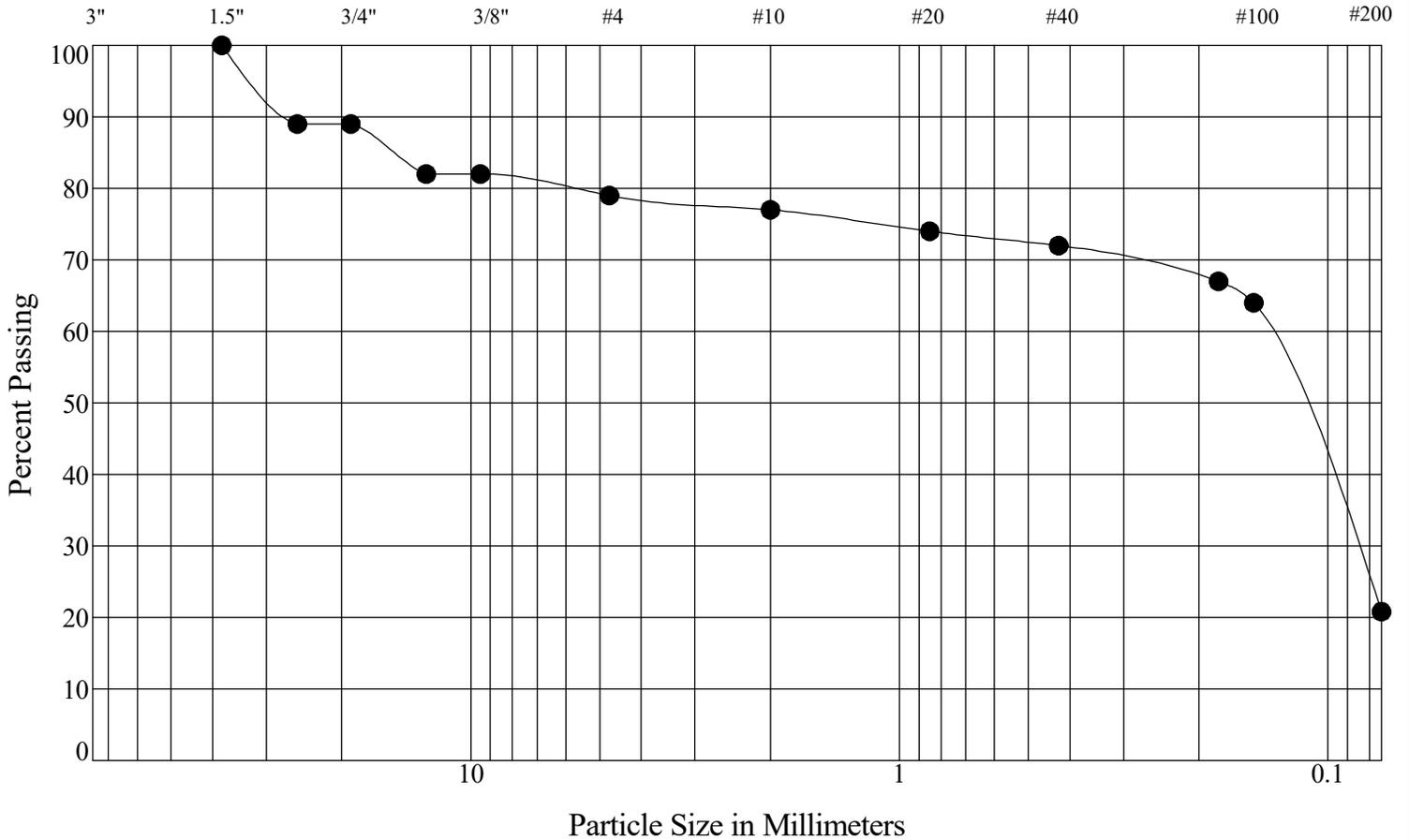
Sample:	ST-35	Date Received:	12/8/23	Liquid Limit:	NP
Sample No.:	Jar #9			Plastic Limit:	NP
Depth:	2'-3 1/2'			Plasticity Index:	NP
Percent Gravel:	33.0			Classification:	SM
Percent Sand:	48.5			Moisture Content:	9.7%
Percent Silt + Clay:	18.5				
ASTM Group Name:	SILTY SAND with GRAVEL				



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Sieve Analysis
 Project Number: 23-4306G
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 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
100	89	82	79	77	74	72	67	64	20.8	

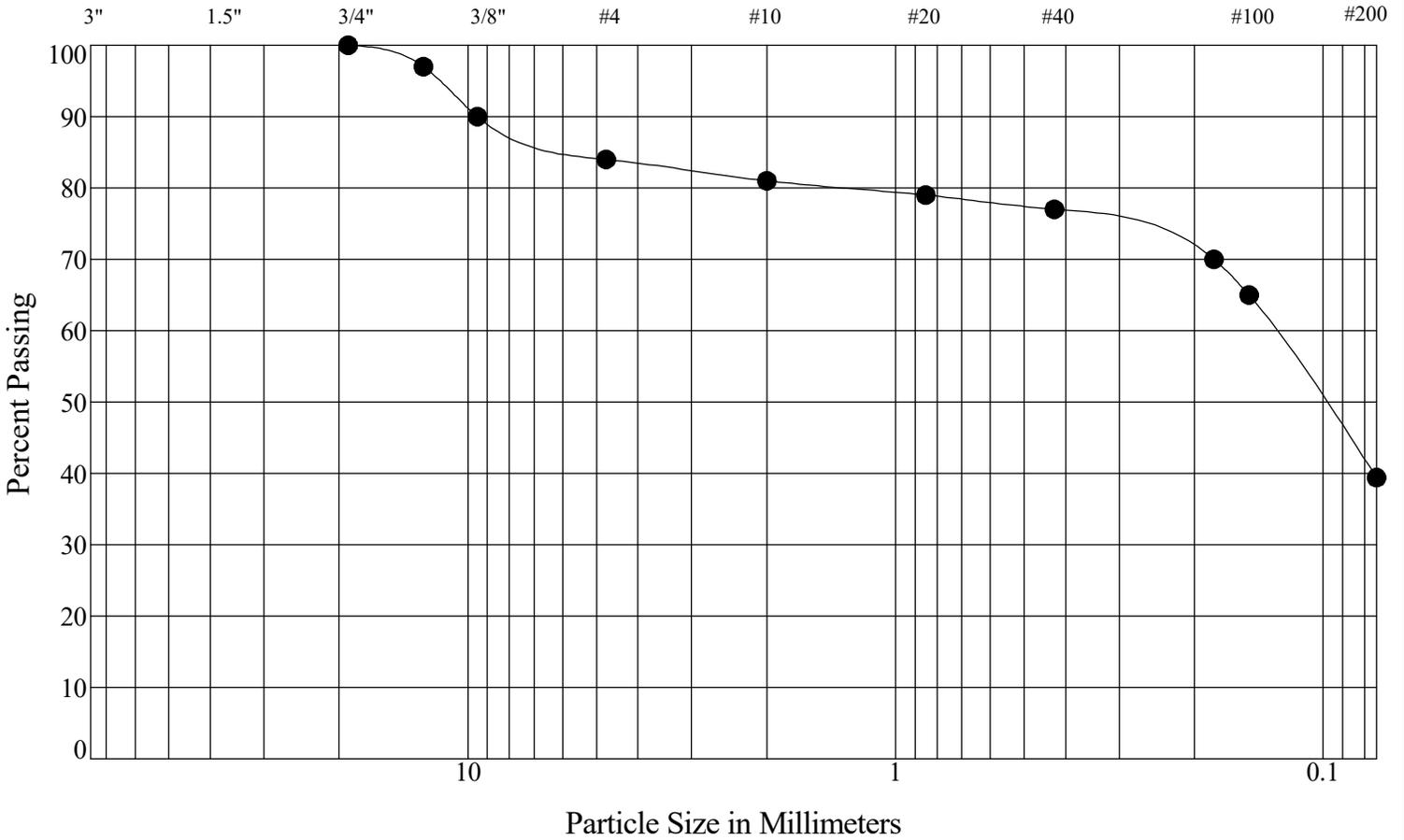
Sample:	ST-35	Date Received:	12/8/23	Liquid Limit:	NP
Sample No.:	Jar #11			Plastic Limit:	NP
Depth:	6 1/2'-8'			Plasticity Index:	NP
Percent Gravel:	21.0			Classification:	SM
Percent Sand:	58.2			Moisture Content:	19.8%
Percent Silt + Clay:	20.8				
ASTM Group Name:	SILTY SAND with GRAVEL				



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Sieve Analysis
 Project Number: 23-4306G
 Metra Park Improvements
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
		100	90	84	81	79	77	70	65	39.4

Sample:	ST-36	Date Received:	12/8/23	Liquid Limit:	22
Sample No.:	Jar #17			Plastic Limit:	17
Depth:	4'-5 1/2'			Plasticity Index:	5
Percent Gravel:	16.0			Classification:	SC-SM
Percent Sand:	44.6			Moisture Content:	14.6%
Percent Silt + Clay:	39.4				
ASTM Group Name:	SILTY, CLAYEY SAND with GRAVEL				



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Sieve Analysis
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Corrosivity of Soil

ASTM G162/G187, AASHTO T 88

Date: January 15, 2024

Project: 23-4360G Geotechnical Evaluation
Metra Park Improvements
Billings, Montana

Client: Greg Reid
WWC Engineering
greid@wwcengineering.com

Date sampled: 11/20-11/21/23

Date tested: 12/12-12/13/23

Sampled by: Drill Crew

Tested by: ZN

Boring	Depth (feet)	Resistivity ($\Omega \cdot \text{cm}$) Soil Box	Conductivity (m.mhos/cm) Calculated	pH	Marble pH	Sulfate (wt %)	Sulfide (mg/kg)	Oxid-Reduc (mV)
ST-35	9-10½	3750	0.267	8.11	8.06	0.0048	NT	NT
ST-30	0-1½	475	2.105	7.72	7.68	0.1730	NT	NT
ST-31	3-4	630	1.587	7.80	7.72	0.0644	NT	NT

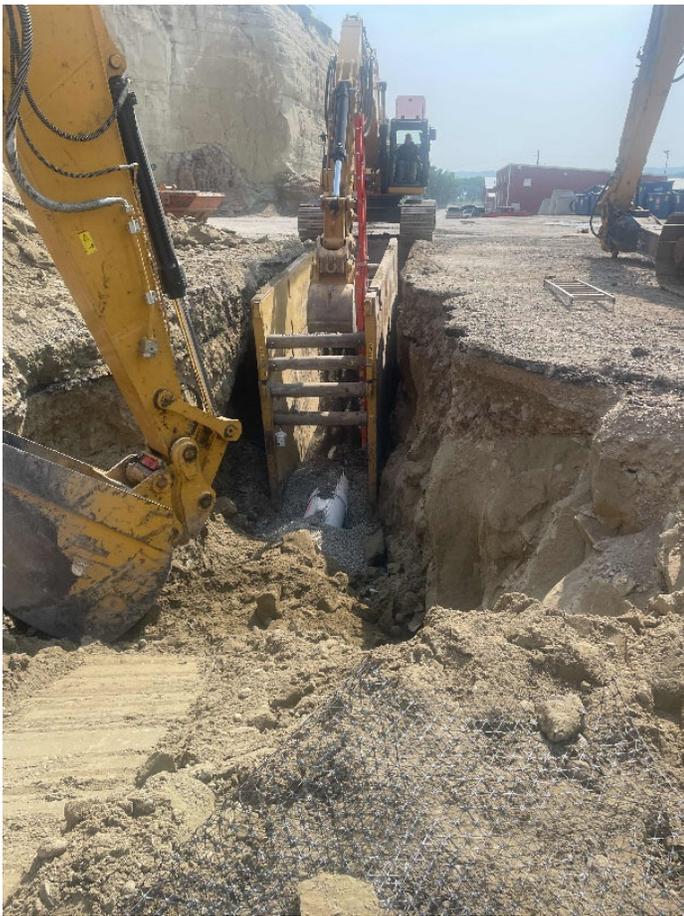
Remarks: ND = non-detect

NT = not tested

Sulfate result is E300.0 water soluble method from Energy Labs.



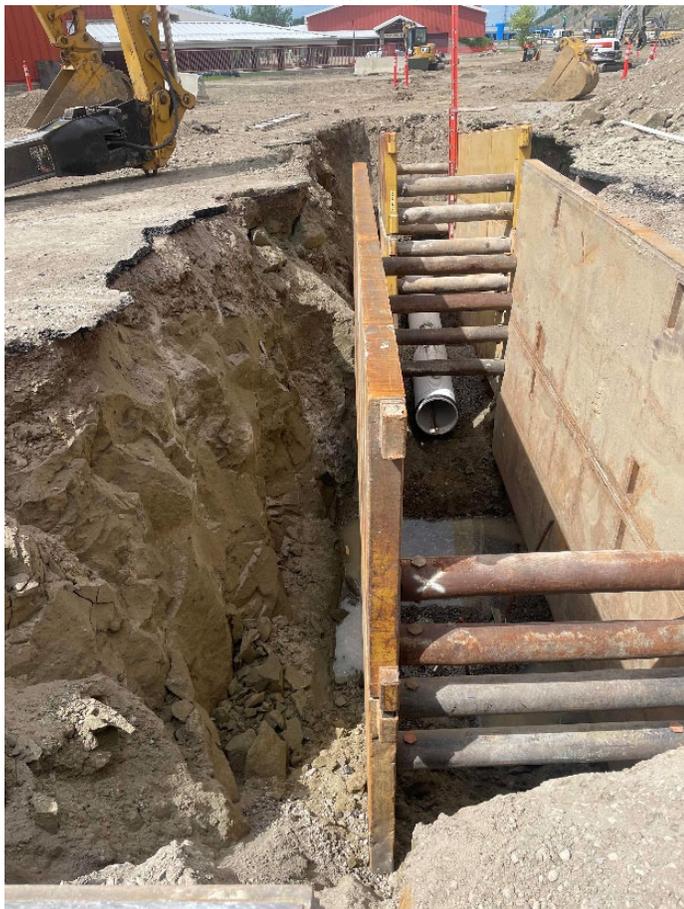
Arena Back Lot 1



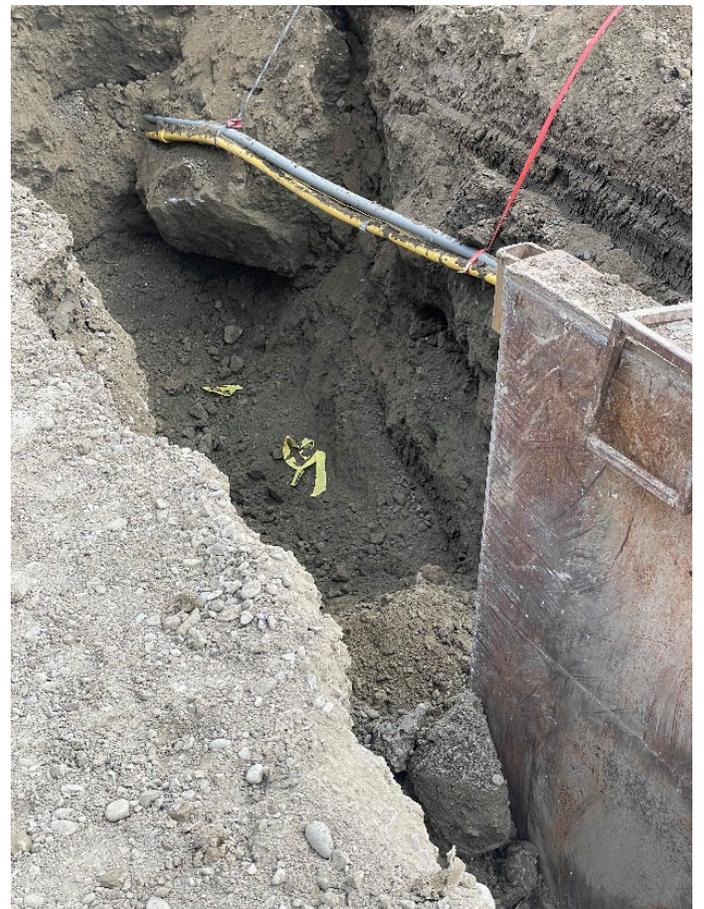
Arena Back Lot 2



Arena Back Lot 3



Arena Back Lot 4



Arena Back Lot 5



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April 24, 2024

Project 23-4360G

Mr. Greg Reid, PE
WWC Engineering
Via Email: greid@wwc.com

Dear Mr. Reid:

Re: Addendum No. 1, Geotechnical Evaluation, Proposed East Half Metra Park Improvements,
Billings, Montana

We have completed the additional geotechnical work you authorized on March 12, 2024 and are providing this addendum to our Geotechnical Evaluation report dated January 15, 2024. The purpose of the addendum is to provide additional utility recommendations for the proposed water and sewer line improvements in the Metra Park South Expo Lot.

Background

SK Geotechnical performed the utility geotechnical evaluation for the proposed East Half of Metra Park Improvements project and the results are presented in a report dated January 15, 2024. The geotechnical evaluation was performed for WWC Engineering. Borings ST-22 through ST-36 were completed on the site. It was recently decided to extend the water and sewer line improvements into the South Expo Lot. SK Geotechnical was issued a Work Order to perform more borings on March 12, 2024. Additional Borings, ST-37 and ST-38, were performed along the proposed utility alignments in the Metra Park South Expo Lot.

Summary of Results

Additional Borings, ST-37 and ST-38, were performed for the expanded water and sewer lines in Metra Park. Two borings from the original report, Borings ST-25 and ST-26, were within the expanded area, as well. These borings are shown on the attached boring location map. The borings encountered asphalt pavement varying from about 2 3/4 inches to 9 1/2 inches underlain by base course to depths ranging from about 0.9 feet to 2 feet. Boring ST-37 encountered recycled asphalt pavement mixed with base course beneath the pavement section to a depth of 1.1 feet. Fine-grained existing fill was encountered in all the borings to depths ranging from about 2 1/2 to 5 1/2 feet beneath the pavement section. Beneath the fill was alluvial fine-grained soils to depths ranging from about 9 feet to 11 1/2 feet. These fine-grained soils consisted of lean clay and sandy silty clay. Boring ST-25 encountered silty clayey sand to the borings termination depth of 5 1/2 feet. Boring ST-37 encountered alluvial gravels from about 9 feet to the boring's termination depth of 15 1/2 feet and Boring ST-38 encountered alluvial silty sand from about 11 1/2 feet to the boring's termination depth of 15 1/2 feet.

Penetration resistances recorded in the existing fill ranged from 5 to 10 blows per foot (BPF), indicating the clay fill was rather soft to rather stiff and the silty sand fill was loose. Penetration resistances recorded in the alluvial lean clay ranged from 3 to 5 BPF, indicating the clay soils were soft to rather soft. Penetration resistances recorded in the alluvial gravel ranged from 25 to 52 BPF, indicating the gravel was medium dense to very dense. Penetration resistances recorded in the alluvial silty sand ranged from 7 to 8 BPF, indicating the sand was loose.

Groundwater was encountered in Borings ST-37 and ST-38 at depths ranging from about 12 to 13 feet. Borings ST-25 and ST-26 were performed to 5 1/2 feet, indicating groundwater was below these depths. According to the Montana Groundwater Information Center, some existing wells in the Metra Park project area have static water levels ranging from 9 to 11 feet in depth.

Laboratory Tests

The results of the laboratory tests are summarized on the Log of Boring sheets and are presented in the attachments of this addendum.

Moisture content profiles were performed on all the samples obtained from the borings. The moisture content of the fine-grained soils ranged from 13.1 to 35.9 percent and the moisture content in the alluvial sands and gravels ranged from 2.5 to 33.3 percent. The lower moisture content values in the gravels are likely from lost moisture during sampling and are not representative of the actual moisture content within the gravels. The moisture contents across the project were more than 5 percent indicating wet to very wet soils through the whole soil profile.

Classification testing was performed on selected samples from the borings at specific depths. The results are summarized in Table 1 below. The tests indicate the soils consist of primarily low to medium plasticity lean clay with sand, and sandy silty clay. American Society for Testing Materials (ASTM) symbols are CL and CL-ML.

Table 1. Summary of Laboratory Tests.

Boring	Depth (feet)	Atterberg Limits			P ₂₀₀ (%)	ASTM Symbol
		LL	PL	PI		
ST-26	2 – 3 1/2	33	17	16	74.0	CL
ST-37	6 1/2 – 8	27	20	7	59.9	CL-ML
ST-38	6 1/2 – 8	43	14	29	93.9	CL

Analysis and Recommendations

Proposed Construction. Yellowstone County is working to improve the Metra Park South Expo Lot by adding new water and sewer utility lines and improving pavement in numerous lots and driveways. The

new utility lines will be PVC pipe ranging from 6 to 12 inches in diameter. There will also be new pavement placed along the full width of the roadways with utility improvements. The pavement needs to match existing grade, but can be modified for depth of base course and asphalt pavement. If the information indicated is incorrect, we should be informed. Additional analysis and recommendations may be necessary.

Utilities. For new water and sewer lines in the Metra South Expo Lot, it is our opinion the geotechnical recommendations in the January 15, 2024. Geotechnical report can be followed. The same varying existing fill was encountered and Type 2 bedding will be needed across at least 50-60% of the project limits. For Type 2 bedding, 18-inches should be used and well-graded Type 1 and Type 2 material is recommended, but open-graded Type 1 and Type 2 can be used if wrapped in a fabric. Dewatering equipment should be on-site and available to lower groundwater in deeper trenches if groundwater is encountered. The actual method of dewatering will need to be determined by the contractor based on their available equipment and experience.

Pavement. For pavement sections, follow the recommendations provided in the geotechnical report dated January 15, 2024. The same pavement sections can be used for the South Expo Lot based on type of vehicles that are anticipated.

General

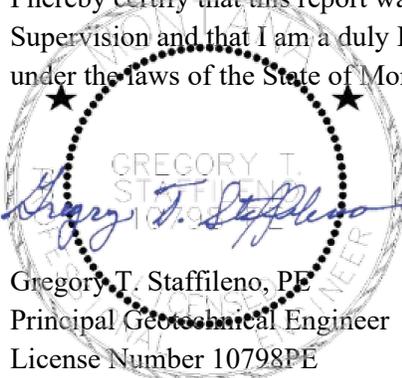
Refer to our Geotechnical Evaluation report dated January 15, 2024 for detailed results of our previous fieldwork, engineering analyses, recommendations, and limitations.

We appreciate the opportunity to provide these services. If you have any questions regarding this addendum or require our services during the construction phased of this project, please contact Greg Staffileno at (406) 652-3930.

Sincerely,

Professional Certification

I hereby certify that this report was prepared under my direct Supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Montana.



Gregory T. Staffileno, PE
Principal Geotechnical Engineer
License Number 10798PE



Jaye M. Wells
Geologist

Attachments:

Boring Location Sketch

Descriptive Terminology

Log of Boring Sheets – ST-25, ST-26, ST-37, ST-38

Atterberg Limit Tests

Sieve Analysis (3)



Google Earth

300 ft

Legend
 ● Soil Boring



BORING LOCATION SKETCH
Metra Park Improvements
South Expo Lot
Billings, Montana

Drawn by:	SKGeo/Google Earth	Date	4/15/2024
Project:	23-4360G		
Scale:	On image		FIGURE
Sheet	1	of	1
			1



Standard D 2487 Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification	
				Group Symbol	Group Name ^B
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines ^C	$C_u \geq 4$ and $1 \leq C_c \leq 3$ ^E	GW	Well graded gravel ^F
		Gravels with Fines More than 12% fines ^C	$C_u < 4$ and/or $1 > C_c > 3$ ^E	GP	Poorly graded gravel ^F
			Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines ^D	$C_u \geq 6$ and $1 \leq C_c \leq 3$ ^E	SW	Well graded sand ^I
		Sands with Fines More than 12% fines ^D	$C_u < 6$ and/or $1 > C_c > 3$ ^E	SP	Poorly graded sand ^I
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid Limit less than 50	Inorganic	$PI > 7$ and plots on or above "A" line ^J	CL	Lean clay ^{K, L, M}
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}
	Silts and Clays Liquid limit 50 or more	Inorganic	Liquid limit – oven dried < 0.75 Liquid limit – not dried	OL	Organic silt ^{K, L, M, N} Organic silt ^{K, L, M, O}
			PI plots on or above "A" line	CH	Fat clay ^{K, L, M}
		Organic	PI plots below "A" line	MH	Elastic silt ^{K, L, M, P}
			Liquid limit – oven dried < 0.75 Liquid limit – not dried	OH	Organic clay ^{K, L, M, P} Organic silt ^{K, L, M, Q}
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor			PT	Peat

- ^A Based on the material passing the 3" (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-SC well-graded sand with clay
 SP-SM poorly graded sand with silt
 SP-SC poorly graded sand with clay
- ^E $C_u = D_{60} / D_{10}$
 $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
- ^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.
- ^G If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
- ^H If fines are organic, add "with organic fines" to group name.
- ^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
- ^J If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
- ^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
- ^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.
- ^M If soil contains $\geq 30\%$ plus No. 200 predominantly gravel, add "gravelly" to group name.
- ^N $PI \geq 4$ and plots on or above "A" line.
- ^O $PI < 4$ or plots below "A" line.
- ^P PI plots on or above "A" line.
- ^Q PI plots below "A" line.

Particle Size Identification

Boulders over 12"
 Cobbles 3" to 12"
 Gravel
 coarse 3/4" to 3"
 fine No. 4 to 3/4"
 Sand
 coarse No. 4 to No. 10
 medium No. 10 to No. 40
 fine No. 40 to No. 200
 Silt No. 200 to .005 mm
 Clay less than .005 mm

Relative Density of Cohesionless Soils

very loose 0 to 4 BPF
 loose 5 to 10 BPF
 medium dense 11 to 30 BPF
 dense 31 to 50 BPF
 very dense over 50 BPF

Consistency of Cohesive Soils

very soft 0 to 1 BPF
 soft 2 to 3 BPF
 rather soft 4 to 5 BPF
 medium 6 to 8 BPF
 rather stiff 9 to 12 BPF
 stiff 13 to 16 BPF
 very stiff 17 to 30 BPF
 hard over 30 BPF

Moisture Content (MC) Description

rather dry MC less than 5%, absence of moisture, dusty
 moist MC below optimum, but no visible water
 wet Soil is over optimum MC
 waterbearing Granular, cohesionless or low plasticity soil with free water, typically near or below groundwater table
 very wet Cohesive soil well over OMC, typically near or below groundwater table

Drilling Notes

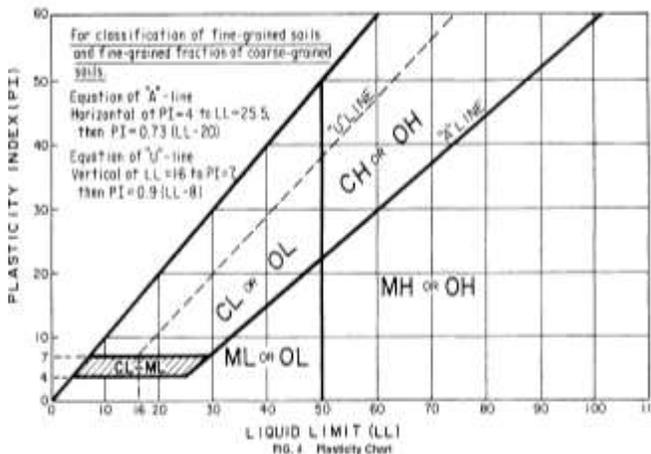
Standard penetration test borings were advanced by 3/4" or 4/4" ID hollow-stem augers, unless noted otherwise. Standard penetration test borings are designated by the prefix "ST" (split tube). Hand auger borings were advanced manually with a 2 to 3" diameter auger to the depths indicated. Hand auger borings are indicated by the prefix "HA."

Sampling. All samples were taken with the standard 2" OD split-tube sampler, except where noted. TW indicates thin-walled tube sample. CS indicates California tube sample. BS indicates bulk sample.

BPF. Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments and added to get BPF. Where they differed significantly, they were separated by backslash (/). In very dense/hard strata, the depth driven in 50 blows is indicated.

WH. WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

Note. All tests were run in general accordance with applicable ASTM standards.



