



# Project Manual

## MetraPark Premium Lot



APRIL 2022

**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 Premium Lot Rehabilitation Project will be received by Yellowstone County, Montana at Yellowstone County Commissioner's Office, 316 N 26<sup>th</sup> Room 3101, Billings, MT until 4pm local time on May 9<sup>th</sup> and then publicly opened and read aloud on May 10<sup>th</sup> at the Board of County Commissioners meeting.

The project consists of parking lot reconstruction to include removal of asphalt, grading, paving, concrete, striping, signage, storm drain removal and replacement, and lighting improvements.

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 24<sup>th</sup> St W Suite 201, Billings, MT, on April 28<sup>th</sup> at 10am local time. Interested Contractors are highly encouraged to attend.

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 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)

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(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 qualificationsto 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 maydisqualify 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 AND INSURANCE**

- 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.

#### **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 Premium Lot Rehabilitation 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:

*INSERT BID TAB HERE STARTING ON NEXT PAGE*

Item	Item Description	Unit	Estimated Quantity	Estimated Unit Cost	Total Cost
<b>General Items</b>					
101	Mobilization/Demobilization	LS	1		
102	Taxes, Bonds, Insurance	LS	1		
103	Construction Surveying	LS	1		
104	Construction Traffic Control	LS	1		
105	SWPPP Administration	LS	1		
<b>Surfacing &amp; Site Work</b>					
106	Miscellaneous Force Account Work	LS	1		
107	Excavation Above Subgrade	CY	5052		
108	1.5" Minus Crushed Base Course - Upper Lot	SY	8697		
109	1.5" Minus Crushed Base Course - Lower Lot	SY	6323		
110	4" Thickness of Asphalt Concrete Pavement - Surface Grade B Course - Upper Lot	SY	8697		
111	3" Thickness of Asphalt Concrete Pavement - Surface Grade B Course - Lower Lot	SY	6323		
112	Paving Fabric - Upper Lot Geosynthetic	SY	8697		
113	Paving Fabric - Lower Lot Geosynthetic	SY	6323		
114	Subexcavation/Replacement Below Subgrade	SY	3004		
115	Concrete Ribbon	LF	1996		
116	Combined Concrete Curb and Gutter	LF	172		
117	Stormwater Trench Drain & ADA Grate	LS	1		
118	Seeding	SY	2469		
119	New Steel Bollard	EA	5		
120	New Black Chain Link Fence	LF	80		
121	4" Wide Painted Pavement Striping	LF	11560		
122	24" Wide Painted Pavement Stop Marking	LF	20		
123	Painted Pavement Marking Words and Symbols	EA	10		
124	Remove and Reinstall Parking Space Signs	EA	22		
125	New Sign Post and Right Turn Only Sign	LS	1		
126	New Sign Post and No Busses Beyond This Point Sign	LS	1		
127	Remove and Reinstall Existing Boulders & Jersey Barrier	LS	1		
128	Temporarily Relocate Ticket Booth	LS	1		
<b>Stormwater</b>					
129	2'x3' Storm Drain Outfall Structure	EA	1		
130	Dewatering	LS	1		
131	Remove 30" RCP Stormwater Pipe	LF	171		
132	18" SDR 35 PVC Storm Pipe	LF	171		
133	Connection to Existing Manhole	EA	1		
134	New Manhole Inlet Ring and Cover - MH-2	EA	1		
135	Cast-in-Place Manhole Barrell Section	EA	1		
<b>Lighting</b>					
136	Remove Existing Wood Light Poles	LS	1		
137	Install New Light Poles, Pole Bases, and Luminaires	EA	3		
138	Install New Underground Electrical Feeders	LF	750		
139	Electrical Handholes	EA	5		
140	Lighting Controls	EA	3		
<b>Total Construction Cost:</b>					

EJCDC® C-410, Bid Form for Construction Contract – 7<sup>th</sup> Edition

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B. 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) \_\_\_\_\_

This page left blank intentionally.

## BID BOND (PENAL SUM FORM)

<b>Bidder</b> Name: Address <i>(principal place of business)</i> :	<b>Surety</b> Name: Address <i>(principal place of business)</i> :
<b>Owner</b> Name: Address <i>(principal place of business)</i> :	<b>Bid</b> Project <i>(name and location)</i> :  Bid Due Date:
<b>Bond</b> 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: _____ <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) 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 parking lot reconstruction to include removal of asphalt, grading, paving, concrete, striping, signage, storm drain removal and replacement, and lighting improvements.

## 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 60 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 75 days after the date when the Contract Times commence to run.

### 4.03 *Milestones*

- A. Parts of the Work must be substantially completed on or before the following Milestone(s):

1. Milestone 1 Full lot to only be closed for a 42-day period for excavation, placement of base, construction of the concrete ribbon and curb and gutter, and asphalt placement.

#### 4.04 *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 \$1,200 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. *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 \$1,200 for each day that expires after such time until the Work is completed and ready for final payment.
  3. *Milestones:* Contractor shall pay Owner \$1,200 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.05.A.1 will apply, rather than the Milestone rate.
  4. Liquidated damages for failing to timely attain Milestones, 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.

#### 4.05 *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).

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

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- 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 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) consisting of\_\_sheets with each sheet bearing the following general title:\_\_\_\_\_.
  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 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: \_\_\_\_\_

**SPECIAL PROVISIONS**

# **SECTION 00910**

## **PROJECT SPECIFIC PROVISIONS**

### ***SP - 1. COPIES OF DOCUMENTS***

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 - 2. 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 Engineer's consultant, agent, or employee. Owner's Site Representative will be Hulteng, Inc., and will communicate directly with the Engineer.

### ***SP - 3. CONTRACTORS RESPONSIBILITIES***

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.

### ***SP - 4. 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 - 5. 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 - 6. 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 - 7. 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.

**SP - 8. 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 2022, Effective January 1, 2022, 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 - 9. 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. The designated construction area is shown on the Plans and is the Premium Parking Lot and immediately adjacent property.

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.

**SP - 10. CONSTRUCTION STAKING**

The Engineer will provide one-time staking for the project to include the concrete ribbon, curb and gutter, light pole bases, and stormwater inlet and piping. 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 paving, subgrade, and base. 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 differs from the plans.

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

**SP - 11. PRIVATE UTILITIES**

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, specifically provision of new private utility crossing trenches under proposed roadways as shown on the plans, with private utility owners throughout the completion of the work.

**SP - 12. 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.

Table 1 - City of Billings 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.

Table 1 - City of Billings Materials Testing Requirements (cont.)

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

Table 1 - City of Billings Materials Testing Requirements (cont.)

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

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.

### **SP - 13. LAYDOWN YARD**

Storage of materials for completion of the work shall occur within the project area. The parking lot will be closed for use for the entire project duration by the contractor, however, should the contractor not be performing any work and an event be taking place at MetraPark, parking shall be allowed during the event so long as the parking lot is traversable. The Contractor may close of the entire parking lot for excavation, placement of base, construction of the concrete ribbon and curb and gutter, and asphalt placement. Closure of the entire lot for this work shall be completed within a 42-day time period. During this period, the parking lot shall not be used for event parking by MetraPark.

### **SP - 14. 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 the MPWSS Section 02221 excepting that dewatering shall not be incidental to cost of pipeline and appurtenance as per MPWSS Section 02221(3.4)(3). 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. The water level of the existing pond shall be lowered prior to installation of the pond

outfall structure. The contractor shall provide a dewatering plan and provide 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.

There is a lump sum bid item in the Bid Form for dewatering. The 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 included as part of the dewatering lump sum bid item. A copy of the completed structure surveys following construction shall be provided to the Engineer.

#### ***SP - 15. CONSTRUCTION TRAFFIC CONTROL***

The Contractor will be required to prepare and submit traffic control plans for review by the Engineer and approval by the City of Billings and MDT, if any traffic control is necessary within Bench Boulevard. Construction traffic control shall be performed in accordance with the City of Billings Standard Modifications to the MPWSS. As required by the approved traffic control plan, the Contractor shall publicize road closures.

#### ***SP - 16. PAVEMENT SECTION***

The parking lot is separated into two paving section areas shown on the plans and listed in the Geotechnical Report based upon traffic patterns. Asphalt, crushed base, and geosynthetic shall be selected from one of the options presented in the Geotechnical Report for each area. Contractor may select the option that in their opinion provides least cost to the Owner. Contractor shall notify engineer of selected pavement section as part of submittal process. Quantity estimates based upon the pavement section are based on an 11-inch total depth (asphalt and base) for the entire lot. 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.

Asphalt shall conform to Section 02510 Type-B PG64-22.

Crushed base shall conform to Section 02235 and have a gradation of 1 ½" minus.

Contractor shall refer to geotechnical report completed by SK Geotechnical. Geotechnical Report is attached and is part of contract documents.

***SP - 17. STORM CROSSING ADA GRATE***

Contractor shall install a Storm Crossing ADA Grate for pedestrian crossing as shown on the Plans. Grate shall be a Pacific Trench Grating Type TSP-12-EZ or approved equivalent. Grate maximum clear opening between bars shall be ¼". Installation of the grate shall follow manufacturers recommendations.

***SP - 18. EXCAVATION ABOVE SUBGRADE***

The excavation above subgrade quantity includes the removal of the existing pavement section as per the Geotechnical Report recommendations. An average thickness of 4 ¼" was utilized for the pavement and 6 1/2" was used for the base for a total removal section of 10 ¾". The additional excavation to cut to subgrade of the proposed surface was also included in the excavation above subgrade quantity. The excavation above subgrade is for the area within the paving extents, inside of the concrete ribbon and curb and gutter. Embankment fill within this area and regrading of edges of the project to tie to existing including the regrading of the swale near the walking tunnel are considered incidental to the excavation above subgrade.

***SP - 19. GEOTECHNICAL RECOMMENDATIONS***

The Geotechnical Report identifies requirements for the subgrade on the project. Identification of unstable areas in the subgrade shall be completed as identified in the Geotechnical Report and if equipment differing from what is identified in the report is intended to be used, the Engineer must be notified a minimum of 48 hours prior to proof roll and the Geotechnical Engineer must witness the proof roll to adjust rutting depth recommendations. Unstable subgrades identified per the proof rolling will be repaired per the Geotechnical Report recommendations with an increased crushed base section and geosynthetic.

The Geotechnical Report stormwater trench section shall follow the alternatives provided. The bedding type and/or geotextile fabric is incidental to the installation of the stormwater pipe.

***SP - 20. STORMWATER MANAGEMENT AND BMPS***

The Contractor shall make note that this project is subject to Montana Department of Environmental Quality 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 (MDEQ). 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>

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. The seeding bid item has been determined by the length of the concrete ribbon and complete curb and gutter with an average width of 10-feet.

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 - 21. 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.

**Bid Item 101 - 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 Item 102 - TAXES, BONDS, INSURANCE** - The lump sum 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 Item 103 - Construction Surveying** - This item will be paid on a lump sum basis. Progress payments shall be made to the contractor in proportion to total construction completed.

**Bid Item 105 - 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 Work** - 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 Item 114 - Subexcavation/Replacement Below Subgrade** - Payment for this bid item shall include 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 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.

**Bid Item 115 - Concrete Ribbon** - Payment for this 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 of concrete ribbon installed. Measurement is the horizontal distance measured along the middle of the concrete ribbon.

**Bid Item 116 - 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 is measured along the flow line of the gutter and paid for by the lineal foot of combined curb and gutter in place.

**Bid Item 117 - Stormwater Trench Drain & ADA Grate** - Payment for this bid item is full compensation for furnishing and installing a pedestrian crossing grate, excavation, crushed base, concrete support structure, mounting steel, and all incidentals required to provide a complete in place Stormwater Trench Drain & ADA Grate. Measurement shall be on a lump sum basis.

**Bid Item 119 - New Steel Bollard** - Payment for this bid item shall include excavation, steel bollard, installation of materials, concrete materials, prime and yellow paint, and all other incidentals to provide a complete in place steel bollard. Bollard shall be measured on a per each basis that will be counted as each singular metal bollard structure including the cross bar and two foundation sections.

**Bid Item 120 - New Black Chain Link Fence** - Payment for this bid items is full compensation for all materials, all equipment, tools, labor, and the performance of all work and incidentals necessary to complete removal and replacement of black chain link fence. Measurement shall be the lineal foot of accepted chain link fence installed.

**Bid Item 121 - 4" Wide Painted Pavement Striping** - Painted traffic lines to be measured and paid for by the linear foot, complete in place including the furnishing and application of beads.

**Bid Item 122 - 24" Wide Painted Pavement Stop Marking** - Painted traffic lines to be measured and paid for by the linear foot, complete in place including the furnishing and application of beads.

**Bid Item 123 - Painted Pavement Marking Words and Symbols** - Payment for this bid item shall be by on a per each basis per combination word or symbol of accepted pavement marking.

**Bid Item 124 - Remove and Reinstall Parking Space Signs** - Contractor shall remove existing parking space signs and posts and reinstall new parking space posts with the existing signs denoting Artist naming of parking spaces. Location of signs are shown on the Plans and Contractor shall provide necessary replacement materials for any portions of the named signs that are damaged by removal and reinstall of the signs. It is

Contractor's responsibility to reinstall signs at their original location including the Artist names, reserved spaces, and other signs on each post. Payment shall be on a per each basis and shall include removal of sign posts, all replacement materials, and reinstallation of posts and signage.

**Bid Item 125 - New Sign Post and Right Turn Only Sign** - Installation of new signs and posts will be paid at the contract unit price per each finished sign and post, which price and payment will be full compensation for completing the work in an acceptable manner. The contract prices for the various component parts shall include concrete for foundations, all miscellaneous hardware, labor, equipment use, back bracing and other incidentals that may be required.

**Bid Item 126 - New Sign Post and No Busses Beyond This Point Sign** - Installation of new signs and posts will be paid at the contract unit price per each finished sign and post, which price and payment will be full compensation for completing the work in an acceptable manner. The contract prices for the various component parts shall include concrete for foundations, all miscellaneous hardware, labor, equipment use, back bracing and other incidentals that may be required.

**Bid Item 127 - Remove and Reinstall Existing Boulders & Jersey Barriers** - Payment for this bid item will be full compensation for removing and reinstalling the existing boulders and Jersey Barriers adjacent to the west and north edge of the detention pond in their existing location and as shown on the Plans. 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.

**Bid Item 128 - Temporarily Relocate Ticket Booth** - Payment for this bid item will be full compensation for temporarily removing, storing, and replacing the existing ticket booth in its current location and as shown on the Plans. 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.

**Bid Item 129 - 2'x3' Storm Drain Outfall Structure** - Payment for this bid item is full compensation for furnishing and installing a 2'x3' storm drain outfall structure to include the inlet grate and pipe orifice as called out on the Plans. Payment for this item will include excavation, crushed base, precast storm drain inlet structure, grate, orifice pipe, trash rack, joint sealer, compacted fill, grading, and all incidentals required to complete the item.

**Bid Item 130 - Dewatering** - Payment for this bid item is full compensation for dewatering throughout the project to include all equipment, tools, labor, and the performance of all work and incidentals necessary to complete the item.

**Bid Item 133 - Connection to Existing Manhole** - Connection to the existing storm manhole shall include all labor, materials, and equipment necessary to provide a complete in place connection.

**Bid Item 135 - Cast-in-Place Manhole Barrell Section** - Payment for this bid item is full compensation for materials, equipment, and labor to frame and construct a cast-in-place manhole barrel section to bring the manhole lid to the finish elevation shown on the Plans. Payment for this item will include cast-in-place barrel section, steps, joint sealer, securing to existing manhole, re-use or replacement of riser section, manhole ring, and lid, and all other incidentals to complete the bid item. Measurement for this bid item shall be for the accepted vertical lineal foot of cast-in-place barrel section installed.

**Bid Item 136 - Remove Existing Wood Light Poles** - Payment for this bid item is for full compensation for removal of (2) 25' wooden poles, (2) LED flood lights, approximately 165' of associated overhead conductors and tension cable, (2) toggle switches in weatherproof enclosures, (2) button-type photocells, and all other incidentals that might be associated with removal of the wood poles and lights.

**Bid Item 137 - Install New Light Poles, Pole Bases, and Luminaires** - Payment for this bid item is for full compensation for installation of (3) 30' steel light poles along with corresponding concrete pole base and pole base grounding. Each pole shall include installation and aiming of (3) LED flood lights.

**Bid Item 138 - Install New Underground Electrical Feeders** - Payment for this bid item is for full compensation for installation of approximately 750' of 1" PVC conduit with #8 AWG, THHN copper conductors at a minimum depth below grade of 30" for wiring between new light poles. Installation of feeder shall include all trenching, backfill, and electrical terminations.

**Bid Item 139 - Electrical Handholes** - Payment for this bid item is for full compensation for installation of polymer concrete handholes supplemented with fiberglass for every 150' of electrical feeder or where necessary for installation of feeder. Handholes shall be 13" x 24" x 12", Quazite or approved equivalent.

**Bid Item 140 - Lighting Controls** - Payment for this bid item is for full compensation for installation of (3) toggle switches in weatherproof enclosures, in addition to (3) button-type photocells. One toggle switch and photocell shall be installed on each pole for control of each pole luminaires.

END SECTION 00910

# TECHNICAL SPECIFICATIONS

**SECTION 26 0500**  
**COMMON ELECTRICAL REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Provide all labor, materials, equipment and incidentals for completion of all electrical systems described here in. All electrical equipment and material shall be installed in accordance with requirements, governing authorities, and in a neat and workmen like manner by skilled and competent electricians in conformance with the standard practices of the electrical industry. All electrical systems shall be complete and operational to the benefit of the owner.
  - 1. Good workmanship and appearance are considered equal to proper operation.
  - 2. The contractor shall provide all foreseeable electrical equipment and accessories necessary, whether specifically stated or not, to make the required electrical systems complete and operational.
- B. The electrical contractor shall comply with the requirements of the general conditions, supplemental general conditions of the project specifications, any base building specifications and building criteria, and all contract specifications and documents.
- C. Coordinate and order the progress of electrical work to conform to the owner's schedule and the progress of the work of the other trades.
- D. Apply for and pay for all permits, fees, licenses and inspections for this division of work.
- E. Provide temporary lighting and power as required.
- F. Visit the project before submitting a bid as no extras will be allowed for lack of knowledge of obvious existing conditions.
- G. Drawings are diagrammatic in nature. Take all dimensions from civil drawings, certified equipment drawings and from the structure itself before fabricating any work.

**1.02 DEFINITIONS AND STANDARDS**

- A. "Provide" means contractor is responsible for the furnishing and installation of.
- B. "Exposed" means where it can be seen after the building is completed such as in equipment rooms, unfinished areas, accessible tunnels, etc. Where conduit/equipment is accessible.
- C. Standards for materials: all materials shall be new except as otherwise stated, and shall conform with the current applicable industry standards, NEMA standards and underwriters' laboratories standards.
- D. Comply with the latest federal, state and local codes requirements, and ordinances, with the national electrical code of the national fire protection association, and with requirements of the power and telephone companies furnishing services to the project. The following is a brief list of applicable codes:
  - 1. NFPA NO. 70 - National Electrical Code, 2017 Edition
  - 4. IBC & UBC, Latest Edition
  - 5. Local building codes, latest edition
- E. Provide testing of all electrical systems and components as required by all applicable building codes and ordinances, UL, NEMA, ANSI, ICEA, NECA, etc., and as recommended by the electrical equipment manufacturers.

**1.03 SUBMITTALS**

- A. Shop drawings: submit shop drawings as required in division 1 for all materials and equipment. If the shop drawings deviate from the contract documents advise the engineer of the deviations via written format, accompanying the shop drawings. Include the reason for the deviation(s). Coordinate all required changes with the other trades affected. If the changes are occasioned by the contractor, the contractor shall pay any costs involved. Shop drawings shall include but are not limited to the following:
  - 1. Product data for electrical identification.
  - 2. Product data for boxes, enclosures and cabinets.
  - 3. Product data for wiring devices.
  - 4. Product data for lighting control devices.
  - 5. Product data for lighting.
  - 6. Certificates of operation as required.

**1.04 WARRANTY**

- A. Provide a written warranty to the owner covering the entire electrical work to be free from defective materials, equipment and workmanship for a period of one year after date of acceptance. All defective equipment or materials which appear during the warranty period shall be replaced or repaired by the electrical contractor in a timely fashion at no cost to the Owner.

## **1.05 CLOSE OUT SUBMITTALS**

- A. Operation and maintenance manuals: submit number as required by division 1, typed and hard bound to Architect for approval prior to scheduling any system demonstration for the owner and fifteen (15) days prior to final observation. Books shall be arranged in sequence to match the specification sections.

## **PART 2 PRODUCTS**

### **2.01 GENERAL**

- A. All equipment and materials shall be new unless noted otherwise and acceptable for installation only if labeled or listed as defined in NFPA 70, article 100, by UL or by a recognized testing laboratory where standards have been established and acceptable to the authority having jurisdiction. Labeled or listed equipment shall be installed in accordance with any instructions or labeling provided with the equipment.
- B. Make provisions for safe delivery and secure storage of all materials.
- C. Should the contractor wish to have products considered other than those specified, contractor must submit those items as required in division 1. Contractor will be required to submit the total savings (anticipated savings) to the Owner.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Provide all core drilling, channeling, cutting, patching, sleeves, etc. As required for installation of electrical equipment. Seal holes, fireproofing where necessary, and refinish all repair work to original condition where damaged by electrical work.
  - 1. Coordinate UG site utilities with appropriate utility company prior to work.
- B. Carefully coordinate all electrical work with all other applicable divisions.

**END OF SECTION**

**SECTION 26 0510**  
**DEMOLITION FOR REMODELING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This section includes selective demolition for existing spaces.

**PART 2 EXECUTION**

**2.01 DEMOLITION**

- A. Field check all existing conditions prior to bidding and include an allowance for the removal and relocation of existing conduits, wires, devices, fixtures, or other equipment as indicated or as required to coordinate and adapt new and existing electrical systems to all other work required on this project. No extras will be allowed for alterations of a foreseeable nature required to achieve the end result as indicated on the drawings.
- B. Where the reuse of existing conduits, outlets, junction boxes, etc., is permissible, make certain that the wiring for them is continuous from outlet to outlet and that all splices and insulations are in good condition. Provide modifications to assure that circuits, or system shall not pass through outlets or junction boxes which may be rendered inaccessible by changes to be made to the project. Existing conduits, wire, devices, etc., which shall be removed shall become the property of the owner unless otherwise noted.
- C. Connect new work to existing in a manner that will assure proper raceway grounding throughout in conformance with the national electrical code.
- D. Remodel work, cutting and patching: this contractor shall perform all cutting, channeling, chasing, drilling, trenching etc., as required to install or remove electrical equipment in areas of remodeling. This work shall be performed so as to minimize damage to other portions of the site.

**2.02 COORDINATION**

- A. Carefully coordinate with the required remodeling work, cutting and patching etc., performed by other trades. Remove or relocate existing electrical conduits, wires, devices, fixtures and other equipment as necessary.

**2.03 OUTAGES**

- A. All outages on portions of existing electrical systems shall be minimized and shall be at a time and of a duration as accepted by the owner.

**END OF SECTION**

## SECTION 26 0519

### LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. This Section includes the following:
  - 1. Building wires and cables rated 600 V and less.
  - 2. Connectors, splices, and terminations rated 600 V and less.

#### PART 2 PRODUCTS

##### 2.01 CONDUCTORS AND CABLES

- A. Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. American Insulated Wire Corp.; a Leviton Company
  - 2. General Cable Corporation
  - 3. Senator Wire & Cable Company
  - 4. Southwire Company
- B. Copper Conductors: Comply with NEMA WC 70.

##### 2.02 CONNECTORS AND SPLICES

- A. Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

#### PART 3 EXECUTION

##### 3.01 CONDUCTOR MATERIAL APPLICATIONS

- A. Minimum size no. 12 AWG except for control or signal circuits, which may be no. 14 AWG or smaller. Increase conductor size as necessary to limit branch circuit voltage drop to 3% and service/feeder voltage drop to 2%.
- B. All conductors shall be copper; solid conductor for no.12 AWG and smaller, stranded for no. 10 AWG and larger.
- C. All wiring shall be as follows:
  - 1. Exposed feeders: type THHN, THWN or XHHW, single conductors in raceway.
  - 2. Feeders concealed in concrete and below slabs-on-grade: type THHN-THWN, single conductors in raceway.
  - 3. Branch circuits concealed in concrete or below slabs-on-grade: type THHN-THWN, single conductors in raceway.

##### 3.02 INSTALLATION OF CONDUCTORS AND CABLES

- A. Wiring for control systems shall be installed in conjunction with mechanical and miscellaneous equipment.
- B. Install conductor at each outlet, with at least 6 inches of slack to allow for connection to device.

##### 3.03 CONNECTIONS

- A. Splices for No. 6 AWG and smaller shall be made with twist-on wire connectors.
- B. Splices for No. 4 AWG and larger shall be made with solderless or compression type CU/ALR lugs.

##### 3.04 FIELD QUALITY CONTROL

- A. Testing: perform the following field quality-control testing:
  - 1. Torque test conductor connections and terminations to manufacturer's recommended values.
  - 2. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.



3. Insulation test: measure the insulation of feeder conductors. Measurements shall be taken between conductors, and conductors and ground. Resistance shall be 1,000,000 ohms or more when tested at 500 volts by megger without circuit loads.
- B. Cables will be considered defective if they do not pass tests and inspections.

**END OF SECTION**

**SECTION 26 0526**  
**GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Conduit systems, supports, cabinets, equipment, fixtures, the grounded circuit conductor, etc. Shall be properly grounded in accordance with the current issue of the national electrical code. Provide all bonding jumpers and wire, grounding bushings, clamps, etc. As required for complete grounding.
- B. Connections shall be either bolted-pressure-type, compression type or exothermic-welded type.

**PART 2 PRODUCTS**

**2.01 CONDUCTORS**

- A. Grounding conductor material: Copper

**2.02 GROUNDING ELECTRODES**

- A. Ground Rods: Copper Clad Steel 3/4 inch by 10 foot

**PART 3 EXECUTION**

**3.01 APPLICATIONS**

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- C. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2 AWG minimum. Bury at least 24" below grade or below frost line, whichever is greater.

**3.02 EQUIPMENT GROUNDING**

- A. Provide a separate equipment grounding conductor in all feeder and branch circuits and all flexible and nonmetallic raceways.

**3.04 INSTALLATION**

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage. Conductors shall not make more than a 90 degree bend with a minimum bending radius of 12 inches.

**END OF SECTION**

**SECTION 26 0533**  
**RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section includes metal conduits, tubing, fittings, surface raceway, and boxes.

**PART 2 PRODUCTS**

**2.01 METAL CONDUITS, TUBING, AND FITTINGS**

- A. EMT: Comply with ANSI C80.3 and UL 797.
- B. FMC: Comply with UL 1; zinc-coated steel.
- C. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
  - 1. Fittings for EMT:
    - a. Material: Steel
    - b. Type: Setscrew or compression.

**2.02 NONMETALLIC CONDUITS, TUBING, AND FITTINGS**

- A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- C. Fittings for RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

**2.04 BOXES**

- A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A. Four inch square or octagonal, zinc-coated sheet steel type.

**PART 3 EXECUTION**

**3.01 RACEWAY APPLICATION**

- A. All conductors shall be enclosed by conduit sized in accordance with chapter 9, table 4 of the national electrical code. Minimum size 1/2 inch. All conduits shall be concealed in finished areas.
- B. Galvanized rigid metal conduit (RMC) and intermediate metal conduit (IMC) shall be utilized for above and below grade applications in accordance with Articles 344 and 342 of the National Electrical Code. All couplings shall be threaded.
- C. Electrical metallic tubing (EMT) shall be utilized for all dry, above grade or above floor feeders and branch circuit homerun applications in accordance with Article 358 of the National Electrical Code. Couplings shall be steel set screw type.
- D. Rigid nonmetallic conduit (PVC) shall be utilized for above and below grade applications in accordance with Article 352 of the National Electric Code. Connections to be made by the use of a suitable solvent-type cement.
- E. Surface metallic raceways shall be limited to only areas specifically noted and of size and type specified on the drawings.
- F. All conduits exposed or concealed shall be routed parallel or perpendicular with the building walls. Support conduit as required by the latest edition of the National Electrical Code.
- G. Provide expansion type fittings for all conduits, which cross expansion joints.

**3.02 BOXES**

- A. Enclosures exposed to weather or damp locations shall be weatherproof type.

- B. Pull boxes and junction boxes: junction boxes and pull boxes will be provided as required. Size of boxes shall be in accordance with the current national electrical code requirements.
  - 1. Enclosures shall be NEMA type suitable for the surrounding area and conditions.

**END OF SECTION**

**SECTION 26 0553**  
**IDENTIFICATION FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section includes identification for conductors, raceways, equipment, and underground warning tape.

**PART 2 PRODUCTS**

**2.01 POWER RACEWAY IDENTIFICATION MATERIALS**

- A. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather and chemical-resistant coating.

**2.02 CONDUCTOR IDENTIFICATION AND MATERIALS**

- A. Conductors 8 AWG and smaller shall be factory color coded. Conductors 6 AWG and larger may be color coded by field painting or color taping a 6-inch length of exposed end.
- B. Wiring for control systems shall be color-coded in accordance with the wiring diagrams furnished with the equipment.
- C. Conductor identification shall be as follows:
- D. 120/208V System                      277/480V System
- E. Phase A            Black            Brown
- F. Phase B            Red            Orange
- G. Phase C            Blue            Yellow
- H. Neutral            White            Gray
- I. Ground            Green            Green
- J. Isolated Ground            Green w/ Yellow Stripe    Green w/ Yellow Stripe
- K. Switch Leg        Pink            Purple
- 1. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 inch wide.

**2.03 UNDERGROUND-LINE WARNING TAPE**

- A. Provide detectable underground line warning tape for all underground electrical service (power, communications, etc.) System raceways.
- B. Printing on tape shall be permanent and shall not be damaged by burial operations. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

**2.04 EQUIPMENT IDENTIFICATION LABELS**

- A. Provide engraved nameplates for all electrical cabinets, enclosures, panelboards, distribution equipment, electrical equipment, boxes, etc. Nameplates shall be engraving stock, melamine plastic laminate, minimum 1/8 inch thick for signs up to 20 square inches and 1/4 inch thick for larger sizes with black letters on a white face or as required by code or Owner.

**PART 3 EXECUTION**

**3.01 GENERAL INSTALLATION**

- A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- C. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

- D. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches overall.

**END OF SECTION**

**SECTION 26 0923**  
**LIGHTING CONTROL DEVICES**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This Section includes time switches, photo electric relays, and contactors.

**PART 2 PRODUCTS**

**2.01 OUTDOOR PHOTOELECTRIC SWITCHES**

- A. Photoelectric relays: solid state, with single pole, double throw dry contacts rated to operate connected relay, contactor coils, or microprocessor input and complying with UL 773a.
1. Light level monitoring range: 0 to 3500 fc, with an adjustment for turn-on/turn-off levels.
  2. Time delay: Prevents false operation.

**PART 3 EXECUTION**

**3.01 FIELD QUALITY CONTROL**

- A. Perform the following field tests and inspections and prepare test reports:
1. After installing sensors, and after electrical circuitry has been energized, adjust and test for compliance with requirements.
  2. Operational Test: Verify operation of each lighting control device, and adjust time delays.
- B. Set and operate devices to demonstrate their functions and capabilities in a methodical sequence that cues and reproduces actual operating functions.

**END OF SECTION**

**SECTION 26 2726**  
**WIRING DEVICES**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This section includes receptacles, GFCI receptacles, snap switches, dimmers, and occupancy sensors.

**PART 2 PRODUCTS**

**2.01 SNAP SWITCHES**

- A. AC quiet operating type switches shall be 120/277V, 20 amp, Pass & Seymour CS20AC1 series, or equal. Provide device color as directed by the Architect, or to match base building standards, whichever is applicable.

**2.03 WEATHER PROOF COVER**

- A. Metal, no plastic allowed. High abuse and gasketed.

**2.05 DEVICE PLATES**

- A. Device plates shall be high abusive nylon, color to match device, or to match base building standards, whichever is applicable.

**END OF SECTION**



**SECTION 26 5100  
EXTERIOR LIGHTING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. This Section includes the following:
  - 1. Exterior luminaires, lamps, and drivers.

**1.02 SUBMITTALS**

- A. Provide a submittal for each type of luminaire, arranged in order of type designation. Include data on features, accessories, remote drivers, finishes, and the following:
  - 1. Physical description of lighting fixture including dimensions.
  - 2. Remote drivers as designed.
  - 3. Input Wattage.
  - 4. Life (in hours) and energy-efficiency data of source.
  - 5. Photometric data, in IESNA format, based on laboratory tests of each lighting fixture type, outfitted with lamps, drivers, and accessories identical to those indicated for the luminaire as applied in this Project.

**1.03 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: Include lighting equipment and luminaires in emergency operation, normal operation, and maintenance manuals.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Subject to compliance with requirements in Division 1, provide products by the manufacturers specified on the drawings or provide products from manufacturers with similar construction, installation, Wattage usage, dimming type, dimensions, certifications, finishes, CRI, CCT, and photometric characteristics. Contractor will be required to submit the total savings (anticipated savings) to the Owner.
- B. Lamps shall be as manufactured by Osram/Sylvania, Phillips, G.E., Cree, TCP, or Venture. Do not use lamps by EcoSmart.
- C. Color temperature for LEDs shall be as specified in the drawings.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Pole mounting: comply with AASHTO LTS-3 for pole or other support structures, brackets, arms, appurtenances, base, and anchorage foundation.
  - 1. Pole/support structure base shall be anchor type with hold-down or anchor bolts, leveling nuts and bolt covers.
  - 2. Concrete foundations shall be constructed according to division 3 "cast-in-place concrete" and structural engineer requirements.
- B. Set luminaires level, plumb, and square with ceiling and walls, and secure according to manufacturer's written instructions and approved submittal materials. Install lamps in each luminaire without integral lamping. Do not support luminaries to the work of other trades unless otherwise specified or noted. All luminaires shall be independently supported from structure. Provide all necessary supports and hangers to securely fasten and support all luminaires to structure.

**3.02 FIELD QUALITY CONTROL**

- A. Inspect each installed luminaire for damage. Replace damaged luminaires and components. Verify normal operation of each luminaire after installation. Interrupt the electrical supply to verify proper operation of the emergency lighting. If luminaires are malfunctioning, then repair or replace components and retest until luminaire operates properly.

- B. Properly protect luminaires from construction dust and debris until all other trades have completed their work. Clean luminaires internally and externally after installation per manufacturer's recommendations.
- C. Ensure all wiring, cords, and accessories have been properly trimmed or tucked away so as not to be seen through lenses.
- D. Replace any failed lamps in existing luminaires with matching lamp type and color.

**END OF SECTION**

## CONTRACTOR'S INSURANCE GUIDE

### Commercial General Liability

<input type="checkbox"/>	Occurrence Policy	
<input type="checkbox"/>	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

<input type="checkbox"/>	Premises/Operations	
<input type="checkbox"/>	Products/Completed Operations	
<input type="checkbox"/>	Contractual Liability	
<input type="checkbox"/>	Underground	
<input type="checkbox"/>	Explosion and Collapse	PER PROJECT AGGREGATE ENDORSEMENT
<input type="checkbox"/>	Blasting	
<input type="checkbox"/>	Independent Contractors Coverages	
<input type="checkbox"/>	Broad Form Property Damage	
<input type="checkbox"/>	Personal Injury	
<input type="checkbox"/>	Property Damaged Deductible (not to exceed \$5,000.00) \$ _____	
<input type="checkbox"/>	Railroad Protective Policy	
	<u>Commercial Automobile</u>	
<input type="checkbox"/>	All-owned, adequate limits including umbrella .....	\$1,500,000.00
<input type="checkbox"/>	Hired Automobile Liability including umbrella .....	\$1,500,000.00
<input type="checkbox"/>	Non-Owned Automobile Liability including umbrella .....	\$1,500,000.00
	<u>Workers' Compensation</u>	
<input type="checkbox"/>	Occupational Accident/Disease .....	Statutory
<input type="checkbox"/>	Employer's Liability including umbrella .....	\$1,500,000.00
	(Attach certificate)	
	<u>Other Requirements</u>	
<input type="checkbox"/>	Company Rating (A.M. Best) B+ VI or Better	
<input type="checkbox"/>	30-Day Cancellation Clause	
	<u>Additional Insured's</u>	
<input type="checkbox"/>	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>	
<input type="checkbox"/>	Physical loss or damage	
<input type="checkbox"/>	Temporary buildings, materials and equipment stored and in transit	
<input type="checkbox"/>	As insured property; work and all materials, supplies, machinery, apparatus, equipment, fixtures, other property required to complete the Work	
<input type="checkbox"/>	Expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects)	
<input type="checkbox"/>	Maintained in effect until Work is complete	
	<u>Additional Insured's</u>	
<input type="checkbox"/>	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

<input type="checkbox"/>	\$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.	
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## **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](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 OSDDBU's Home Page on the Internet or directly from EPA OSDDBU. 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		
			___ 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		
			___ 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		

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

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



Environmental  
Protection Agency

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

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

NAME OF SUBCONTRACTOR <sup>1</sup>	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.).

---



---



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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

<sup>1</sup>Subcontractor 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 <sup>1</sup>		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

<sup>1</sup>Subcontractor 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 subcontractors<sup>1</sup> 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

<sup>1</sup>Subcontractor 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



2511 Holman Avenue  
P. O. Box 80190  
Billings, Montana 59108-0190  
p: 406.652.3930; f: 406.652.3944  
[www.skgeotechnical.com](http://www.skgeotechnical.com)

April 5, 2022

Project 22-4141G

Mr. Greg Reid, PE  
WWC Engineering  
Via Email: [greid@wwcengineering.com](mailto:greid@wwcengineering.com)

Dear Mr. Reid:

Re: Pavement Geotechnical Evaluation, Premium Parking Lot, Metra Park Infrastructure  
Improvements, Billings, Montana

The pavement geotechnical evaluation for the above project has been completed. The purpose of the evaluation was to assist WWC Engineering, Yellowstone County, and selected contractors in designing and constructing the improvements to the Premium Parking Lot at the Metra Park facility in Billings, Montana. This work was performed in general accordance with our proposal to you, dated February 1, 2022.

### **Project Information**

As part of the overall infrastructure improvements at Metra Park, several of the existing parking lots will be reconstructed or rehabilitated. These parking lots are shown on the attached Site Location Sketch and include the Premium Parking Lot, Lower Parking Lot, and Rimrock Front Parking Lots, as well as some of the driveways and access roads in between them. With the goal of bidding projects this summer, it was decided to perform the geotechnical work for the Premium Parking Lot this winter, then work on the remaining parking lots after the frost has melted. The Premium Parking Lot is located on the north side of the facility, north of Bench Boulevard. As can be seen on the Site Location Sketch, this parking lot was constructed over the abandoned Alkali Creek Waterway, which used to run through the property. This waterway was likely a valley, which has since been filled in to create the platform for the Premium Parking Lot.

The Premium Parking Lot has three distinct areas: lower two-thirds of the lot (northeast portion), upper one-third of the lot, closest to the entrance (southwest portion), and an access road for NorthWestern Energy (NWE) running through it as shown on the attached Boring Location Sketch. It is our understanding, the lower two-thirds of the Premium Parking Lot will only be subjected to light automobile traffic. The upper one-third portion will have low to moderate bus traffic. As the name implies, the NorthWestern Energy access road is used by occasional NorthWestern Energy service and maintenance trucks.

In addition to the parking lot improvements, it is our understanding a portion of an existing relatively deep storm drain will also be repaired. Apparently, the existing storm drain was video taped and about

180 feet of the existing storm drain will be replaced with new pipe due to it being partially blocked with cobbles and boulders.

## **Field Procedures**

Prior to performing the fieldwork, our personnel staked/painted Borings ST-1 through ST-5 in the Premium Parking Lot at the locations indicated on the attached Boring Location Sketch. The borings locations were primarily selected to avoid numerous existing underground and overhead utilities. In addition to the public utility locates, Last Call Locating of Billings also performed private utility locates prior to the drilling. At the time of the fieldwork, only parking lot improvements were planned and therefore, the borings were only performed to a depth of 5 feet. The penetration test borings are designated by the prefix "ST".

A brief reconnaissance of the Premium Parking Lot was performed by our personnel during the staking to observe the condition of the existing pavement surface. The majority of the parking lot, excluding the NWE access road, is in very poor condition and contained significant fatigue cracking and surface deterioration. The NWE access road, where Boring ST-4 was performed, was considered to be in fair to good condition. These surface conditions are shown on the attached Boring Location Photographs.

The borings were performed with a truck-mounted CME 75HT core and auger drill on March 8, 2022. Sampling of the borings was performed in accordance with American Society for Testing and Materials (ASTM) Method of Test 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 O.D., split-barrel sampler a total penetration of 1 1/2 to 2 feet below the tip of the hollow-stem auger. The blows for the bottom 1 foot of penetration are indicated on the boring logs, and are an index of soil strength characteristics. The last foot of each penetration test is the N-value, and referred to as blows per foot (BPF) in this report. For the most part, the soils were frozen to a depth of 3 feet while drilling. Therefore, the N-values above a depth of 3 feet are not representative of the subgrade strength.

Prior to drilling, a 4-inch diameter core sample of the asphalt surface was obtained to allow us to visually observe the condition of the asphalt pavement as well as measure the thickness. Photographs of the five core samples are attached. As can be seen, the core from Boring ST-1 fell apart. The cores from Borings ST-2, ST-3, and ST-5 contained significant voids. Boring ST-4 performed in the NWE access road shows a typical dense graded hot-mix asphalt.

At each borehole location, the existing asphalt pavement and base course were measured to the nearest 1/4-inch. Bag samples of the existing base course and subgrade were also collected from select borings. The borings were then backfilled by our field crew, and the pavement surface was patched with cold mix asphalt.

The soils encountered in the borings were visually and manually classified 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 reviewed and field classified by a geotechnical engineer.

## 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. In this case, the borings encountered existing fill associated with filling in the abandoned Alkali Creek Waterway. A copy of the Geologic Map of the Billings 30' by 60' Quadrangle is attached, prepared by David A. Lopez, 2000. The map indicates the Premium Parking Lot is situated in alluvial terrace deposits primarily associated with Alkali Creek. A detailed evaluation of the previous construction and geologic history of the parking lot was not performed.

The general profile encountered by the borings was existing asphalt pavement (apparent cold-mix and hot-mix) underlain by asphalt millings over existing fill. Table 1 below summarizes the existing pavement encountered in Borings ST-1, ST-2, ST-3, and T-5 performed in the Premium Parking Lot outside of the NWE access road.

**Table 1. Existing Pavement and Anticipated Subgrade Conditions**

Boring	ST-1	ST-2	ST-3	ST-5	Average
Date Drilled	3/8/2022	3/8/2022	3/8/2022	3/8/2022	
Location	Parking Area	Parking Area	Parking Area	Parking Area	
Existing Cold Mix Pavement	2 1/2" <sup>(2)</sup>	5 3/4"	2 1/2"	5 3/4"	4 1/4"
Existing Asphalt Milling Base	6"	5 3/4"	8"	6 1/2"	6 1/2"
<b>Total Thickness</b>	<b>8 1/2"</b>	<b>11 1/2"</b>	<b>10 1/2"</b>	<b>12 1/4"</b>	<b>10 3/4"</b>
<b>Subgrade<sup>(1)</sup></b>					
Description	Sandy Lean Clay Fill	Silty, Clayey Sand Fill	Sandy Lean Clay Fill	Sandy Lean Clay Fill	
ASTM Class	CL	SC-SM	CL	CL	
Moisture Content, %	11.6, 12.0	12.7, 9.4	9.1, 14.2	12.2, 9.4	
Moisture Condition	Moist	Moist	Moist to wet	Moist	
Risk of Subgrade Failure During Total Reconstruction	Medium	Medium	High	Medium	

<sup>(1)</sup>Anticipated subgrade that will be present beneath the proposed pavement section.

<sup>(2)</sup>Core fell apart – see photograph

**Existing Pavement Sections.** As indicated in Table 1 above, the majority of the borings encountered what appeared to be a cold-mix asphalt pavement underlain by asphalt millings. This is the portion of the parking lot outside of the NWE access road which is in very poor condition. We believe the existing surfacing is a cold-mix asphalt which may have been rejuvenated with new asphalt then placed and compacted to create the surfacing. The thickness of this asphalt surface ranged from 2 1/2 to 5 3/4 inches, with an average thickness of 4 1/4 inches. As can be seen by the core photographs, these cores contained significant voids, which would allow water to permeate through the surface causing deterioration. Beneath the cold-mix asphalt, these borings encountered asphalt millings to depths ranging from 8 1/2 to 12 1/4 inches with an average thickness of 6 1/2 inches. This material was 1/2-inch minus black millings, likely obtained from milling a nearby roadway then used as a base course for the majority of the parking lot.

Boring ST-4 was performed in the NWE access road and encountered 3 inches of asphalt pavement underlain by a leveling base course to 5 1/2 inches. A 1 1/2-inch minus subbase was then encountered to a depth of about 21 1/4 inches. As the core photographs shows, this asphalt pavement is a typical dense graded hot-mix.

**Subgrade.** Beneath the existing pavement sections, the five borings encountered existing fill associated with the filled-in abandoned Alkali Creek Waterway. The subgrade primarily consisted of sandy lean clay directly beneath the existing pavement, transitioning into silty sand. Boring ST-2 encountered silty clayey sand. N-values in these soils primarily indicated the sandy lean clay was medium to stiff and the silty sand was loose to medium dense. We wish to point out, N-values in the existing fill that was not frozen were primarily less than 15 BPF. In our experience, N-values of 15 BPF or less typically indicate the existing fill may not have been adequately compacted when placed, although deeper borings would be necessary to better evaluate.

Based on the anticipated subgrade, N-values below a depth of 3 feet, and moisture conditions, Table 1 also contains a summary of the risk of the subgrade failing during (due to) construction activities. The results are summarized below.

- 4 of 5 borings (80%) have a MEDIUM risk of subgrade failure during construction
- 1 of 5 borings (20%) have HIGH risk of subgrade failure during construction

Subgrade failure is when the existing subgrade cannot be compacted to specification because it is either too wet or too soft, excessive ruts occur during construction activities in either the subgrade or base course, or other physical distresses that can cause construction delays.

**Groundwater.** Groundwater was not encountered in the five borings performed to a depth of 5 feet while drilling. Standing water can be observed in the abandoned waterway on the northeast side of the parking lot, which is likely representative of the groundwater level across the site. Additional deeper borings could be performed to further evaluate groundwater levels. Temporary piezometers can be installed in these borings to permit long-term measurements.

## Laboratory Tests

**Property Tests.** One subgrade and one gravel subbase sample was selected for laboratory tests. The results are summarized in Table 2 below and are attached to this report.

**Table 2. Summary of Laboratory Tests**

Sample	Depth (feet)	Atterberg Limits			P <sub>200</sub> (%)	ASTM Symbol
		LL	PL	PI		
ST-2	1-2 1/2, Subgrade	22	18	4	31.7	SC-SM Fill
ST-4	Subbase	Non-Plastic			5.7	GP-GM Fill

The sieve analysis test results for the subbase sample from Boring ST-4 were compared to *Montana Public Works Standard Specifications* (MPWSS) gradation requirements for 1 1/2-inch minus base and subbase course. The sample meets both requirements indicating this material can be salvaged and reused as base course for the Premium Parking Lot project or some other improvement project.