Laboratory Tests

DD	Dry density, pcf	WD	Wet density, pcf	OC	Organic content, %
LL	Liquid limit	PL	Plastic limit	PI	Plasticity index
P ₂₀₀	% passing 200 sieve	MC	Natural moisture content, %		
MDD	Maximum dry density (Proctor), pcf	OMC	Optimum moisture content (Proctor), %		
qu	Unconfined compressive strength, psf	UCS	Unconfined compressive strength, psi		
qp	Pocket penetrometer strength, tsf				



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-25
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/21/23	SCALE: 1" = 3'
---------------------------	-----------------------------	----------------	----------------

Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3105.5	0.0						
3105.3	0.2		Asphalt: (2 3/4")				
			Base Course: Silty Gravel with Sand, fine- to coarse-grained, brown, moist. medium dense.	16	4.3		
3103.5	2.0		FILL: Silty Sand, fine- to coarse-grained, few organics, trace gravel, dark gray to black, moist, loose.	8		35.9	Mulch like appearance
3101.5	4.0		SILTY CLAYEY SAND, slightly plastic, fine- to medium-grained, olive brown, moist, very loose.				
3100.0	5.5	SC	(Alluvium)	4	14.2		
			END OF BORING				
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 1.3' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 4/24/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-26
	LOCATION: See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 11/21/23	SCALE: 1" = 3'
---------------------------	-----------------------------	----------------	----------------

Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3107.1	0.0						
3106.7	0.4		Asphalt: (4 3/4")				
3106.2	0.9		Base Course: Silty Sand with Gravel				
3105.1	2.0		Subbase Course: Clayey Gravel with Sand, fine- to coarse-grained, brown, moist, medium dense.	13	4.5		
			FILL: Lean Clay with Sand, low to medium plasticity, brown, moist, rather stiff.	9	15.1	LL=33, PL=17, PI=16, P ₂₀₀ =74.0%	
3101.6	5.5		END OF BORING	10	17.1		
			Groundwater not encountered.				
			Water not observed to dry cave-in depth of 1.8' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 4/24/24



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LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-37
	LOCATION: South Expo Water and Sewer Extension, See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 3/28/24	SCALE: 1" = 3'
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Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3107.8	0.0						
3107.1	0.7		Asphalt Pavement: (8½")				
3107.0	0.8		Base Course: Silty Sand with Gravel, fine- to coarse-grained, brown, moist, loose.				Bulk Bag Sample: (1.0'-2.5')
3106.7	1.1		Fill: Silty Sand with Gravel, fine- to coarse-grained, dark brown, moist, loose. (Recycled Asphalt Pavement)	5	17.8	3½	
3105.5	2.3		Fill: Fat Clay, high plasticity, trace salts, dark brown, moist, rather soft. (Alluvium)	5	20.8		
		CL	LEAN CLAY, medium plasticity, with layers of silty sand, trace organics and salts, brown, moist, rather soft. (Alluvium)	4	21.4	¾	
3100.8	7.0	CL ML	SANDY SILTY CLAY, slightly plasticity, some salts, brown, moist, rather soft. (Alluvium)	4	17.6		LL=27, PL=20, PI=7 P ₂₀₀ = 59.9%
3098.8	9.0		SILTY GRAVEL with SAND, fine- to coarse-grained, brown, moist, medium dense to very dense. (Alluvium)	38	2.5		
		GM		25	4.8		
3092.3	15.5		END OF BORING	52	14.5		
			Water observed at a depth of 12.2' with 14.0' of hollow-stem auger in the ground.				
			Water not observed to dry cave-in depth of 10.0' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 4/24/24



2511 Holman Avenue
 P. O. Box 80190
 Billings, MT 59108-0190
 Phone: 406.652.3930
 Fax: 406.652.3944

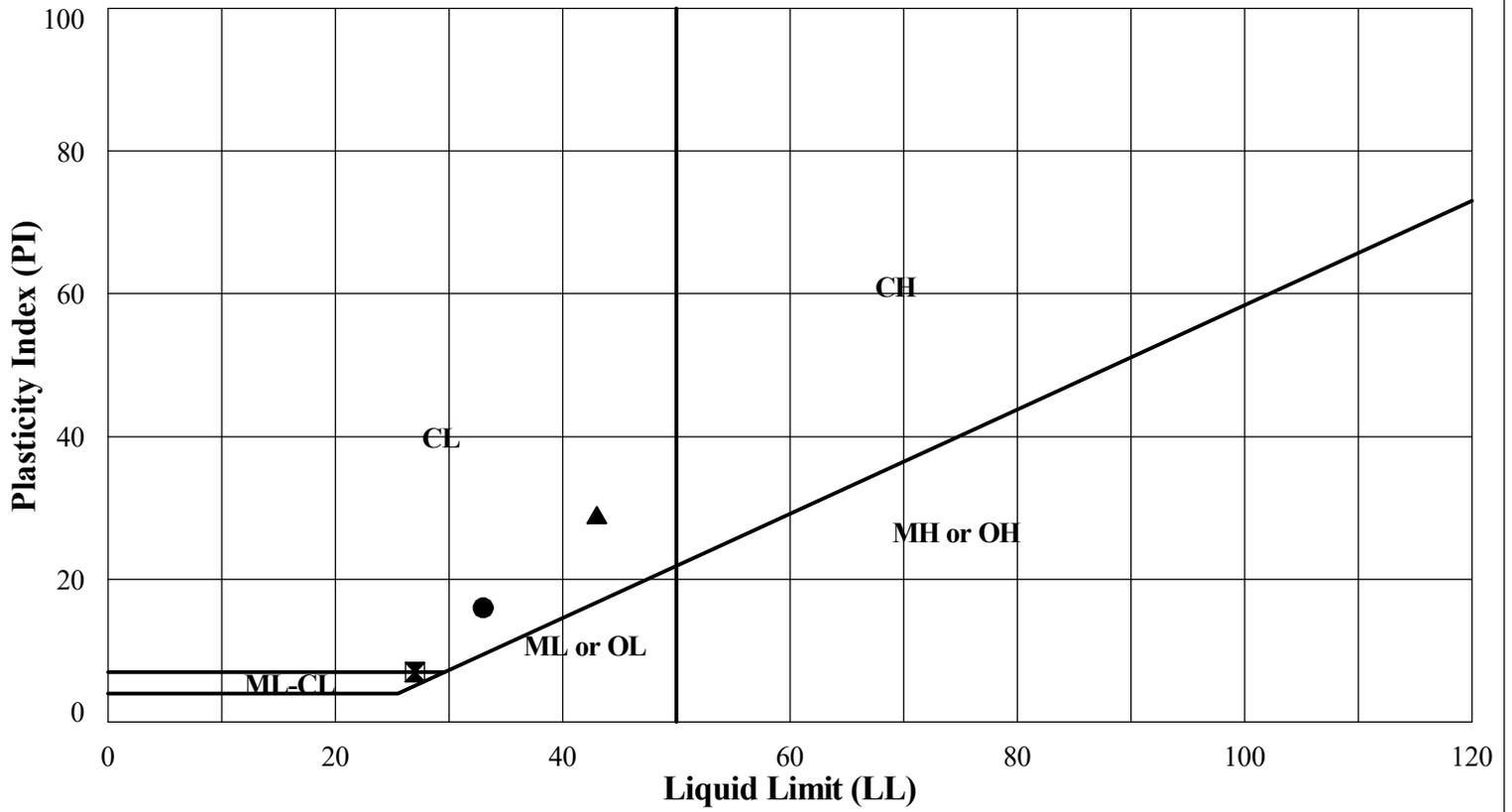
LOG OF BORING

PROJECT: 23-4360G GEOTECHNICAL EVALUATION Metra Park Improvements Billings, Montana	BORING: ST-38
	LOCATION: South Expo Water and Sewer Extension, See Attached Sketch

DRILLED BY: E. Hollibaugh	METHOD: CME 75HT, Automatic	DATE: 3/28/24	SCALE: 1" = 3'
---------------------------	-----------------------------	---------------	----------------

Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
3110.0	0.0						
3109.2	0.8		Asphalt Pavement: (9½")				
3109.1	0.9		Base Course: Silty Sand with Gravel, fine- to coarse-grained, brown, moist, loose. Fill: Lean Clay, low to medium plasticity, some salts, dark brown, moist, rather stiff.	9	13.1	4+	
3107.0	3.0		LEAN CLAY, medium plasticity, some salts and lenses of silty sand, brown, moist, soft to rather soft. (Alluvium)	4	21.5	½	
		CL		3	23.9		
				3	26.9	½ 1½	LL=43, PL=14, PI=29 P ₂₀₀ = 93.9%
				5	22.4	¾	
3098.5	11.5		SILTY SAND with GRAVEL, fine- to coarse-grained, brown, moist to wet, loose. (Alluvium)	8	15.7		
		SM					
3094.5	15.5		END OF BORING	7	33.3		
			Water observed at a depth of 13.1' with 14.0' of hollow-stem auger in the ground.				
			Water not observed to dry cave-in depth of 11.0' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4360.GPJ LAGNN06.GDT 4/24/24



Legend	Boring	Sample No.	Depth	LL	PL	PI	P 200, %	MC	Classification
●	ST-26	Jar #55	2'-3½'	33	17	16	74.0	15.1%	CL
◻	ST-37	Jar #11	6½'-8'	27	20	7	59.9	17.6%	CL-ML
▲	ST-38	Jar #14	6½'-8'	43	14	29	93.9	26.9%	CL

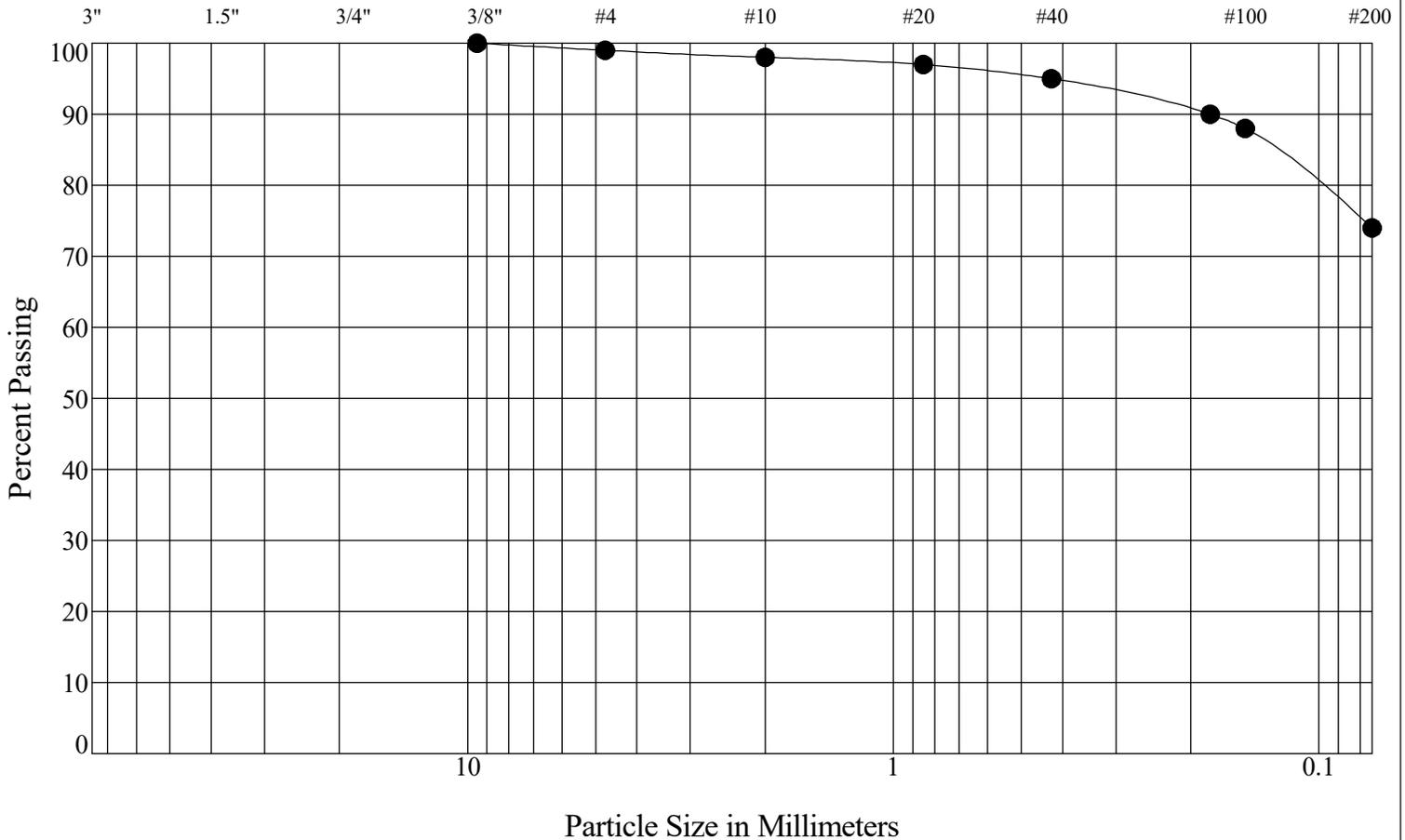


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Phone: 406.652.3930
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Atterberg Limits Tests

Project Number: 23-4306G
South Expo Water and Sewer Extension
Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
			100	99	98	97	95	90	88	74.0

Boring No.: ST-26
 Sample No.: Jar #55
 Depth: 2'-3 1/2'

Date Received: 12/8/23

Liquid Limit: 33

Plastic Limit: 17

Plasticity Index: 16

Classification: CL

Moisture Content: 15.1%

Percent Gravel: 1.0
 Percent Sand: 25.0
 Percent Silt + Clay: 74.0
 ASTM Group Name: LEAN CLAY with SAND

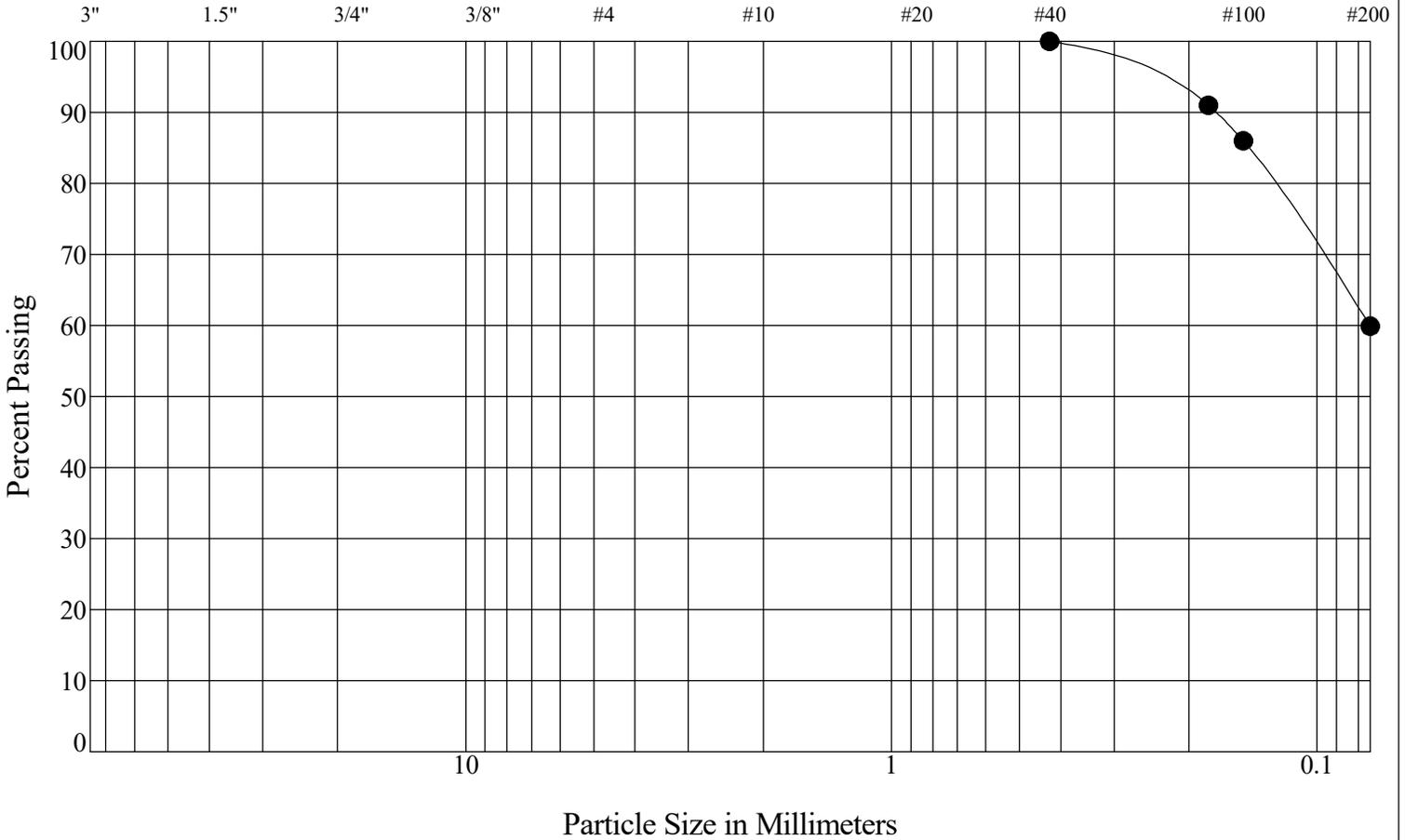


2511 Holman Avenue
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 Phone: 406.652.3930
 Fax: 406.652.3944

Sieve Analysis

Project Number: 23-4306G
 South Expo Water and Sewer Extension
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine
0.0	0.0	40.1	17.6	0.0

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
							100	91	86	59.9

Boring No.: ST-37
 Sample No.: Jar #11
 Depth: 6½'-8'

Date Received: 4/1/24

Liquid Limit: 27

Plastic Limit: 20

Plasticity Index: 7

Classification: CL-ML

Moisture Content: 17.6%

Percent Gravel: 0.0
 Percent Sand: 40.1
 Percent Silt + Clay: 59.9
 ASTM Group Name: SANDY SILTY CLAY

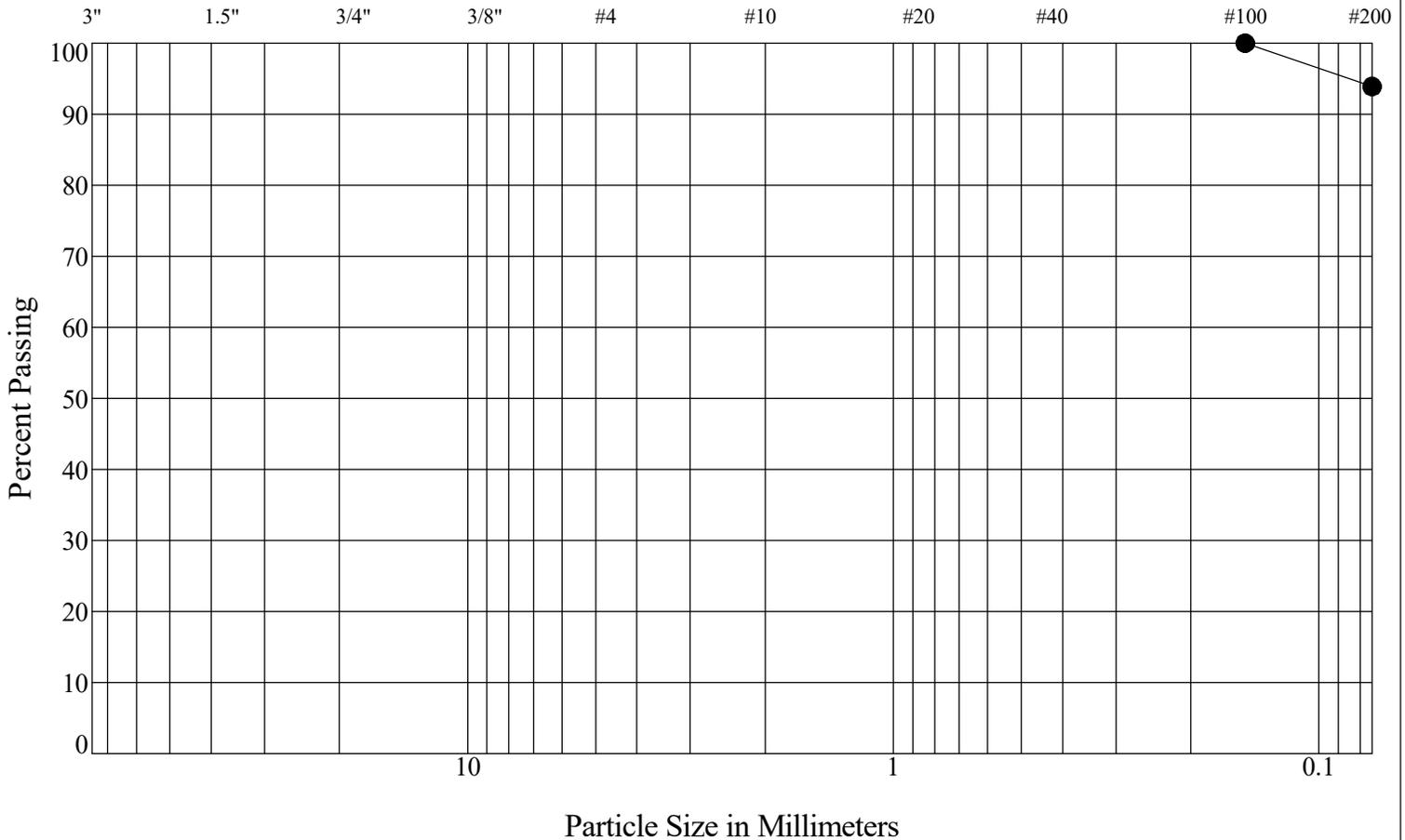


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Sieve Analysis

Project Number: 23-4306G
 South Expo Water and Sewer Extension
 Billings, Montana

Sieve Size



Gravel		Sand		
coarse	fine	coarse	medium	fine

Percent Passing U.S. Standard Sieve Size

3"	1 1/2"	3/4"	3/8"	#4	#10	#20	#40	#80	#100	#200
									100	93.9

Boring No.: ST-38	Date Received: 4/1/24	Liquid Limit: 43
Sample No.: Jar #14		Plastic Limit: 14
Depth: 6 1/2'-8'		Plasticity Index: 29
Percent Gravel: 0.0		Classification: CL
Percent Sand: 6.1		Moisture Content: 26.9%
Percent Silt + Clay: 93.9		
ASTM Group Name: LEAN CLAY		



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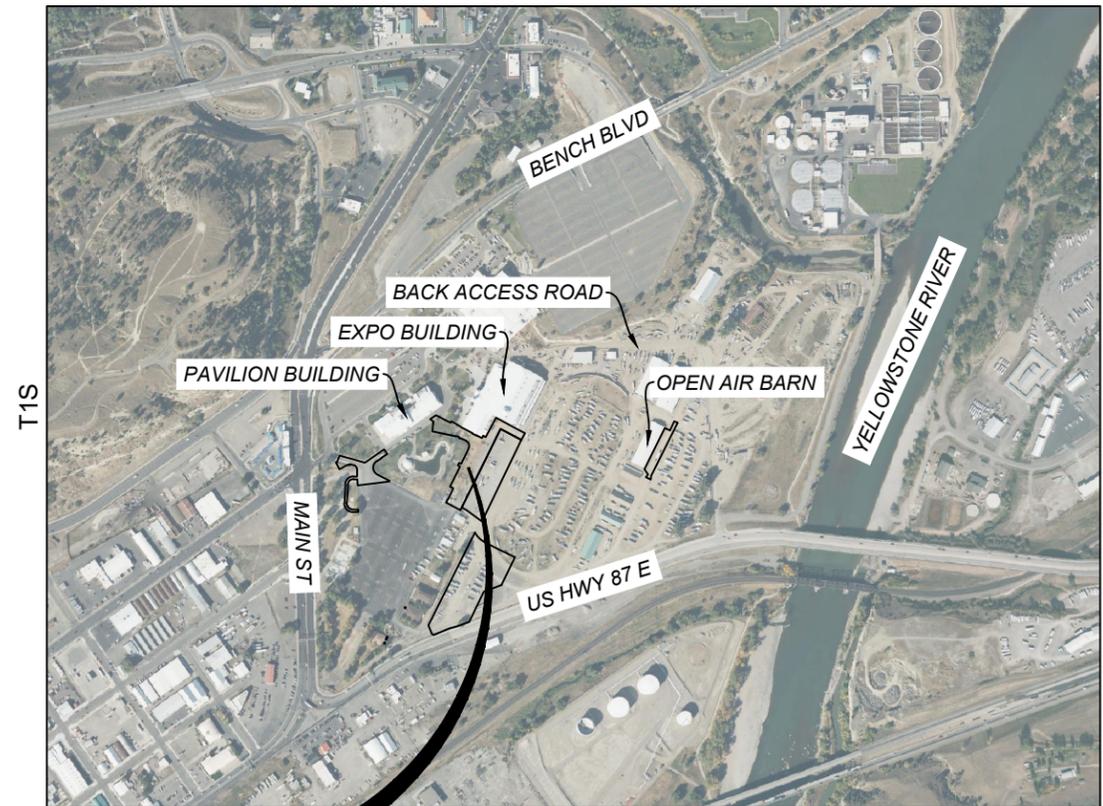
Sieve Analysis
 Project Number: 23-4306G
 South Expo Water and Sewer Extension
 Billings, Montana

K:\Sheldahl\Yellowstone County, MT\2021-555 MetraPark Infrastructure Improvements\GIS\CAD\Sheets\PLAN_SET\05_South Expo Lot\01_GENERAL\21555_05-COVER.dwg COVER 8/2/2024 11:23:47 AM

CONSTRUCTION DRAWINGS

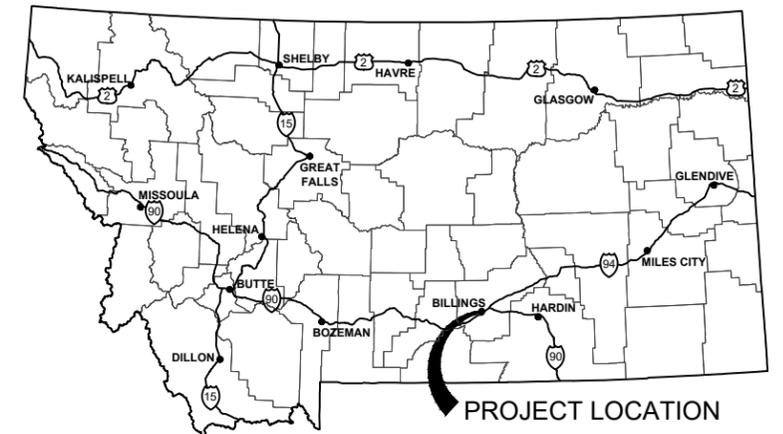
YELLOWSTONE COUNTY SOUTH EXPO LOT CONSTRUCTION PROJECT

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	GENERAL NOTES
3	PROJECT SUMMARY SHEET
4	BID ADDENDUM PROJECT SUMMARY SHEET
5	PROJECT OVERVIEW KEY SHEET
6	PROJECT OVERVIEW KEY SHEET
7	SUMMARY TABLES
8	SOUTH EXPO LOT DEMOLITION
9	CARNIVAL LOT ENTRANCE DEMOLITION
10	SOUTH EXPO LOT GRADING AND IMPROVEMENTS
11	CARNIVAL LOT ENTRANCE GRADING AND IMPROVEMENTS
12	PATHWAY MILLINGS ADDITION GRADING
13	LOT 1 IMPROVEMENTS
14	OPEN AIR BARN ROAD IMPROVEMENTS
15	CARNIVAL LOT WATER SERVICE IMPROVEMENTS
16	CARNIVAL LOT WATER SERVICE IMPROVEMENTS
17	CARNIVAL LOT WATER SERVICE IMPROVEMENTS
18	WATER PLAN AND PROFILE
19	WATER PLAN AND PROFILE
20	PAVILION COURTYARD IRRIGATION IMPROVEMENTS
21	SANITARY SEWER PLAN AND PROFILE
22	SANITARY SEWER PLAN AND PROFILE
23	SANITARY SEWER PLAN AND PROFILE
24	STORM SEWER PLAN AND PROFILE
25	STORM SEWER PLAN AND PROFILE
26	STORM SEWER PLAN AND PROFILE
27	STORM SEWER PLAN AND PROFILE
28	STANDARD CURB AND SURFACING SECTION DETAILS
29	STORM CHANNEL & MANHOLE DETAIL
30	YARD HYDRANT AND SEWER CLEANOUT DETAILS
31	EXPO SOUTH LOT SERVICE HOOKUP DETAILS
32	PAVILION COURTYARD SERVICE HOOKUP DETAILS
33	LIGHT POLE BASE DETAILS