## Pavement Analysis and Recommendations

**Available Information and Traffic Assumptions.** Some traffic information was provided by WWC for the Premium Parking Lot. The following traffic analysis and equivalent single axle loads (ESAL) were used for the Premium Parking Lot.

- **Lower Two-Thirds of Premium Parking Lot.** Passenger vehicles only (no trucks or busses). Very light traffic is anticipated, therefore, minimum daily ESAL value of 6.4 for design. Equivalent 20-year design ESAL value of 50,000, which is a minimum value for parking lot design.
- **Upper One-Thirds of Premium Parking Lot and NWE Access Road.** This portion of the parking lot will be subjected to light to moderate bus traffic during facility events. Also, occasional NWE truck traffic will use the parking lot. Assume daily ESAL of 24, which equates to 20-year ESAL of 175,200.

**Method.** Pavement sections for the parking lot were evaluated using an Excel spreadsheet based on the *1993 AASHTO Guide for Design of Pavement Structures* and Tensar online software. The AASHTO Pavement Design Method is based on numerous input parameters, each affecting the required surfacing and base course thickness. The traffic information and assumptions used for each portion of the Premium Parking Lot are briefly described above and were input into the attached spreadsheet, along with the other design parameters.

**Pavement Rehabilitation.** Excluding the NWE access road, the borings in the Premium Parking Lot encountered what appeared to be a cold-mix asphalt pavement underlain by asphalt millings. A distinct layer of gravel base or subbase course was not encountered in the majority of the parking lot. Rehabilitation of existing pavements can be accomplished in numerous ways, however the most common approach is rehabilitation with a reclaimer to pulverize the existing pavement with the underlying base course to create a recycled base course. Recycled base courses should contain no more than 50 percent of recycled asphalt pavement (RAP). Because asphalt millings were used as base course, pulverizing the existing pavement would result in 100 percent RAP. The material containing excessive RAP will not provide a free-draining base as well as necessary strength to support the new pavement. It therefore appears the most cost-effective approach for the Premium Parking Lot is total reconstruction.

As previously indicated, the existing base and subbase course encountered in the NWE access road met MPWSS specifications for base and subbase course. It is our opinion these existing pavement materials can be salvaged during total reconstruction, and either reused as base or subbase course or saved for another project.

**Total Reconstruction Pavement Sections.** The attached worksheet contains the results of two sections for each portion of the parking lot: a base course section and a subbase section. It is our understanding the subbase sections will likely not be used, although the information is included on the worksheet. Online software was also used to evaluate the use of geogrids as part of the pavement section. Table 3 below contains our recommended pavement sections for the upper two-third and lower one-third portions of the Premium Parking Lot. The NWE access road should be included with the lower one-third portion.

**Table 3. Summary of Recommended Pavement Sections**

Location	Lower Two-Thirds Portion			Upper One-Third and NWE Access Road		
	1	2	3	4	5	6
Asphalt Pavement	3"	3"	3"	4"	4"	4"
Crushed Base Course	9"	7"	8"	10"	7"	9"
Subbase Course	---	---	---	---	---	---
Geosynthetic	6oz NW*	TX5**	BX1200***	6oz NW*	TX5**	BX1200***

\*6oz NW = 6-ounce Nonwoven Separation Fabric

\*\*TX5 = Tensar Triaxial TX5 Geogrid

\*\*\*BX1200 = Biaxial Geogrid

As can be seen above, the asphalt thickness used for the lower two-thirds portion (autos only) is 3 inches thick, while 4 inches of asphalt pavement is recommended for the upper one-third portion of the parking lot. In our opinion, a minimum of 4 inches of asphalt pavement surfacing is needed for this portion due to the anticipated heavy bus traffic. In particular, busses can turn relatively sharply, which tends to create increased stresses and cause deterioration of the new asphalt pavement surfacing. It has generally been found parking lots subjected to bus traffic typically require minor rehabilitation consisting of mill and



overlays or overlays more often than normal parking lots. Having 4 inches of asphalt pavement is essential to permitting a mills, overlays, and other surfacing maintenance/improvements in the future.

## **Constructability and Digout Pavement Section**

**General.** A common problem in parking lot construction is encountering unstable subgrades. Unstable subgrades are those subgrade soils that are excessively wet and soft, and cannot support heavy rubber-tired construction equipment as well as cannot be compacted to specification. They commonly occur beneath existing roads where surface water has seeped through cracks and become trapped in the underlying base course and subgrade. This water frequently saturates the clays, reducing their shear strength, and the clay subgrade becomes too soft and wet to support the heavy rubber-tired construction equipment. When this occurs during fast-tracked construction projects, it can cause delays, which then results in change orders.

Due to the timing of the project, the borings had to be performed when the base and subgrade were frozen, in this case, to a depth of 3 feet. Therefore, the subgrade strength directly beneath the proposed pavement could not be characterized, making it more difficult to predict during construction. Based on the limited information, we anticipate 80 percent of the parking lot had a medium risk and 20 percent had a high risk of encountering unstable subgrades. A contingency in the project budget is recommended for these conditions.

**Identification of Unstable Areas.** When considering pavement digouts, 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. Another method of determining unstable subgrades is whether or not they can be recompacted to specification, typically 95 percent of their standard Proctor maximum dry density. Where unstable subgrades are identified, we recommend installing a thicker pavement section over triaxial TX5 or biaxial BX1200 geogrid as described below. We anticipate the project engineer will need to determine the actual extent of unstable areas during construction.

**Thicker Section for Unstable Subgrades.** Where unstable subgrades are identified, we recommend increasing the thickness of crushed base course to 16 inches over TX5 or BX1200 geogrid, plus adding 6-ounce non-woven fabric on the soft subgrade. These sections are based on an in-place California Bearing Ratio (CBR) of 1.0. The base course should be placed in one thick lift for bridging, then compacted. The geosynthetics must be installed in accordance with the manufacturer's specifications.

The top of the 16-inch lift should initially be static rolled. If no deflection occurs, then vibratory compact the base course. If deflection does occur, do not compact any further and allow to sit overnight, then recompact the following day. Compact base course to a minimum of 90 percent of its standard Proctor maximum dry density, although 95 percent is preferred.

We also suggest discussing unstable subgrade improvement with the contractor, who may have other alternatives for constructing pavements on wet, soft clays. Another alternative is to allow unstable subgrades to possibly dry out during construction. For this approach, several weeks of warm, windy weather will likely be needed to allow the exposed conditions to dry out and become more stable. We have found, however, that the construction schedule of most contractors does not allow them to wait for these areas to dry out to restabilize.

Some consideration can also be given to specifying that all construction activities are performed with low-pressured ground equipment. In Montana, however, this equipment is generally not readily available by most earthwork and paving contractors.

### **Preliminary Recommendations for Storm Drains**

Results of the conditions of the 36-inch RCP existing storm drain were not available at the time the borings were performed, therefore, the borings were not performed down to the bottom of the anticipated storm drain to provide geotechnical recommendations related to design and construction. Even so, we are providing preliminary recommendations related to the storm drain, although deeper borings are recommended if specific recommendations are desired.

As can be seen on the attached Site Location Sketch, the Alkali Creek Waterway used to meander through the Premium Parking Lot. Based on the site topography, we anticipate this area used to be a relatively deep valley. To create a flat area for the parking lot, we anticipate this valley was filled in. The depth and consistency of this existing fill is unknown, and perhaps Yellowstone County can be contacted to determine if additional information is available. Due to the existing fill, all soils encountered in the storm drain excavation should be considered Type C soils under Department of Labor Occupational Safety and Health Administration (OSHA) guidelines. All earthwork and construction should be performed in accordance with OSHA guidelines. Depending on the depth of the storm drain, a shoring system may need to be designed by a professional engineer for the replacement portion.

The abandoned Alkali Creek Waterway is exposed on the northeast side of the Premium Parking Lot. Standing water can be observed in the old valley. We believe the storm drain is at or below the water level in this valley, and therefore dewatering will be required during the replacement storm drain installation. The actual method of dewatering should be determined by the contractor based on their equipment and experience. Dewatering should be performed prior to excavating to avoid the risk of excessively disturbing the trench sidewalls and bottom.

It is difficult to predict how soft the subgrade will be beneath the new storm drain, which will be about 180 feet of 18-inch PVC pipe. A conservative approach would be to assume it would be necessary to provide at least 18 inches of Type 2 bedding beneath the Type 1 bedding.

We recommend providing **well-graded** Type 1 bedding as described in *Montana Public Works* Drawing No. 02221-2 beneath the new storm drain. We recommend using the same well-graded material as

Type 2 bedding. We recommend the Type 2 bedding thicknesses be 18 inches. Using well-graded Type 1 and Type 2 bedding will reduce the risk of fines piping due to groundwater fluctuation which can cause settlement. Another option to reduce the risk of piping fines within standard MPWSS 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 nonwoven geotextile fabric.

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

- On-site soils free of cobbles and boulders greater than 6 inches can be used as trench backfill.
- On-site soils are likely below OMC, and moisture will need to be added to these soils to achieve a moisture content near optimum.
- Quality Control (QC) testing by the contractor should be performed within the active backfilling process to monitor compaction. QC testing is recommended to confirm compaction equipment and number of passes are properly compacting backfill to specification. Compaction tests in test pits behind the active installation are not recommended.
- Lift thicknesses should not exceed 8 inches loose thickness. Depending on the QC testing described above, thinner lifts may be necessary.
- We recommend all backfill be placed be compacted in accordance with the most recent MPWSS and City of Billings Standard Modifications, as well as those recommended indicated above.

## **Specifications**

We recommend all earthwork, subgrade preparation, gravel base, and asphalt pavement be specified and constructed in accordance with MPWSS. If geosynthetics are utilized, we recommend they be placed and constructed in accordance with MPWSS and the manufacturer's recommendations.

## **Observation and Testing**

We recommend the pavement subgrades be observed by a geotechnical engineer or an engineering assistant working under the direction of a geotechnical engineer to see if the materials are similar to those encountered by the borings. During construction, we recommend density tests be taken on the recompacted subgrade and compacted crushed base course. The thicknesses of crushed base course should also be checked to confirm they meet specifications.

We also recommend density testing of the asphaltic concrete surface and Marshall tests on asphaltic concrete mix to evaluate strength and air voids. Cores of asphalt concrete should be taken at intervals to evaluate pavement thickness and compaction. Paving observations should also be performed to confirm the specified thickness of asphalt is provided throughout the parking lot.

## General Recommendations

**Basis of Recommendations.** The analyses and recommendations submitted in this report are based upon the data obtained from the 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 reevaluation 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 that a contingency be provided for this purpose.

It is recommended that when the parking lot is reconstructed, we or another qualified geotechnical engineering firm be retained to perform the observations and testing program for the site preparation. This will allow correlation of the soil conditions encountered during construction to the soil borings.

**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. Design drawings and specifications and construction planning should recognize the possibility of fluctuations.

**Use of Report.** This report is for the exclusive use of WWC Engineering, Yellowstone County, and selected contractors, to use in conjunction with the Premium Parking Lot improvements. 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, alignments or purposes contact us.

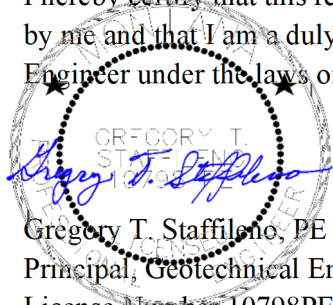
**Level of Care.** Services performed by SK Geotechnical Corporation personnel for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in this area under similar budget and time restraints. No warranty, expressed or 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  
by me 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  
April 5, 2022

Dustin P. Hutzenbiler, PE  
Reviewing Engineer

**Attachments:**

Site Location Sketch  
Boring Location Sketch  
Partial Geologic Sketch  
Boring Photographs (2)  
Asphalt Core Photographs (2)  
Descriptive Terminology  
Log of Boring Sheets – ST-1 through ST-5  
Atterberg Limit Tests  
Sieve Analysis (2)  
Pavement Design Spreadsheet





**SITE LOCATION SKETCH**  
**Geotechnical Evaluation**  
 Metra Park Infrastructure Improvements  
 Premium Parking Lot  
 Billings, Montana

Drawn by:	SKG/Google	Date	3/10/22
Project:	22-4141G		
Scale:	NTS		FIGURE
Sheet	1	of	1
			1

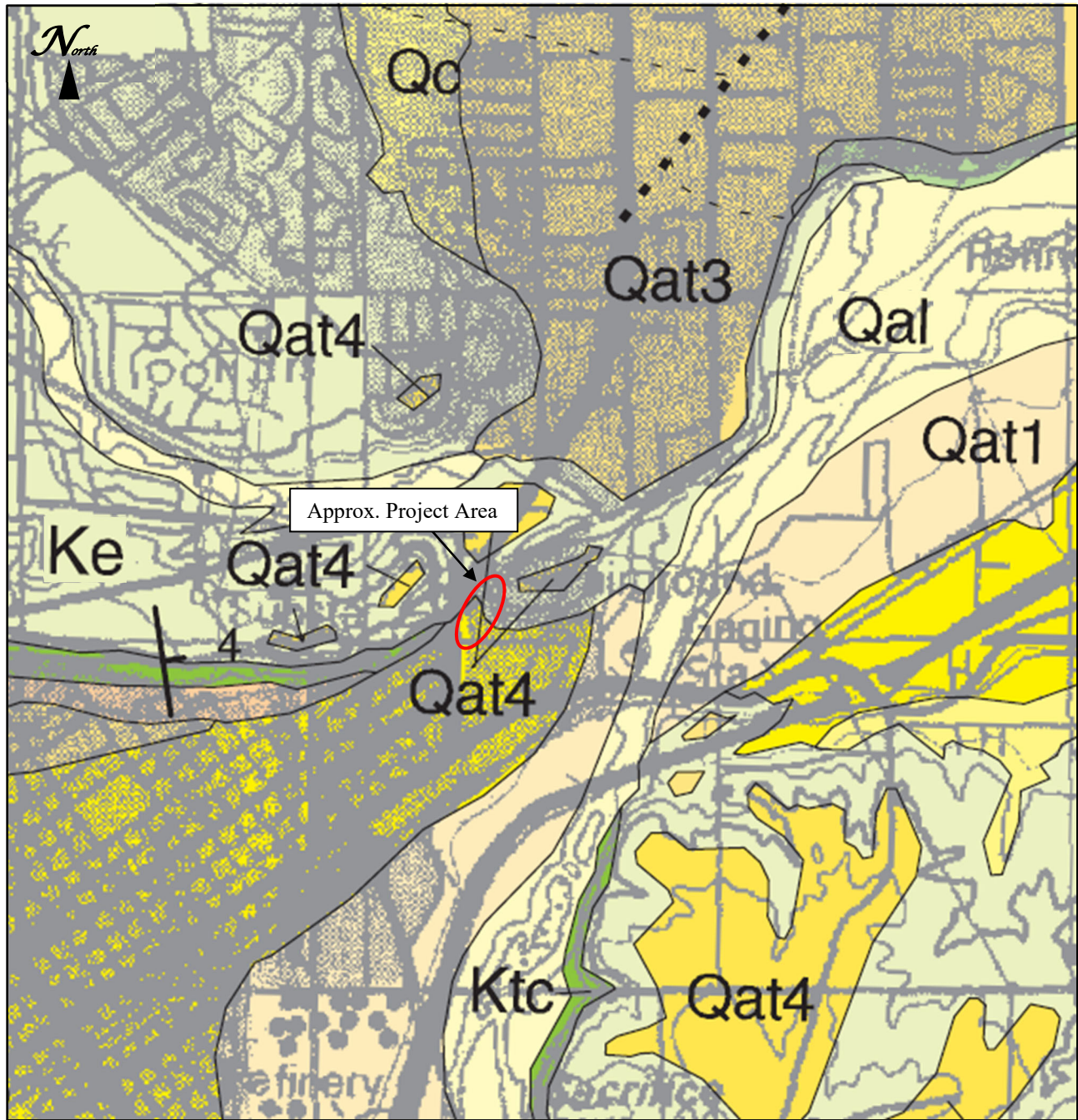




**BORING LOCATION SKETCH**  
**Geotechnical Evaluation**  
 Metra Park Infrastructure Improvements  
 Premium Parking Lot  
 Billings, Montana

Drawn by:	SKG/Google	Date	3/10/22
Project:	22-4141G		
Scale:	NTS	FIGURE	
Sheet	1 of 1	1	





Qal	Alluvium (Holocene)
Qc	Colluvium (Holocene and Pleistocene)
Qat1	Alluvial Gravel, Terrace Level 1 (Holocene and Pleistocene)
Qat3	Alluvial Gravel, Terrace Level 3 (Pleistocene)
Qat4	Alluvial Gravel, Terrace Level 4 (Pleistocene)
Ke	Eagle Sandstone (Upper Cretaceous)
Ktc	Telegraph Creek Formation (Upper Cretaceous)

**Geologic Map of the  
Billings 30' x 60' Quadrangle, Montana**

by  
David A. Lopez  
2000



**PARTIAL GEOLOGIC SKETCH  
Metra Park Infrastructure Improvements  
Premium Parking Lot  
Billings, Montana**

Drawn by:	MBMG/SKG	Date	2/07/22
Project:	21-4141G		
Scale:	None	FIGURE	
Sheet	1 of 1		1





**Boring ST-1, looking east.**



**Boring ST-2, looking west.**



**Boring ST-3, looking north, moved 10 north of painted location.**



**Boring ST-4, looking east.**

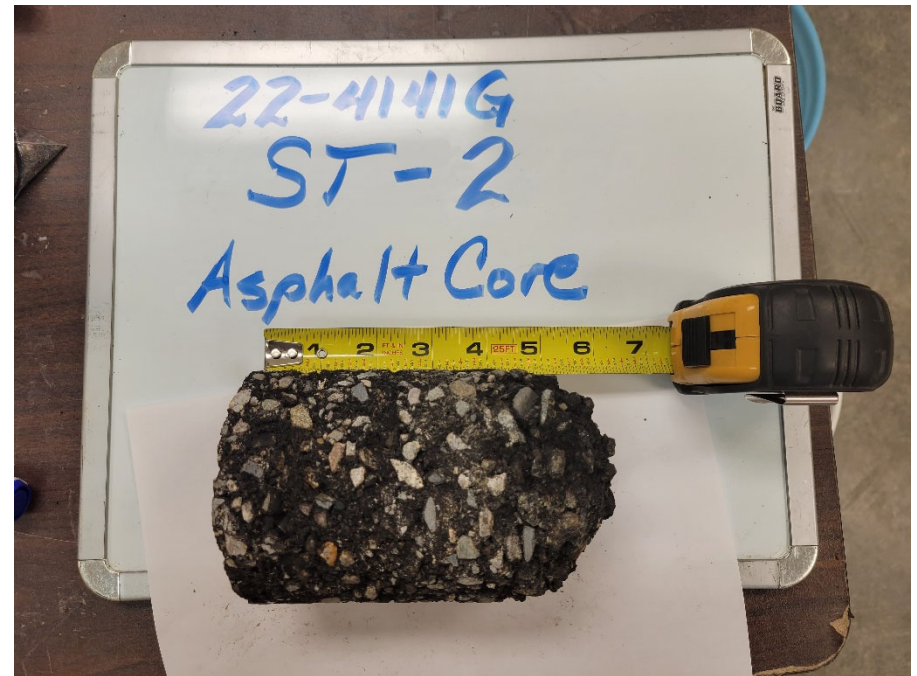




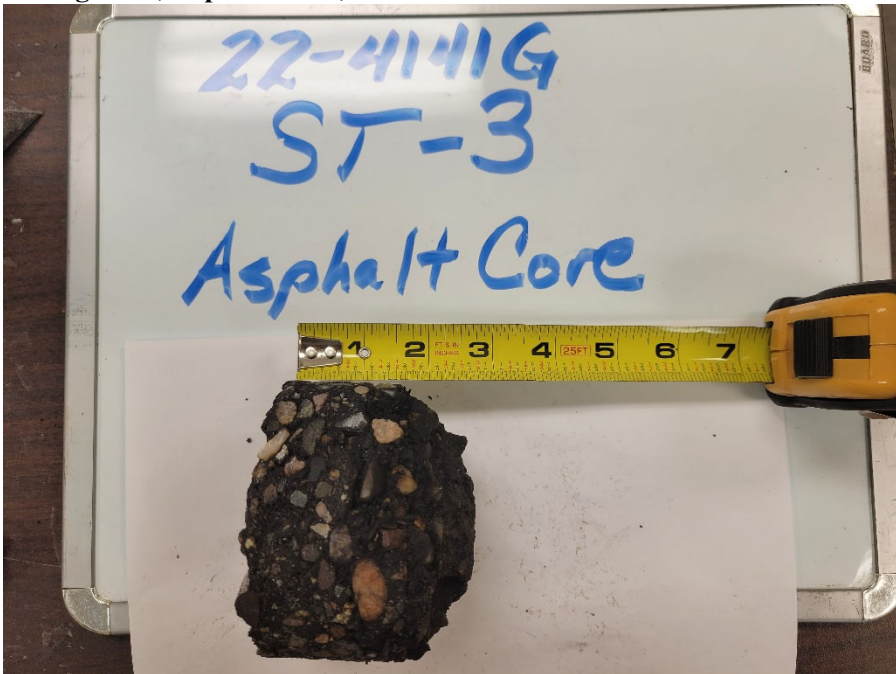
**Boring ST-5, looking west.**



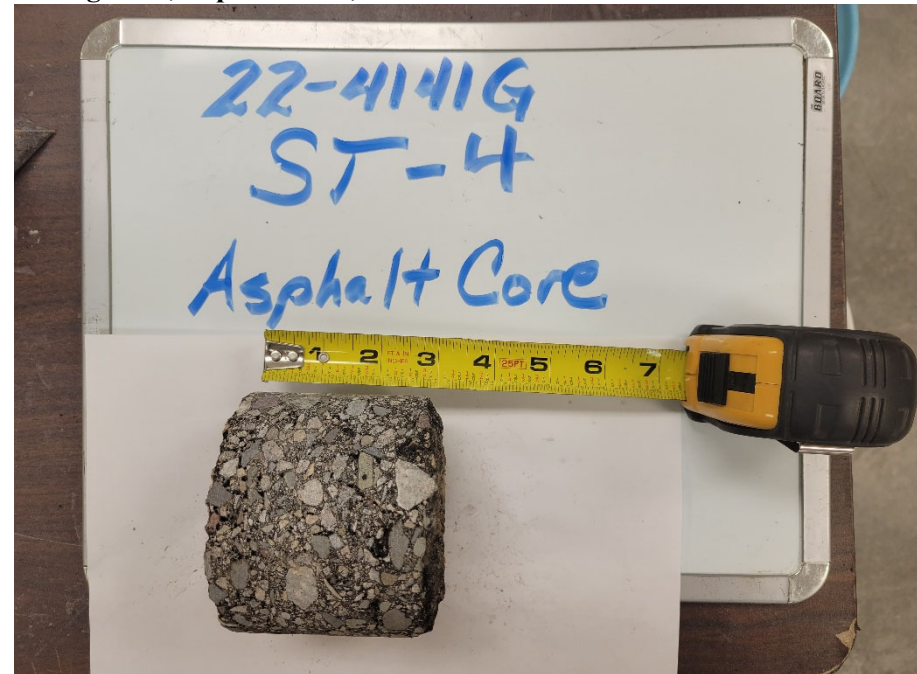
Boring ST-1, Asphalt Core, Cold Mix.



Boring ST-2, Asphalt Core, Cold Mix.

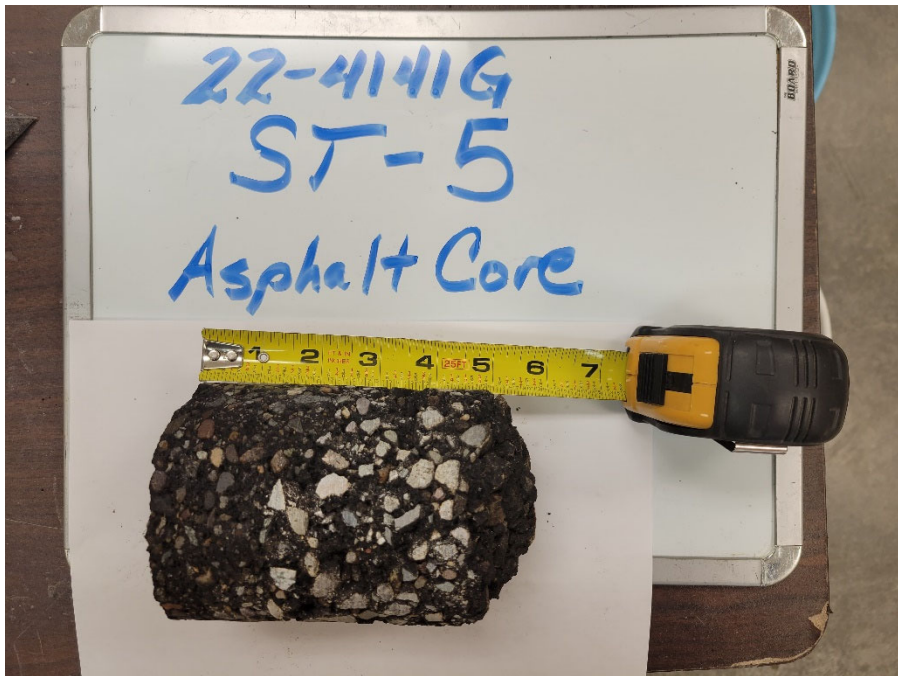


Boring ST-3, Asphalt Core, Cold Mix.



Boring ST-4, Asphalt Core, Hot Mix.





**Boring ST-5, Asphalt Core, Cold Mix.**



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

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

- <sup>A</sup> Based on the material passing the 3" (75 mm) sieve.  
<sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.  
<sup>C</sup> 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  
<sup>D</sup> 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  
<sup>E</sup>  $C_u = D_{60} / D_{10}$   
 $C_c = (D_{30})^2 / (D_{10} \times D_{60})$   
 If soil contains  $\geq 15\%$  sand, add "with sand" to group name.  
<sup>F</sup> If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.  
<sup>H</sup> If fines are organic, add "with organic fines" to group name.  
<sup>I</sup> If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.  
<sup>J</sup> If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.  
<sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.  
<sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.  
<sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly gravel, add "gravelly" to group name.  
<sup>N</sup>  $PI \geq 4$  and plots on or above "A" line.  
<sup>O</sup>  $PI < 4$  or plots below "A" line.  
<sup>P</sup> PI plots on or above "A" line.  
<sup>Q</sup> 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

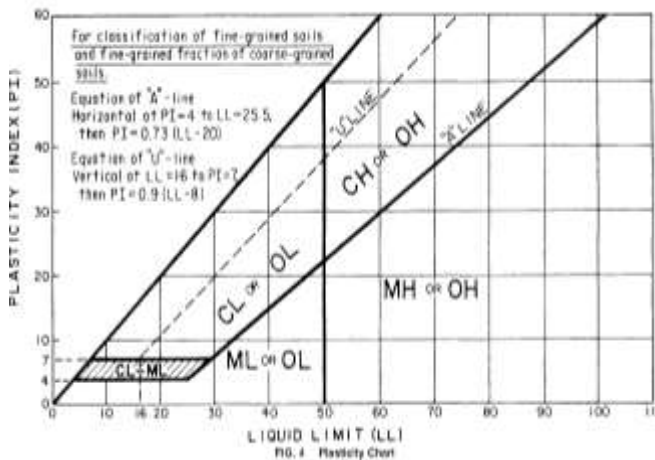
Standard penetration test borings were advanced by 3/4" or 4/4" ID hollow-stem augers, unless noted otherwise. Standard penetration test borings are designated by the prefix "ST" (split tube). Hand auger borings were advanced manually with a 2 to 3" diameter auger to the depths indicated. Hand auger 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 <sub>200</sub>	% 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: 22-4141G <b>GEOTECHNICAL EVALUATION</b> Metra Park Infrastructure Improvements Premium Parking Lot Billings, Montana				BORING: <b>ST-1</b>			
				LOCATION: See Attached Sketch			
DRILLED BY: E. Hollibaugh		METHOD: CME 75HT, 3/4" HSA		DATE: 3/8/22		SCALE: 1" = 2'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
	0.0						
	0.3		FILL: Recycled Asphalt Pavement - Cold Mix (0"-2½")				Asphalt core fell apart.
	0.8		FILL: Asphalt Milling Base Course, black. (2½"-8½")				1 gal. Asphalt Cuttings
			FILL: Sandy Lean Clay, low plasticity, light brown, trace gravel, frozen to 3' then moist, medium.				1 gal. Roto Millings
				14	11.6		Bulk Bag: 1'-4'
				6	12.0		
				7	9.4		
	5.5		END OF BORING				
			Water not observed with 4' of hollow-stem auger in the ground.				
			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 ~ 4141.GPJ LAGNN06.GDT 3/23/22



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

# LOG OF BORING

PROJECT: 22-4141G <b>GEOTECHNICAL EVALUATION</b> Metra Park Infrastructure Improvements Premium Parking Lot Billings, Montana				BORING: <b>ST-2</b>					
DRILLED BY: E. Hollibaugh				METHOD: CME 75HT, 3/4" HSA		DATE: 3/8/22		SCALE: 1" = 2'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks		
0.0	0.0								
	0.5		FILL: Recycled Asphalt Pavement - Cold Mix (0"-5 3/4")				1 gal. Asphalt Cuttings		
	1.0		FILL: Asphalt Milling Base Course, black. (5 3/4"-11 1/2")				1 gal. Roto Millings		
			FILL: Silty, Clayey Sand with Gravel, low plasticity, dark gray to black, trace gravel, frozen to 2 1/2' then moist, medium dense.	17	12.7		LL=22, PL=18, PI=4 P <sub>200</sub> = 31.7%		
	3.5		FILL: Silty Sand, fine- to coarse-grained, trace to with gravel, light gray, medium dense.	8/8	9.4				
	5.5			14	13.9				
			END OF BORING						
			Water not observed with 4' of hollow-stem auger in the ground.						
			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 ~ 4141.GPJ LAGNN06.GDT 3/23/22



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

# LOG OF BORING

PROJECT: 22-4141G <b>GEOTECHNICAL EVALUATION</b> Metra Park Infrastructure Improvements Premium Parking Lot Billings, Montana				BORING: <b>ST-3</b>					
DRILLED BY: E. Hollibaugh				METHOD: CME 75HT, 3/4" HSA		DATE: 3/8/22		SCALE: 1" = 2'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks		
0.0	0.0								
	0.3		FILL: Recycled Asphalt Pavement - Cold Mix (0"-2½")				1 gal. Asphalt Cuttings		
	0.9		FILL: Asphalt Milling Base Course, black. (2½"-10½")				1 gal. Roto Millings		
	2.4		FILL: Sandy Lean Clay, low plasticity, light brown to dark brown, frozen.	23	9.1		Bulk Bag: 1'-4'		
			FILL: Sandy Lean Clay, low plasticity, trace sandstone gravel, humus and salts, light brown, frozen to 2½' then moist to wet, very stiff to medium.	16	14.2				
	5.5		FILL: Sandy Lean Clay, low plasticity, trace sandstone gravel, humus and salts, light brown, frozen to 2½' then moist to wet, very stiff to medium.	6	12.6				
			END OF BORING						
			Water not observed with 4' of hollow-stem auger in the ground.						
			Water not observed to dry cave-in depth of 1.2' immediately after withdrawal of auger.						
			Boring then backfilled.						

BORING BPF WL-MC QP ELEV ~ 4141.GPJ LAGNN06.GDT 3/23/22





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

# LOG OF BORING

PROJECT: 22-4141G <b>GEOTECHNICAL EVALUATION</b> Metra Park Infrastructure Improvements Premium Parking Lot Billings, Montana				BORING: <b>ST-4</b>					
DRILLED BY: E. Hollibaugh				METHOD: CME 75HT, 3/4" HSA		DATE: 3/8/22		SCALE: 1" = 2'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks		
	0.0								
	0.3		FILL: Asphalt Pavement - Hot Mix (0"-3")				1 gal. Asphalt Cuttings		
	0.5		FILL: Base Course (3"-5 1/2")				1 gal. Base Course		
			FILL: Subbase Course (5 1/2"-21 1/4")				1 gal. Subbase Course LL=NP, PL=NP, PI=NP P <sub>200</sub> = 5.7%		
	1.9		FILL: Sandy Lean Clay with Gravel, low to medium plasticity, brown and black, frozen to 3' then moist.	32	9.3				
	3.0		FILL: Silty Sand, fine- to coarse-grained, trace gravel, light brown, moist, loose.						
	5.5		END OF BORING	5	11.9				
			Water not observed with 4' of hollow-stem auger in the ground.						
			Water not observed to dry cave-in depth of 0.9' immediately after withdrawal of auger.						
			Boring then backfilled.						

BORING BPF WL-MC QP ELEV ~ 4141.GPJ LAGNN06.GDT 3/23/22

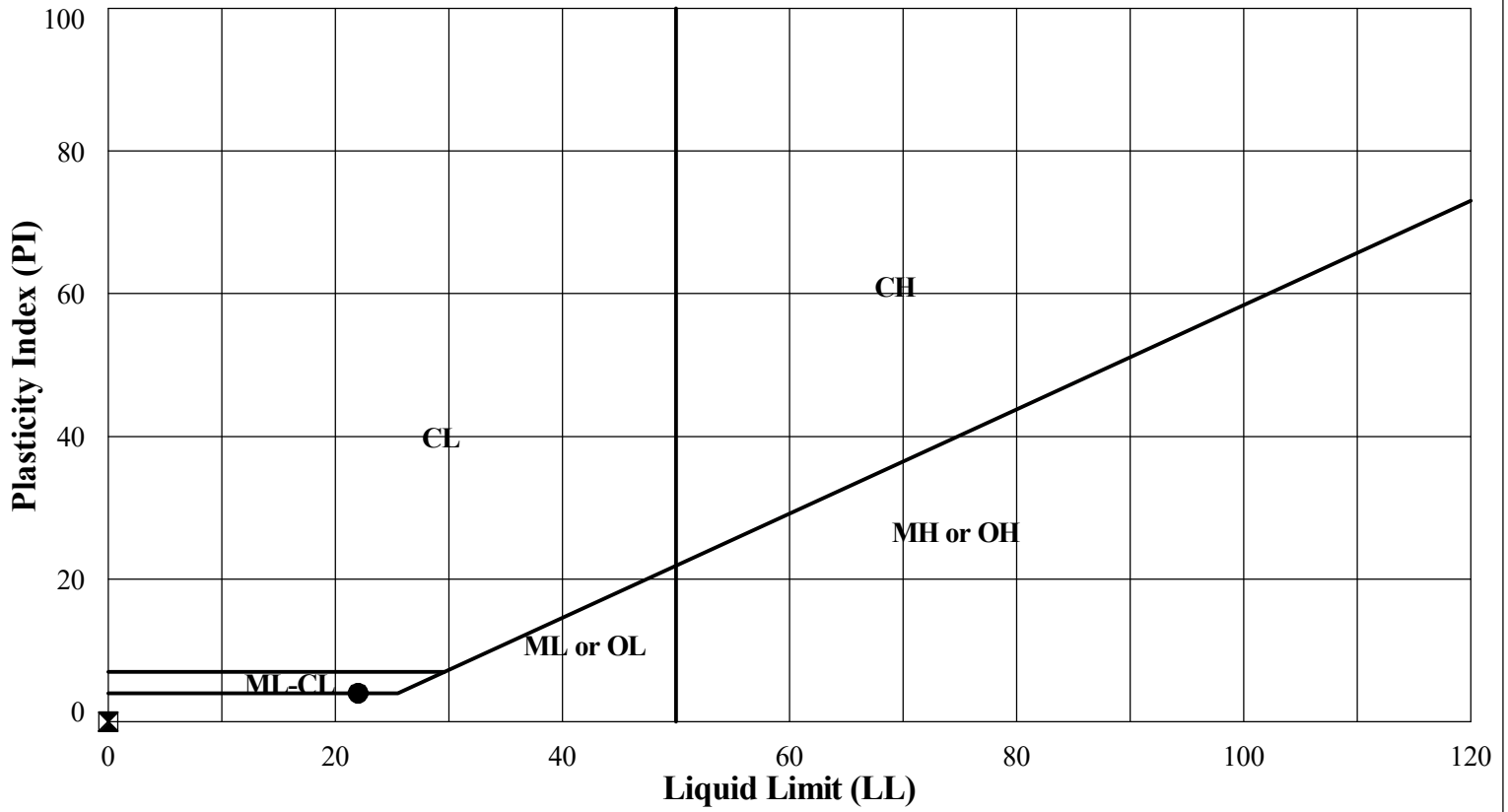


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 Billings, MT 59108-0190  
 Phone: 406.652.3930  
 Fax: 406.652.3944

# LOG OF BORING

PROJECT: 22-4141G <b>GEOTECHNICAL EVALUATION</b> Metra Park Infrastructure Improvements Premium Parking Lot Billings, Montana				BORING: <b>ST-5</b>			
				LOCATION: See Attached Sketch			
DRILLED BY: E. Hollibaugh		METHOD: CME 75HT, 3/4" HSA		DATE: 3/8/22		SCALE: 1" = 2'	
Elev.	Depth	Symbol	Description of Materials	BPF	WL MC	qp (tsf)	Remarks
	0.0						
	0.5		FILL: Recycled Asphalt Pavement - Cold Mix (0"-5 3/4")				1 gal. Asphalt Cuttings
	1.0		FILL: Asphalt Milling Base Course, black. (5 3/4"-12 1/4")				1 gal. Roto Millings
	2.5		FILL: Sandy Lean Clay, low plasticity, brown and dark gray, frozen to 2 1/2'.	14	12.2		Bulk Bag: 1'-4'
			FILL: Silty Sand, fine- to coarse-grained, trace gravel, humus, and salts, brown, moist, medium dense to loose.	11	9.4		
				10	10.7		
	5.5		END OF BORING				
			Water not observed with 4' of hollow-stem auger in the ground.				
			Water not observed to dry cave-in depth of 1.1' immediately after withdrawal of auger.				
			Boring then backfilled.				

BORING BPF WL-MC QP ELEV ~ 4141.GPJ LAGNN06.GDT 3/23/22



Legend	Boring	Sample No.	Depth	LL	PL	PI	P 200, %	MC	Classification
●	ST-2	Jar #4	1 - 2½'	22	18	4	31.7	12.7%	SC-SM
☒	ST-4	Zip	Subbase	NP	NP	NP	5.7	2.5%	GP-GM



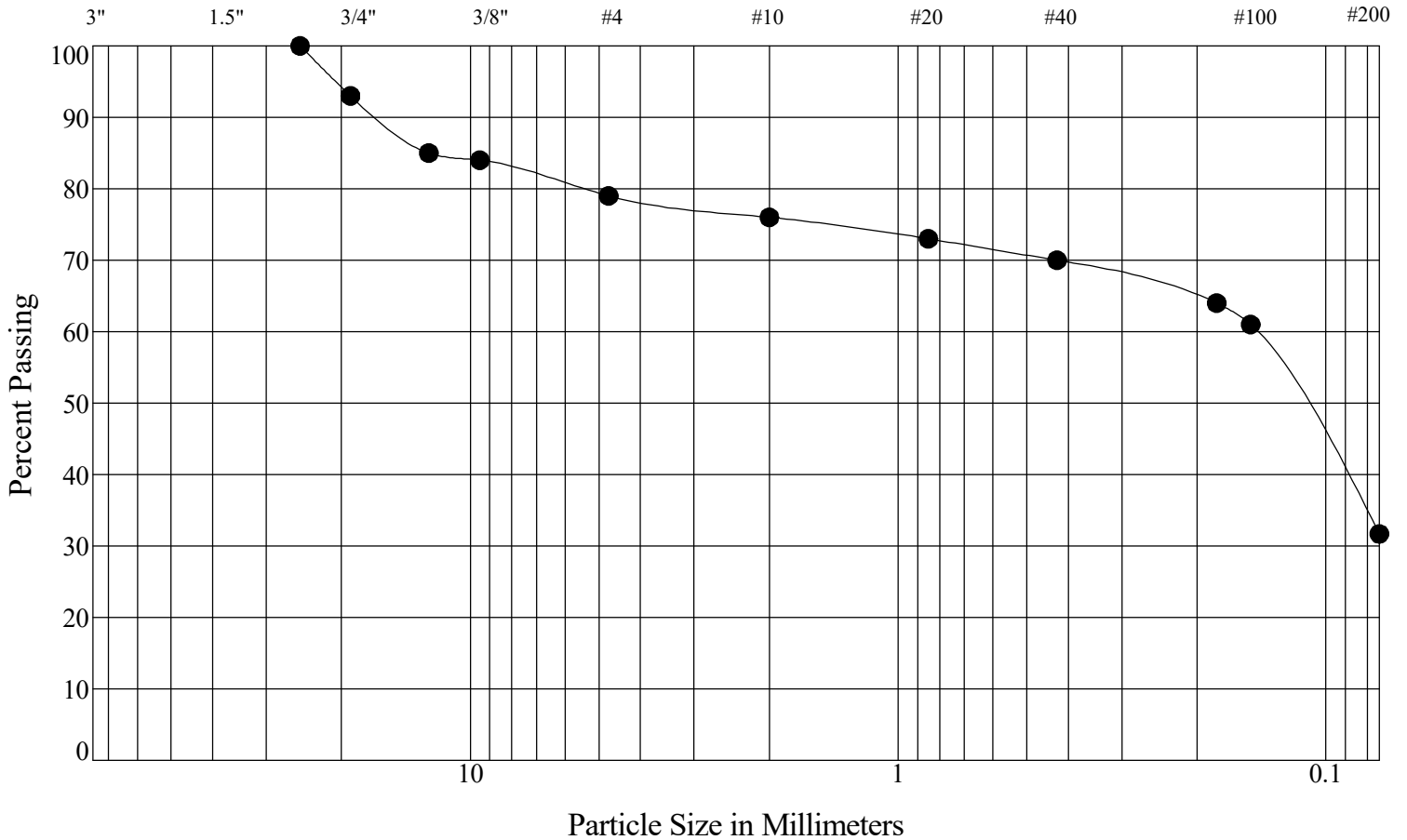
2511 Holman Avenue  
P. O. Box 80190  
Billings, MT 59108-0190  
Phone: 406.652.3930  
Fax: 406.652.3944

### Atterberg Limits Tests

Project Number: 22-4141G  
Metra Park Infrastructure Improvements  
Premium Parking Lot  
Billings, Montana

3/22/22

### 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
		93	84	79	76	73	70	64	61	31.7

Sample: ST-2  
 Sample No.: Jar #4  
 Depth: 1 - 2 1/2'

Date Received: 3/9/22

Liquid Limit:	22
Plastic Limit:	18
Plasticity Index:	4
Classification:	SC-SM
Moisture Content:	12.7%

Percent Gravel: 21.0  
 Percent Sand: 47.3  
 Percent Silt + Clay: 31.7  
 ASTM Group Name: SILTY, CLAYEY SAND with GRAVEL



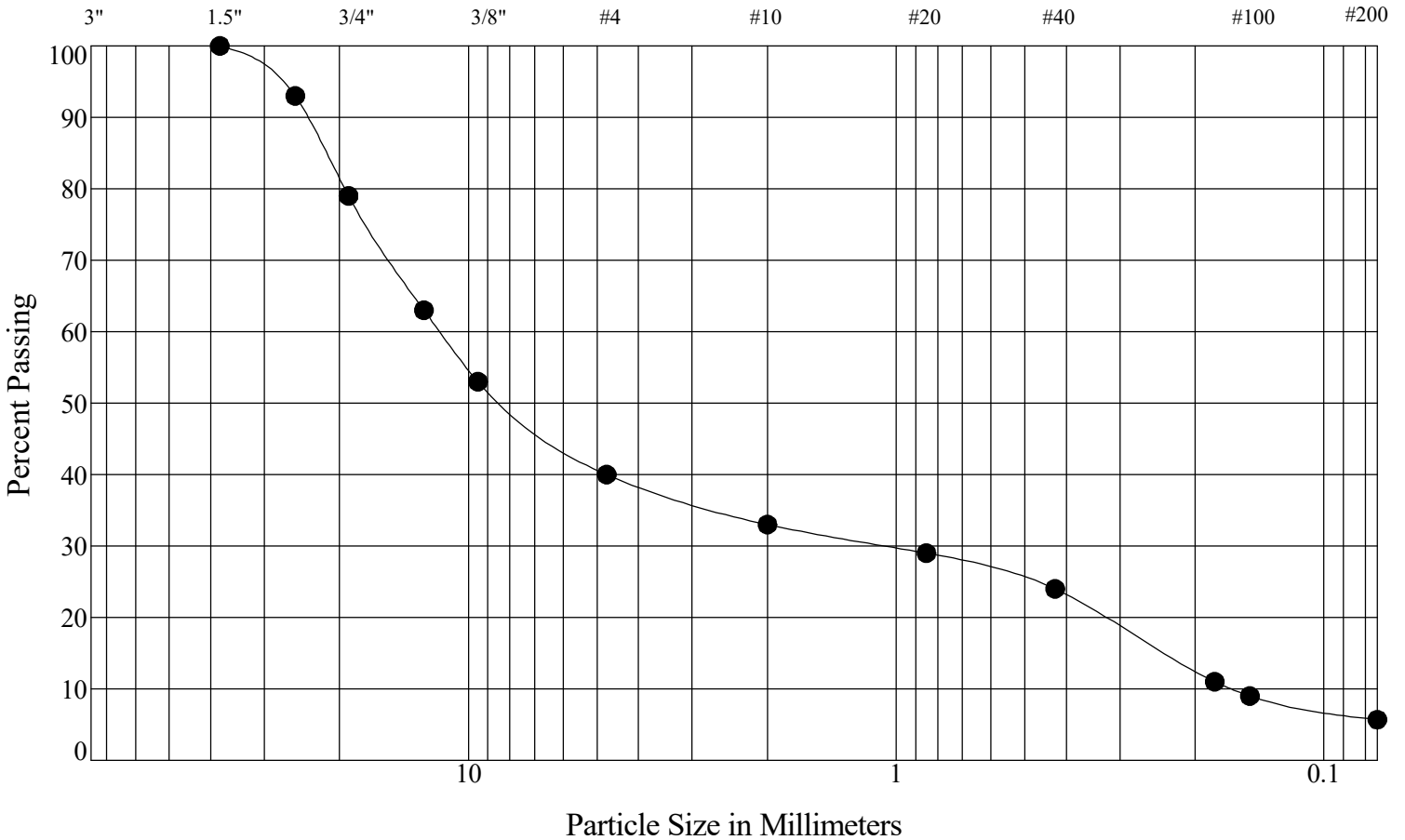
2511 Holman Avenue  
 P. O. Box 80190  
 Billings, MT 59108-0190  
 Phone: 406.652.3930  
 Fax: 406.652.3944

### Sieve Analysis

Project Number: 22-4141G  
 Metra Park Infrastructure Improvements  
 Premium Parking Lot  
 Billings, Montana