T1S

PROJECT LOCATION
R26E
LOCATION MAP



BILLINGS, MT



0 500' 1000'
SCALE: 1" = 1000'
11" x 17" PAPER SIZE



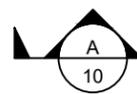
BID SET

PREPARED FOR: YELLOWSTONE COUNTY METRAPARK ARENA 306 6TH AVE N., BILLINGS, MT 59101			
PREPARED BY: WWC ENGINEERING 550 S. 24TH ST. W., SUITE 201 BILLINGS, MT 59102 (406) 894-2210 www.wwcengineering.com			
PROJECT NO. 2021-555		DESIGNED BY: <u>JMD</u> DRAWN BY: <u>ZSL</u> CHECKED BY: <u>GTR</u> DATE: <u>8/8/2024</u>	
NO.	REVISION	BY	DATE
DRAWING NO.			1

GENERAL CONSTRUCTION NOTES

- UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, ALL WORK SHALL CONFORM TO MPWSS, LATEST EDITION AND THESE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS REQUIRED AND CONSTRUCTION TESTING FOR CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL RESTORE ALL ROADWAY TO EQUAL OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION, AS DETERMINED BY THE OWNER AND THE ENGINEER.
- THE LOCATION, DEPTH AND SIZE OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTENCE, LOCATION, DEPTH, SIZE, LINE AND GRADE OF EXISTING UTILITY CONNECTIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING FACILITIES DUE TO FAILURE TO LOCATE OR PROVIDE PROPER PROTECTION WHEN LOCATION IS KNOWN.
- THE CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS, COUPLINGS AND SPOOL PIECES FOR CONNECTING NEW UTILITIES TO EXISTING UTILITIES. THESE PLANS MAY NOT SHOW ALL REQUIRED COMPONENTS FOR MAKING THE CONNECTIONS.
- ALL BACKFILL FOR UTILITY TRENCHES SHALL BE TYPE "A," UTILIZING TYPE 1 BEDDING, UNLESS DIRECTED OTHERWISE BY ENGINEER. SPECIFIED BEDDING SHALL BE FROM 4" BENEATH THE PIPE TO 6" ABOVE THE TOP OF PIPE (SEE MPWSS STANDARD DRAWING 02221-1). THE COST OF THIS ADDITIONAL BEDDING SHALL BE INCLUDED IN THE UNIT PRICE BID.
- PIPE BEDDING (TYPE 1) AND TRENCH BACKFILL (TYPE B) SHALL BE IN ACCORDANCE WITH MPW STANDARD SPECIFICATION 02221, STANDARD DRAWING 02221-1.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST AND EROSION DURING CONSTRUCTION AT CONTRACTOR'S EXPENSE. EROSION SHALL BE CONTROLLED IN ACCORDANCE WITH MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY REGULATIONS.
- ALL PROFILES REPRESENT EXISTING GROUND (DASHED LINE) AND FINISHED GRADE (SOLID LINE) ALONG THE ALIGNMENTS INDICATED ON THE PLANS. ELEVATIONS ARE FINISHED GROUND ELEVATIONS.
- ALL DISTURBED AREAS SHALL BE SEEDED BY THE CONTRACTOR USING A SEED MIX APPROVED BY THE OWNER OR THE LOCAL USDA OFFICE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF UTILITY (PHONE/POWER/CATV) INSTALLATION WITH LOCAL UTILITY COMPANIES.
- THE CONTRACTOR SHALL NOTIFY ONE CALL @ 1-800-424-5555 FOR ONSITE UTILITY LOCATION. ALL EXISTING UTILITIES SHALL BE MARKED BEFORE DIGGING.
- THE CONTRACTOR SHALL MAINTAIN SERVICE OF ALL EXISTING UTILITIES. IF SAID SERVICE IS DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY REPAIR THE DAMAGE AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK.
- ALL UTILITY CONDUITS FOR IRRIGATION, ELECTRICAL, GAS, PHONE, CATV, ETC. SHALL BE BURIED A MINIMUM 24" FROM FINISHED GRADE WITH TYPE A BACKFILL, UTILIZING TYPE 1 BEDDING, UNLESS DIRECTED OTHERWISE BY ENGINEER.
- IF THE CONTRACTOR DETERMINES THE NEED TO DISTURB MORE THAN 1.0 ACRE DURING THE CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AN MPDES PERMIT AND COMPLYING WITH ALL TERMS OF THE PERMIT. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.
- QUANTITIES SHOWN IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES.

DRAWING NOTATION



INDICATES CROSS SECTION LOCATION. "A" REFERS TO THE CROSS SECTION DESIGNATION. "10" REFERS TO THE SHEET NUMBER WHERE THE SECTION IS CUT OR SHOWN.



INDICATES DETAIL LOCATION. "1" REFERS TO THE DETAIL DESIGNATION. "12" REFERS TO THE SHEET NUMBER WHERE THE DETAIL IS INDICATED OR SHOWN.

ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE	HWY	HIGHWAY
BAR	REBAR	INV	INVERT ELEVATION
BMP	BEST MANAGEMENT PRACTICES	LF	LINEAR FEET
BOT	BOTTOM	MID	POINT, MIDPOINT OF CURVE
BVC	BEGIN VERTICAL CURVE	MH	MANHOLE
CFS	CUBIC FEET PER SECOND	MJ	MECHANICAL JOINT
CL	CENTERLINE	O.C.	ON CENTER
CMP	CORRUGATED METAL PIPE	O.C.E.F.	ON CENTER EACH FACE
CONC	CONCRETE OR CONCENTRIC	OHP	OVERHEAD POWER
CP	CONTROL POINT	PC	POINT, POINT OF CURVE
CSP	CORRUGATED STEEL PIPE	PI	POINT OF INTERSECTION
CTR	CENTER	POT	POINT ON TANGENT
CU FT	CUBIC FEET	PS	PIPE SUPPORT
CULV	CULVERT	PT	POINT, POINT OF TANGENCY
DI	DUCTILE IRON OR DRAIN INLET	PVC	POLYVINYL CHLORIDE
DIA	DIAMETER	PWR	POWER
EA	EACH	RCP	REINFORCED CONCRETE PIPE
E.F.	EACH FACE	R/W OR ROW	RIGHT OF WAY
EL, ELEV	ELEVATION	SAN	SANITARY
EOP	EDGE OF PAVEMENT	SST	STAINLESS STEEL
EVC	END VERTICAL CURVE	STA	STATION
FT	FOOT OR FEET	TBC	TOP BACK OF CURB
GPM	GALLONS PER MINUTE	TYP	TYPICAL
HP	HORSEPOWER	UG	UNDERGROUND
		WTR	WATER

BLOCK LEGEND

EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED
	SANITARY SEWER MANHOLE		WATER VENT		FIBER OPTIC MANHOLE
	SANITARY SEWER CLEANOUT		WATER MANHOLE		FIBER OPTIC MARKER
	SANITARY SEWER CAP		WATER REDUCER		FIBER OPTIC PULL BOX
	SANITARY SEWER METER VAULT		WATER MARKER		FIBER OPTIC PEDESTAL
	SANITARY SEWER LIFT STATION		FIRE HYDRANT		FIBER OPTIC VAULT
	SANITARY SEWER FM (TEE)		WATER CURB STOP		NATURAL GAS MARKER
	SANITARY SEWER FM (11.25")		WATER METER		NATURAL GAS METER
	SANITARY SEWER FM (22.5")		WATER VAULT		NATURAL GAS VALVE
	SANITARY SEWER FM (45")		WATER BOOSTER STATION		TELEPHONE MANHOLE
	SANITARY SEWER FM (90")		WATER WELL		TELEPHONE MARKER
	SANITARY SEWER FM (CROSS)		WATER MONITORING WELL		TELEPHONE PULL BOX
	SANITARY SEWER FM FLANGE		WATER TEST STATION		TELEPHONE PEDESTAL
	SANITARY SEWER FM VALVE		CABLE TELEVISION MARKER		TELEPHONE VAULT
	SANITARY SEWER FM REDUCER		CABLE TELEVISION PULL BOX		TREE (DECIDUOUS)
	SANITARY SEWER FM BF PREV.		CABLE TELEVISION PEDESTAL		TREE (CONIFER)
	STORMWATER AREA INLET		CABLE TELEVISION VAULT		ADA RAMP
	STORMWATER COMBO INLET		POWER GUY ANCHOR		SIGN
	STORMWATER FLARED END		POWER GUY POLE		BOLLARD
	STORMWATER MANHOLE		POWER MANHOLE		MILEPOST
	STORMWATER PUMP STATION		POWER MARKER		CATTLE GUARD
	STORM SEWER HEAD WALL		ELECTRIC POWER METER		BORE LOCATION
	WATER FITTING BEND 11.25"		POWER POLE		PROP CORNER ALUMINUM CAP
	WATER FITTING BEND 22.5"		POWER TRANSFORMER		PROP CORNER BRASS CAP
	WATER FITTING BEND 45"		POWER VAULT		PROP CORNER CHISELED X
	WATER FITTING BEND 90"		STREET LIGHT		HIGHWAY ROW MONUMENT
	WATER FITTING CAP		IRRIGATION PULL BOX		PROP CORNER IRON PIPE
	WATER FITTING CROSS		IRRIGATION SPRINKLER HEAD		PROP CORNER LEAD & TACK
	WATER FITTING FLANGE		IRRIGATION VALVE		PROP CORNER REBAR
	WATER FITTING TEE		IRRIGATION VAULT		PROP CORNER STONE
	WATER FITTING VALVE				CONTROL POINT
					PROP CORNER PLASTIC CAP

LINE STYLE LEGEND

EXISTING	PROPOSED	
		MAJOR CONTOUR
		MINOR CONTOUR
		OVERHEAD TELEPHONE
		OVERHEAD POWER
		NATURAL GAS
		IRRIGATION LINE
		FIBER OPTIC
		FORCEMAIN
		FENCE [CHAIN]
		FENCE [BARBED]
		FENCE [PRIVACY]
		FIRE LINE
		OVERHEAD TV
		RAW WATER
		SEWER
		STORM
		UNDERGROUND POWER
		UNDERGROUND TELEPHONE
		UNDERGROUND TV
		WATER

BID SET

DATE	
BY	
REVISION	
NO.	

PREPARED BY: **WWC ENGINEERING**
 550 S. 24TH ST. W., SUITE 201
 BILLINGS, MT 59102
 (406) 894-2210
 www.wwcengineering.com

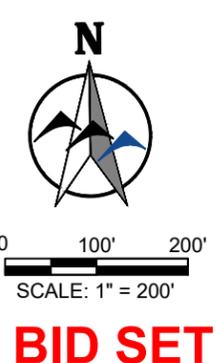
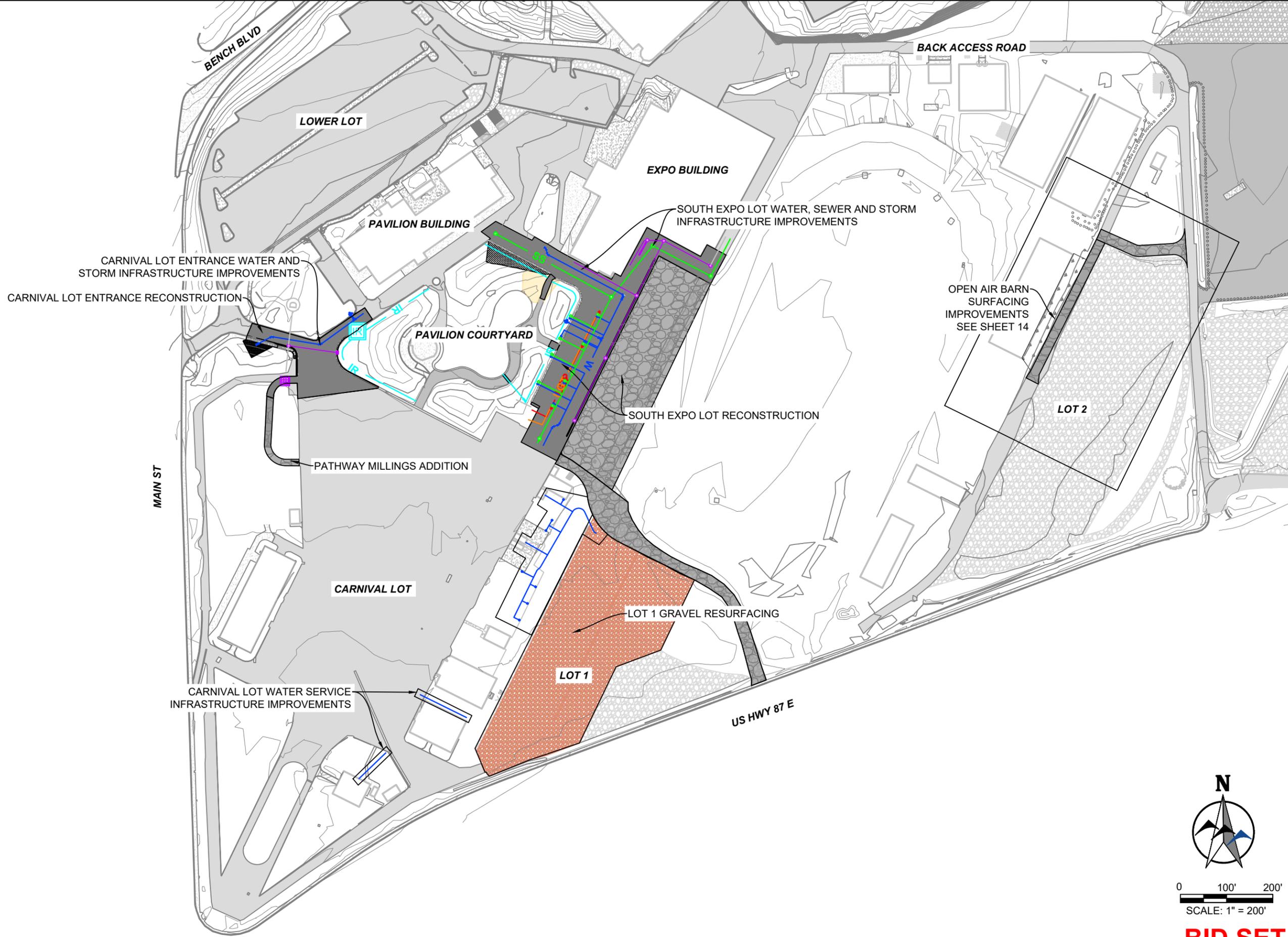
YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
GENERAL NOTES
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
2

PROJECT NO. 2021-565

K:\Sheridan\Yellowstone County, MT\2021555 MetraPark Infrastructure Improvements\05CAD\Sheets\PLAN_SET\05_South Expo Lot\02_OVERVIEW\02_1555_05-OVERVIEW.dwg PROJECT SUMMARY 8/2/2024 11:25:37 AM



NO.	REVISION	BY	DATE

PREPARED BY

WWC ENGINEERING
 550 S. 24TH ST. W., SUITE 201
 BILLINGS, MT 59102
 (406) 894-2210
 www.wwcengineering.com

YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
PROJECT SUMMARY SHEET
 BILLINGS, MT

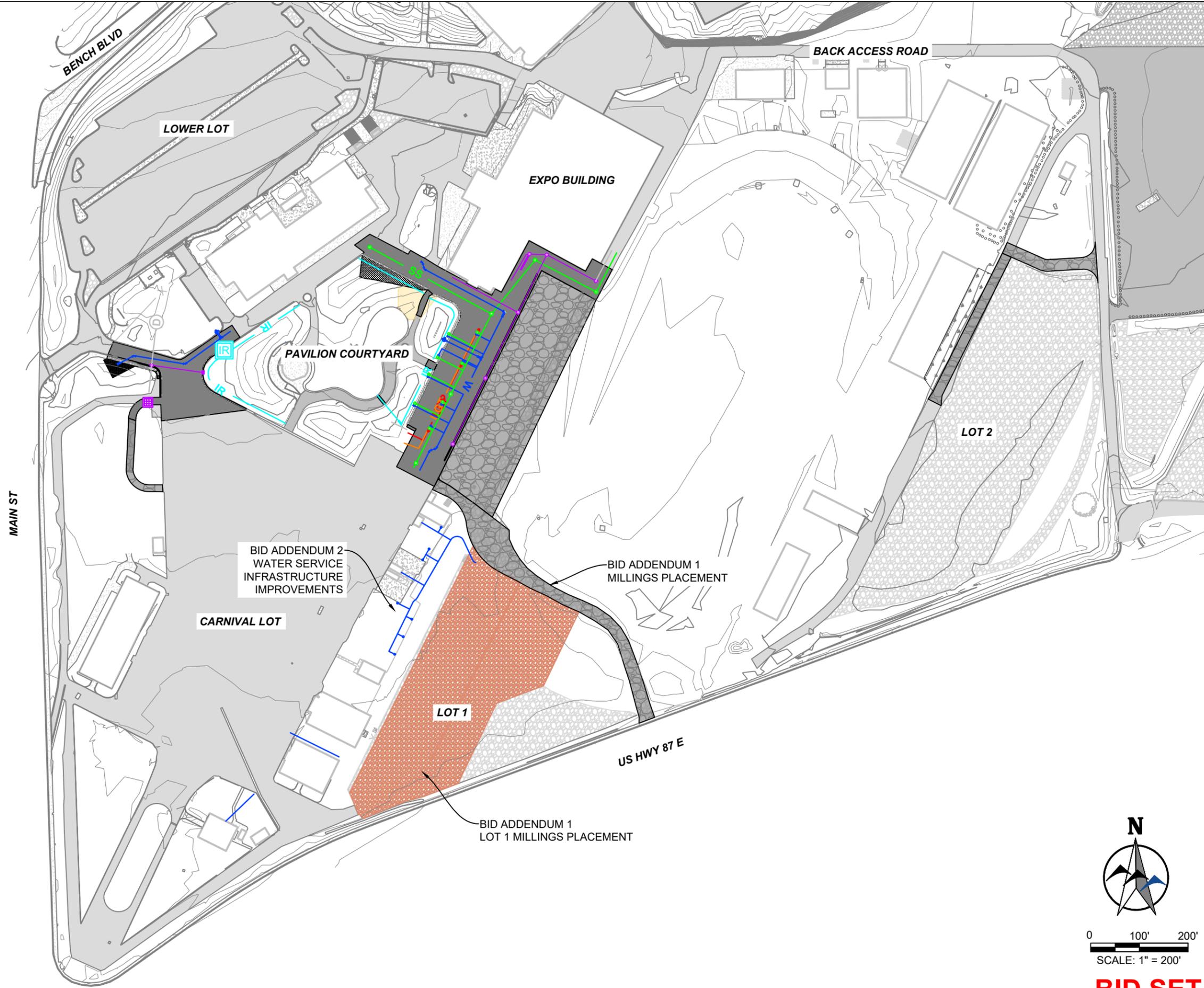
DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
3

BID SET

PROJECT NO. 2021-555

K:\Sheridan\Yellowstone County, MT\2021555 MetraPark Infrastructure Improvements\USCAD\SheetPLAN_SET\05_South Expo Lot02_OVERVIEW.dwg BID SUMMARY (4) 8/2/2024 11:25:37 AM



NO.	REVISION	BY	DATE

PREPARED BY
 **WWC** ENGINEERING
 550 S. 24TH ST. W., SUITE 201
 BILLINGS, MT 59102
 (406) 894-2210
 www.wwcengineering.com

YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
BID ADDENDUM PROJECT SUMMARY SHEET
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
4

0 100' 200'
 SCALE: 1" = 200'

BID SET

GRADING					
ITEM	UNIT	QUANTITY			REMARKS
		FILL	CUT	MISC.	
CARNIVAL LOT ENTRANCE	CY		900		CUT/FILL TO ASPHALT SUBGRADE. EXCLUDES CONCRETE CUT/FILL.
SOUTH EXPO LOT - ASPHALT PAVEMENT	CY	84	2,300		CUT/FILL TO ASPHALT SUBGRADE. EXCLUDES CONCRETE CUT/FILL.
SOUTH EXPO LOT - ASPHALT MILLINGS	CY	1,655	299		CUT/FILL TO SUBGRADE.
TOTAL	CY	1,739	3,499		

SURFACING			
ITEM	UNIT	QUANTITY	REMARKS
4" ASPHALT PAVEMENT - 10" CRUSHED BASE	SY	7,396	SOUTH EXPO LOT
4" ASPHALT PAVEMENT - 10" CRUSHED BASE	SY	2,293	CARNIVAL LOT ENTRANCE
4" ASPHALT MILLINGS	SY	304	PATHWAY MILLINGS ADDITION
4" ASPHALT MILLINGS	SY	7,046	SOUTH EXPO LOT
4" ASPHALT MILLINGS	SY	567	OPEN AIR BARN ROAD
6" THICKNESS CRUSHED BASE	SY	7,046	SOUTH EXPO LOT
6" THICKNESS CRUSHED BASE	SY	758	OPEN AIR BARN ROAD
6" THICKNESS CRUSHED BASE	SY	12,399	LOT 1
4" ASPHALT MILLINGS	SY	2,539	BID ADDENDUM 1 - LOT 1
4" ASPHALT MILLINGS	SY	12,398	BID ADDENDUM 1 - GATE 2 ACCESS ROAD

ID	LOCATION	PLAN QUANTITY		REMARKS
		COMBINED CONCRETE CURB & GUTTER (LF)	CONCRETE FLATWORK (SF)	
INS-01	SOUTH EXPO LOT	154		RIBBON
INS-02	SOUTH EXPO LOT	185		RIBBON
INS-03	SOUTH EXPO LOT	123		RIBBON
INS-04	SOUTH EXPO LOT		857	VALLEY GUTTER
INS-05	CARNIVAL LOT ENTRANCE		715	SIDEWALK
INS-06	CARNIVAL LOT ENTRANCE		101	ADA RAMP
INS-07	CARNIVAL LOT ENTRANCE	165		CURB
INS-08	CARNIVAL LOT ENTRANCE	194		CURB
INS-09	ARENA BACK LOT	20		CURB

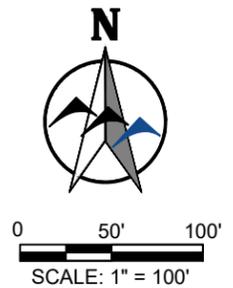
BID ADD 2	CARNIVAL LOT WATER		129	SIDEWALK
BID ADD 2	CARNIVAL LOT WATER		16	SIDEWALK
BID ADD 2	CARNIVAL LOT WATER		30	SIDEWALK

	COMBINED CONCRETE CURB AND GUTTER (LF)	CONCRETE RIBBON (LF)	CONCRETE FLATWORK (SF)	ADA RAMP (SF)	CONCRETE VALLEY GUTTER (SF)	BID ADDENDUM 2 - CONCRETE SIDEWALK (SF)
TOTAL	379	462	715	101	857	175

- NOTES:
- DESCRIPTION IN THE REMARKS COLUMN CORRESPONDS TO THE LEGEND LABELS ON IMPROVEMENT SHEETS.
 - INSTALL ID NUMBERING MATCHES CONCRETE REMOVAL SUMMARY TABLE AS APPLICABLE.

CONCRETE REMOVAL						
ID	LOCATION	PLAN DIMENSIONS		UNIT	QUANTITY	REMARKS
		LF	SF			
	SOUTH EXPO LOT		51	SY	5.7	CONCRETE PAD
REM-01	CARNIVAL LOT ENTRANCE	114		SY	25.3	CURB
REM-02	CARNIVAL LOT ENTRANCE		716	SY	79.6	SIDEWALK
REM-03	CARNIVAL LOT ENTRANCE		576	SY	64.0	VALLEY GUTTER
REM-04	CARNIVAL LOT ENTRANCE	20		SY	4.4	CURB
TOTAL				SY	179	

- NOTES:
- ALL CURB & GUTTER REMOVAL IS MEASURED AS A STANDARD 2' WIDTH FOR SY CALCULATIONS.
 - DESCRIPTION IN THE REMARKS COLUMN CORRESPONDS TO THE LEGEND LABELS ON DEMO SHEETS.
 - ADDITIONAL 10% ADDED TO BID FORM QUANTITY FOR UNIDENTIFIED CONCRETE REMOVAL.



BID SET

NO.	REVISION	BY	DATE

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 BILLINGS, MT 59102
 (406) 894-2210
 www.wwcengineering.com

YELLOWSTONE COUNTY
SOUTH EXPO LOT CONSTRUCTION PROJECT
SUMMARY TABLES
 BILLINGS, MT

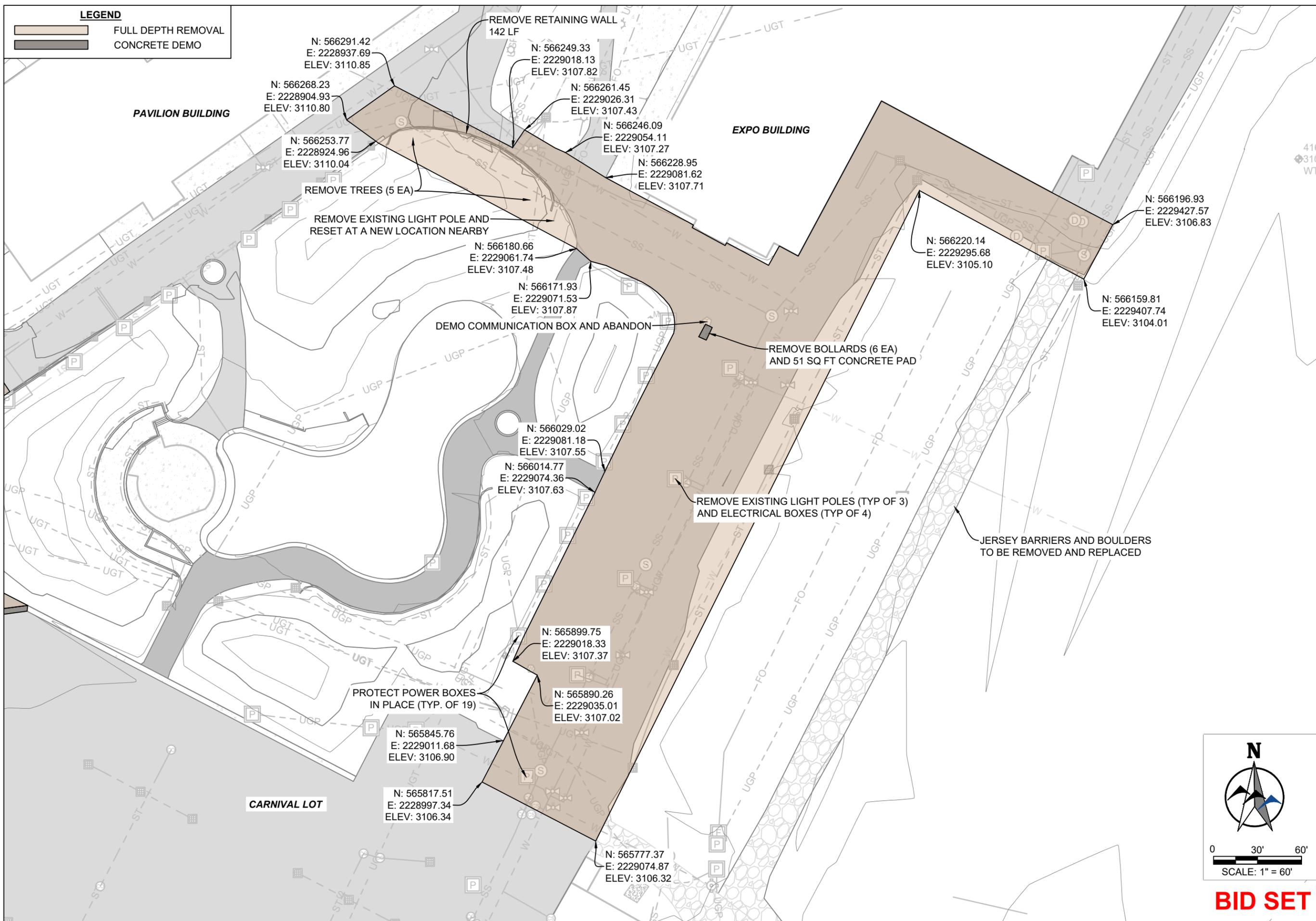
DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

K:\Sheridan\Yellowstone County, MT\2021555 MetraPark Infrastructure Improvements\GCADD\Sheets\PLAN_SET\105_DEMO2\1555_05-DEMO.dwg DEMO 8/1/2024 2:16:59 PM

LEGEND

 FULL DEPTH REMOVAL

 CONCRETE DEMO



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YELLOWSTONE COUNTY

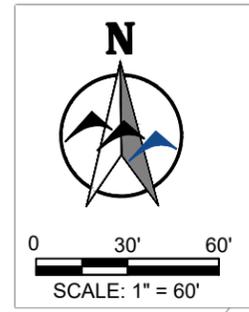
SOUTH EXPO LOT CONSTRUCTION PROJECT

SOUTH EXPO LOT DEMOLITION

BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
8

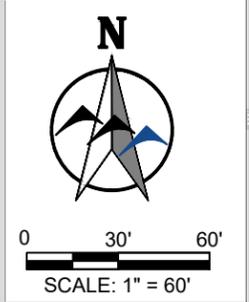


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- NOTES:**
1. SURFACE CONTOURS SHOWN AT 1' INTERVALS.
 2. NEW TREES ARE TO BE NATCHEZ CREPE MYRTLE WITH 1.5" CALIPER TRUNK SIZE. ADDITIONAL 2 TREES WILL BE LOCATED BY METRA STAFF.