3/22/22

## 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	79	53	40	33	29	24	11	9	5.7	

Sample:	ST-4	Date Received:	3/9/22	Liquid Limit:	NP
Sample No.:	Zip			Plastic Limit:	NP
Depth:	Subbase			Plasticity Index:	NP
Percent Gravel:	60.0			Classification:	GP-GM
Percent Sand:	34.3			Moisture Content:	2.5%
Percent Silt + Clay:	5.7				
ASTM Group Name:	POORLY GRADED GRAVEL with SILT and SAND				



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 Billings, MT 59108-0190  
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### Sieve Analysis

Project Number: 22-4141G  
 Metra Park Infrastructure Improvements  
 Premium Parking Lot  
 Billings, Montana

3/22/22

Project	Metra Park Parking Lot Improvements			
Location	Premium Parking Lot			
Name	21-4141G			
Date of Run	3/16/2022	SK Geotechnical		
<b>Typical Section</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Traffic</b>	<b>Very Light</b>	<b>Very Light</b>	<b>Light</b>	<b>Light</b>
Daily ESAL			24	24
Yearly ESAL			8760	8760
20 Year ESAL	50000	50000	175200	175200

<b>Location</b>	<b>Lower 2/3</b>	<b>Lower 2/3</b>	<b>Upper 1/3</b>	<b>Upper 1/3</b>
Note	CBC	Subbase	CBC	Subbase
Note	M <sub>r</sub> =5000	M <sub>r</sub> =5000	M <sub>r</sub> =5000	M <sub>r</sub> =5000
Reliability	90	90	90	90
So	0.45	0.45	0.45	0.45
DeltaPSI	1.7	1.7	1.7	1.7
Mr	5000	5000	5000	5000
SN <sub>DES</sub>	<b>2.47</b>	<b>2.47</b>	<b>3.04</b>	<b>3.04</b>
W18	50000	50000	175200	175200
Zr	-1.282	-1.282	-1.282	-1.282
ESAL	7	7	24	24
Life	20.0	20.0	20.0	20.0

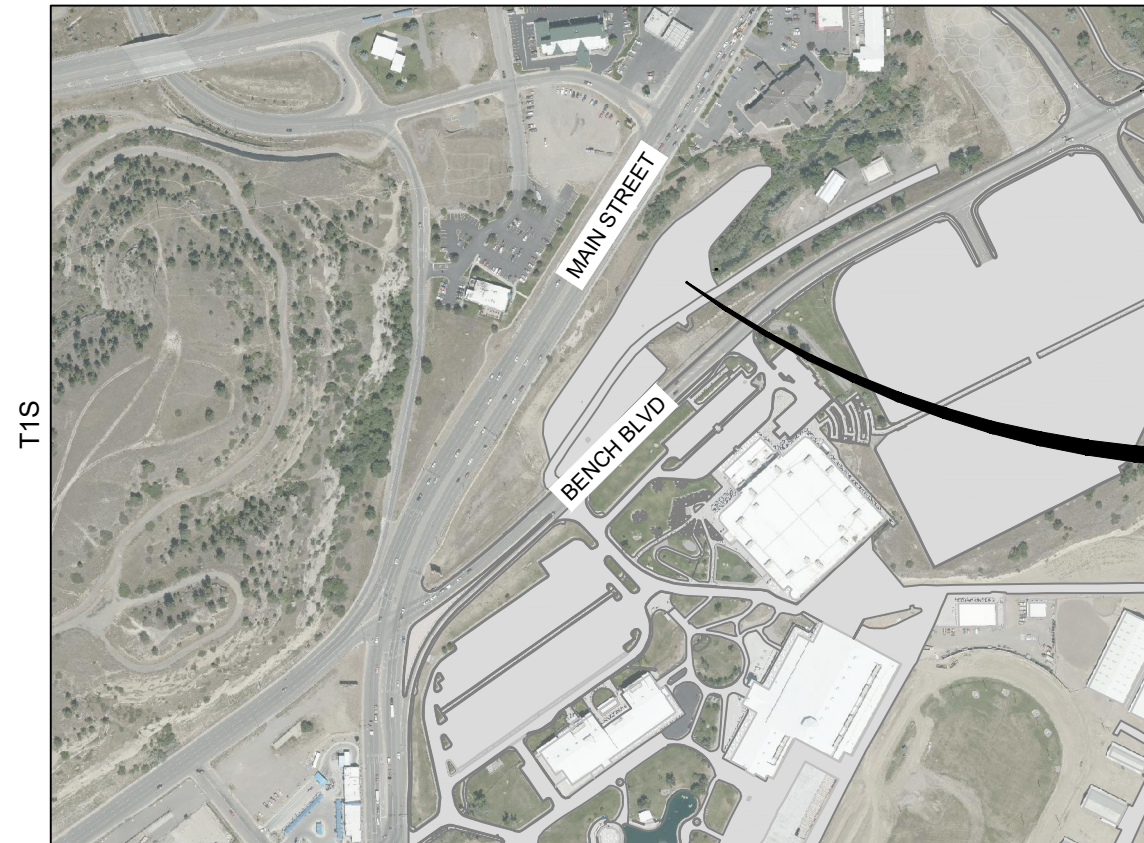
<b>Capacity</b>					
a1	0.41	0.41	0.41	0.41	Layer 1 a1 = 0.41
D1 (in)	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	
SN1	1.2	1.2	1.6	1.6	
a2	<b>0.14</b>	<b>0.14</b>	<b>0.14</b>	<b>0.14</b>	Layer 2 a2 = 0.14 for CAC
m2	1	1	1	1	
D2 (in)	<b>9.0</b>	<b>3.0</b>	<b>10.0</b>	<b>3.0</b>	
SN2	1.3	0.4	1.4	0.4	
a3		<b>0.10</b>		<b>0.10</b>	Layer 3 a3 = 0.10 for 3" Subbase MPWSS
m3	1	1	1	1	
D3 (in)		<b>8.5</b>		<b>10.0</b>	
SN3	0.0	0.9	0.0	1.0	
a4					Layer 4 a4 = 0.07 for Special Borrow
m4	1	1	1	1	
D4 (in)					
SN4	0.0	0.0	0.0	0.0	
<b>Sntot = SN1+SN2+SN3+SN4</b>	<b>2.49</b>	<b>2.50</b>	<b>3.05</b>	<b>3.06</b>	
Traffic Chk W18=20 Yr ESAL	OK	OK	OK	OK	
SN Check	OK	OK	OK	OK	
Design Check	<b>DESIGN OK</b>	<b>DESIGN OK</b>	<b>DESIGN OK</b>	<b>DESIGN OK</b>	

K:\Sheridan\Yellowstone County, MT\2021555 MetraPark Infrastructure Improvements\05CAD\Sheets\PLAN\_SET\PRMR\_PRRG\21555\_PLNST\_COVR.dwg COVER 4/8/2022 1:32:21 PM

CONSTRUCTION DRAWINGS

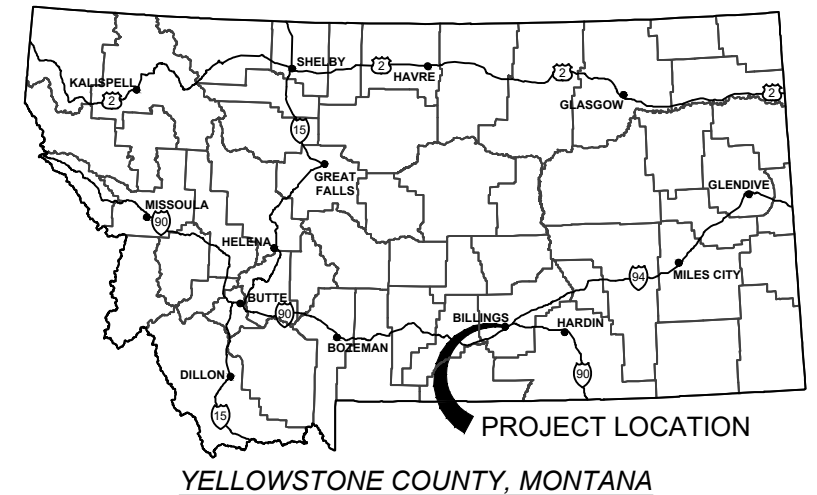
# YELLOWSTONE COUNTY METRAPARK PREMIUM LOT

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES
3	DEMOLITION PLAN SHEET
4	GRADING PLAN SHEET
5	SITE IMPROVEMENTS SHEET
6	STORM SEWER PLAN AND PROFILE SHEET
8	PAVEMENT PLAN SHEET
9	STRIPING AND SIGNAGE SHEET
10	PERSONALIZED SIGNAGE LAYOUT
11	DETAIL SHEET
12	DETAIL SHEET
13	STORMWATER DETAIL SHEET




T1S

R26E  
LOCATION MAP



0 250' 500'  
SCALE: 1" = 500'  
11" x 17" PAPER SIZE



PREPARED FOR:		YELLOWSTONE COUNTY METRAPARK ARENA 308 6TH AVE. N., BILLINGS, MT 59101	
PREPARED BY:		 <b>WWC ENGINEERING</b> 1849 TERRA AVE. SHERIDAN, WY 82801 (307) 672-0761 www.wwcengineering.com	
NO.	PROJECT NO. 2021-555	DESIGNED BY: <u>JMD</u>	DRAWN BY: <u>CIG</u>
NO.	REVISION	BY	DATE
			4/6/2022
DRAWING NO.			<b>1</b>

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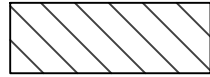




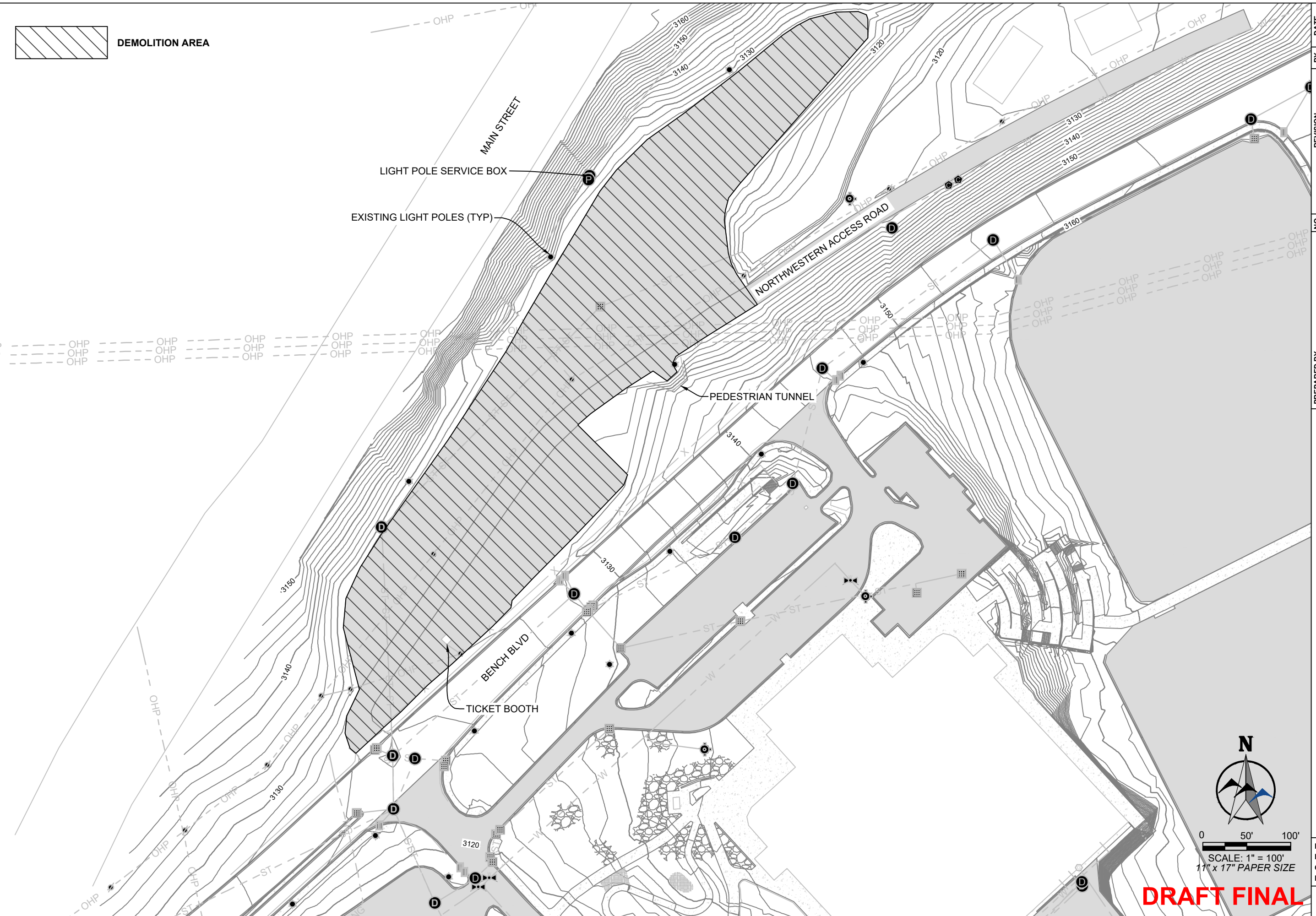




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DEMOLITION AREA



0 50' 100'  
SCALE: 1" = 100'  
11" x 17" PAPER SIZE

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 www.wwcengineering.com

YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**DEMOLITION PLAN SHEET**  
 YELLOWSTONE COUNTY, MONTANA

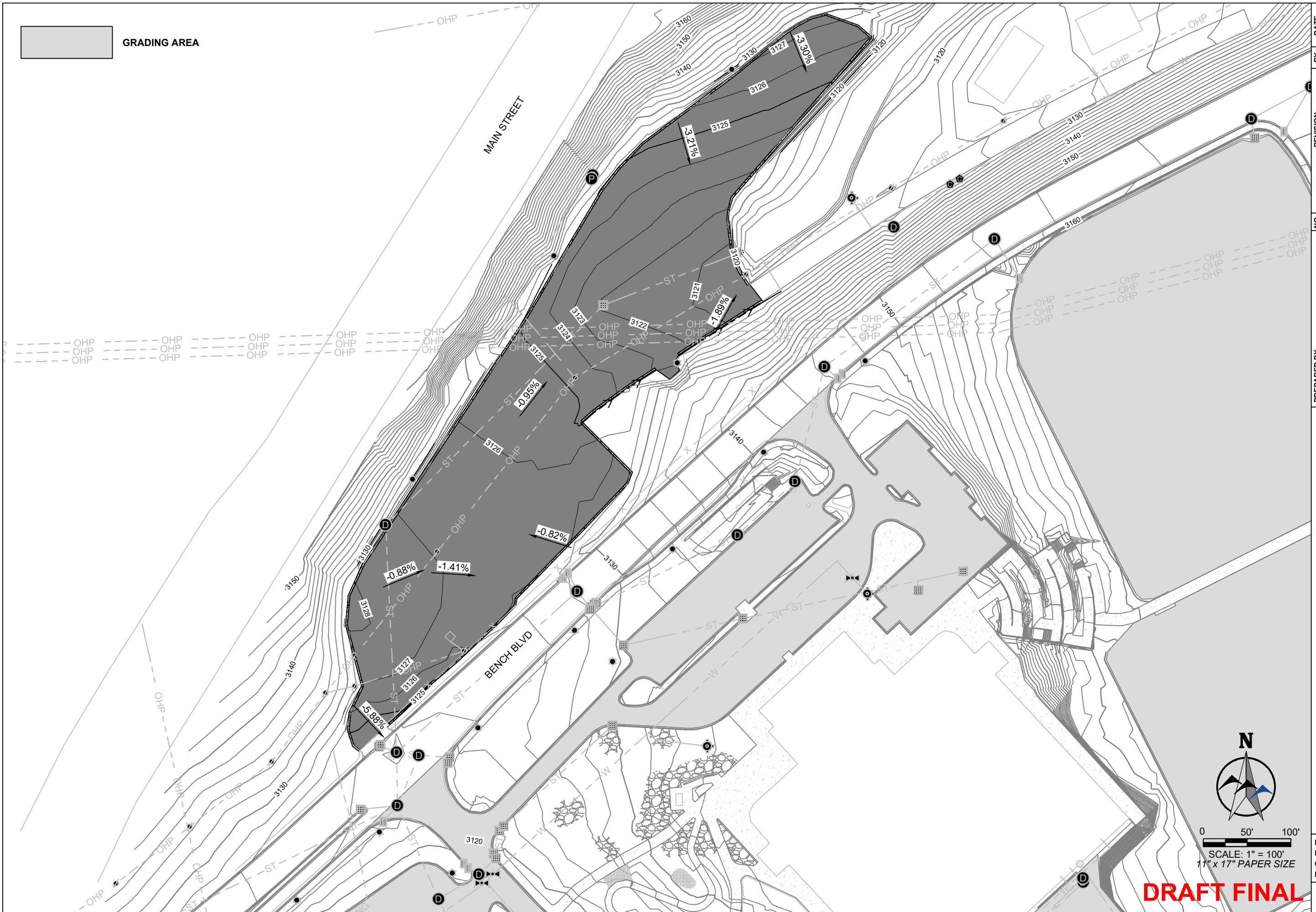
DESIGNED BY: JMD  
 DRAWN BY: CIG  
 CHECKED BY: CDR  
 DATE: 4/6/2022



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GRADING AREA



0 50' 100'  
SCALE: 1" = 100'  
11" x 17" PAPER SIZE

**DRAFT FINAL**

YELLOWSTONE COUNTY  
METRAPARK PREMIUM LOT  
**GRADING PLAN SHEET**  
YELLOWSTONE COUNTY, MONTANA

DESIGNED BY: JMD  
DRAWN BY: CIG  
CHECKED BY: CDR  
DATE: 4/6/2022

SHEET  
**4**

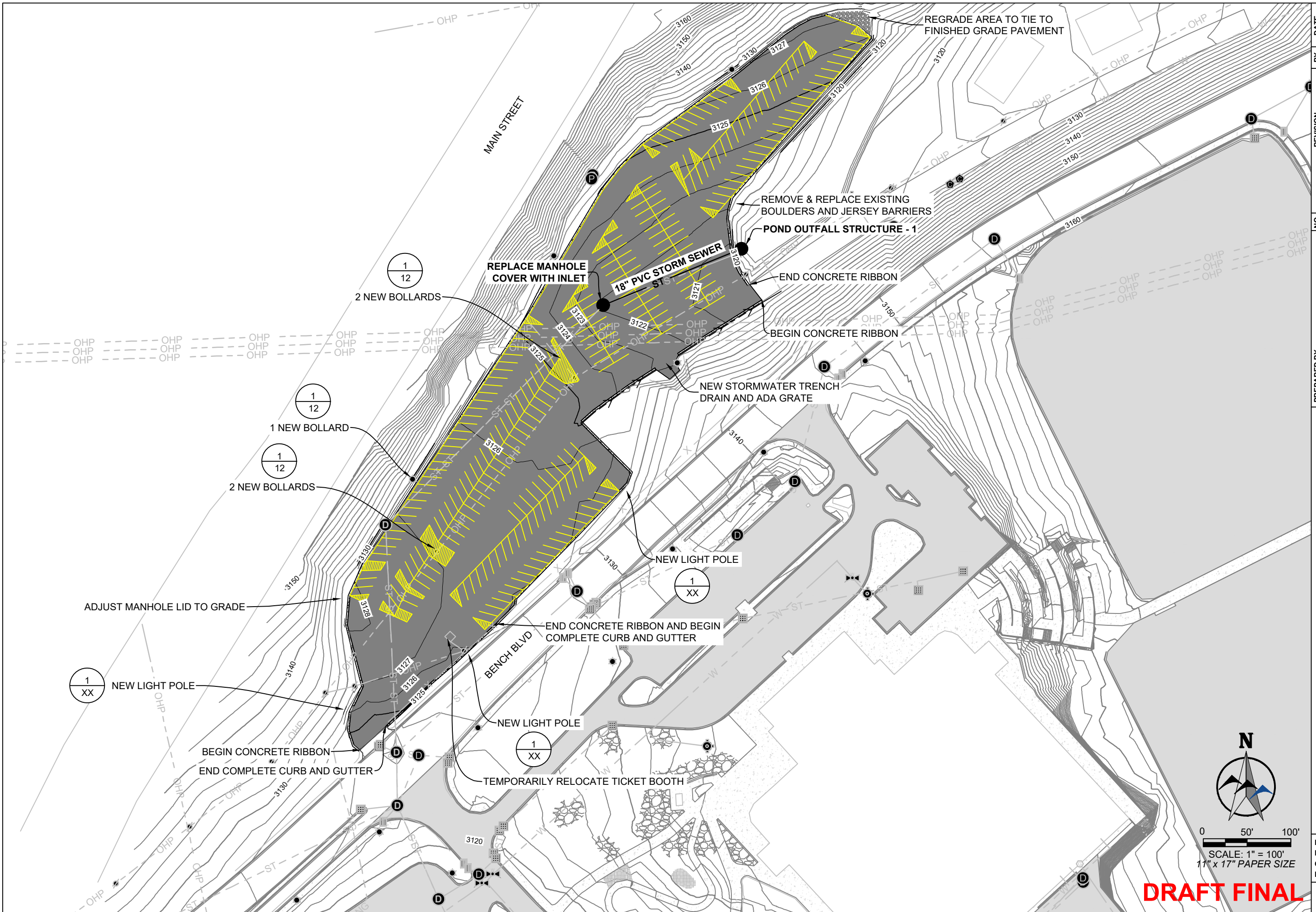
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PROJECT NO. 2021-555



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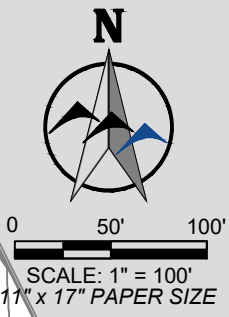
NO.	REVISION	BY	DATE

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YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**SITE IMPROVEMENTS SHEET**  
 YELLOWSTONE COUNTY, MONTANA

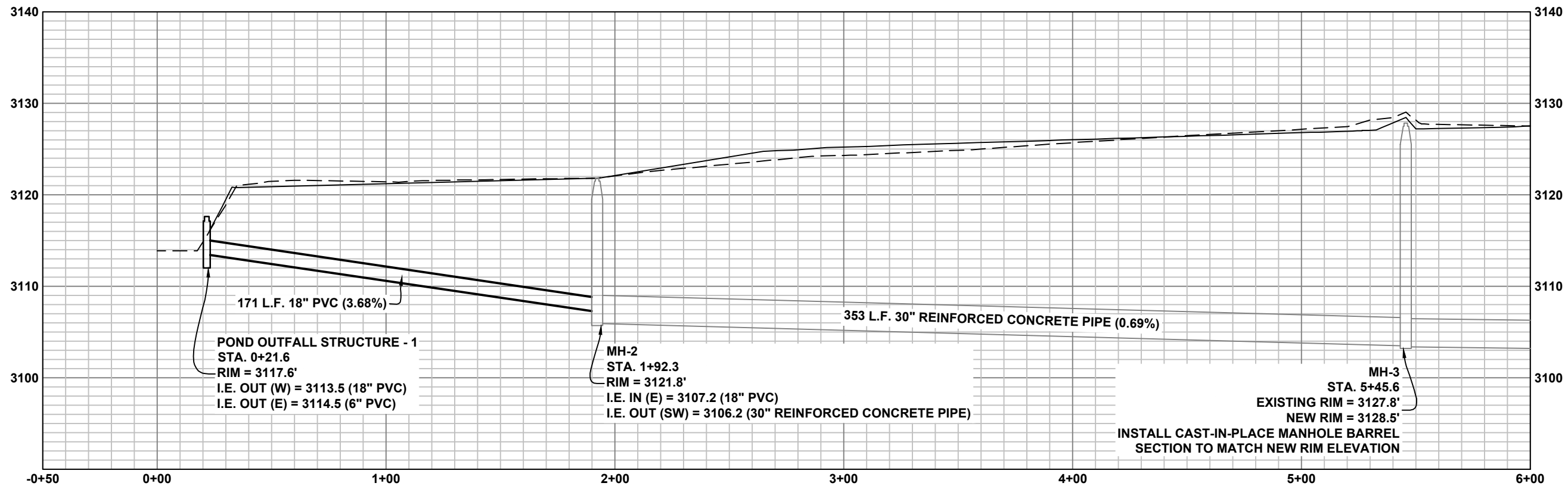
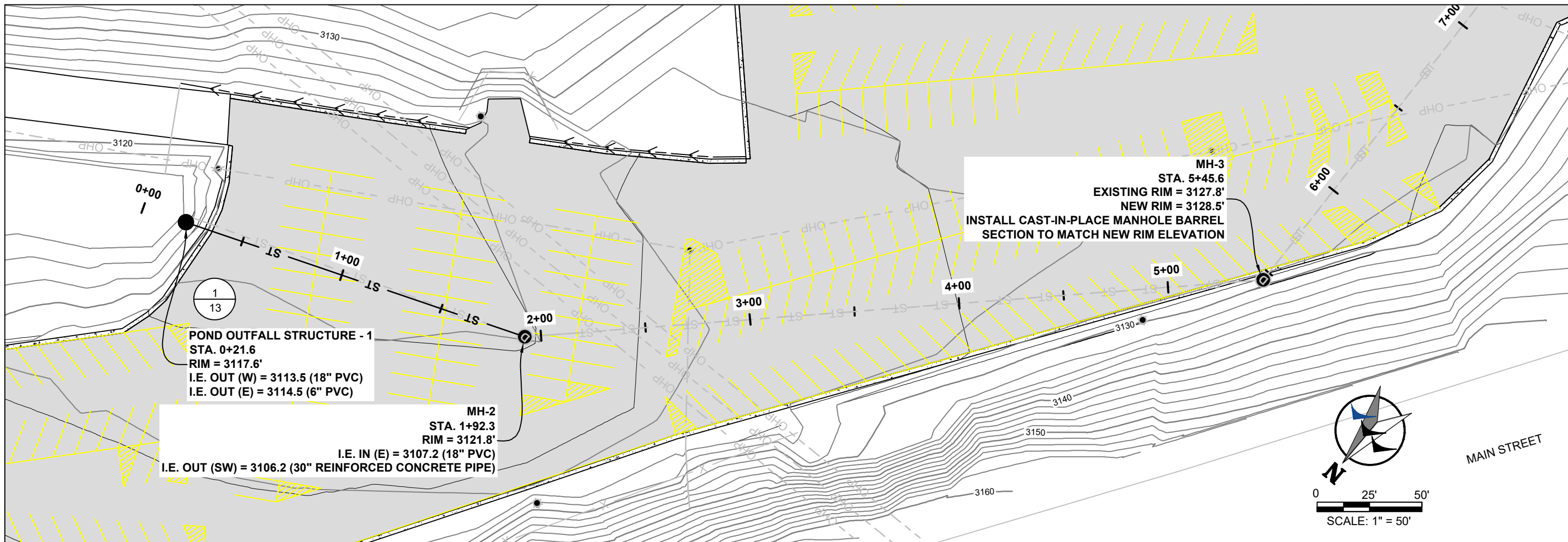
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SHEET  
**5**



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PROJECT NO. 2021-555

YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**STORM SEWER PLAN AND PROFILE SHEET**  
 YELLOWSTONE COUNTY, MONTANA

DESIGNED BY: JMD  
 DRAWN BY: CIG  
 CHECKED BY: CDR  
 DATE: 4/6/2022

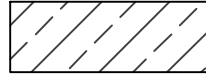
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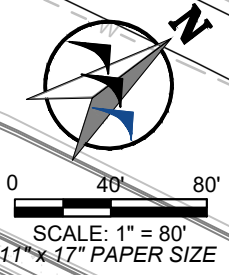
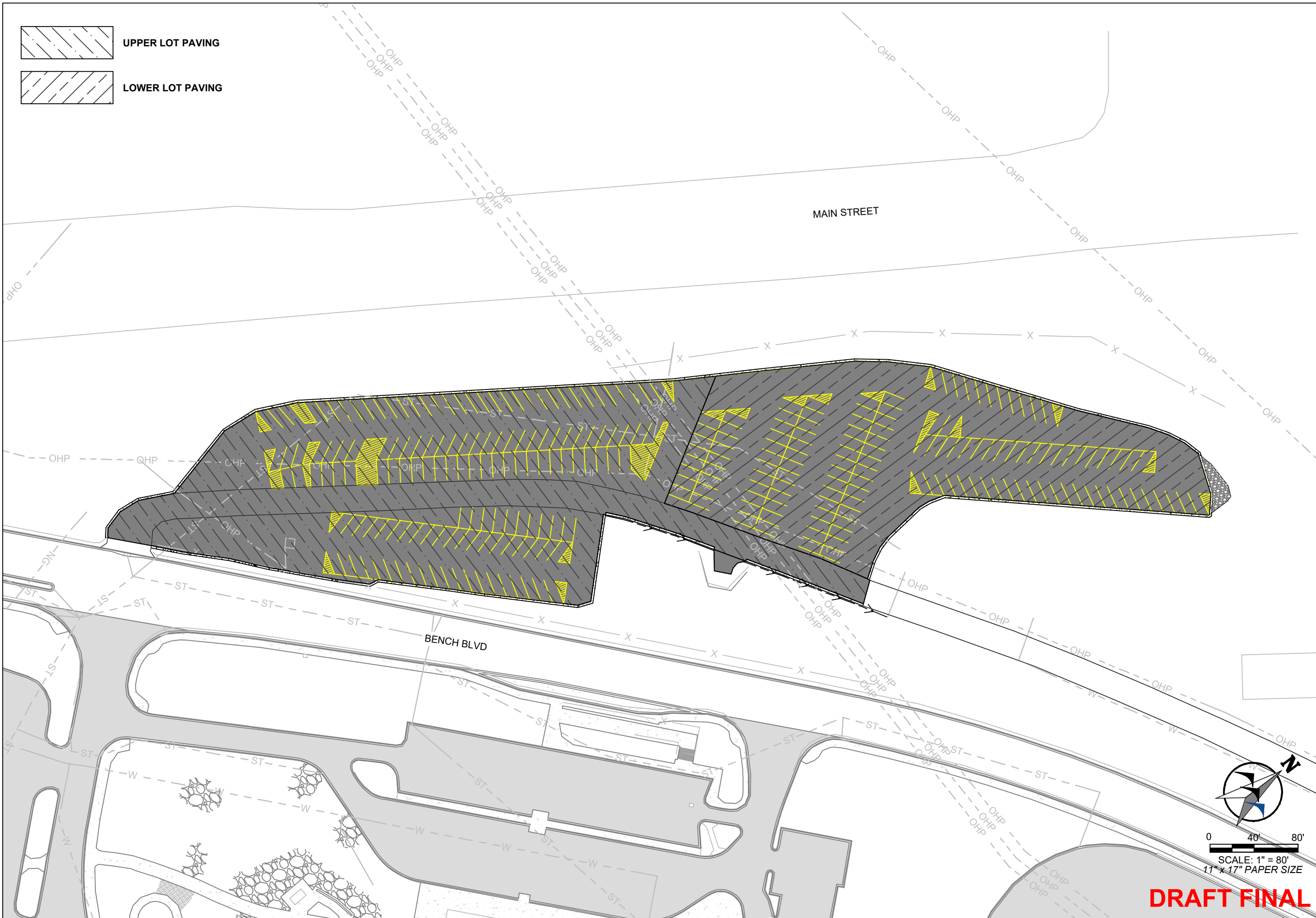
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UPPER LOT PAVING




LOWER LOT PAVING



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YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**PAVEMENT PLAN SHEET**  
 YELLOWSTONE COUNTY, MONTANA


DESIGNED BY: JMD  
 DRAWN BY: CIG  
 CHECKED BY: CDR  
 DATE: 4/6/2022

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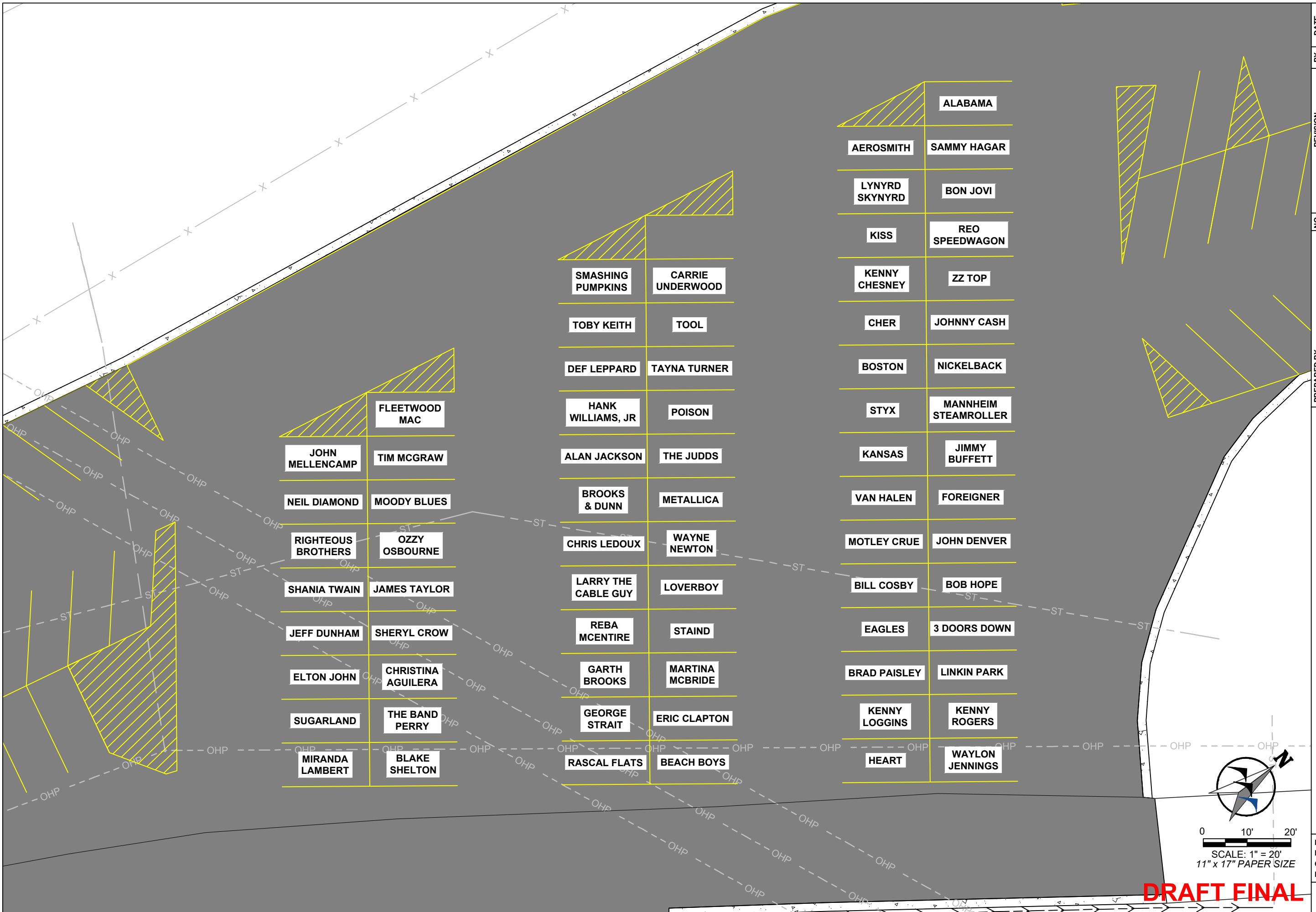
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YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**STRIPING AND SIGNAGE SHEET**  
 YELLOWSTONE COUNTY, MONTANA

DESIGNED BY: JMD  
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 DATE: 4/6/2022

SHEET  
**9**

PROJECT NO. 2021-555



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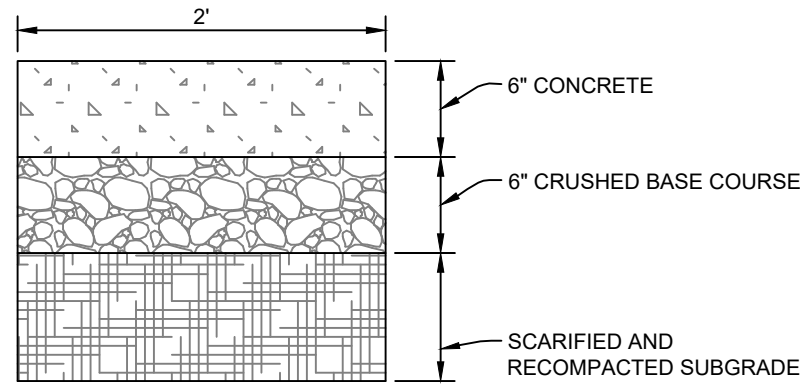
YELLOWSTONE COUNTY  
**METRAPARK PREMIUM LOT**  
**PERSONALIZED SIGNAGE LAYOUT**  
 YELLOWSTONE COUNTY, MONTANA

DESIGNED BY: JMD  
 DRAWN BY: CIG  
 CHECKED BY: CDR  
 DATE: 4/6/2022

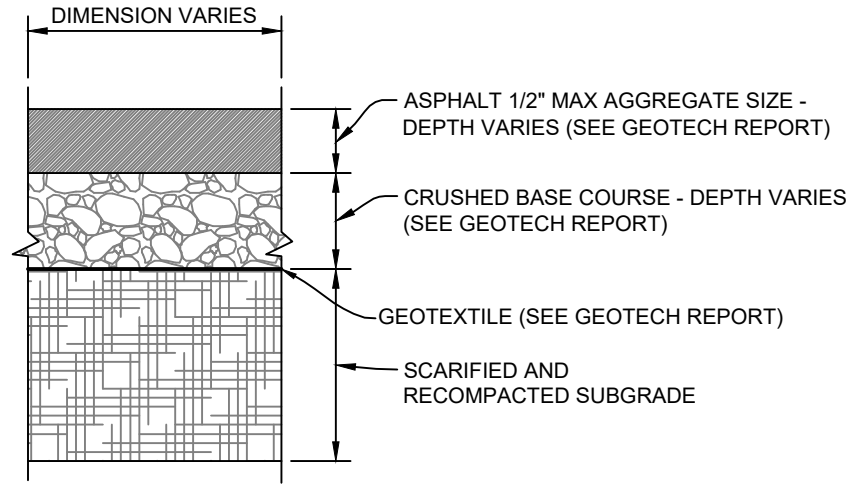
SHEET  
**10**

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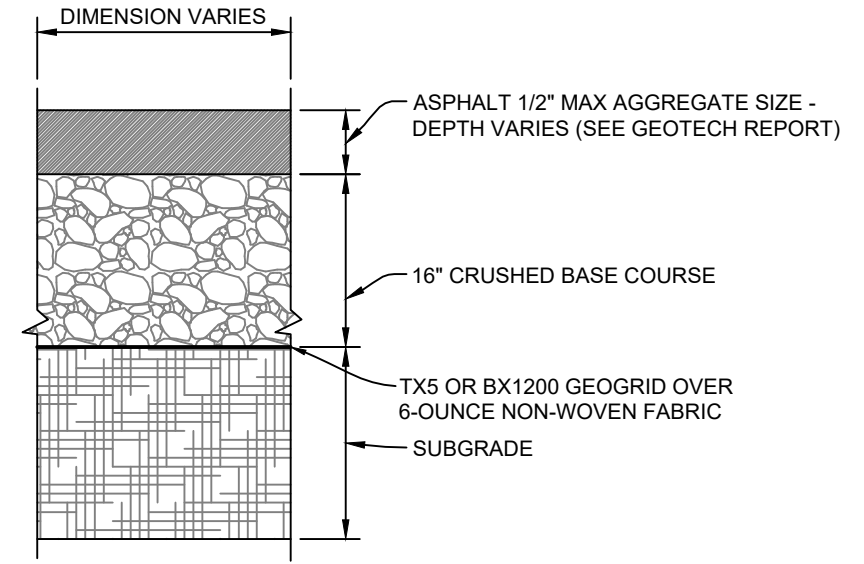




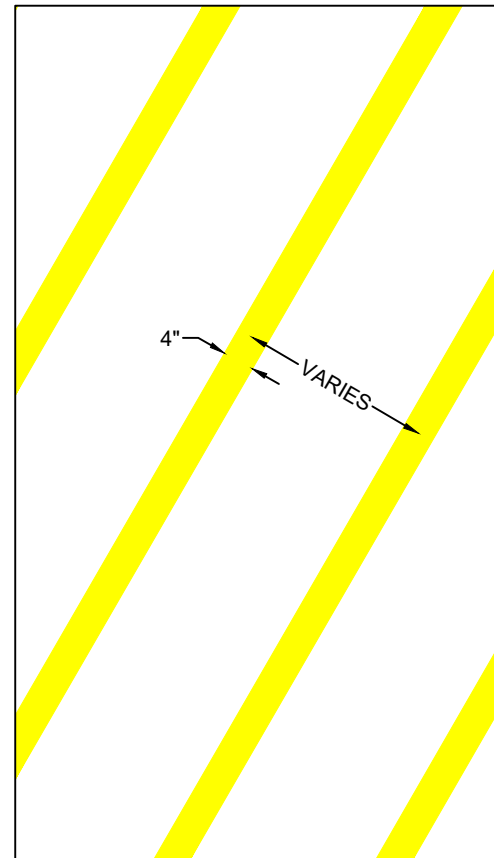
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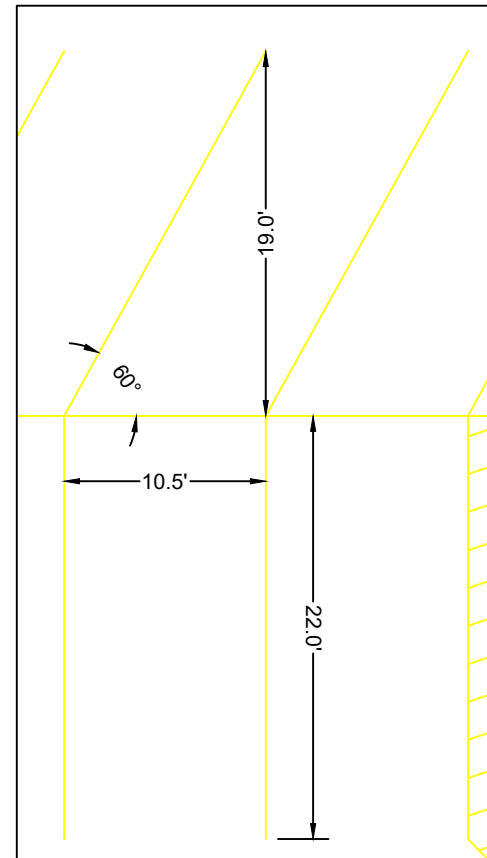
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3 UNSTABLE SUGRADE REPAIR DETAIL  
11 NOT TO SCALE



4 NO PARKING STRIPING DETAIL  
11 NOT TO SCALE



5 TYPICAL PARKING STALL DETAIL  
11 NOT TO SCALE

PREPARED BY  
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YELLOWSTONE COUNTY  
METRAPARK PREMIUM LOT  
**DETAIL SHEET**  
YELLOWSTONE COUNTY, MONTANA