Point Table				
Point	Northing	Easting	Elevation	Description
1000	566294.71	2228942.23	3110.78	EOA
1001	566272.37	2228910.78	3110.83	EOA
1002	566256.93	2228930.71	3110.57	EOA
1003	566254.46	2228927.23	3110.55	CONCRETE RIBBON
1004	566253.16	2228925.41	3110.54	CONCRETE RIBBON
1007	566253.50	2229020.95	3107.68	EOA
1008	566261.45	2229026.31	3107.43	EOA
1009	566246.09	2229054.11	3107.27	TIE TO EXISTING
1010	566228.95	2229081.62	3107.71	TIE TO EXISTING
1011	566206.62	2229072.78	3108.23	SWALE
1012	566155.60	2229168.37	3107.74	SWALE
1013	566196.73	2229141.60	3108.01	TIE TO EXISTING
1014	566194.91	2229140.62	3107.98	TIE TO EXISTING
1015	566182.74	2229163.14	3107.97	EOA
1016	566184.61	2229164.14	3108.04	EOA
1017	566169.25	2229192.75	3107.92	EOA
1018	566182.42	2229200.13	3107.99	EOA

Point Table				
Point	Northing	Easting	Elevation	Description
1019	566175.57	2229212.95	3107.73	EOA
1020	566281.15	2229269.80	3107.96	EOA
1021	566218.77	2229386.02	3107.62	EOA
1022	566243.98	2229399.85	3107.92	EOA
1023	566221.92	2229440.71	3106.64	EOA
1024	566196.93	2229427.57	3106.35	EOA
1025	566159.81	2229407.74	3106.39	EOA/EOAM
1026	566201.13	2229330.90	3107.72	EOA/EOAM
1027	566220.14	2229295.68	3107.24	EOA/EOAM
1028	566213.86	2229285.85	3107.26	VALLEY GUTTER
1029	566213.42	2229286.75	3107.21	VALLEY GUTTER
1030	566212.97	2229287.64	3107.26	VALLEY GUTTER
1031	566100.53	2229229.33	3107.40	VALLEY GUTTER
1032	566100.08	2229230.22	3107.40	VALLEY GUTTER
1033	566099.63	2229231.12	3107.40	VALLEY GUTTER
1034	565965.61	2229162.04	3107.08	VALLEY GUTTER
1035	565965.16	2229162.94	3107.08	VALLEY GUTTER
1036	565964.71	2229163.83	3107.08	VALLEY GUTTER
1037	565830.69	2229094.76	3106.48	VALLEY GUTTER
1038	565830.24	2229095.65	3106.48	VALLEY GUTTER
1039	565829.79	2229096.55	3106.48	VALLEY GUTTER
1040	566145.77	2229258.60	3107.07	EOA/EOAM
1041	566115.50	2229243.50	3107.19	EOA/EOAM
1042	566086.07	2229228.82	3107.28	EOA/EOAM
1043	566008.86	2229190.32	3106.80	EOA/EOAM
1044	565948.07	2229160.00	3106.92	EOA/EOAM
1045	565863.33	2229117.74	3106.40	EOA/EOAM
1046	566128.91	2229037.88	3106.63	TIE TO EXISTING
1047	566124.93	2229047.40	3106.66	TIE TO EXISTING
1048	566170.49	2229069.20	3108.89	CONCRETE RIBBON
1049	566171.93	2229071.53	3108.85	CONCRETE RIBBON
1050	566169.15	2229081.95	3108.75	CONCRETE RIBBON
1051	566156.28	2229110.00	3108.47	PC
1052	566115.63	2229124.34	3108.03	PT
1053	566038.11	2229063.07	3107.38	TIE TO EXISTING
1054	566024.32	2229056.14	3107.10	TIE TO EXISTING
1055	566029.92	2229079.39	3107.92	CONCRETE RIBBON
1056	566029.02	2229081.18	3107.89	CONCRETE RIBBON
1057	566015.70	2229072.59	3107.99	CONCRETE RIBBON
1058	566014.77	2229074.36	3107.96	CONCRETE RIBBON
1059	565905.08	2229018.70	3107.57	CONCRETE RIBBON
1060	565904.20	2229020.50	3107.54	CONCRETE RIBBON
1061	565895.12	2229037.59	3107.28	EOA
1062	565845.64	2229011.91	3106.91	TIE TO EXISTING
1063	565817.51	2228997.34	3106.34	TIE TO EXISTING
1064	565777.37	2229074.87	3106.32	TIE TO EXISTING
1065	565792.02	2229082.18	3106.27	EOAM
1066	565778.19	2229107.42	3106.36	EOAM
1067	565741.68	2229158.32	3105.67	EOAM
1068	565714.21	2229194.12	3104.45	EOAM

YELLOWSTONE COUNTY

SOUTH EXPO LOT CONSTRUCTION PROJECT

SOUTH EXPO LOT GRADING AND IMPROVEMENTS

BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

PROJECT NO. 2021-555

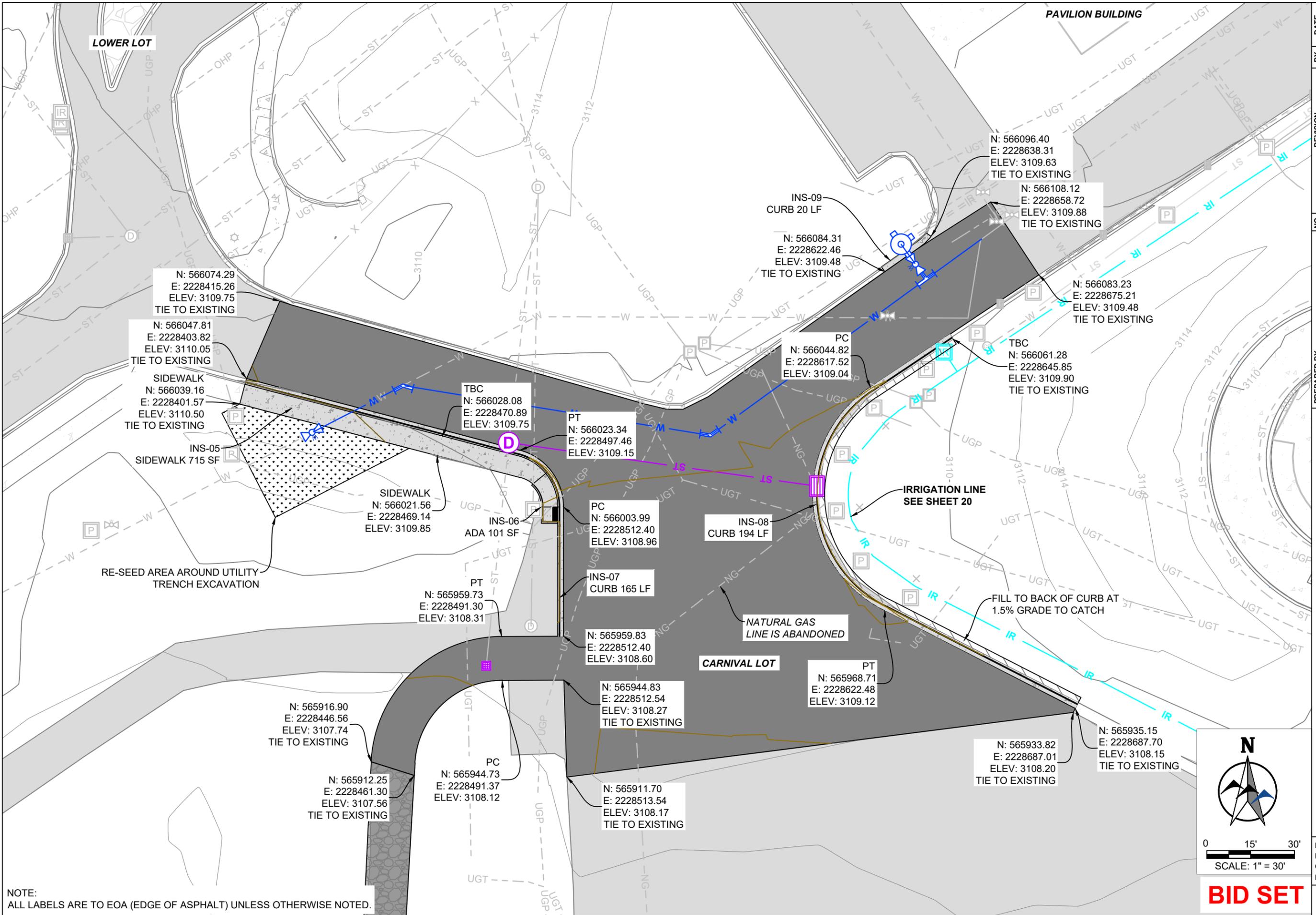
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NO.	REVISION	BY	DATE

SHEET 10

BID SET

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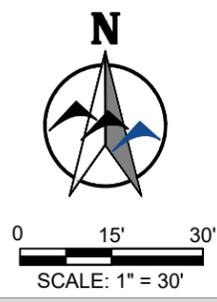
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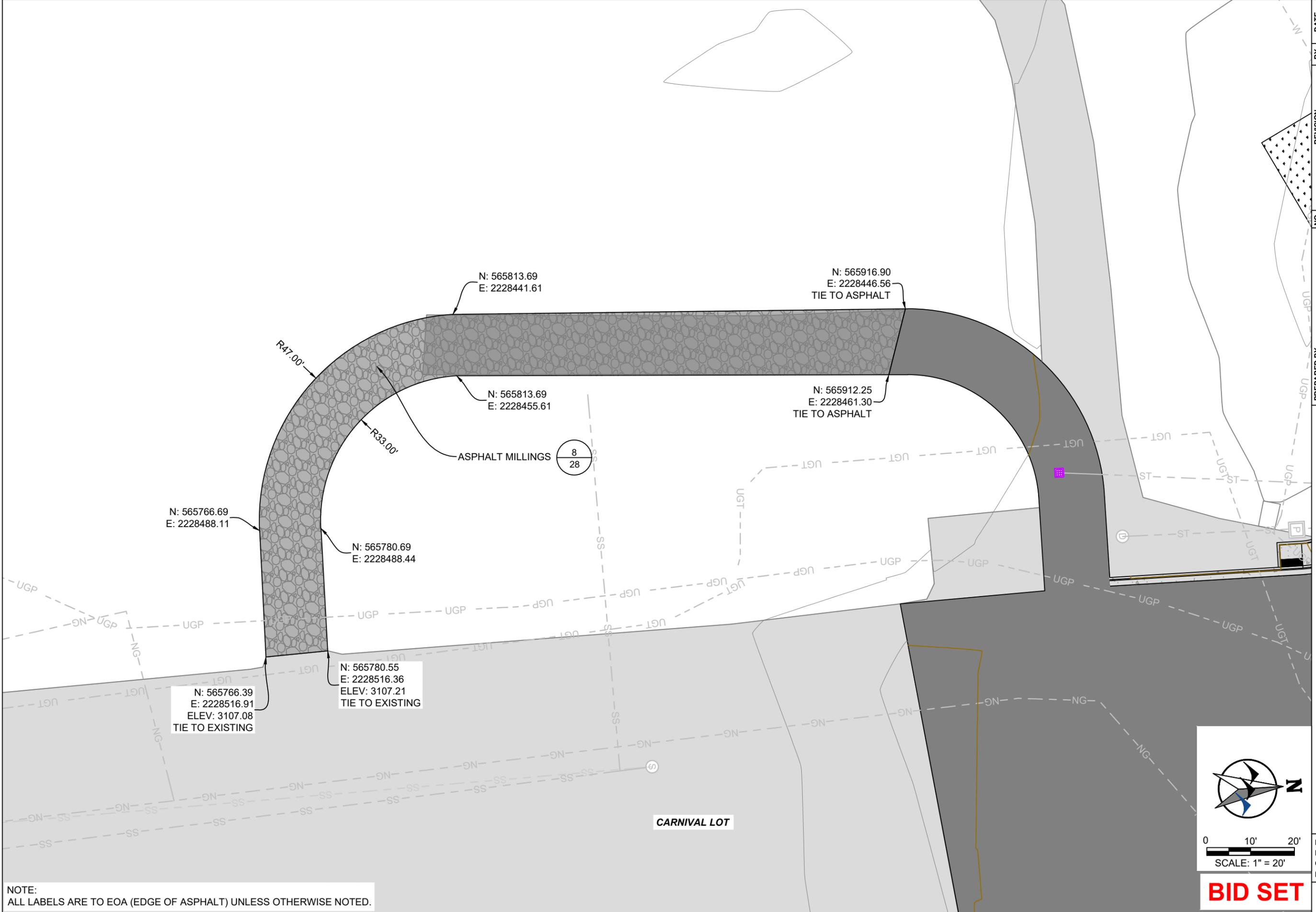
YELLOWSTONE COUNTY
SOUTH EXPO LOT CONSTRUCTION PROJECT
CARNIVAL LOT ENTRANCE GRADING AND IMPROVEMENTS
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
11



BID SET



NOTE:
ALL LABELS ARE TO EOA (EDGE OF ASPHALT) UNLESS OTHERWISE NOTED.

SCALE: 1" = 20'

BID SET

NO.	REVISION	BY	DATE

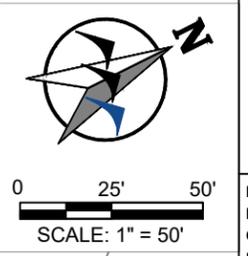
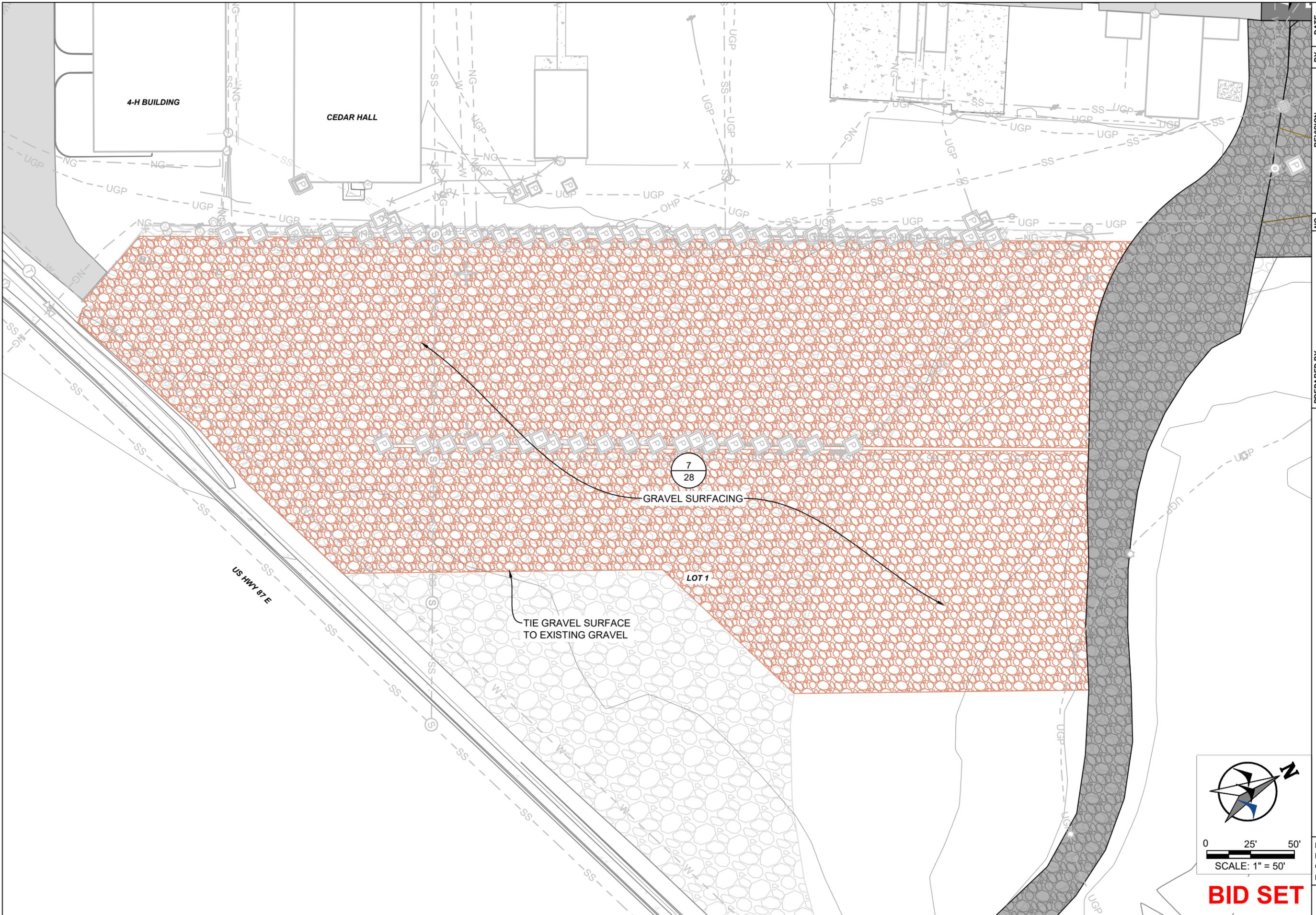
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YELLOWSTONE COUNTY
SOUTH EXPO LOT CONSTRUCTION PROJECT
PATHWAY MILLINGS ADDITION GRADING
BILLINGS, MT

DESIGNED BY: JMD
DRAWN BY: ZSL
CHECKED BY: GTR
DATE: 8/8/2024

SHEET
12

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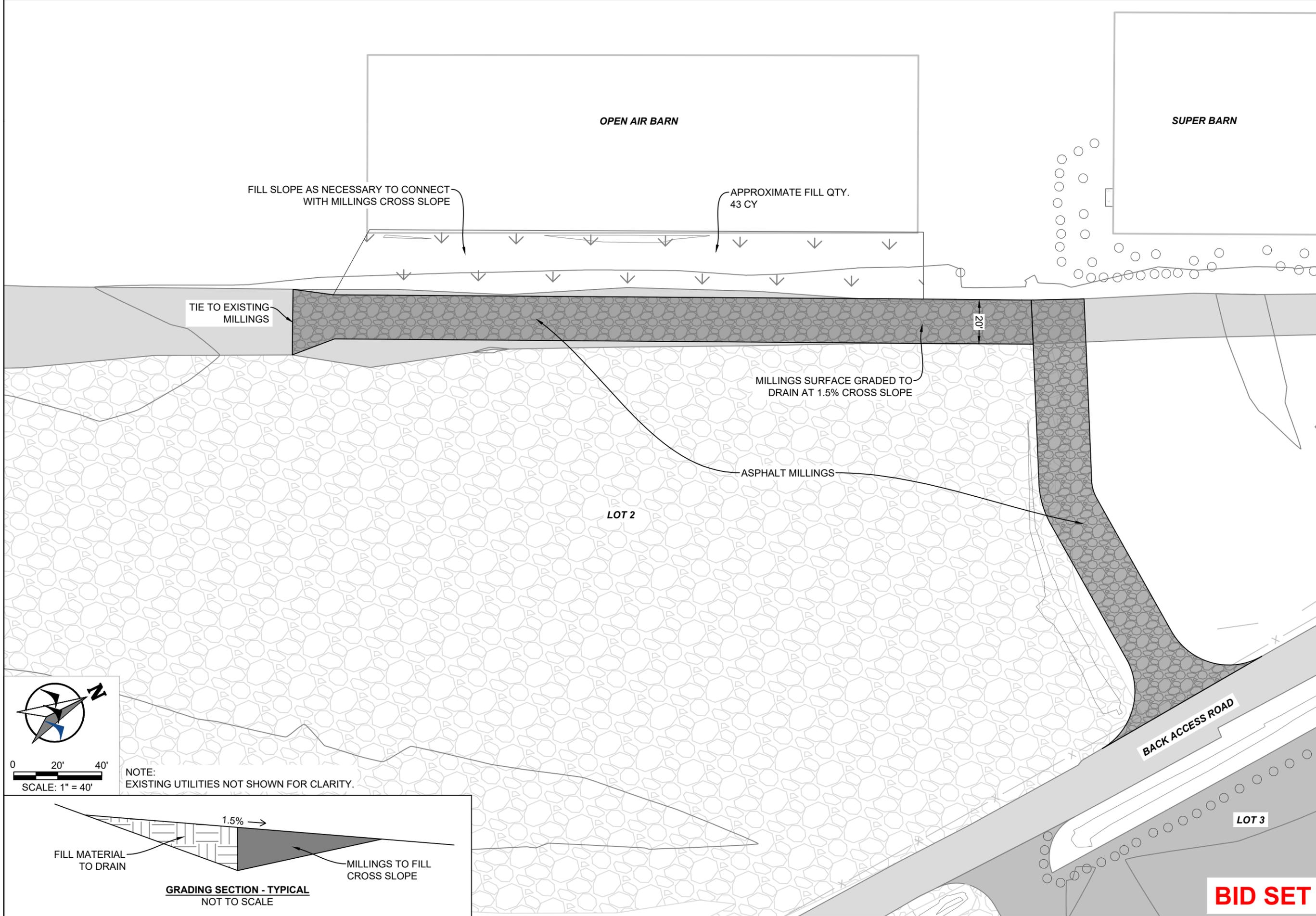
YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
LOT 1 IMPROVEMENTS
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
13

PROJECT NO. 2021-555

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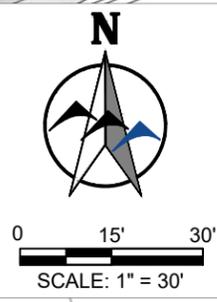
YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
OPEN AIR BARN ROAD IMPROVEMENTS
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024
 SHEET
14

BID SET

PROJECT NO. 2021-555

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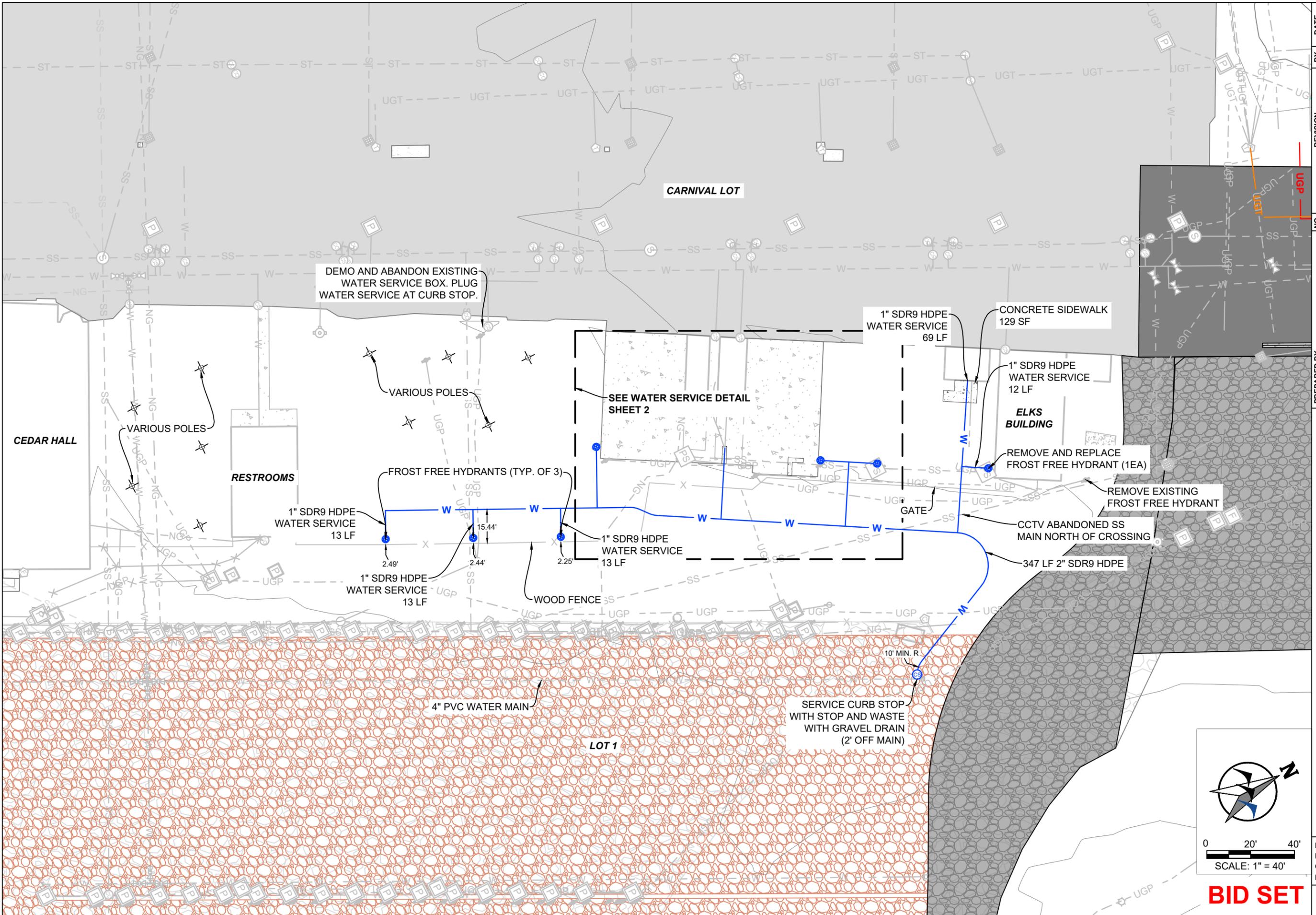
YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
CARNIVAL LOT WATER SERVICE IMPROVEMENTS
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
15

PROJECT NO. 2021-555

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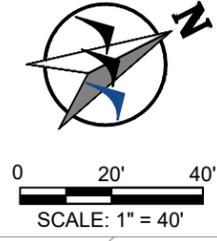
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YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
CARNIVAL LOT WATER SERVICE IMPROVEMENTS
 BILLINGS, MT

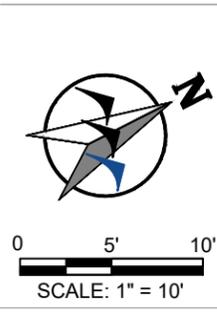
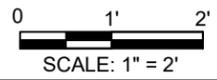
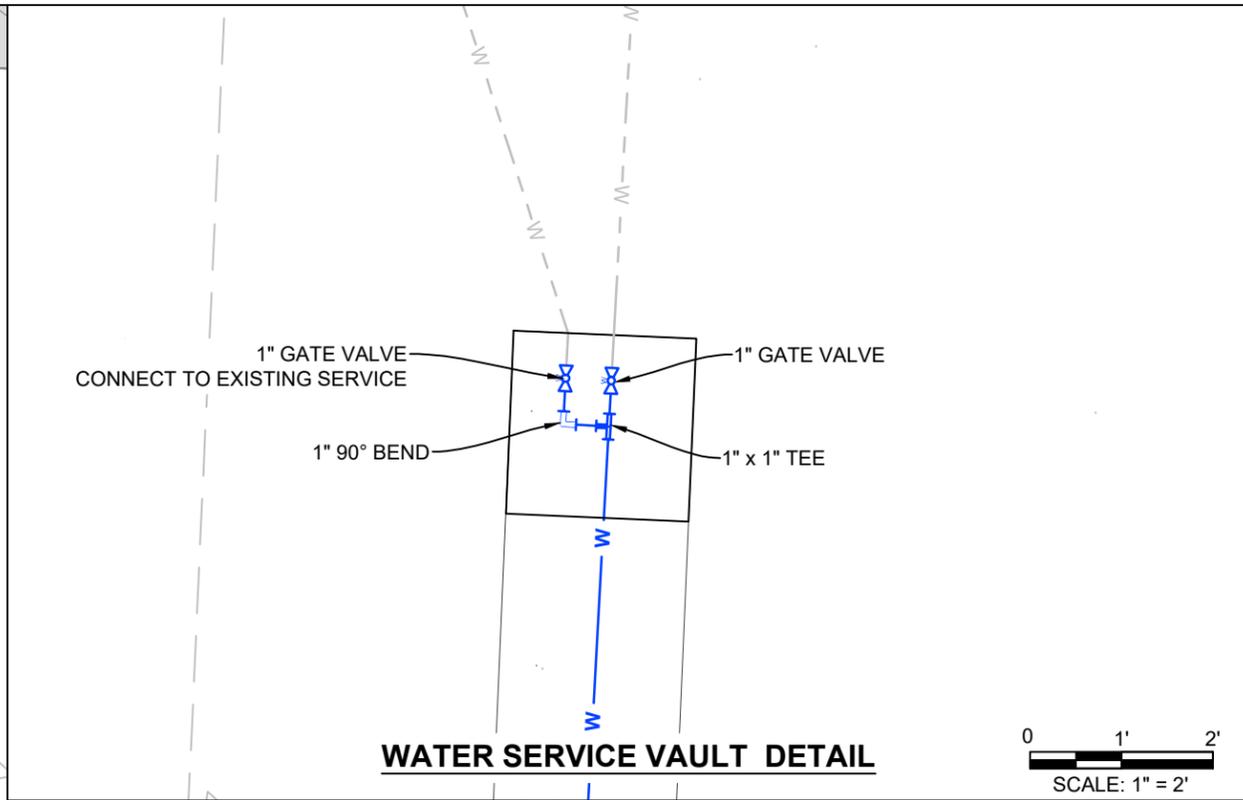
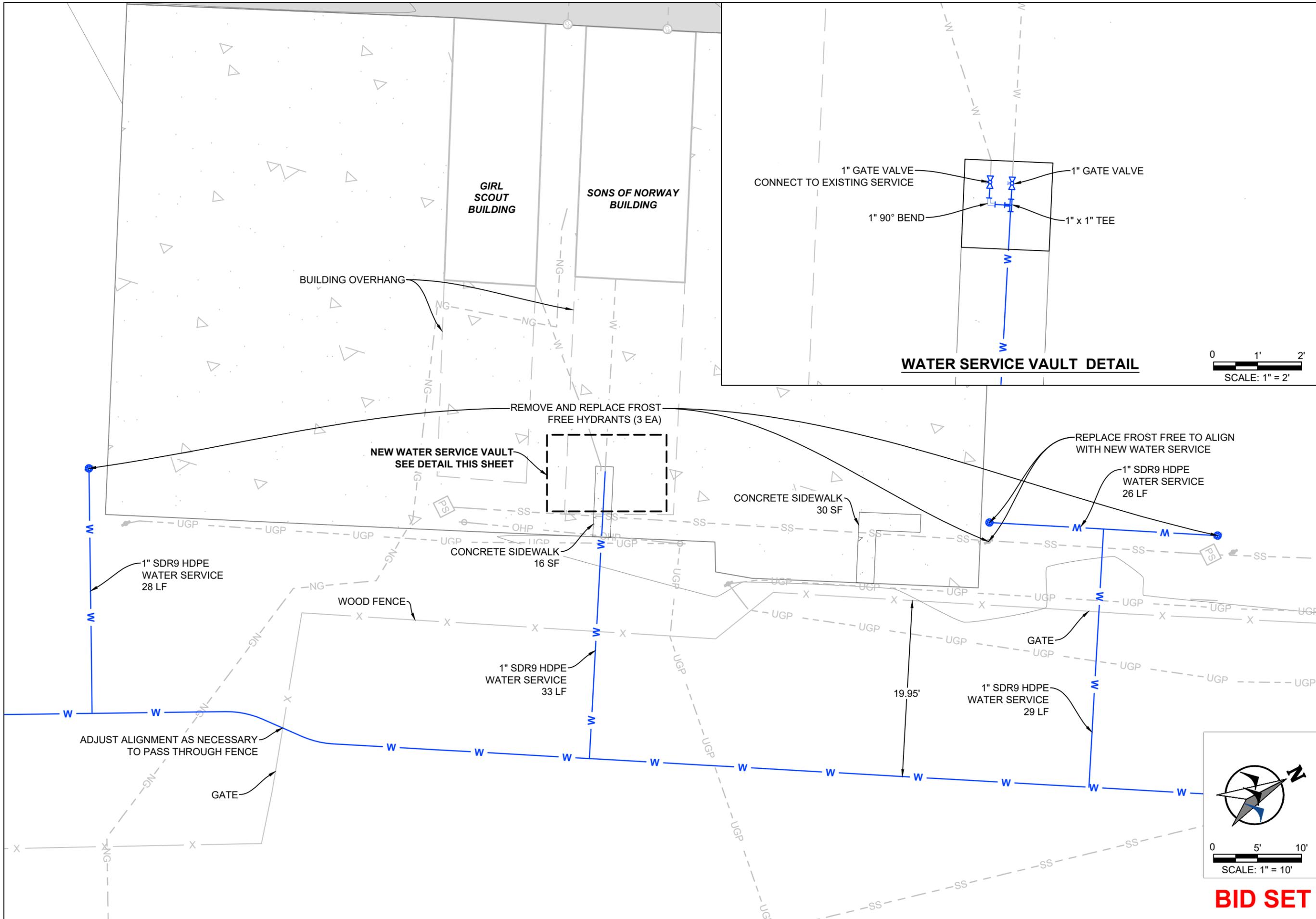
DESIGNED BY: JMD
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 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
16



BID SET

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YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
CARNIVAL LOT WATER SERVICE IMPROVEMENTS
 BILLINGS, MT

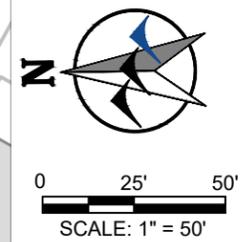
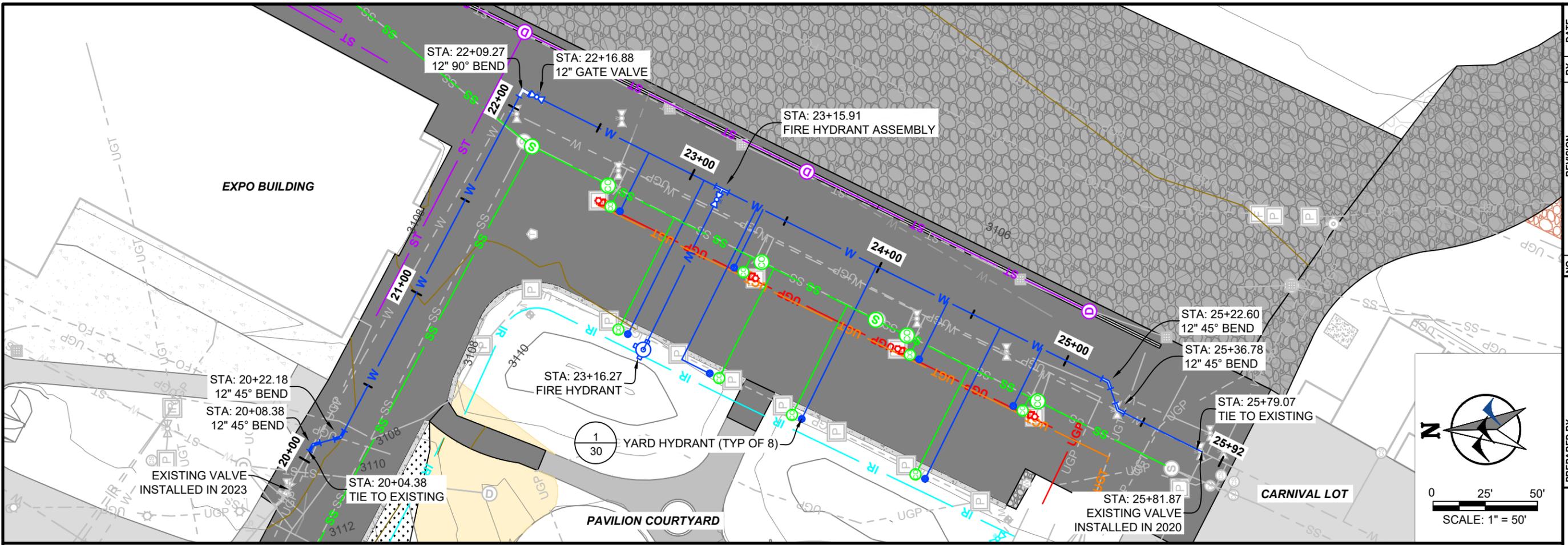
DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
17

BID SET

PROJECT NO. 2021-555

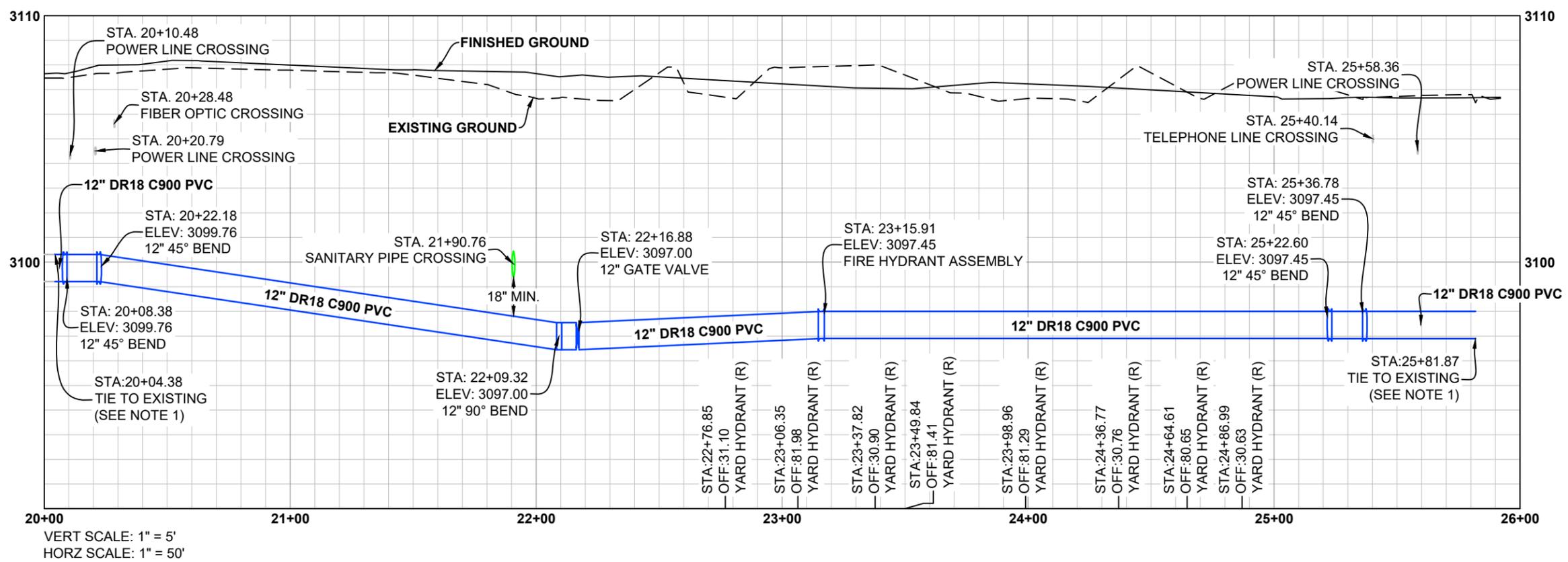
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PROJECT NO. 2021-555



- NOTES:
- CONTRACTOR SHALL LOCATE THE EXISTING WATER MAIN AND ANY UTILITIES OF CONFLICT PRIOR TO CONSTRUCTION AT THE AREAS SPECIFIED ON THE PLANS TO VERIFY DEPTH AND ALIGNMENT OF EXISTING LINES.
 - ELEVATIONS SHOWN ARE TO CENTER OF FITTING OR APPURTENANCE.

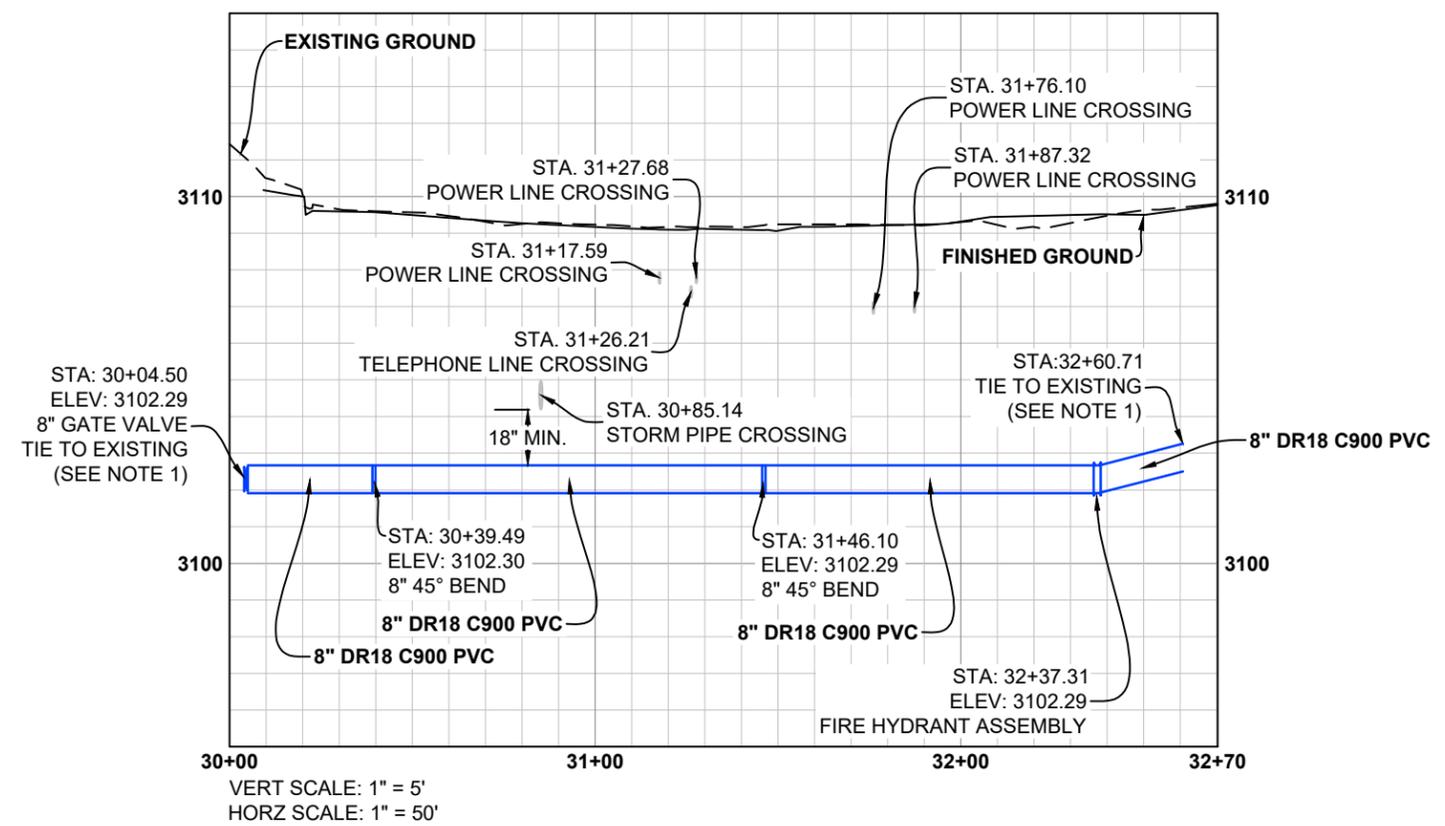
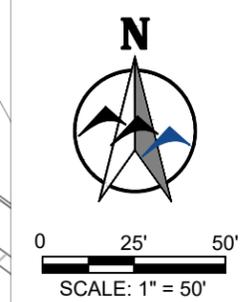
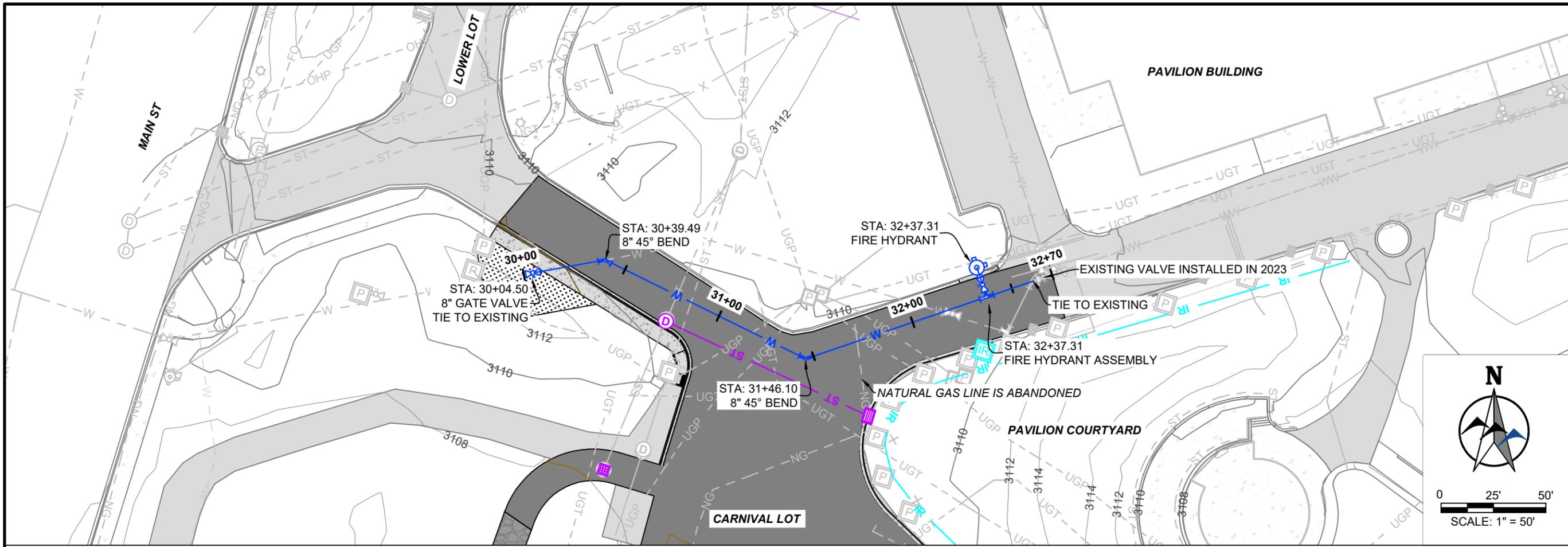
BID SET

YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
WATER PLAN AND PROFILE
 BILLINGS, MT

DESIGNED BY:	JMD
DRAWN BY:	ZSL
CHECKED BY:	GTR
DATE:	8/8/2024

SHEET
18

K:\Sheridan\Yellowstone County, MT\2021555 MetaPark Infrastructure Improvements\UGCAD\Sheets\PLAN_SET105_South Expo Lot05 UTILITIES2155_05-WATER-PP.dwg WATER-PP (2) 8/1/2024 2:48:02 PM



- NOTES:
1. CONTRACTOR SHALL LOCATE THE EXISTING WATER MAIN AND ANY UTILITIES OF CONFLICT PRIOR TO CONSTRUCTION AT THE AREAS SPECIFIED ON THE PLANS TO VERIFY DEPTH AND ALIGNMENT OF EXISTING LINES.
 2. ELEVATIONS SHOWN ARE TO CENTER OF FITTING OR APPURTENANCE.

BID SET

NO.	REVISION	BY	DATE

PROJECT NO. 2021-555

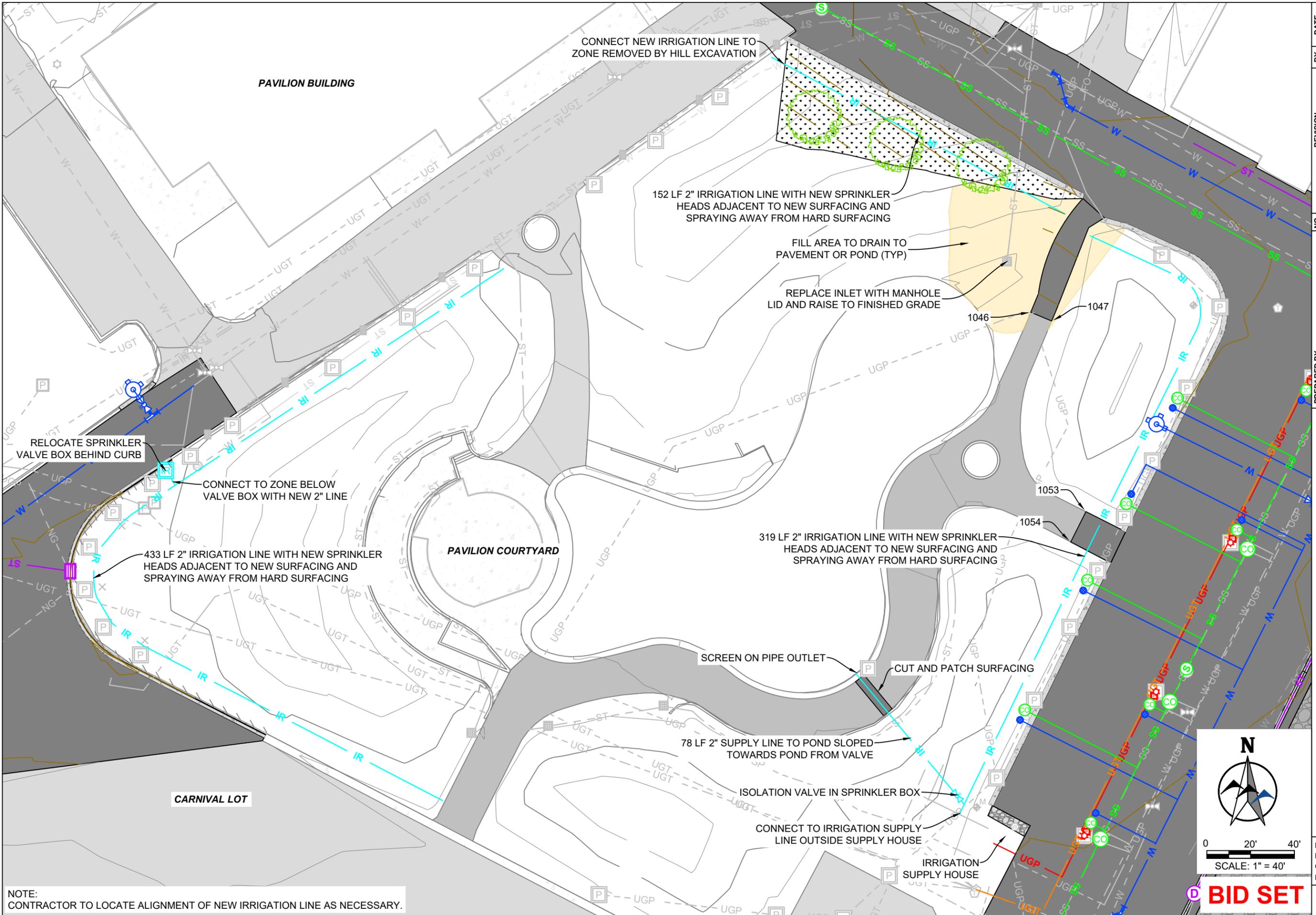
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YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
WATER PLAN AND PROFILE
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
19

K:\Sheridan\Yellowstone County, MT\2021555 MetraPark Infrastructure Improvements\BSCAD\Sheets\PLAN_SET\05_South_Exp\Lat04_IMPROVEMENTS\21555_05-IMP\PROV.dwg IRRIGATION DETAIL 8/8/2024 9:33:41 AM



CONNECT NEW IRRIGATION LINE TO ZONE REMOVED BY HILL EXCAVATION

PAVILION BUILDING

152 LF 2" IRRIGATION LINE WITH NEW SPRINKLER HEADS ADJACENT TO NEW SURFACING AND SPRAYING AWAY FROM HARD SURFACING

FILL AREA TO DRAIN TO PAVEMENT OR POND (TYP)

REPLACE INLET WITH MANHOLE LID AND RAISE TO FINISHED GRADE

1046

1047

RELOCATE SPRINKLER VALVE BOX BEHIND CURB

CONNECT TO ZONE BELOW VALVE BOX WITH NEW 2" LINE

433 LF 2" IRRIGATION LINE WITH NEW SPRINKLER HEADS ADJACENT TO NEW SURFACING AND SPRAYING AWAY FROM HARD SURFACING

PAVILION COURTYARD

319 LF 2" IRRIGATION LINE WITH NEW SPRINKLER HEADS ADJACENT TO NEW SURFACING AND SPRAYING AWAY FROM HARD SURFACING

1053

1054

SCREEN ON PIPE OUTLET

CUT AND PATCH SURFACING

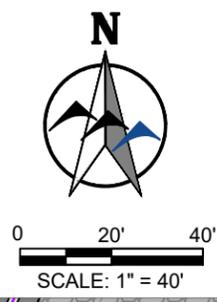
78 LF 2" SUPPLY LINE TO POND SLOPED TOWARDS POND FROM VALVE

ISOLATION VALVE IN SPRINKLER BOX

CONNECT TO IRRIGATION SUPPLY LINE OUTSIDE SUPPLY HOUSE

IRRIGATION SUPPLY HOUSE

CARNIVAL LOT



NOTE: CONTRACTOR TO LOCATE ALIGNMENT OF NEW IRRIGATION LINE AS NECESSARY.