DESIGNED BY: JMD  
DRAWN BY: CIG  
CHECKED BY: CDR  
DATE: 4/6/2022

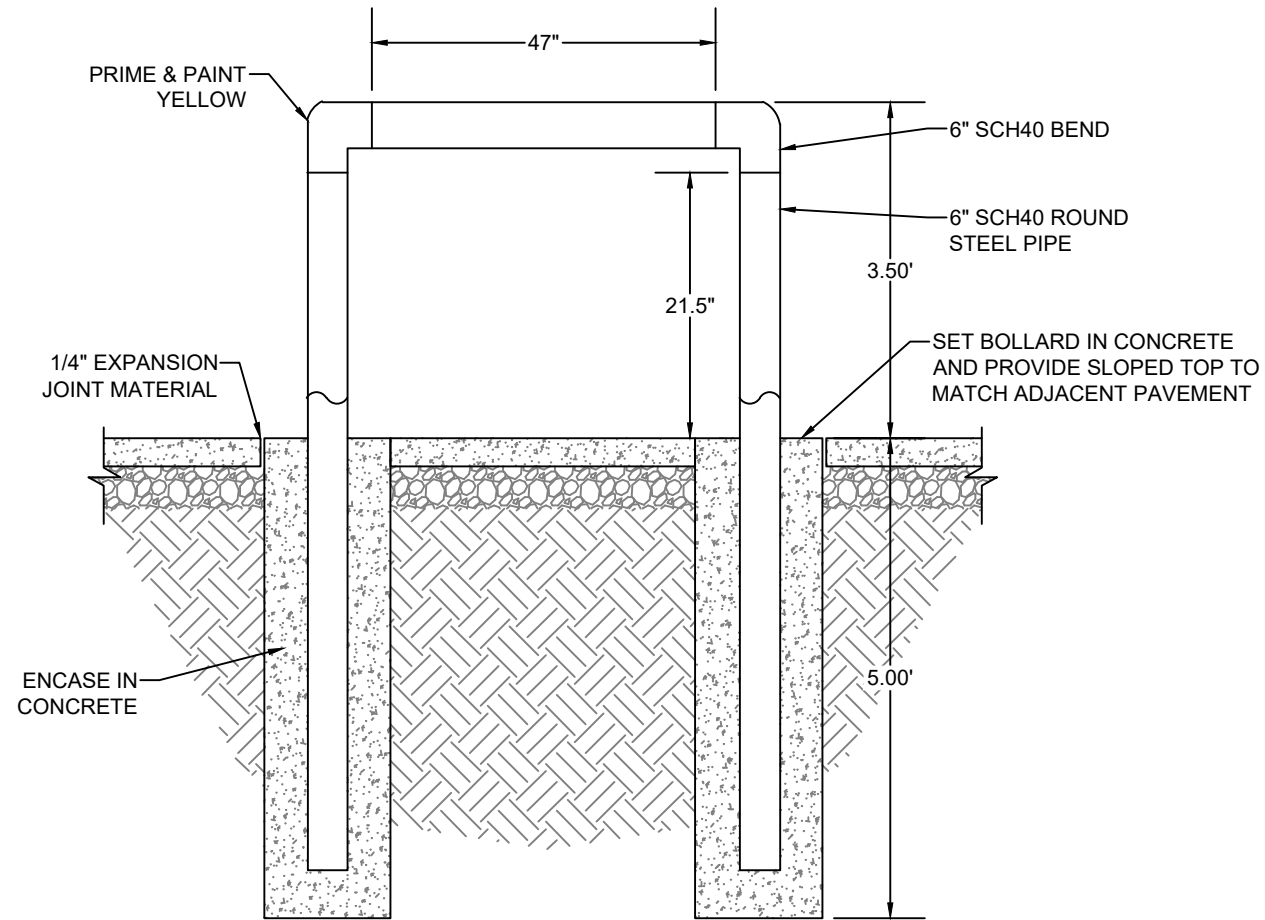
SHEET  
**11**

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FINAL**

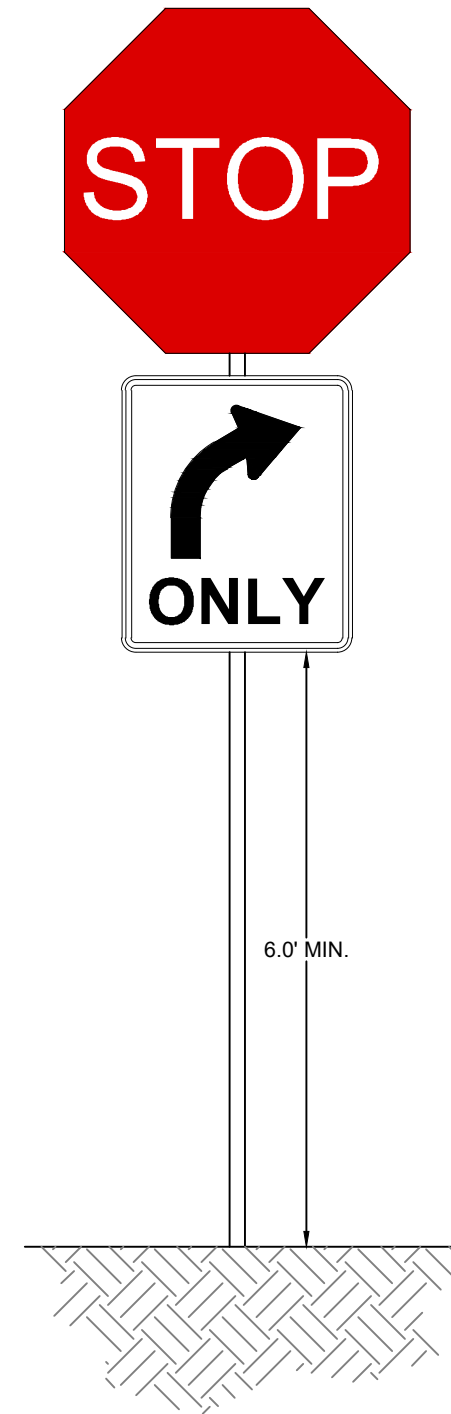
NO.	REVISION	BY	DATE

PROJECT NO. 2021-555

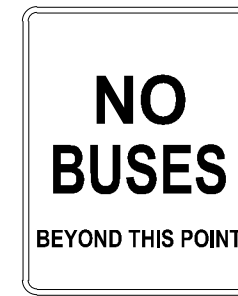




1  
12 U SHAPED BOLLARD DETAIL  
NOT TO SCALE



2  
12 STOP/RIGHT TURN ONLY DETAIL  
NOT TO SCALE



NOTE: INCLUDE SUN/UV PROTECTION



NO BUS TRAFFIC DETAIL  
NOT TO SCALE

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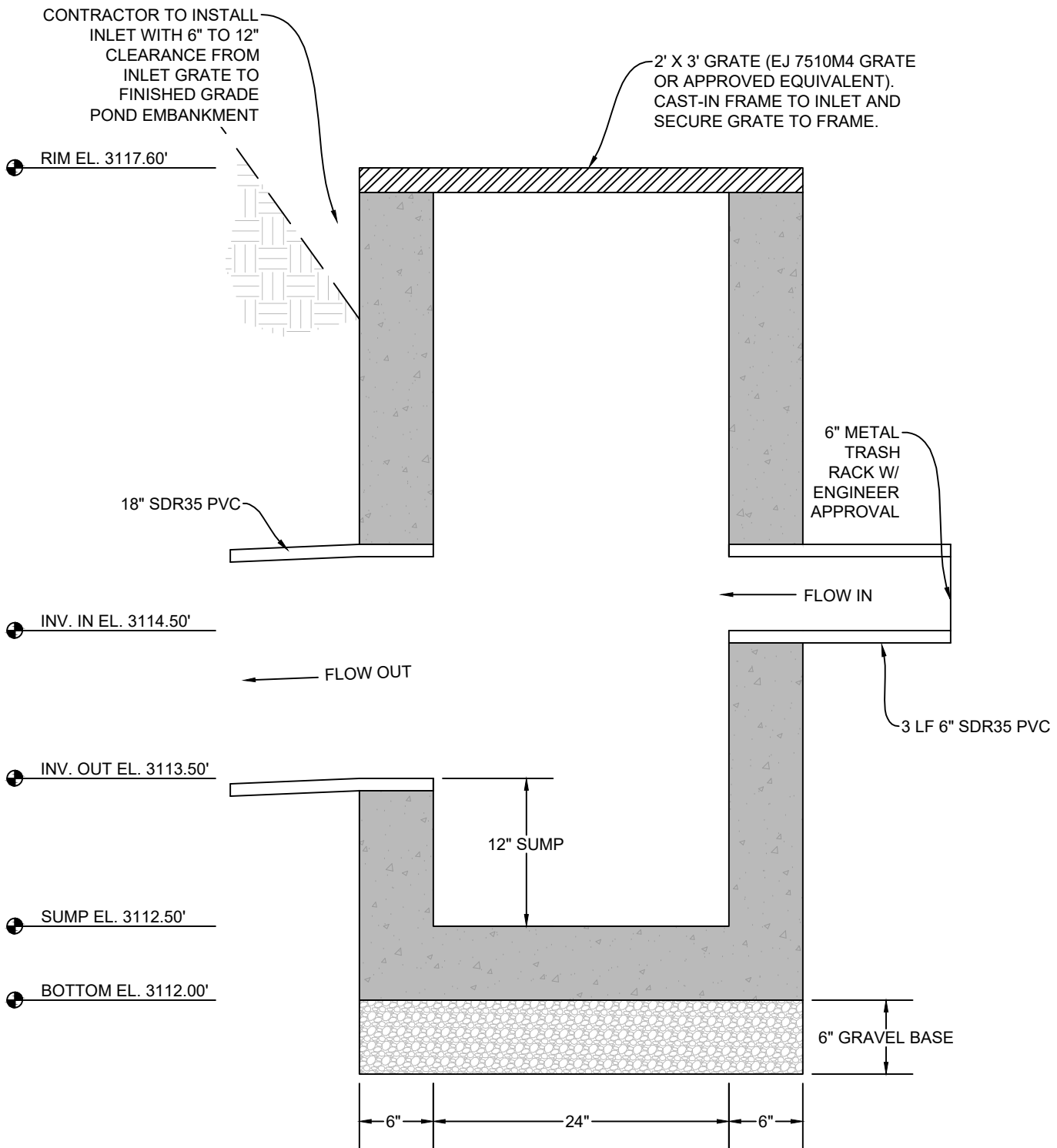
YELLOWSTONE COUNTY  
METRAPARK PREMIUM LOT  
**DETAIL SHEET**  
YELLOWSTONE COUNTY, MONTANA

DESIGNED BY: JMD  
DRAWN BY: CIG  
CHECKED BY: CDR  
DATE: 4/6/2022

SHEET  
**12**

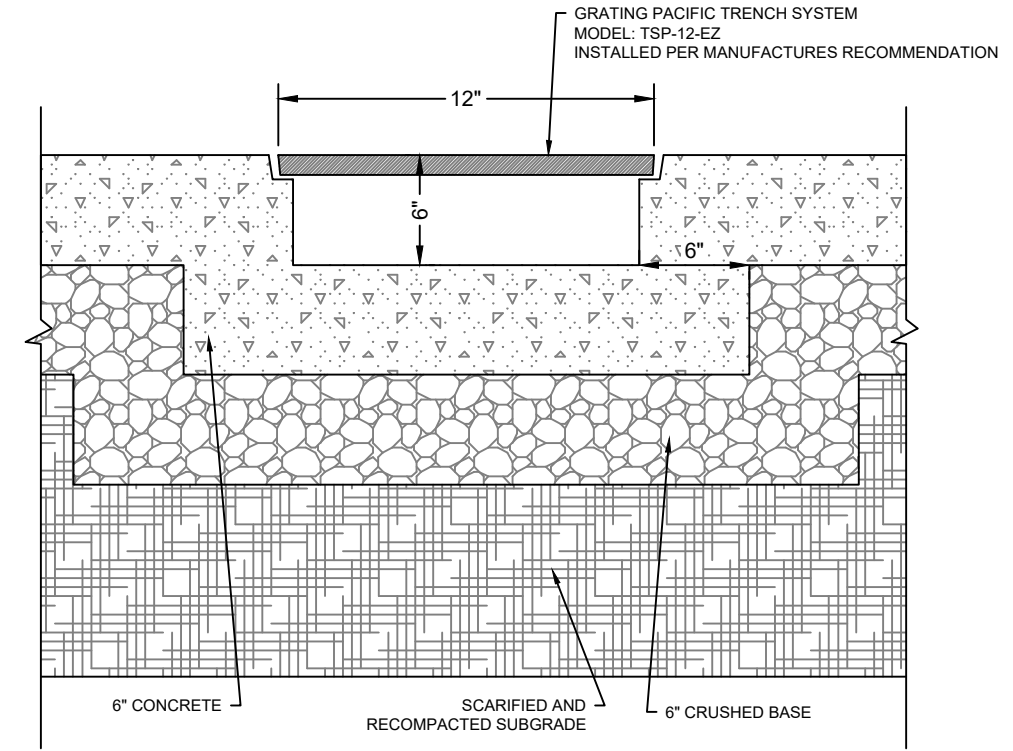
PROJECT NO. 2021-555

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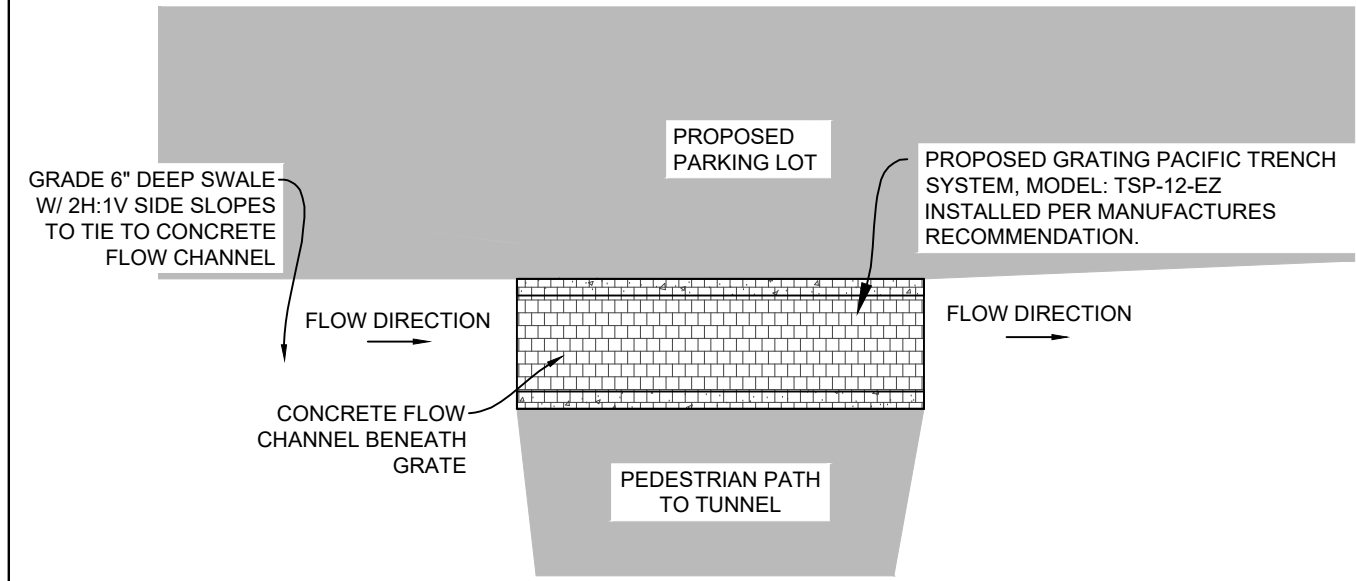
- NOTES:
1. INLET TO CONFORM TO CITY OF BILLINGS STANDARD MODIFICATION DRAWING Sm\_MO2720-1a UNLESS OTHERWISE NOTED.
  2. CONTRACTOR MAY BOLT GRATE FRAME TO INLET STRUCTURE IN LIEU OF CASTING IN FRAME.

1  
13  
OUTLET STRUCTURE DETAIL  
NOT TO SCALE



NOTE: MATCH FLOWLINE SLOPE OF EXISTING CURB AND GUTTER

2  
13  
TRENCH DRAIN DETAIL  
NOT TO SCALE



3  
13  
PLAN VIEW - STORMWATER ADA GRATE  
NOT TO SCALE

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  
METRAPARK PREMIUM LOT  
**STORMWATER DETAIL SHEET**  
YELLOWSTONE COUNTY, MONTANA

DESIGNED BY: JMD  
DRAWN BY: CIG  
CHECKED BY: CDR  
DATE: 4/6/2022

SHEET  
**13**

**DRAFT FINAL**

PROJECT NO. 2021-565

### VIEW KEY

NAME LEVEL NAME HEIGHT ABOVE PROJECT 0'-0"	INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL
--	---

NORTH <b>VIEW NAME</b> 1/8" = 1'-0"	INDICATES DIRECTION OF TRUE NORTH PLAN OR DETAIL NUMBER PLAN OR DETAIL NAME PLAN OR DETAIL SCALE
---	---

SIM M101 T101	INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS DETAIL REFERRED TO BY SECTION CUT SHEET DETAIL IS LOCATED ON
---------------------	--

**LINE TYPE AND TAG KEY:**

NEW WORK BY THIS CONTRACTOR (WIDE LINE)

———— NEW

- - - - - EXISTING TO BE REMOVED (SHORT DASHED PATTERN)

- - - - - NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)

———— EXISTING

- - - - - EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)

- - - - - EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

'TAG'-E TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

TAG-1 UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

### ELECTRICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL ELECTRICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, LIGHTING, POWER, AND SYSTEMS.

1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
2. NOT ALL EXISTING EQUIPMENT, LUMINAIRES, AND CONDUIT ARE SHOWN. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS WITH NEW WORK BEFORE STARTING WORK.
3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR CABLE TRAY, BUSWAY AND CONDUITS BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
4. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF THEIR WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO THEIR AREA OF WORK.
5. WHERE EXISTING ELECTRICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, ARRANGE NEW EQUIPMENT, CONDUIT, OR DUCTWORK IN A MANNER THAT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING ELECTRICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.

Leave this block empty. IMEG's design, not WWC's

### ELECTRICAL LIGHTING DEMOLITION NOTES:

1. THE ELECTRICAL LIGHTING DRAWINGS INDICATE EXISTING ELECTRICAL ITEMS TO BE REMOVED. THE DRAWINGS ARE INTENDED TO INDICATE THE SCOPE OF WORK REQUIRED AND DO NOT INDICATE EVERY BOX, CONDUIT, OR WIRE THAT MUST BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID AND VERIFY EXISTING CONDITIONS.
2. EQUIPMENT REMOVAL IN CERTAIN LOCATIONS MAY REQUIRE THE INSTALLATION OF A JUNCTION BOX TO RECONNECT CIRCUITS THAT REMAIN IN OPERATION. EXTEND CONDUIT AND WIRING AS REQUIRED TO MAINTAIN POWER TO REMAINING EQUIPMENT.
3. BALLASTS MANUFACTURED PRIOR TO 1980 CONTAIN PCBs AND SHALL BE DISPOSED OF BY A FEDERAL OR STATE E.P.A. APPROVED METHOD AND IN ACCORDANCE WITH SPECIFICATIONS.
4. HID AND FLUORESCENT LAMPS CONTAIN MERCURY AND SHALL BE DISPOSED OF BY A FEDERAL OR STATE E.P.A. APPROVED METHOD AND IN ACCORDANCE WITH SPECIFICATIONS.
5. WHERE REMOVED EXTERIOR LIGHT FIXTURE IS NOT BEING REPLACED. PROVIDE WATERPROOF GROMMETS, SEALS OR PLUGS TO COVER EXISTING HOLES IN POLES.
6. VERIFY MANUFACTURERS INSTALLATION GUIDELINES WITH EXISTING FIELD CONDITIONS PRIOR TO BIDDING AND ORDERING NEW LIGHT FIXTURES AND INSTALLATION MATERIAL.
7. REFER TO 26.51.00 SPECIFICATIONS FOR COMMISSIONING OF FIXTURES.
8. COORDINATE EXISTING LIGHTING CONTROL AND REPROGRAM PHOTOCELLS AS NECESSARY TO MEET EXISTING CONTROL SEQUENCES. VERIFY WITH OWNER ANY CHANGES.

Remove for final

<b>ELECTRICAL SYMBOL LIST</b>	
SYMBOL:	DESCRIPTION:
	POLE MOUNTED LUMINAIRE

175 N. 27TH STREET, SUITE 1312  
 BILLINGS, MT 59101-2048  
 406.545.6420 FAX: 406.256.1191  
 www.imegcorp.com  
 PROJECT # 22000108.00

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REFERENCE SCALE IN INCHES

NO.	REVISION	BY	DATE

PROJECT NO. Project Number

PREPARED BY WWC ENGINEERING

1845 TERRA AVE.  
SHERIDAN, WY 82801  
(307) 672-0761  
www.wwcengineering.com

YELLOWSTONE COUNTY  
METRAPARK PREMIUM LOT  
**ELECTRICAL COVERSHEET**  
YELLOWSTONE COUNTY, MONTANA

NOT FOR CONSTRUCTION

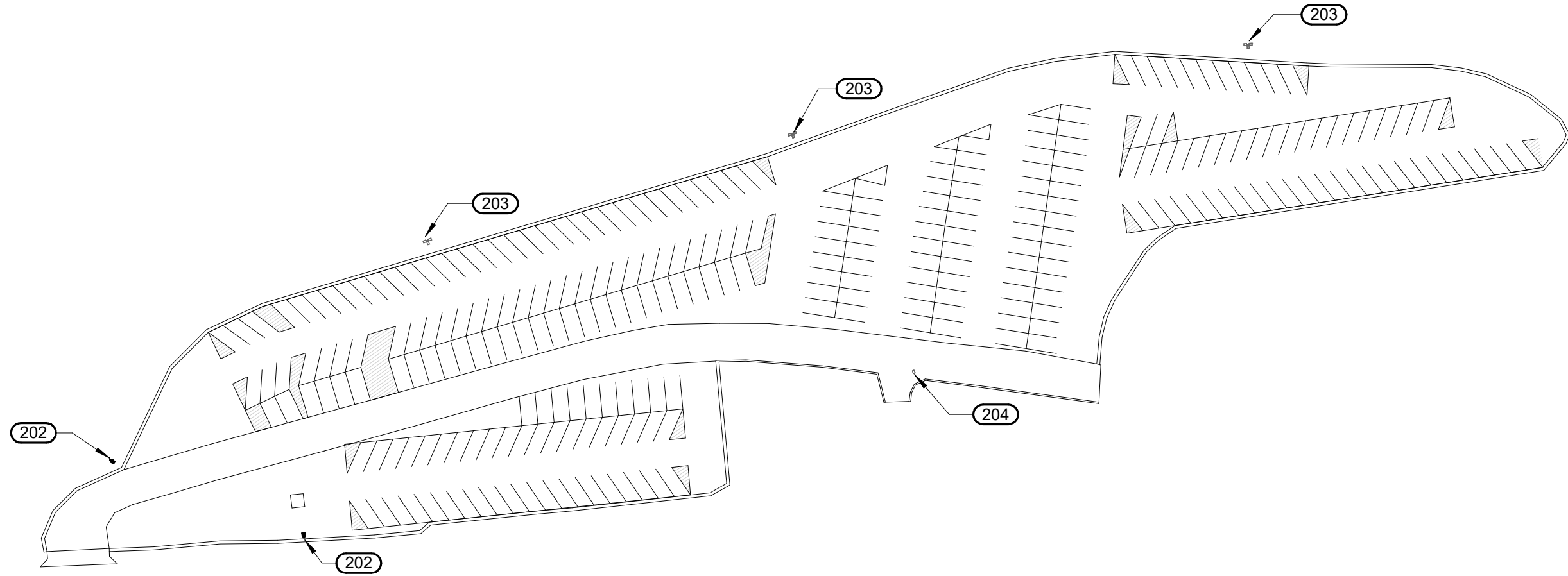
DESIGNED BY: DBK  
DRAWN BY: DBK  
CHECKED BY: CEL  
DATE: Issue Date

SHEET  
**E000**

# KEYNOTES

- 202 REMOVE EXISTING POLE MOUNTED LUMINAIRE AND ASSOCIATED CONDUCTORS/CONDUIT.
- 203 EXISTING 3 HEAD LIGHT POLE.
- 204 EXISTING SINGLE HEAD LIGHT POLE.

Make sure it's clear the pole & luminaire are to be removed. Some may interpret "Pole Mounted Luminaire" to just remove the luminaire.



1

## ELECTRICAL SITE DEMO

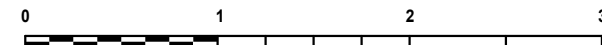
1" = 80'-0"



175 N. 27TH STREET, SUITE 1312  
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 406.545.6420 FAX: 406.256.1191  
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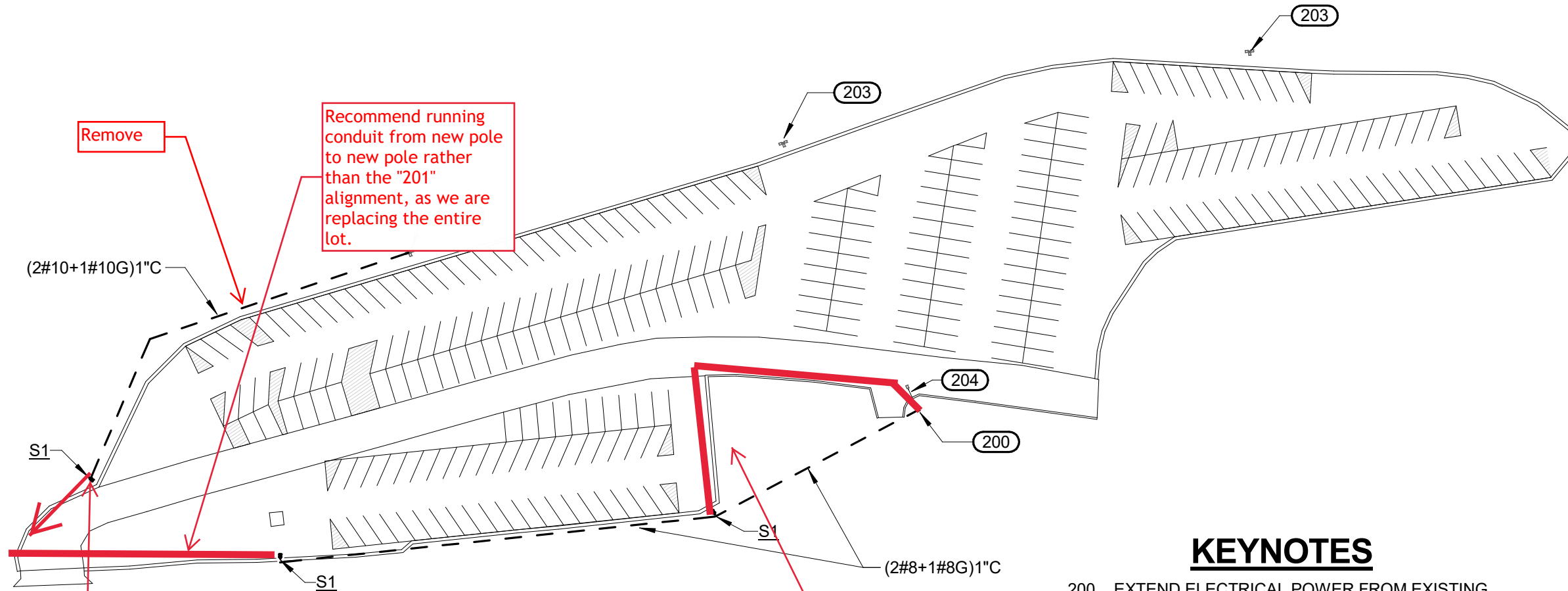
YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**ELECTRICAL DEMOLITION PLAN**  
 YELLOWSTONE COUNTY, MONTANA

NOT FOR CONSTRUCTION

DESIGNED BY: DBK  
 DRAWN BY: DBK  
 CHECKED BY: CEL  
 DATE: Issue Date

SHEET  
**E001**

PROJECT NO. Project Number



1

# ELECTRICAL SITE PLAN

1" = 80'-0"

Recommend to move this light pole closer to the approach, to get more distance away from the Northwestern Power Pole

This alignment is what I would anticipate they would be forced to do, due to the grade of the adjacent hill.