BID SET

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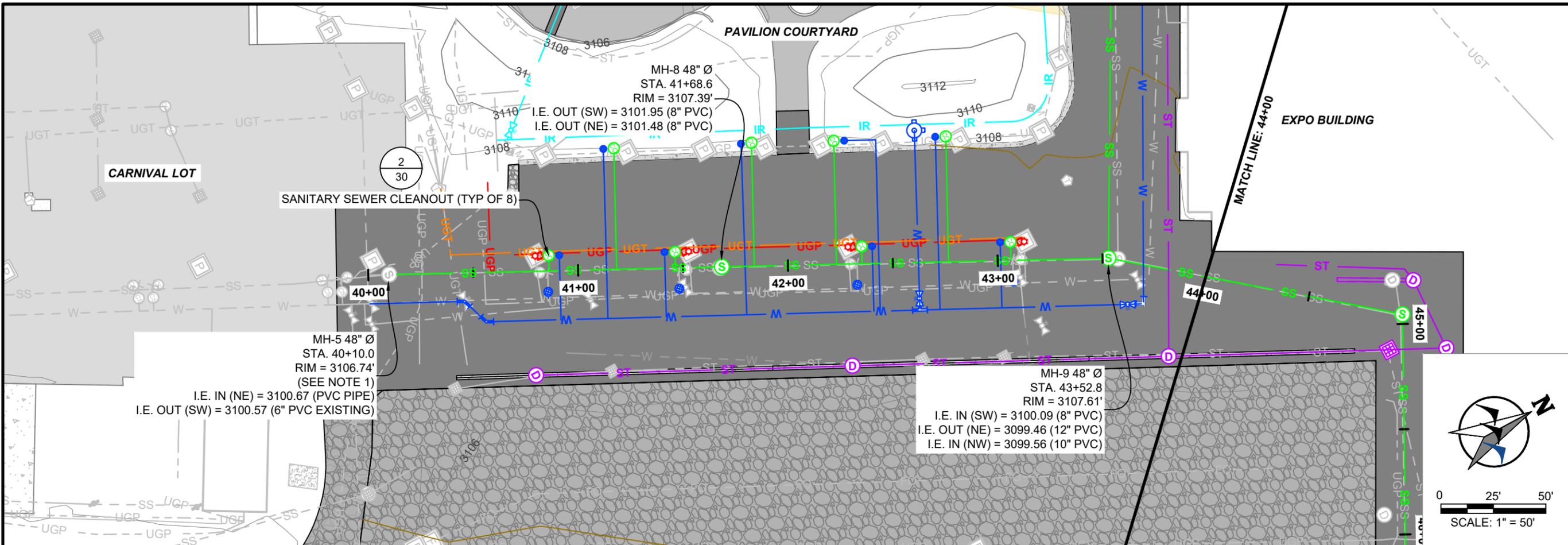
YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
PAVILION COURTYARD IRRIGATION IMPROVEMENTS
 BILLINGS, MT

DESIGNED BY: JMD
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 CHECKED BY: GTR
 DATE: 8/8/2024

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20

PROJECT NO. 2021-555

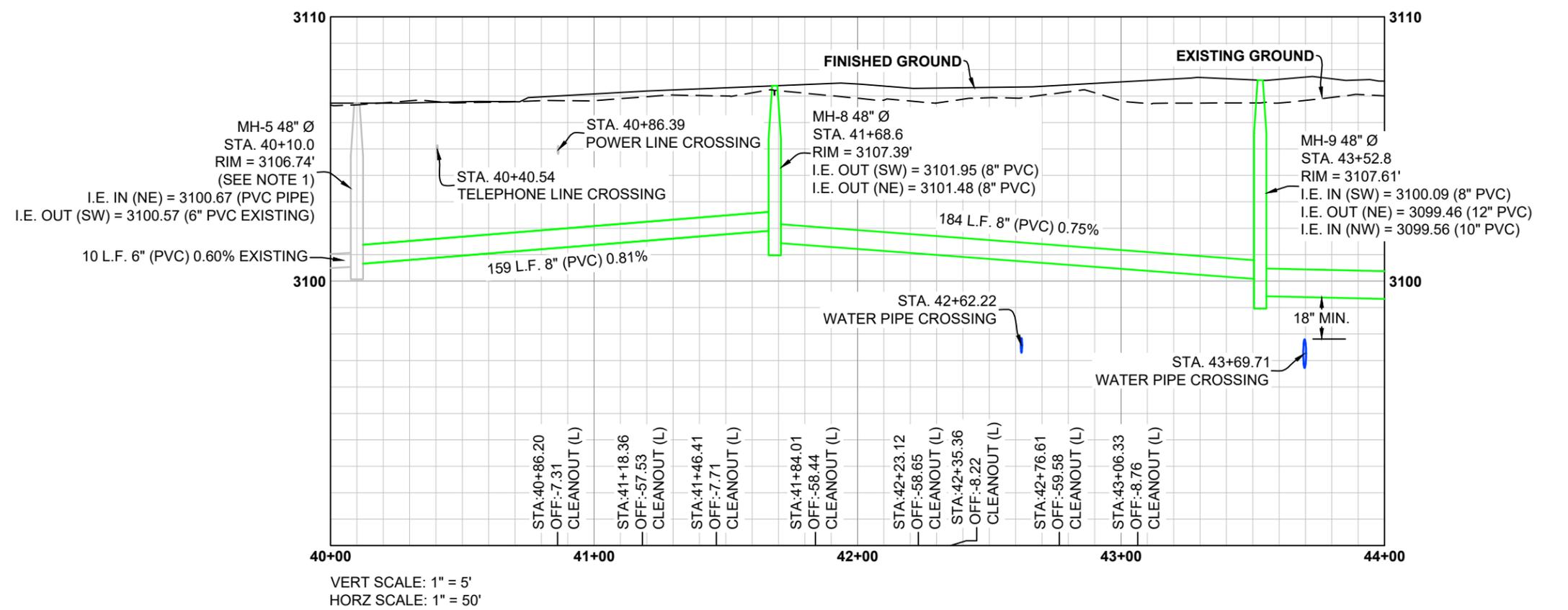
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PROJECT NO. 2021-555



NOTE:
 1. CONNECT TO EXISTING MANHOLE. CORE OUT EXISTING 6" CONNECTION FOR NEW 8" PIPE.

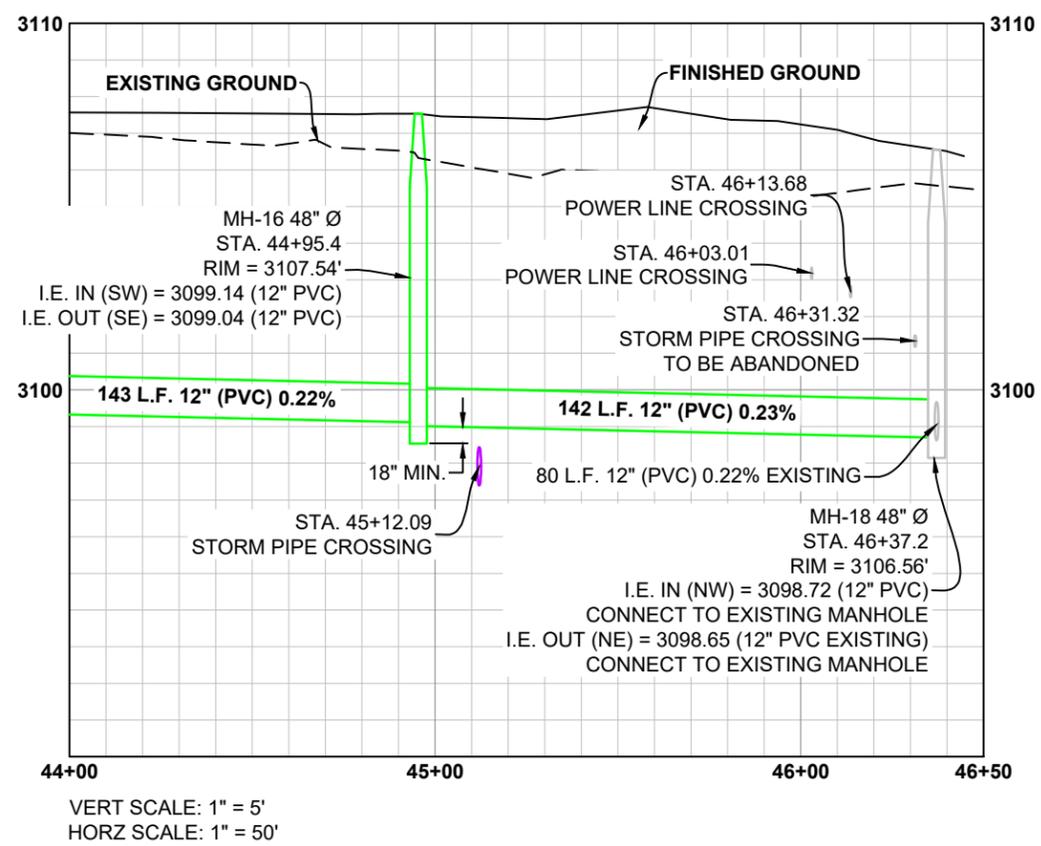
BID SET

YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
SANITARY SEWER PLAN AND PROFILE
 BILLINGS, MT

DESIGNED BY: JMD
 DRAWN BY: ZSL
 CHECKED BY: GTR
 DATE: 8/8/2024

SHEET
21

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SANITARY SEWER PLAN AND PROFILE
 BILLINGS, MT

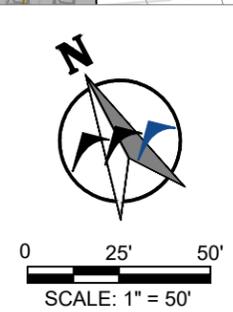
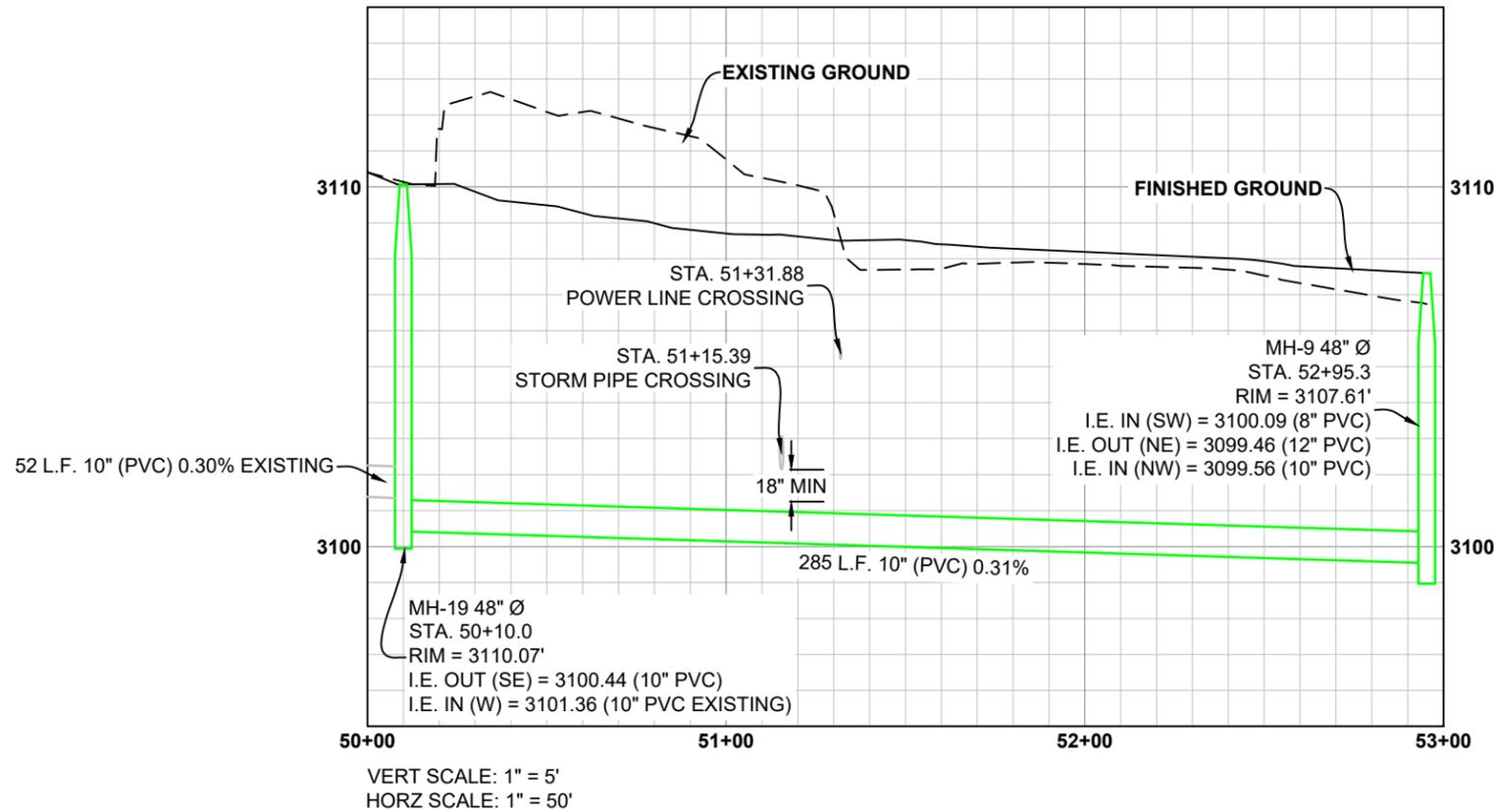
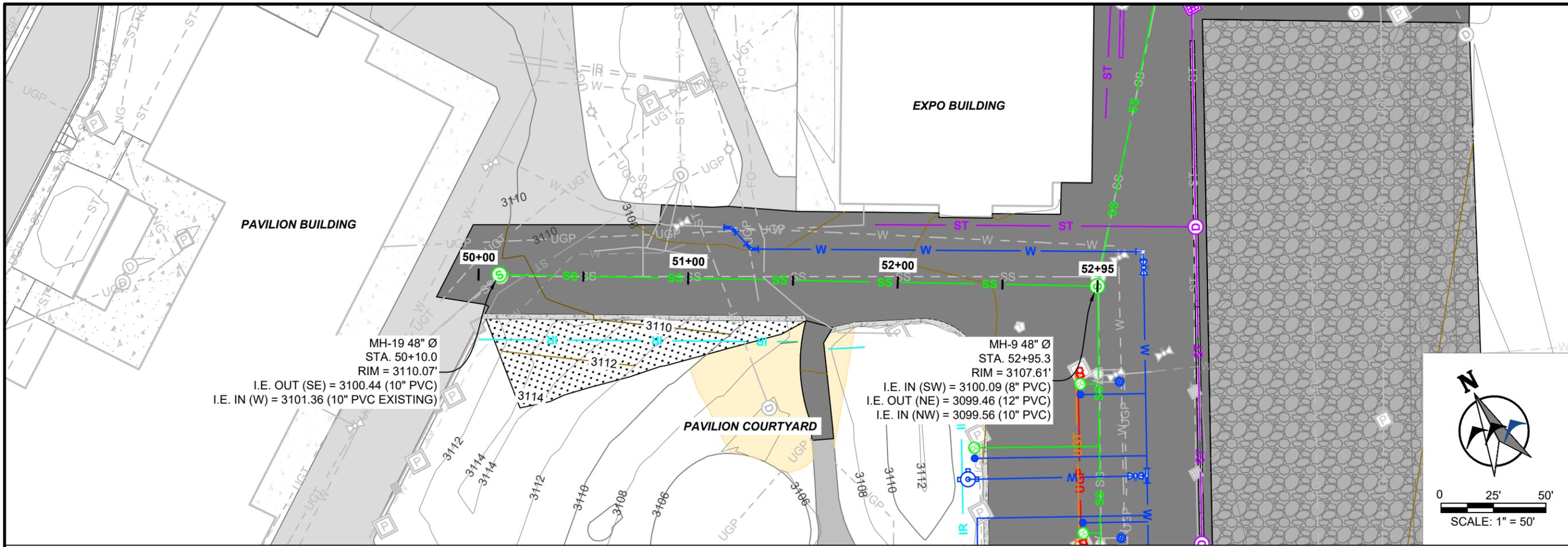
DESIGNED BY: JMD
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SHEET
22

BID SET

PROJECT NO. 2021-555

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 SOUTH EXPO LOT CONSTRUCTION PROJECT
SANITARY SEWER PLAN AND PROFILE
 BILLINGS, MT

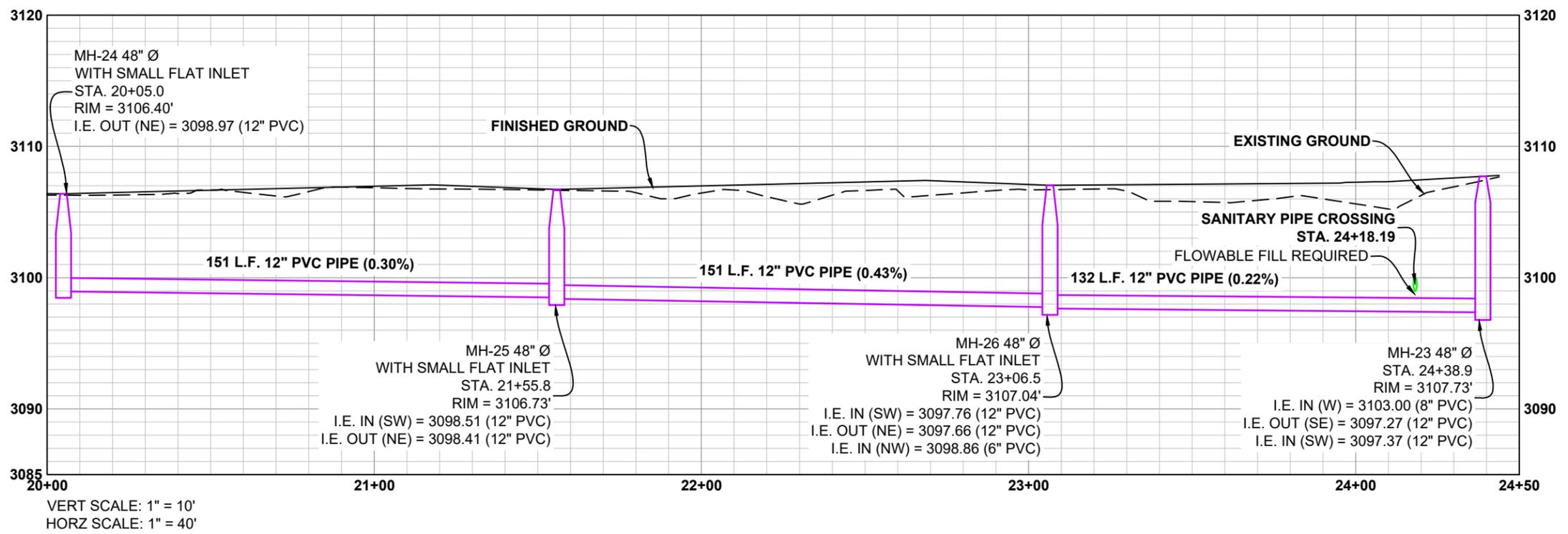
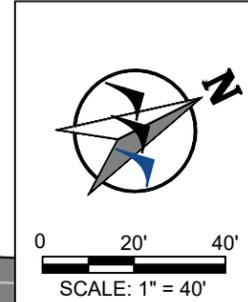
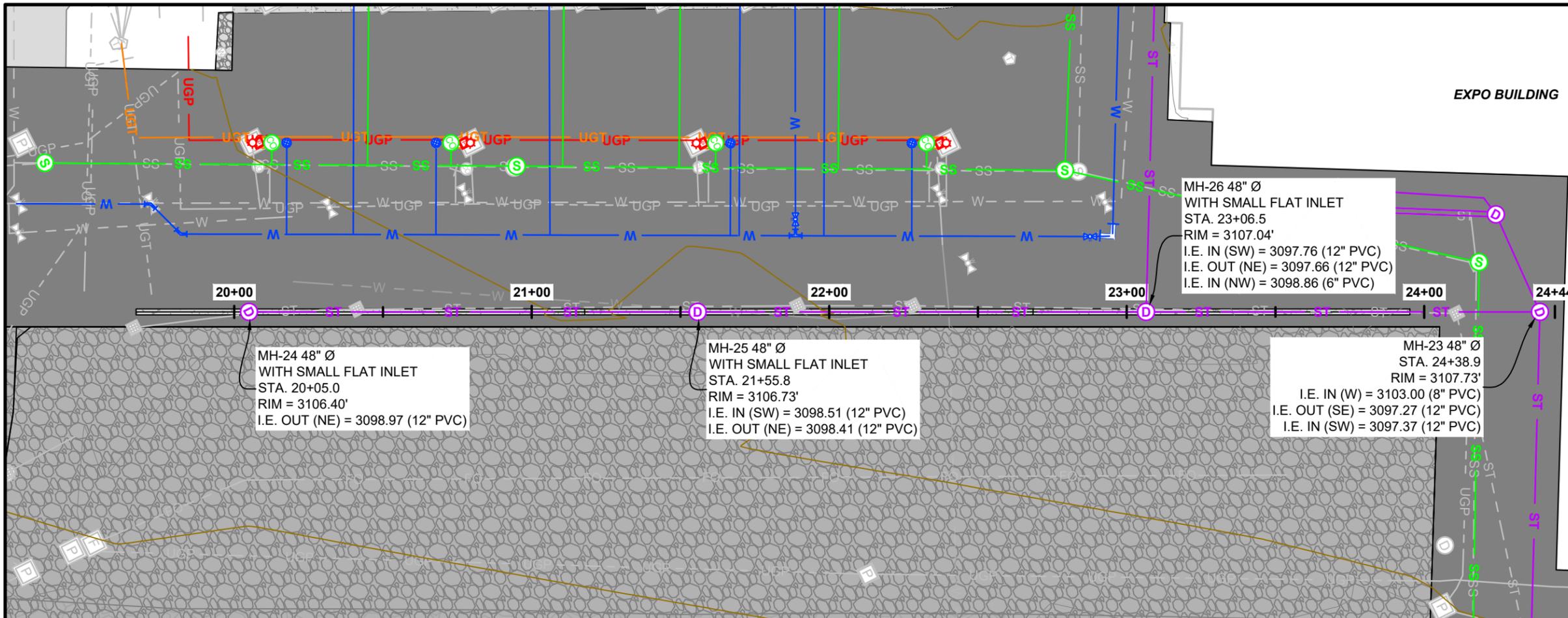
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SHEET
23

BID SET

PROJECT NO. 2021-555

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YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
STORM SEWER PLAN AND PROFILE
 BILLINGS, MT

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SHEET
24

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EXPO BUILDING

1
29

MH-22 72" Ø
STA. 30+05.0
RIM = 3107.74'
(SEE DETAIL)
I.E. IN (W) = 3104.50 (6" PVC)
I.E. OUT (E) = 3104.50 (8" PVC)

MH-23 48" Ø
STA. 30+40.8
RIM = 3107.73'
I.E. IN (W) = 3103.00 (8" PVC)
I.E. OUT (SE) = 3097.27 (12" PVC)
I.E. IN (SW) = 3097.37 (12" PVC)

CONCRETE CHANNEL TO CONNECT
TRENCH DRAIN TO MANHOLE

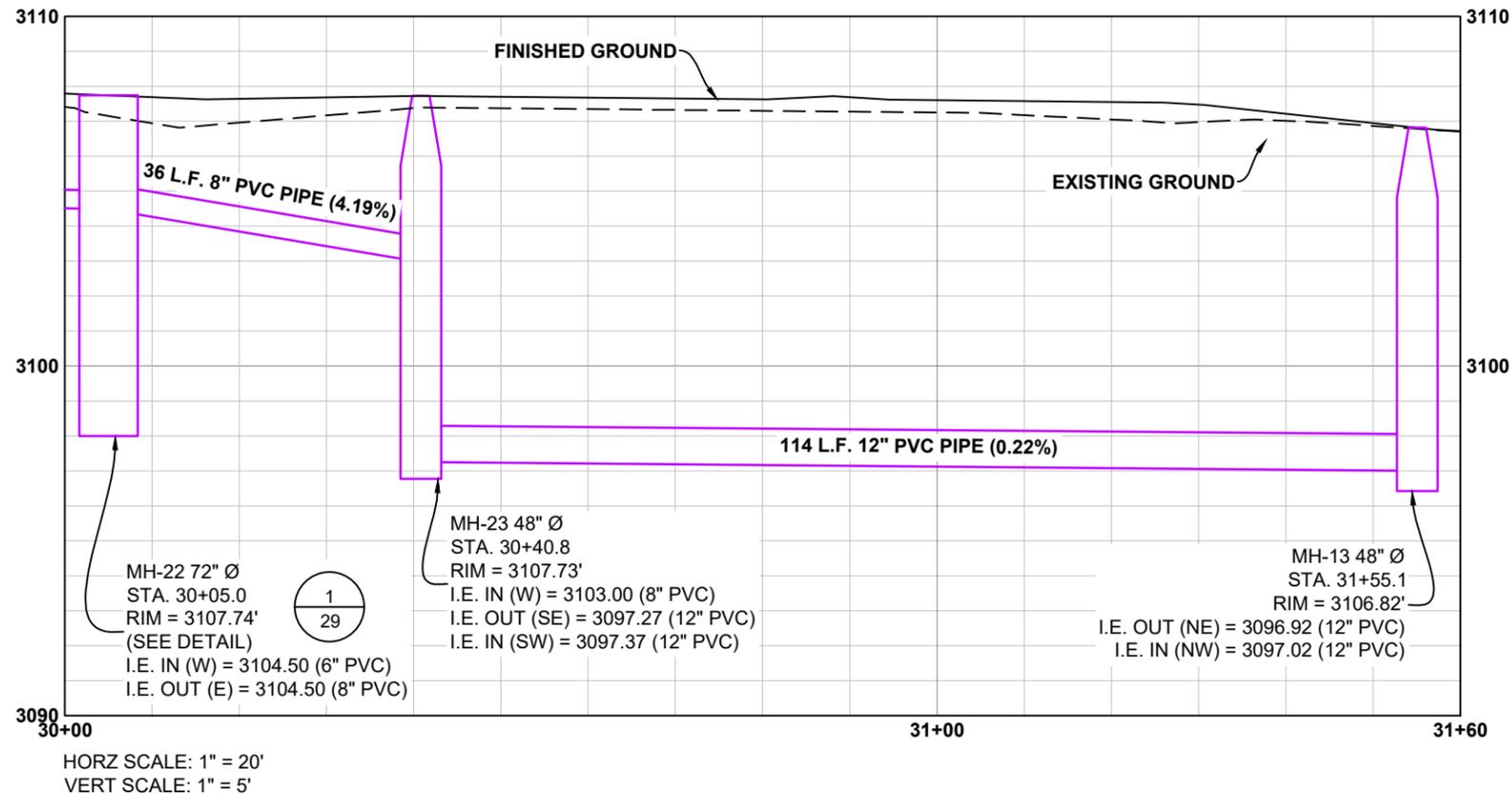
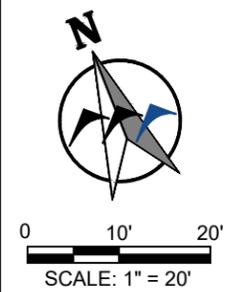
TRENCH DRAIN
SEE DETAIL

9
28

EXPO ACCESS ROAD

31+60

MH-13 48" Ø
STA. 31+55.1
RIM = 3106.82'
I.E. OUT (NE) = 3096.92 (12" PVC)
I.E. IN (NW) = 3097.02 (12" PVC)



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YELLOWSTONE COUNTY
SOUTH EXPO LOT CONSTRUCTION PROJECT
STORM SEWER PLAN AND PROFILE
BILLINGS, MT

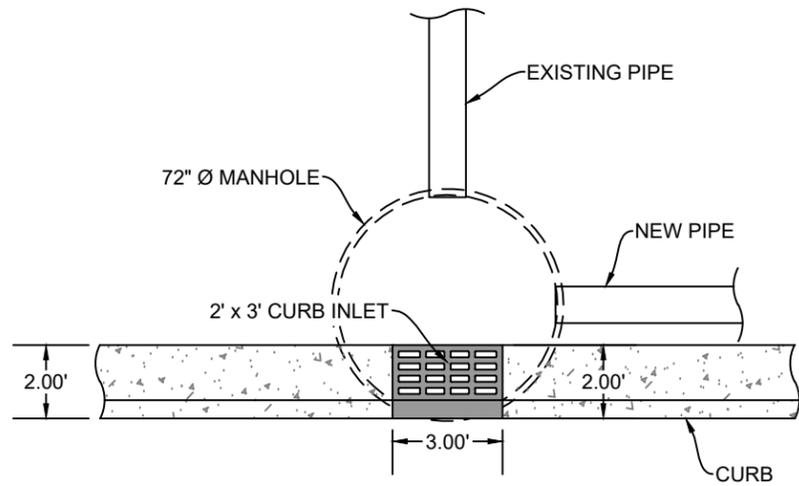
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25

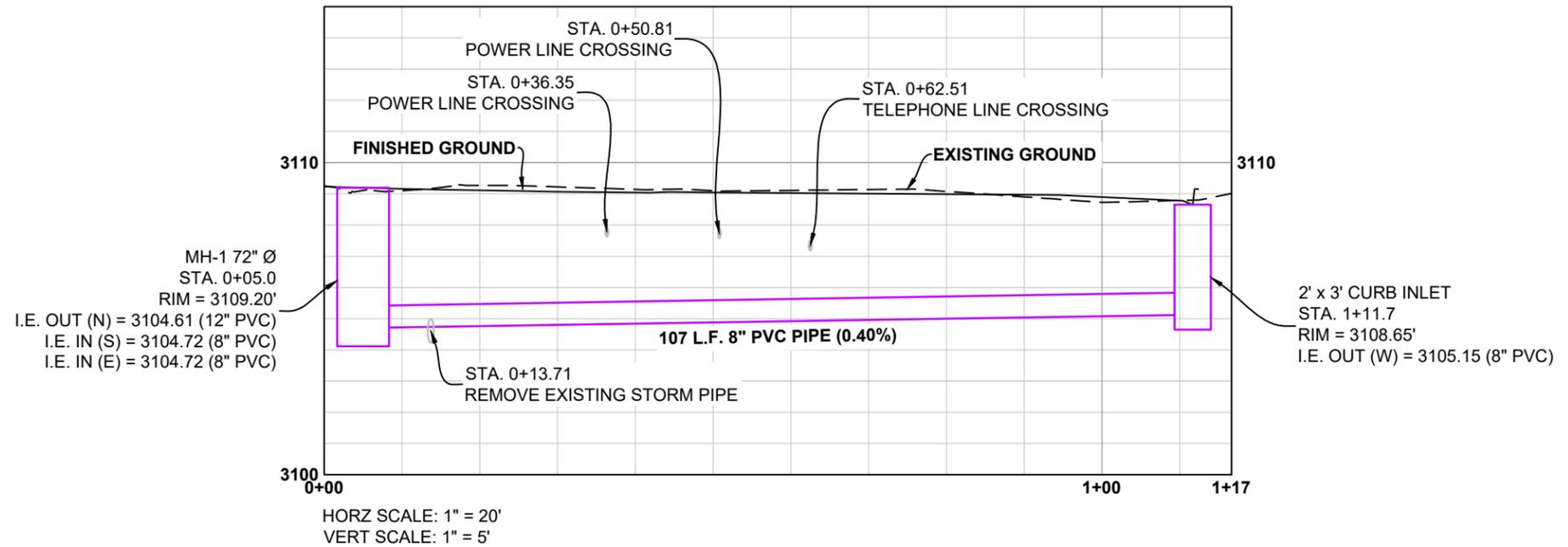
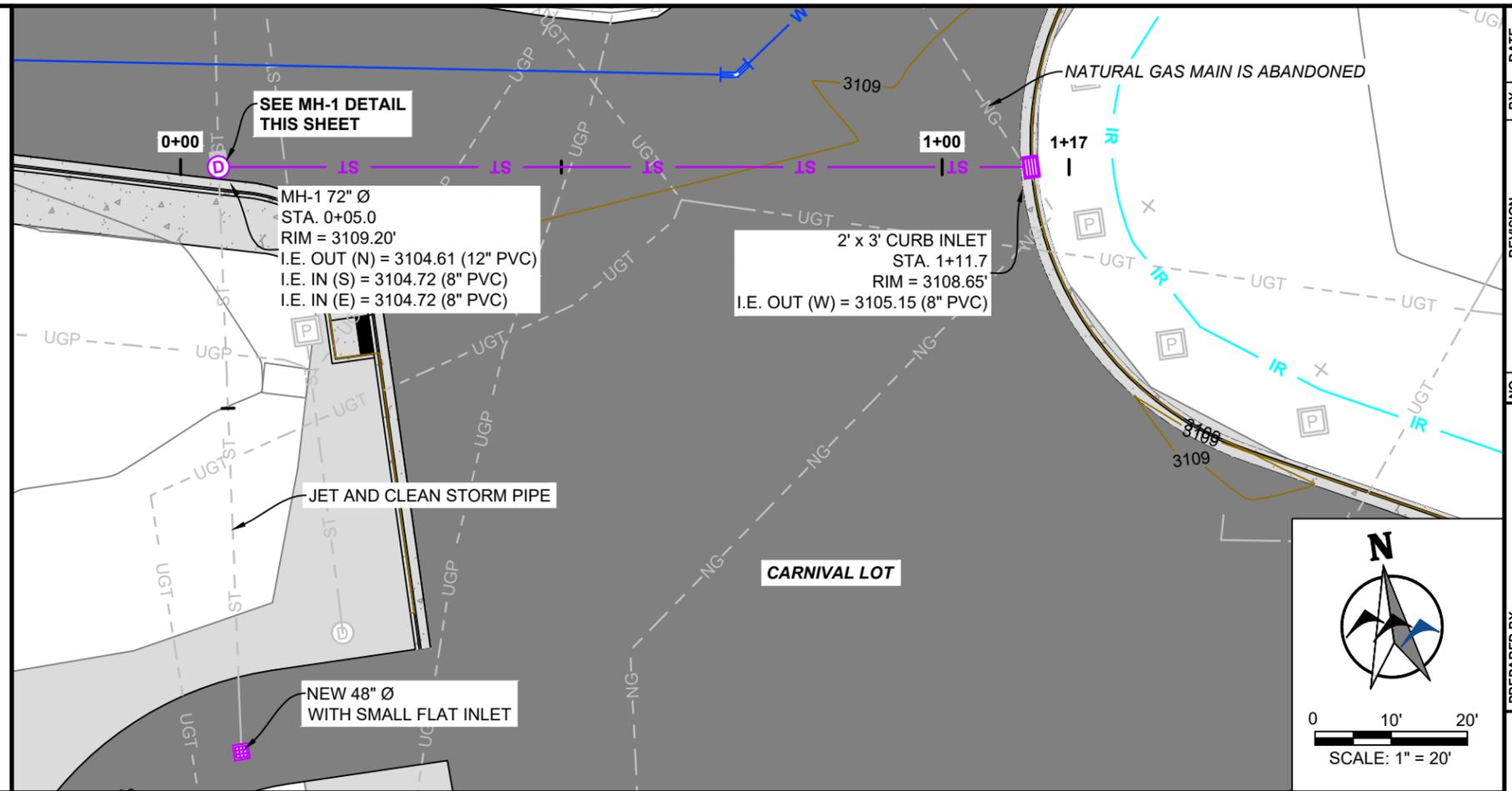
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MH-1 DETAIL



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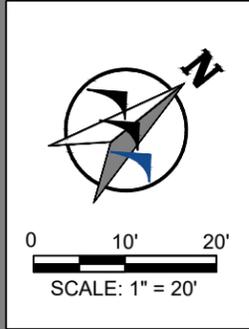
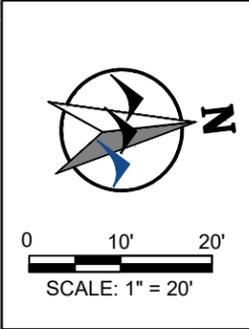
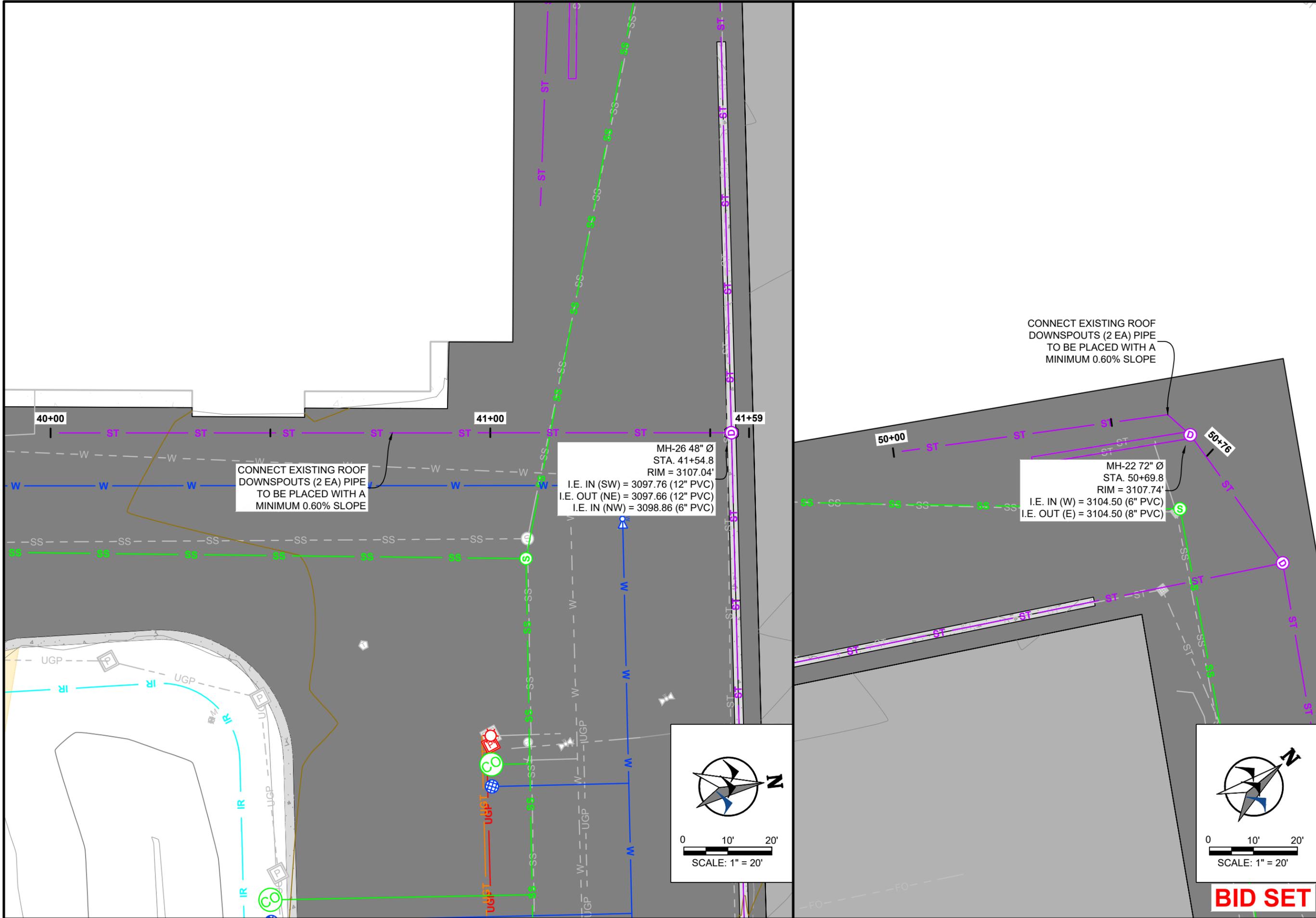
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 SOUTH EXPO LOT CONSTRUCTION PROJECT
STORM SEWER PLAN AND PROFILE
 BILLINGS, MT

DESIGNED BY: JMD
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SHEET
26

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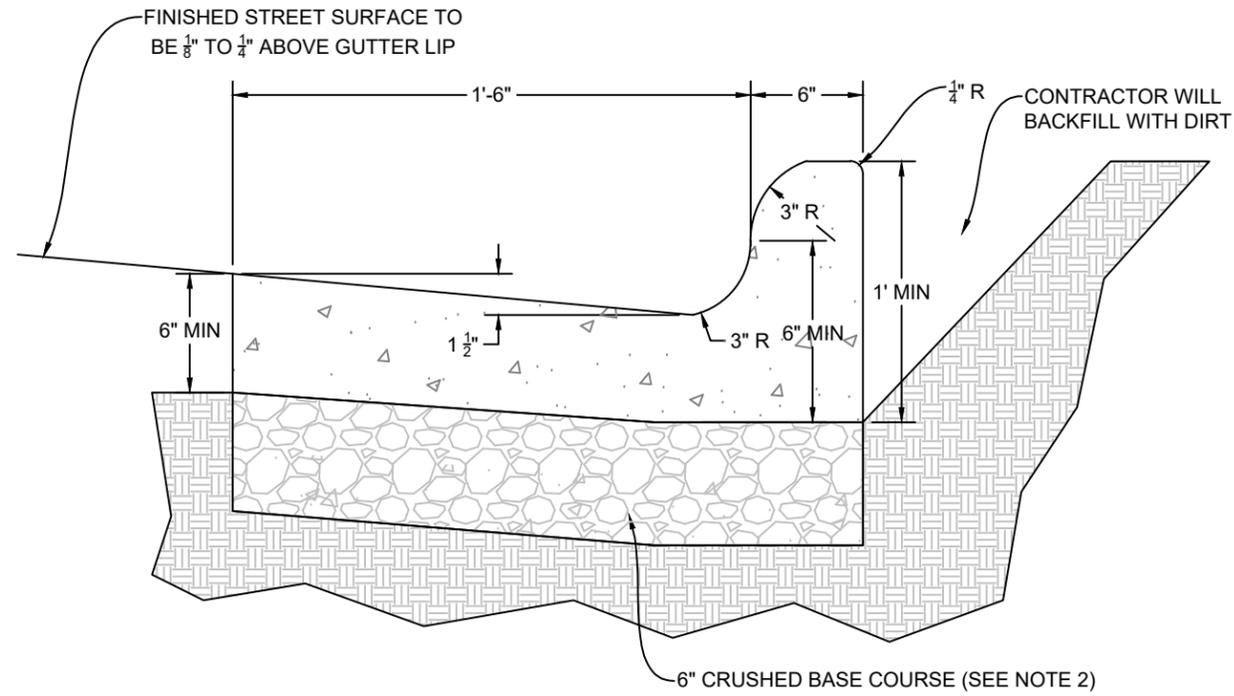
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 SOUTH EXPO LOT CONSTRUCTION PROJECT
STORM SEWER PLAN AND PROFILE
 BILLINGS, MT

DESIGNED BY: JMD
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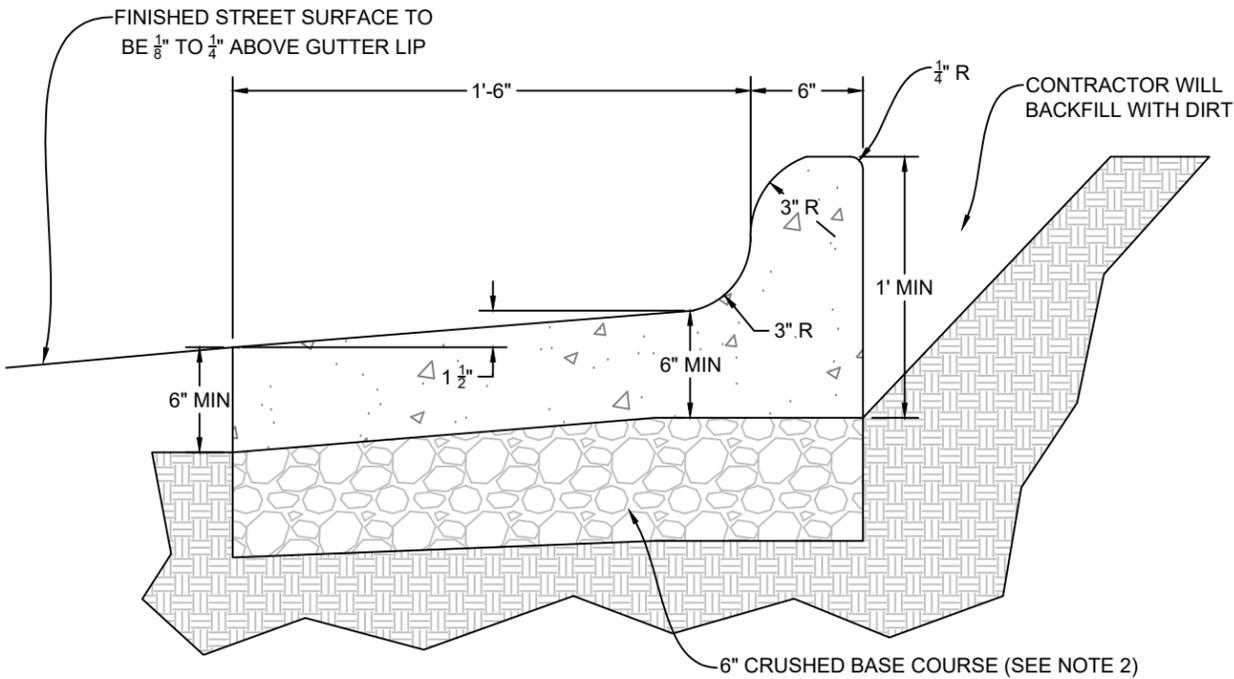
SHEET
27

PROJECT NO. 2021-555

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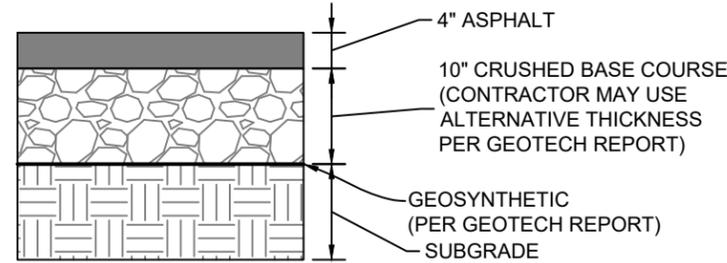
1 STANDARD CURB SECTION DETAIL
NOT TO SCALE



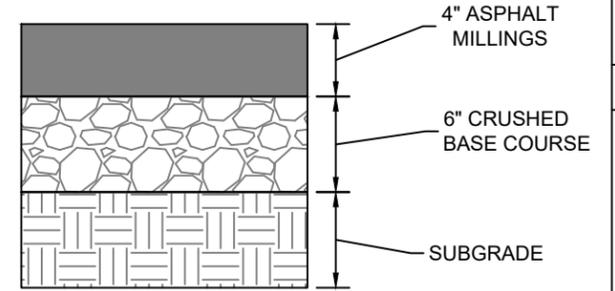
2 SPILL CURB SECTION DETAIL
NOT TO SCALE

NOTES:

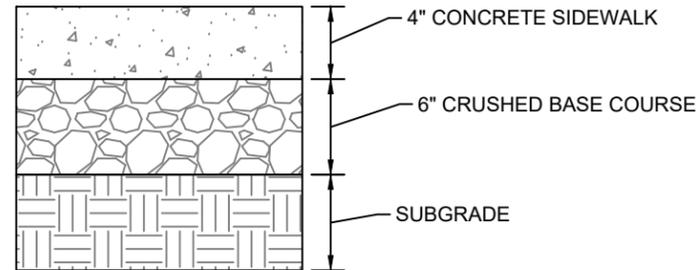
- EXCAVATION REQUIRED FOR CURB AND GUTTER SHALL BE INCIDENTAL TO THE "COMBINED CONCRETE CURB AND GUTTER" BID ITEM AS OUTLINED IN THE SPECIAL PROVISIONS.
- FOR NEW STREET CONSTRUCTION, EXTEND CRUSHED BASE COURSE TO THE BACK OF THE CURB. MINIMUM THICKNESS OF CRUSHED BASE COURSE BENEATH CURB AND GUTTER SHALL BE 6". FOR CURB AND GUTTER REPLACEMENT PROJECTS, PROVIDE A MINIMUM OF 6" OF CRUSHED BASE COURSE BENEATH NEW CURB AND GUTTER.



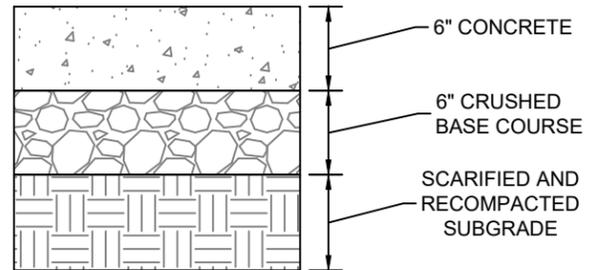
3 4" ASPHALT PAVEMENT - 10" CRUSHED BASE
NOT TO SCALE



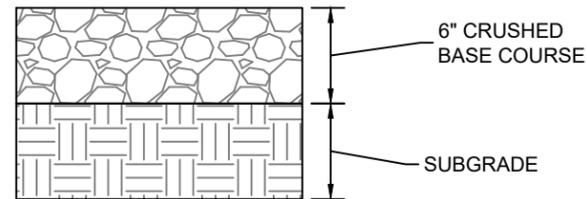
4 4" ASPHALT MILLINGS - 6" CRUSHED BASE
NOT TO SCALE



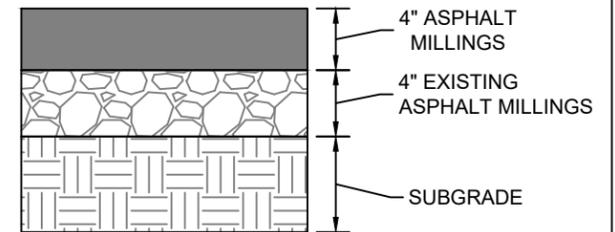
5 CONCRETE SIDEWALK - TYPICAL SECTION
NOT TO SCALE



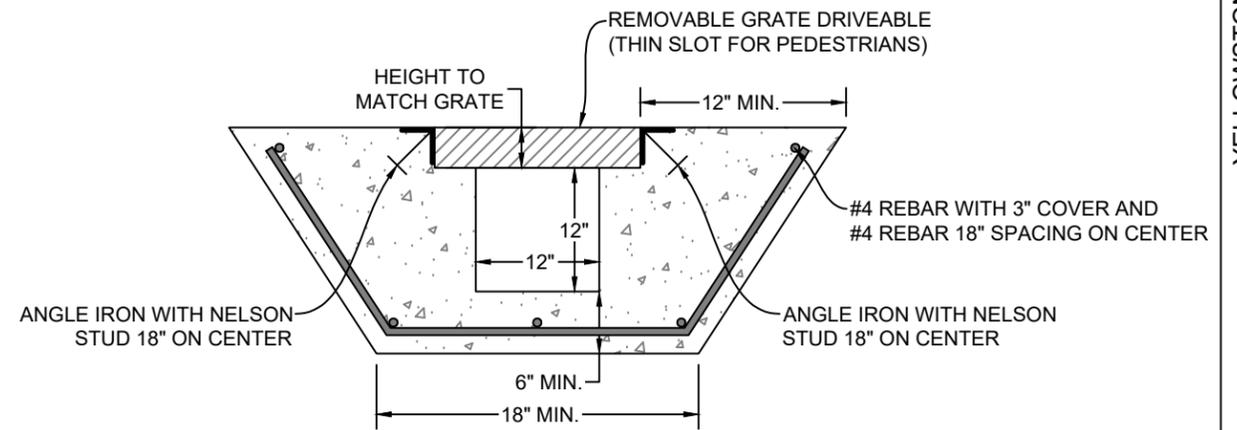
6 CONCRETE RIBBON - TYPICAL SECTION
NOT TO SCALE



7 GRAVEL SURFACING - TYPICAL SECTION
NOT TO SCALE



8 4" ASPHALT MILLINGS - 4" EXISTING MILLINGS
NOT TO SCALE



9 TRENCH GRATE DETAIL
NOT TO SCALE

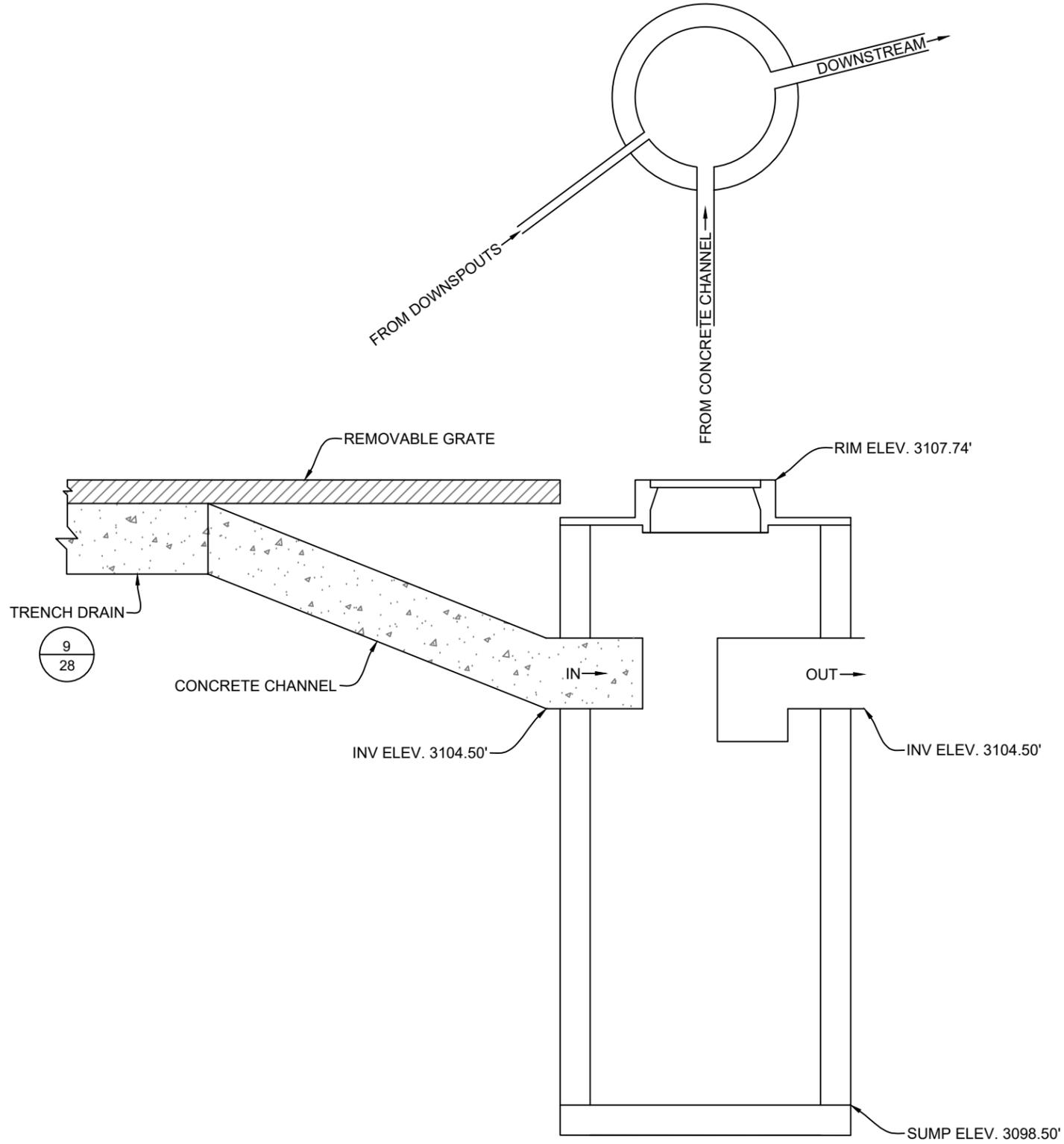
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YELLOWSTONE COUNTY
SOUTH EXPO LOT CONSTRUCTION PROJECT
STANDARD CURB AND SURFACING SECTION DETAILS
BILLINGS, MT

DESIGNED BY: JMD
DRAWN BY: ZSL
CHECKED BY: GTR
DATE: 8/8/2024

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1
29 STORM CHANNEL AND MANHOLE DETAIL
NOT TO SCALE

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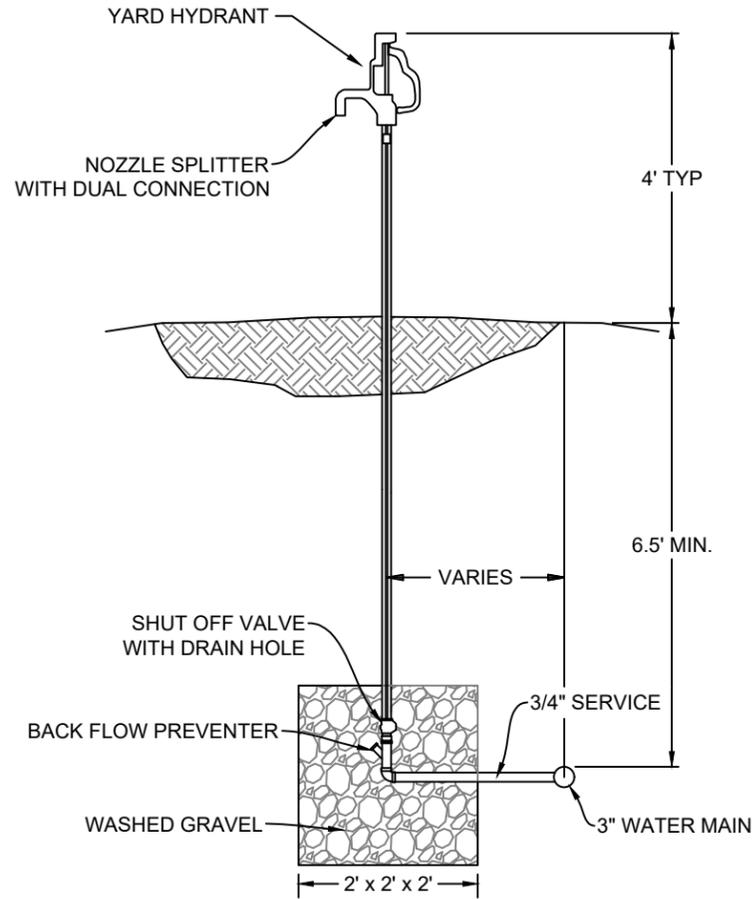
YELLOWSTONE COUNTY
 SOUTH EXPO LOT CONSTRUCTION PROJECT
STORM CHANNEL & MANHOLE DETAIL
 BILLINGS, MT