## KEYNOTES

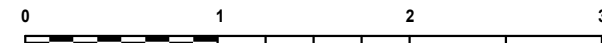
- 200 EXTEND ELECTRICAL POWER FROM EXISTING SITE LUMINAIRE TO (2) NEW POLE MOUNTED LUMINAIRES.
- 201 EXTEND ELECTRICAL POWER FROM EXISTING SITE LUMINAIRE TO (1) NEW POLE MOUNTED LUMINAIRES.
- 203 EXISTING 3 HEAD LIGHT POLE.
- 204 EXISTING SINGLE HEAD LIGHT POLE.



175 N. 27TH STREET, SUITE 1312  
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 www.wwcengineering.com

YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**ELECTRICAL SITE PLAN**  
 YELLOWSTONE COUNTY, MONTANA

NOT FOR CONSTRUCTION

DESIGNED BY: DBK  
 DRAWN BY: DBK  
 CHECKED BY: CEL  
 DATE: Issue Date

SHEET  
**E002**

PROJECT NO. Project Number





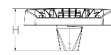
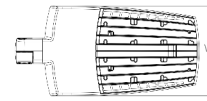
# RSXF3 LED Floodlight



Buy American

## Specifications

**EPA (ft<sup>2</sup>@45°):** 3.7 ft<sup>2</sup> (0.3 m<sup>2</sup>)  
**Length:** 32.8" (83.3 cm)  
**Width:** 16.1" (40.9 cm)  
**Height:** 3.0" (7.6 cm) Main Body  
 7.6" (19.3 cm) Arm  
**Weight (max):** 48 lbs (21.8 kg)



Catalog Number \_\_\_\_\_  
 Notes \_\_\_\_\_  
 Type \_\_\_\_\_

## Introduction

The new RSXF LED Flood family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSXF3 delivers 25,000 to 41,000 lumens allowing it to replace 400W to 1000W HID floodlights.

The RSXF features an adjustable integral slipfitter that allows the luminaire to be mounted on a 2-3/8" OD tenon. Integral cover/wire box serves as an approved splice compartment allowing for fast, easy mounting and wiring without opening the electrical compartment. A yoke and other mounting configurations are available.

## Ordering Information

**EXAMPLE: RSXF3 LED P4 40K WFL MVOLT IS DDBXD**

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSXF3 LED	P1	30K 3000K	AWFD Area Wide Forward	MVOLT (120V-277V) <sup>1</sup>	IS Adjustable slipfitter (fits 2-3/8" OD tenon) <sup>1</sup>
	P2	40K 4000K	WFL Wide Flood	HVOLT (347V-480V) <sup>2</sup>	YK64 Yoke with 16-3 SO cord, 4ft <sup>3</sup>
	P3	50K 5000K	MFL Medium Flood	XVOLT (277V-480V) <sup>4</sup>	AASP Adjustable tilt arm square pole mounting <sup>5</sup>
	P4		NFL Narrow Flood	(use specific voltage for options as noted)	AARP Adjustable tilt arm round pole mounting <sup>5</sup>
			SP Spot	120 <sup>3</sup> 277 <sup>3</sup>	AAWB Adjustable tilt arm with wall bracket <sup>5</sup>
			NSP Narrow Spot	208 <sup>3</sup> 347 <sup>3</sup>	AAWSC Adjustable tilt arm wall bracket and surface conduit box <sup>5</sup>
				240 <sup>3</sup> 480 <sup>3</sup>	

Options	Finish
<b>Shipped Installed</b> PE Photocontrol, button style <sup>6,4</sup> PEX Photocontrol external threaded, adjustable <sup>7,8</sup> PER7 Seven-wire twist-lock receptacle only (no controls) <sup>8,9,10,11</sup> CE34 Conduit entry 3/4" NPT (Qty 2) SF Single fuse (120, 277, 347) <sup>3</sup> DF Double fuse (208, 240, 480) <sup>3</sup> SPD20KV 20KV Surge pack (10KV standard) <b>FAO</b> Field adjustable output <sup>8,11</sup> DMG 0-10V dimming extend out back of housing for external control (control ordered separate) <sup>8,11</sup>	<b>Shipped Installed</b> <b>*Standalone and Networked Sensors/Controls (factory default settings, see table page 5)</b> NLTAIR2 nLight AIR generation 2 <sup>11,13,14</sup> PIRHN Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) <sup>8,11,13,15</sup> BAA Buy America(n) Act Compliant  *Note: PIRHN with nLight Air can be used as a standalone or networked solution. Sensor coverage pattern is affected when luminaire is tilted.
<b>Shipped Separately (requires some field assembly)</b> FV Full Visor (360° around light aperture) UBV Upper/bottom visor BS Bird spikes <sup>12</sup>	<b>DDBXD</b> Dark Bronze DBLXD Black DNAXD Natural Aluminum DWHXD White DDBTXD Textured Dark Bronze DBLTXD Textured Black DNATXD Textured Natural Aluminum DWHGXD Textured White

I am not certain of the color of dark bronze, but I believe that the Black would match existing better.

## Performance Data

### Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97
45°C	113°F	0.96
50°C	122°F	0.95

### Electrical Load

Performance Package	System Watts (W)	Current (A)					
		120V	208V	240V	277V	347V	480V
P1	194W	1.61	0.92	0.80	0.69	0.56	0.40
P2	222W	1.85	1.06	0.92	0.80	0.63	0.45
P3	266W	2.22	1.27	1.10	0.95	0.76	0.55
P4	312W	2.60	1.49	1.29	1.11	0.89	0.64

### Projected LED Lumen Maintenance

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.97	>0.95	>0.92

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

### Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Distribution Type	Field Angle		Beam Angle		30K (3000K, 70 CRI)			40K (4000K, 70 CRI)			50K (5000K, 70 CRI)		
			"H	"V	"H	"V	Lumens	LPW	Max CD	Lumens	LPW	Max CD	Lumens	LPW	Max CD
			P1	194W	AWFD	119	120	69	41	24,880	128	20,380	27,336	141	22,392
		WFL	133	129	116	80	24,376	126	10,378	26,782	138	11,402	26,782	138	11,402
		MFL	105	110	91	96	25,421	131	11,541	27,930	144	12,680	27,930	144	12,680
		NFL	78	79	44	45	24,536	126	36,280	26,957	139	39,860	26,957	139	39,860
		SP	48	48	27	27	23,747	122	75,642	26,091	134	83,109	26,091	134	83,109
		NSP	42	44	19	21	24,165	125	127,593	26,550	137	140,186	26,550	137	140,186
P2	222W	AWFD	119	120	69	41	27,942	126	22,888	30,700	138	25,147	30,700	138	25,147
		WFL	133	129	116	80	27,376	123	11,655	30,078	135	12,806	30,078	135	12,806
		MFL	105	110	91	96	28,549	129	12,961	31,367	141	14,240	31,367	141	14,240
		NFL	78	79	44	45	27,555	124	40,744	30,275	136	44,766	30,275	136	44,766
		SP	48	48	27	27	26,670	120	84,953	29,302	132	93,337	29,302	132	93,337
		NSP	42	44	19	21	27,139	122	143,296	29,817	134	157,436	29,817	134	157,436
P3	266W	AWFD	119	120	69	41	32,398	122	26,538	35,596	134	29,158	35,596	134	29,158
		WFL	133	129	116	80	31,742	119	13,514	34,875	131	14,848	34,875	131	14,848
		MFL	105	110	91	96	33,103	124	15,028	36,369	137	16,511	36,369	137	16,511
		NFL	78	79	44	45	31,950	120	47,243	35,103	132	51,905	35,103	132	51,905
		SP	48	48	27	27	30,923	116	98,500	33,975	128	108,222	33,975	128	108,222
		NSP	42	44	19	21	31,467	118	166,148	34,572	130	182,543	34,572	130	182,543
P4	312W	AWFD	119	120	69	41	36,634	117	30,008	40,249	129	32,969	40,249	129	32,969
		WFL	133	129	116	80	35,892	115	15,281	39,434	126	16,789	39,434	126	16,789
		MFL	105	110	91	96	37,430	120	16,993	41,124	132	18,670	41,124	132	18,670
		NFL	78	79	44	45	36,127	116	53,419	39,692	127	58,691	39,692	127	58,691
		SP	48	48	27	27	34,966	112	111,379	38,416	123	122,368	38,416	123	122,368
		NSP	42	44	19	21	35,581	114	187,870	39,092	125	206,409	39,092	125	206,409

Note: XVOLT configurations only for all RSXF3 LED P4 --- Inputs watts is reduced by 9% to 285W. Delivered lumens reduced by 8% for all published values under P4. IES files for RSXF3 LED P4 with XVOLT are available on Acuitybrands.com.

**IMEG** 175 N. 27TH STREET, SUITE 1312  
 BILLINGS, MT 59101-2048  
 406.545.6420 FAX: 406.256.1191  
 www.imegcorp.com  
 PROJECT # 22000108.00

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REFERENCE SCALE IN INCHES  
 0 1 2 3

NO.	REVISION	BY	DATE

PREPARED BY **WWC ENGINEERING**  
 1849 TERRA AVE.  
 SHERIDAN, WY 82801  
 (307) 672-0761  
 www.wwcengineering.com

YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**LIGHTING CUT SHEETS**  
 YELLOWSTONE COUNTY, MONTANA

NOT FOR CONSTRUCTION

DESIGNED BY: DBK  
 DRAWN BY: DBK  
 CHECKED BY: CEL  
 DATE: Issue Date

SHEET  
**E003**

# LED LUMINAIRE SCHEDULE

<b>(DESC) DOOR:</b> FA - FLAT ALUMINUM FS - FLAT STEEL RA - REGRESSED ALUMINUM RS - REGRESSED STEEL <b>FINISH:</b> PAF - PAINT AFTER FABRICATION CFSA - COLOR-FINISH SELECTION BY ARCHITECT	<b>DISTRIBUTION:</b> II - ANSI/IES TYPE 2 DISTRIBUTION III - ANSI/IES TYPE 3 DISTRIBUTION IV - ANSI/IES TYPE 4 DISTRIBUTION V - ANSI/IES TYPE 5 DISTRIBUTION	<b>BEAMWIDTH:</b> NSP - VERY NARROW SPOT SP - SPOT MD - MEDIUM WD - WIDE VWD - VERY WIDE WW - WALL WASH	<b>(L/L) LENS/LOUVER:</b> A - .125" ACRYLIC B - BAFFLE/LOUVER C - CLEAR ALZAK F - FROSTED ACRYLIC G - TEMPERED GLASS K - KSH12 .125" ACRYLIC	K19 - KSH19 .156" ACRYLIC M - MATTE DIFFUSE CLEAR N - NONE P - POLYCARBONATE R - HIGH IMPACT DR ACRYLIC SS - SEMI-SPECULAR CLEAR O - OTHER (SEE DESCRIPTION) [DESIGN SPECIFIC BLANKS]
--	--	---	--	--

<b>(MTG) MOUNTING:</b> CL - CEILING SURFACE CV - COVE FR - FLANGED RECESSED P - PERIMETER PL - POLE	RE - RECESSED SP - SUSPENDED SU - SURFACE UC - UNDER CABINET WL - WALL O - OTHER (SEE DESCRIPTION)	<b>(WATT) PER:</b> FIX - FIXTURE, FT - FOOT, LAMP	<b>(TYPE) LED</b> LED - LIGHT EMITTING DIODE TLED - TUBULAR LED LAMP OLED - ORGANIC LED DLED - DYNAMIC TUNABLE LED	RGB - COLOR CHANGING LED RGBW - COLOR CHANGING + WHITE RGBA - COLOR CHANGING + AMBER RLED - RETROFIT LED WLED - WARM DIM LED
--	---	---	--	--

<b>(TYPE) DRIVER:</b> 0-10V - 0-10V DIMMING DALI - DIGITAL ADDRESSABLE DMX - DIGITAL MULTIPLEX	EB - ELECTRONIC ELV - ELECTRONIC LOW VOLTAGE EM - EMERGENCY BATTERY	HL - HIGH/LOW (100%/50%) STEP DIM LINE - LINE VOLTAGE DIMMING ML - MULTI-LEVEL SWITCHING	MV - MULTI-VOLTAGE ELECTRONIC REM - REMOTE O - OTHER (SEE DESCRIPTION)
---	---	--	--

CATALOG NUMBER SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE COMPLETE DESCRIPTION AND THE SPECIFICATION SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.

VERIFY AND COORDINATE ALL CEILING TYPES WITH LUMINAIRE MOUNTING AND TRIM REQUIREMENTS PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.  
CONFIRM ALL COLORS AND FINISHES OF ALL LUMINAIRE COMPONENTS WITH ARCHITECT AND INTERIOR DESIGNER PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.  
UNLESS INDICATED ON LIGHTING PLANS OR BELOW, REFER TO ARCHITECTURAL AND INTERIOR DESIGN ELEVATIONS, SECTIONS AND DETAILS FOR ALL SUSPENDED AND WALL MOUNTED LUMINAIRE MOUNTING HEIGHTS.

REFER TO SPECIFICATION SECTIONS LED LIGHTING 26 51 19 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.  
EXTERIOR CORRELATED COLOR TEMPERATURE 4000K,COLOR RENDERING INDEX (CRI) AT OR ABOVE 80 UNLESS NOTED OTHERWISE.

ITEM	DESCRIPTION	L/L	MTG	DIMENSIONS				WATT		LED			DRIVER		MANUFACTURER AND MODEL
				L	W	H	DIA.	ANSI WATTS	PER	TYPE	QTY	DELIVERED LUMENS (MIN)	VOLTS	TYPE	
S1	SITE LUMINAIRE, ALUMINIUM EXTRUDED HOUSING GASKETED, TYPE IV DISTRIBUTION, LISTED WET LOCATION. LAMP SUPPORT. IN-LINE FUSES		PL	1'-10"	1'-3"	33'-5 1/2"		312 W	FIX	LED	1	36000	277 V	LED	LITHONIA RSXF3 LED FLOODLIGHT

175 N. 27TH STREET, SUITE 1312  
BILLINGS, MT 59101-2048  
406.545.6420 FAX: 406.256.1191  
www.imegcorp.com  
PROJECT # 22000108.00

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REFERENCE SCALE IN INCHES

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 1849 TERRA AVE.  
 SHERIDAN, WY 82801  
 (307) 672-0761  
 www.wwcengineering.com

YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**ELECTRICAL ONE-LINE, DETAILS, &  
 SCHEDULES**  
 YELLOWSTONE COUNTY, MONTANA

NOT FOR CONSTRUCTION

DESIGNED BY: DBK  
 DRAWN BY: DBK  
 CHECKED BY: CEL  
 DATE: Issue Date

SHEET  
E004

PROJECT NO. Project Number

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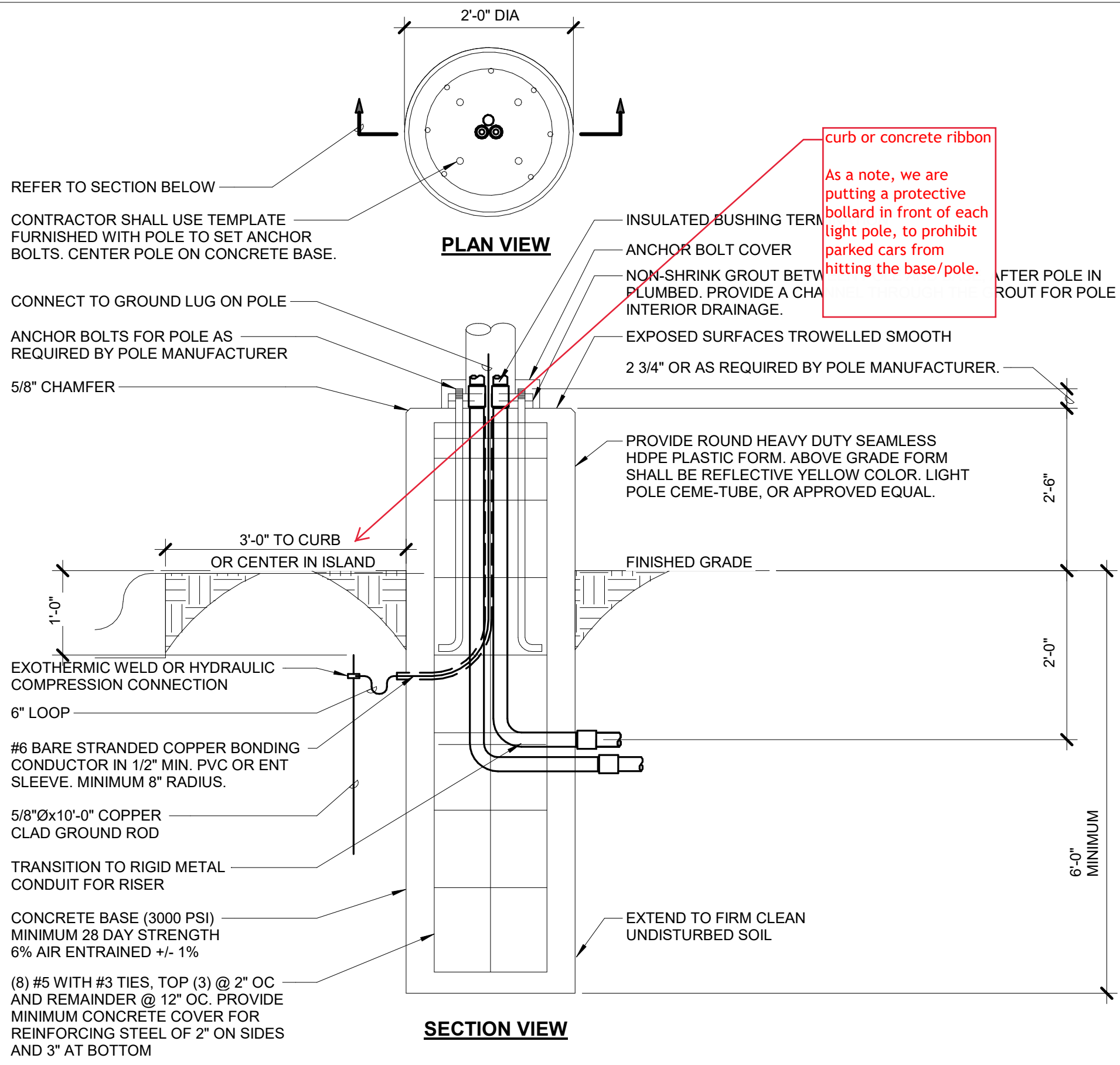
YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**ELECTRICAL ONE-LINE, DETAILS, & SCHEDULES**  
 YELLOWSTONE COUNTY, MONTANA

NOT FOR CONSTRUCTION

DESIGNED BY: DBK  
 DRAWN BY: DBK  
 CHECKED BY: CEL  
 DATE: Issue Date

SHEET  
**E005**

PROJECT NO. Project Number



**1** **EXTENDED POLE BASE DETAIL**  
 NO SCALE

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0 1 2 3

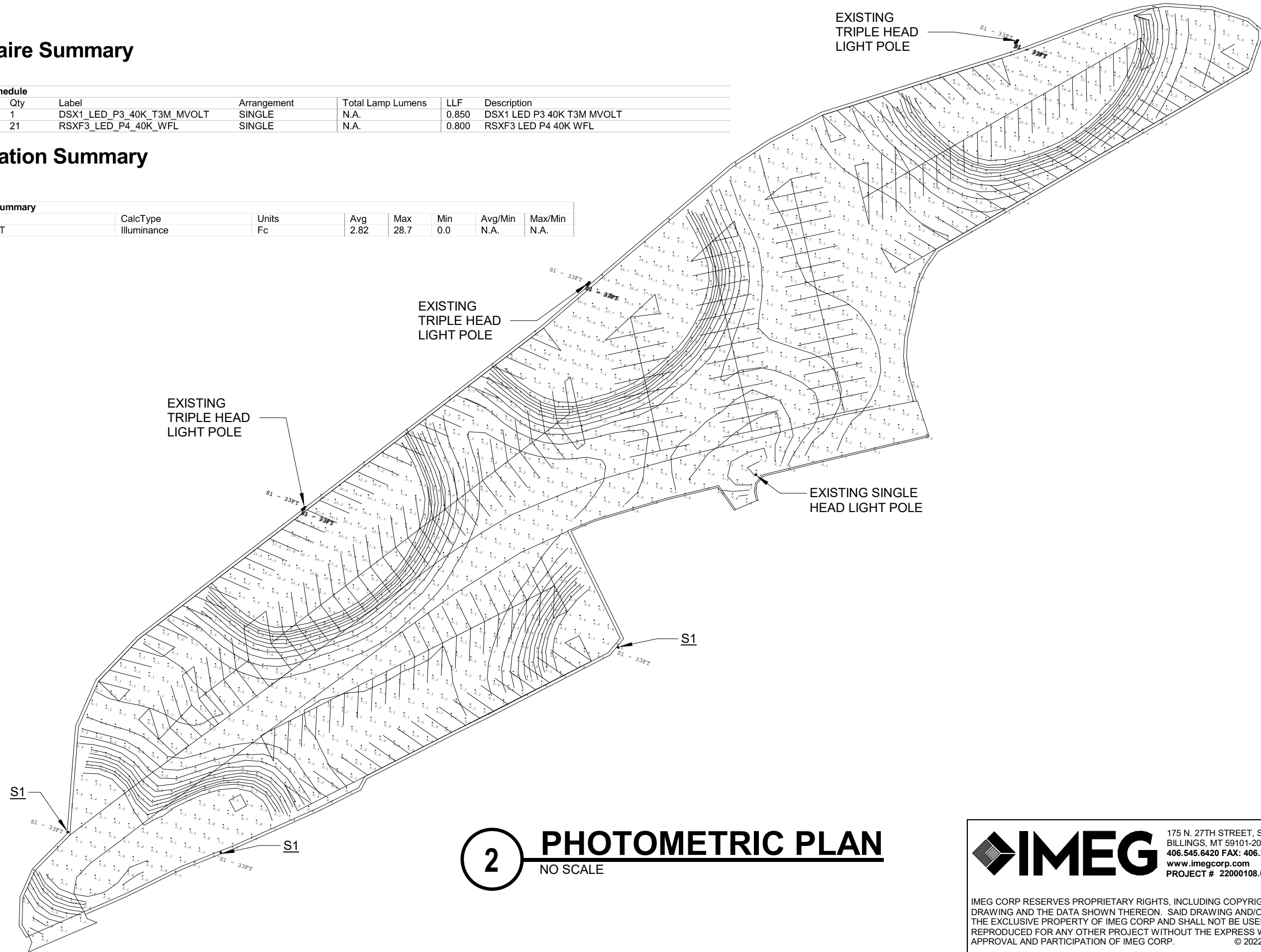


# Luminaire Summary

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
☐	1	DSX1_LED_P3_40K_T3M_MVOLT	SINGLE	N.A.	0.850	DSX1 LED P3 40K T3M MVOLT
☐	21	RSXF3_LED_P4_40K_WFL	SINGLE	N.A.	0.800	RSXF3 LED P4 40K WFL

# Calculation Summary

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARKING LOT	Illuminance	Fc	2.82	28.7	0.0	N.A.	N.A.



## 2 PHOTOMETRIC PLAN

NO SCALE

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YELLOWSTONE COUNTY  
 METRAPARK PREMIUM LOT  
**ELECTRICAL PHOTOMETRIC PLAN**  
 YELLOWSTONE COUNTY, MONTANA

NOT FOR CONSTRUCTION

DESIGNED BY: DBK  
 DRAWN BY: DBK  
 CHECKED BY: CEL  
 DATE: Issue Date

SHEET  
**E006**

PROJECT NO. Project Number