DESIGNED BY: JMD
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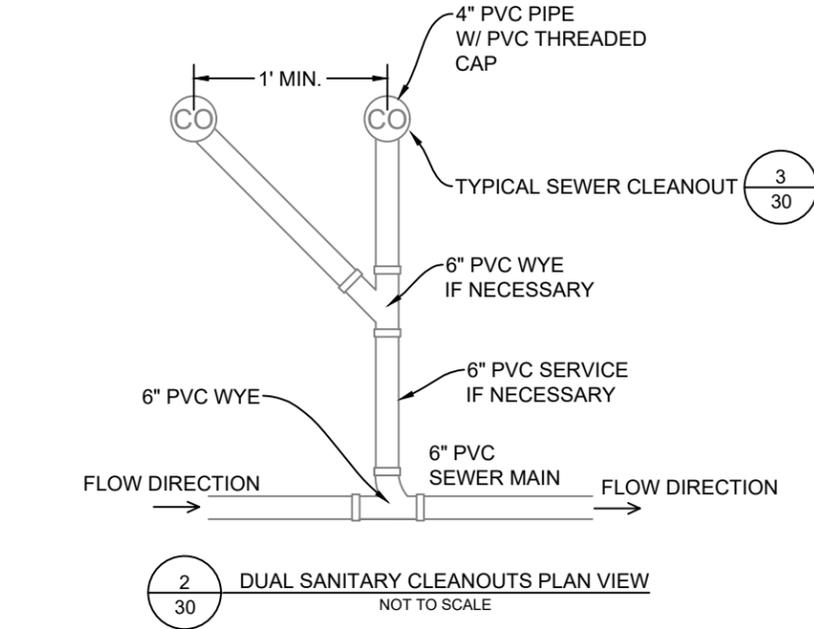
PROJECT NO. 2021-555

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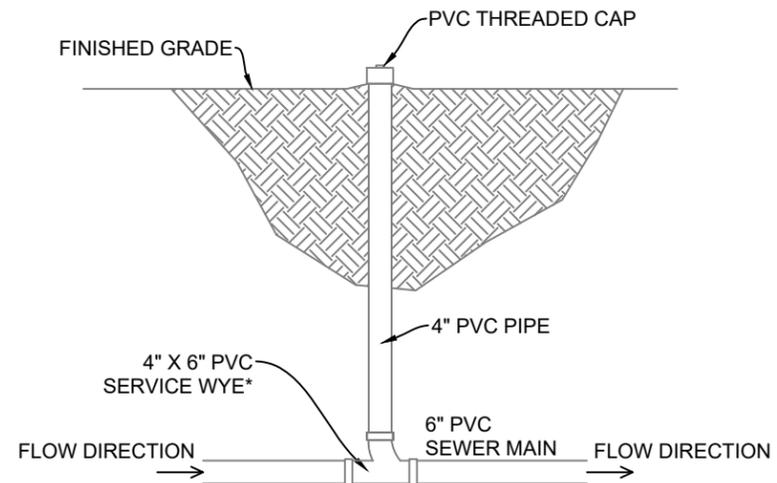


1
30 TYPICAL YARD HYDRANT DETAIL
NOT TO SCALE

*CONTRACTOR TO CONFIRM YARD HYDRANT IS RATED FOR 200 PSI TESTING OR CONFIRM WITH ENGINEER THAT LOWER TESTING IS ALLOWED



2
30 DUAL SANITARY CLEANOUTS PLAN VIEW
NOT TO SCALE



3
30 TYPICAL SEWER CLEANOUT DETAIL
SECTION VIEW
NOT TO SCALE

*CONTRACTOR TO REPLACE WYE WITH PVC LONG SWEEP ELBOW WHEN CLEANOUT IS NOT LOCATED DIRECTLY OVER 6" PVC SEWER MAIN.

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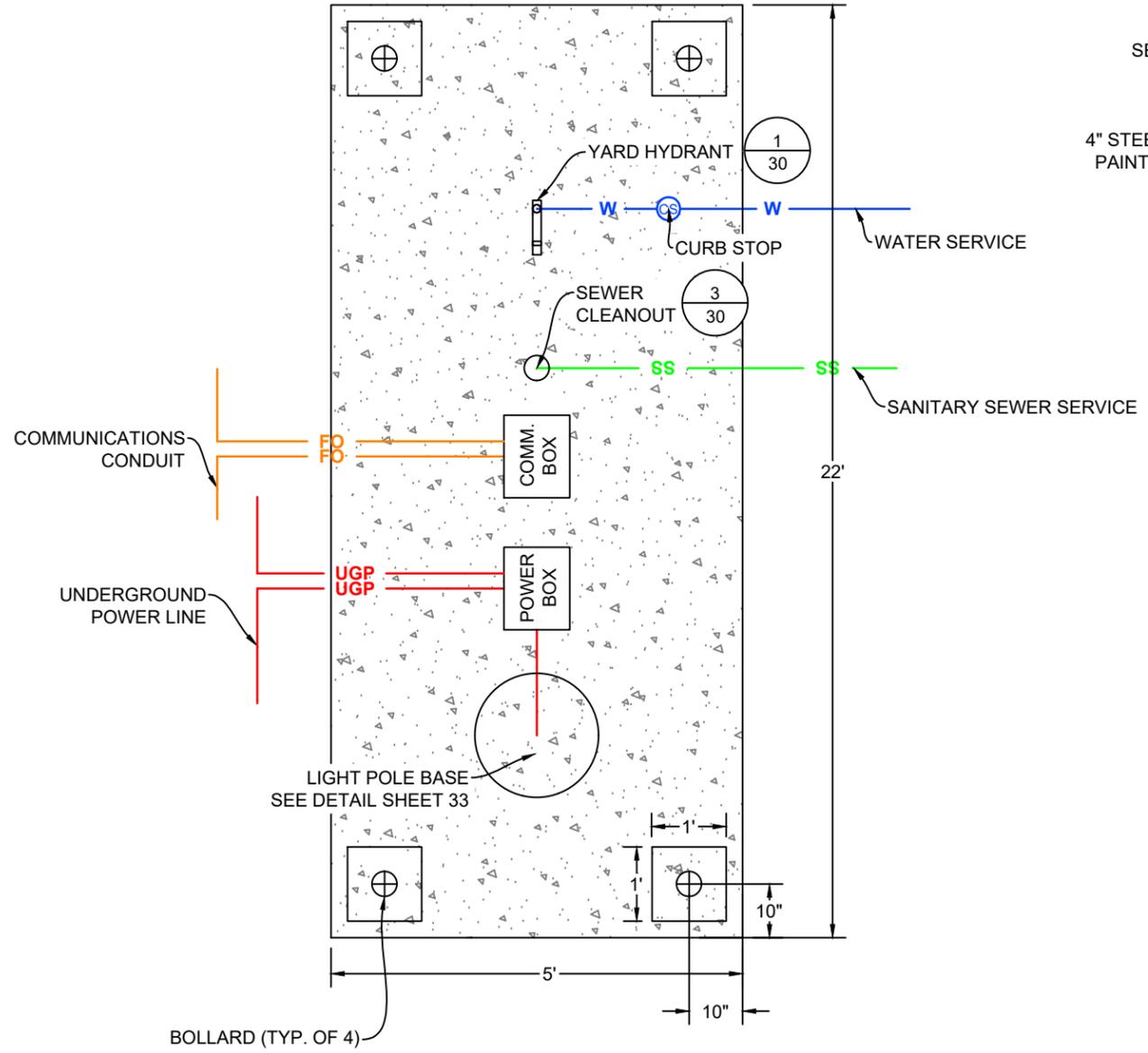
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YELLOWSTONE COUNTY
SOUTH EXPO LOT CONSTRUCTION PROJECT
YARD HYDRANT AND SEWER CLEANOUT DETAILS
BILLINGS, MT

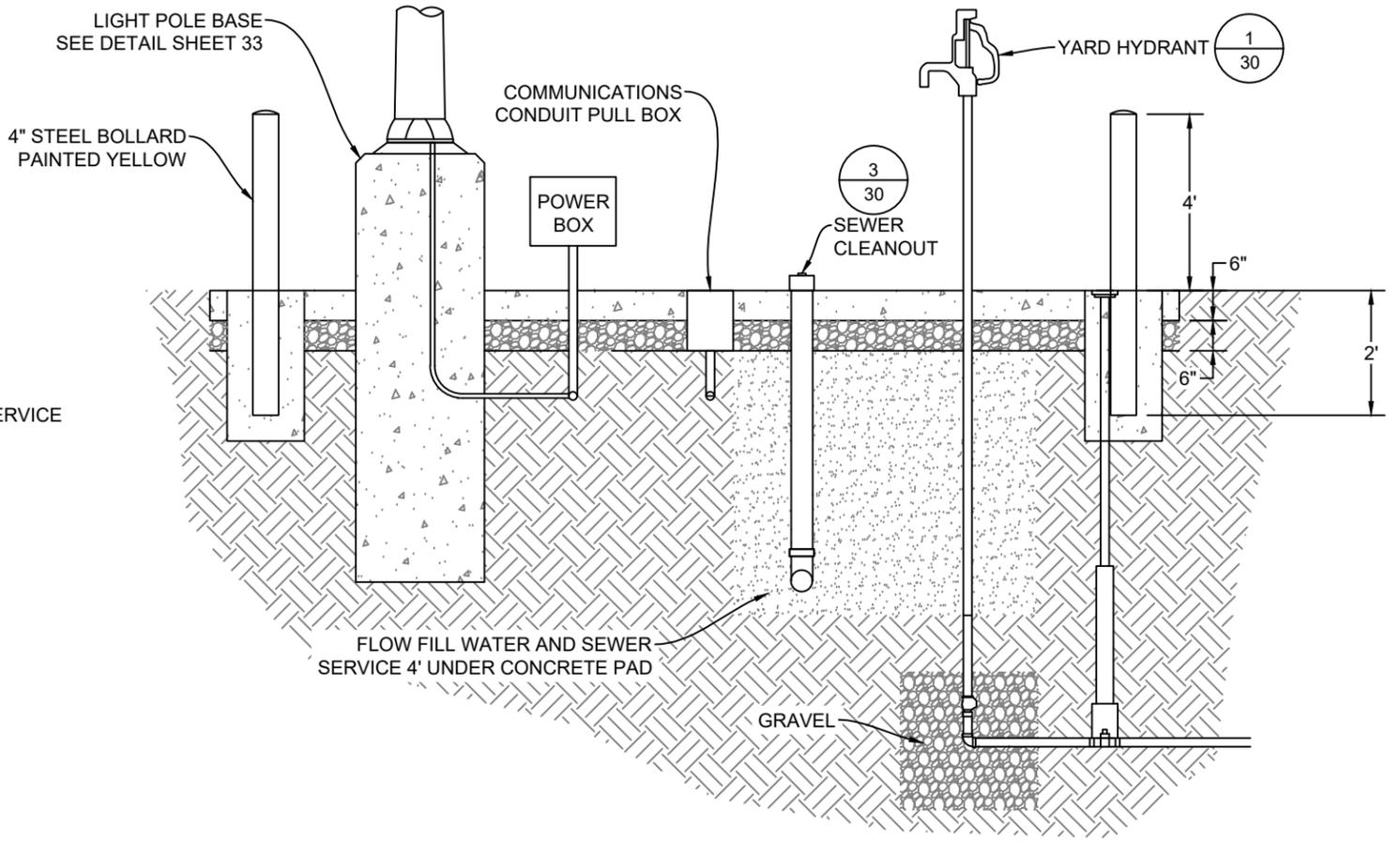
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1
31 EXPO SOUTH LOT SERVICE STATION PLAN DETAIL
NOT TO SCALE



2
31 EXPO SOUTH LOT SERVICE STATION SECTION DETAIL
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EXPO SOUTH LOT SERVICE HOOKUP DETAILS
 BILLINGS, MT

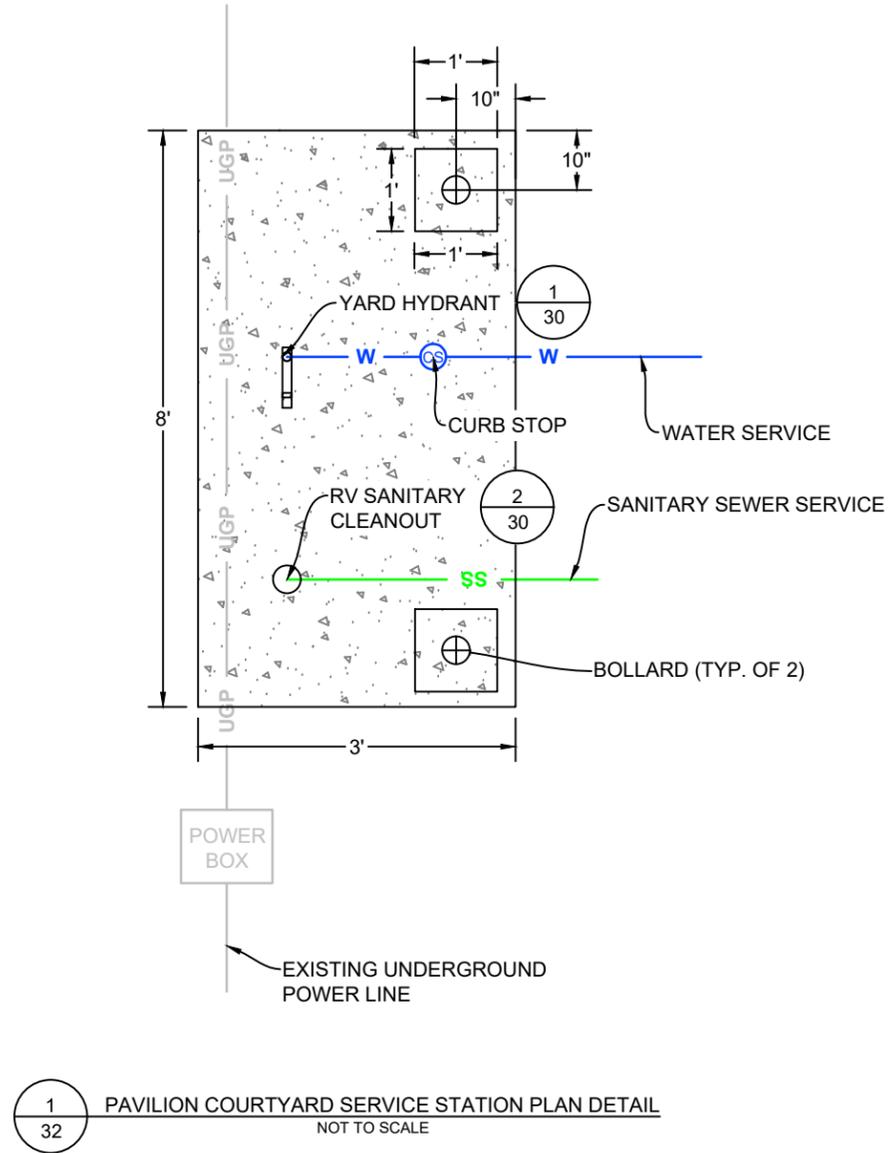
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SHEET
31

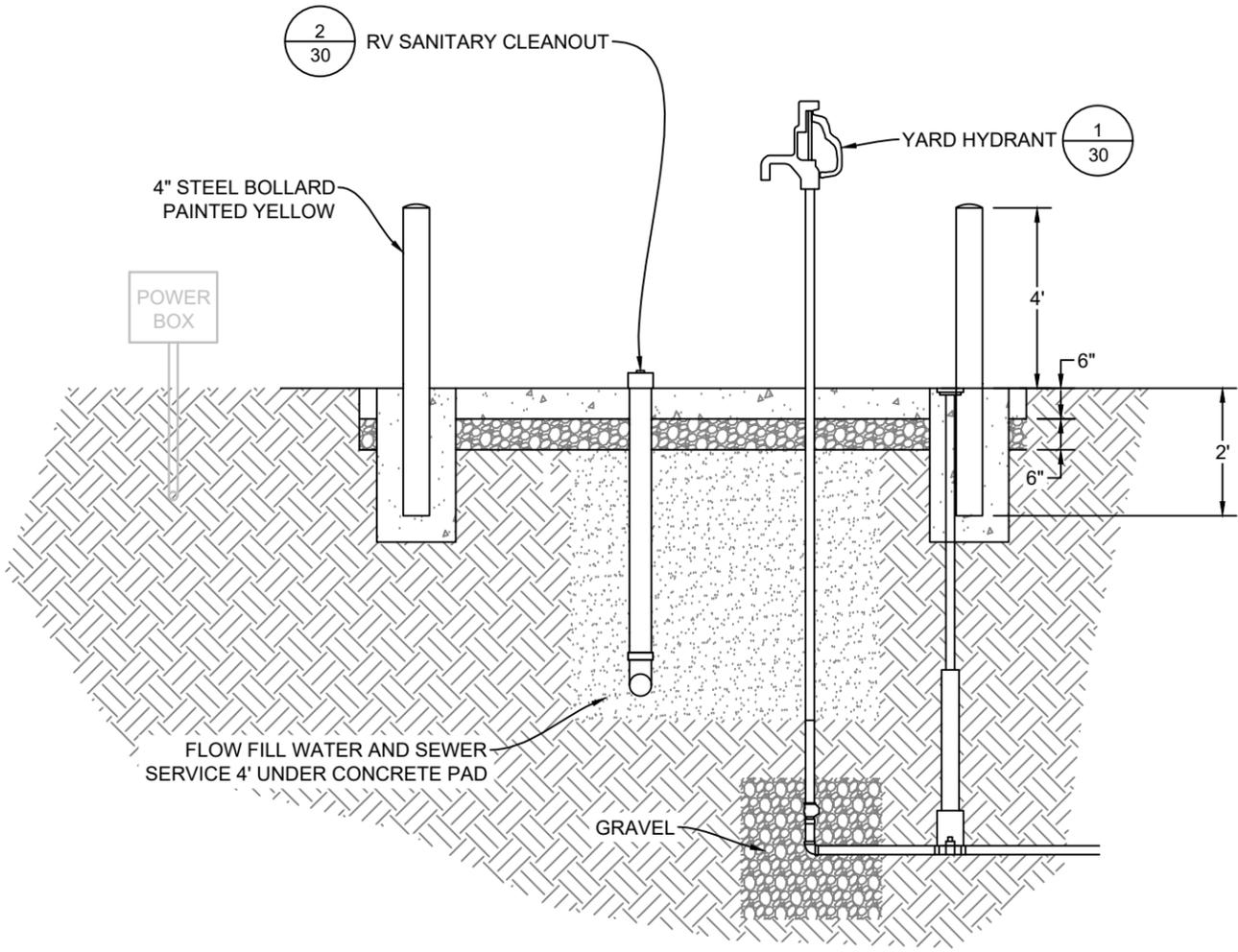
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1/32 PAVILION COURTYARD SERVICE STATION PLAN DETAIL
NOT TO SCALE



2/32 PAVILION COURTYARD SERVICE STATION SECTION DETAIL
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 SOUTH EXPO LOT CONSTRUCTION PROJECT
PAVILION COURTYARD SERVICE HOOKUP DETAILS
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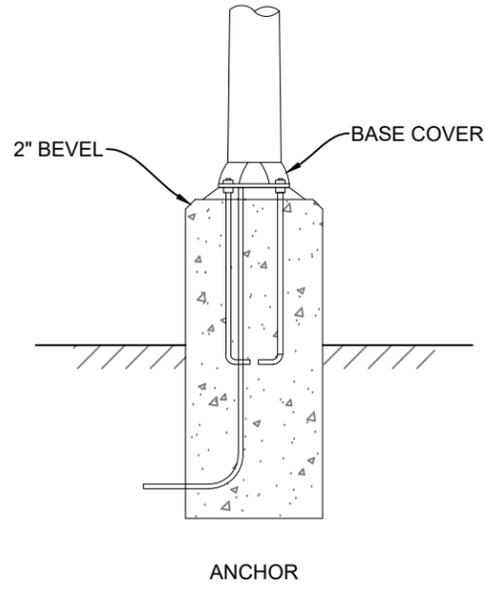
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32

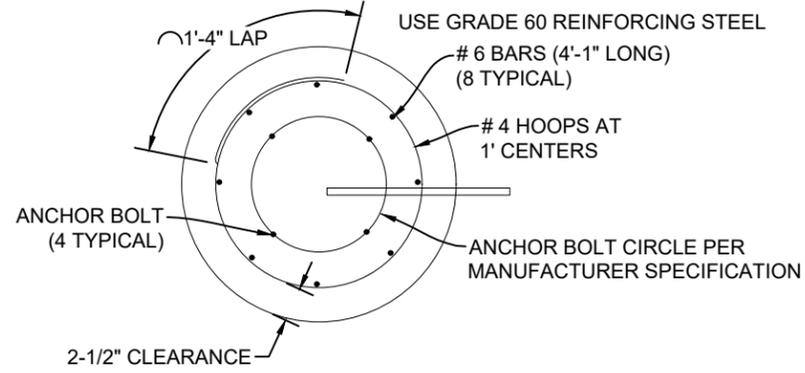
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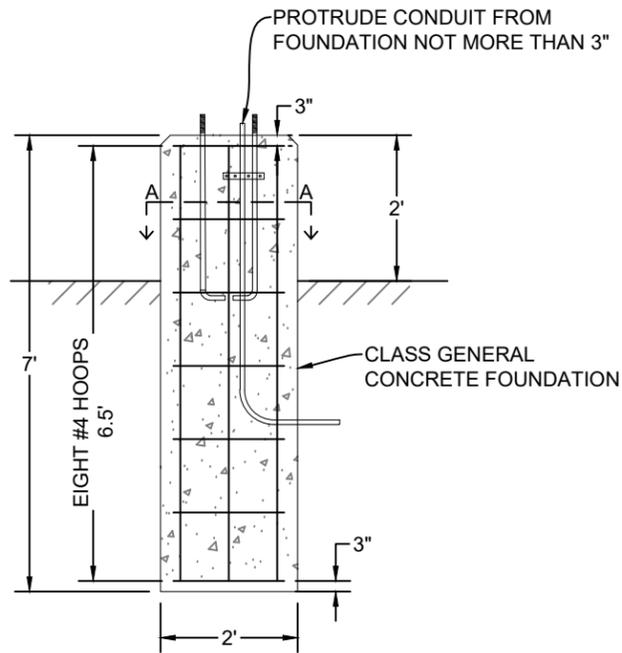
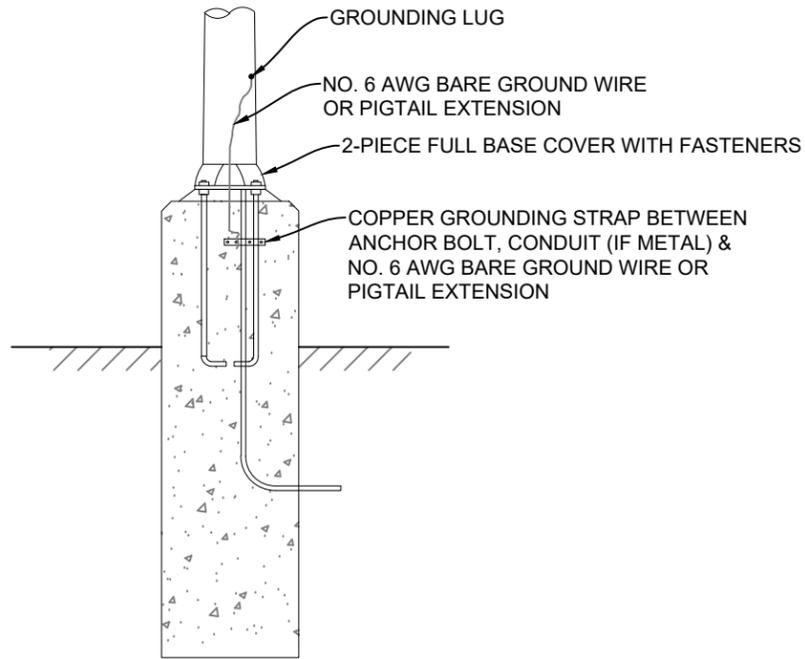
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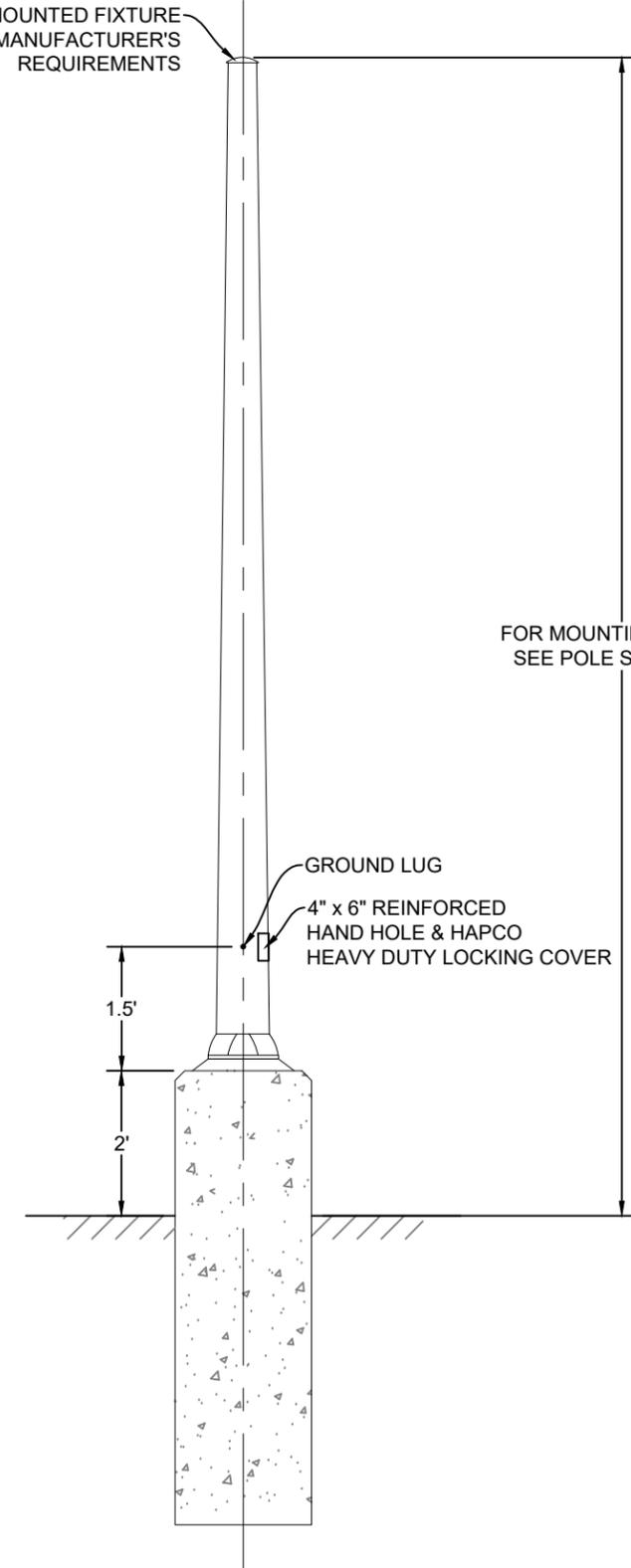
BASE TYPES FOR LUMINAIRE STANDARD



SECTION A-A



SIDE MOUNTED FIXTURE
PER MANUFACTURER'S
REQUIREMENTS



DS210 LIGHT DUTY POLE

TYPICAL OF ALL FOUNDATIONS

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YELLOWSTONE COUNTY
SOUTH EXPO LOT CONSTRUCTION PROJECT
LIGHT POLE BASE DETAILS
BILLINGS, MT

DESIGNED BY: JMD
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