

## PROJECT MANUAL

### 2022 Infrastructure Improvements

OT1.125691

City of Jordan

Jordan, MN



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**CERTIFICATIONS PAGE**

PROJECT MANUAL

FOR

**2022 INFRASTRUCTURE IMPROVEMENTS**

**0T1.125691**

**CITY OF JORDAN**

**JORDAN, MN**

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Signature: 

Typed or Printed Name: Lukas Wheeler

Date: March 28, 2022 License Number: 57855



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**PROJECT MANUAL:**

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#### **DRAWINGS (UNDER SEPARATE COVER):**

51 sheets numbered G0.01 through C9.14, inclusive, dated March 28, 2022, and with each sheet bearing the following general title:

2022 Infrastructure Improvements

City of Jordan

**\*\*\*\*END OF SECTION\*\*\*\***

## ADVERTISEMENT FOR BIDS

### 2022 INFRASTRUCTURE IMPROVEMENTS

CITY OF JORDAN  
JORDAN, MN

**RECEIPT AND OPENING OF PROPOSALS:** Proposals for the work described below will be received online through QuestCDN.com until 1:00 PM on April 21, 2022, at which time the bids will be opened and publicly read in the following audio conference call: (612) 428-8778; Phone Conference ID: 210 867 357#.

**DESCRIPTION OF WORK:** The work includes the construction of approximately:

ITEM	QTY	UNIT	ITEM	QTY	UNIT
C900 PVC WATERMAIN	2,420	LIN FT	CONCRETE CURB & GUTTER	3,100	LIN FT
10" PVC SANITARY SEWER	300	LIN FT	4" CONCRETE WALK	8,300	SQ FT
RECLAIM BITUMINOUS PAVEMENT	6,900	SQ YD	7" CONCRETE DRAINAGE PAN	360	SQ YD
COMMON EXCAVATION	1,400	CU YD	RCP STORM SEWER	130	LIN FT
BITUMINOUS PAVING	2,500	TON	HYDROMULCH & SEED	4,700	SQ YD

together with numerous related items of work, all in accordance with Plans and Specifications. This project is subject to Responsible Contractor Certification.

**COMPLETION OF WORK:** All work under the Contract must be complete by November 1, 2022.

**PLAN HOLDERS LIST, ADDENDUMS AND BID TABULATION:** The plan holders list, addendums and bid tabulations will be available for download on-line at [www.questcdn.com](http://www.questcdn.com) or [www.bolton-menk.com](http://www.bolton-menk.com)

**TO OBTAIN BID DOCUMENTS:** Complete digital project bidding documents are available at [www.questcdn.com](http://www.questcdn.com) or [www.bolton-menk.com](http://www.bolton-menk.com). You may view the digital plan documents for free by entering Quest project # 8137143 on the website's Project Search page. Documents may be downloaded for \$45.00. Please contact QuestCDN.com at 952-233-1632 or [info@questcdn.com](mailto:info@questcdn.com) for assistance in free membership registration, viewing, downloading, and working with this digital project information.

**BID SUBMITTAL:** A bid shall be submitted online no later than the date and time prescribed. For this project, the City will only be accepting online electronic bids through QuestCDN. To access the electronic bid form, download the project document and click online bidding button at the top of the advertisement. Prospective bidders must be on the plan holders list through QuestCDN for bids to be accepted.

**BID SECURITY:** A Proposal Bond in the amount of not less than 5 percent of the total amount bid, drawn in favor of City of Jordan shall accompany each bid.

**OWNER'S RIGHTS RESERVED:** The Owner reserves the right to reject any or all bids and to waive any irregularities and informalities therein and to award the Contract to other than the lowest bidder if, in their discretion, the interest of the Owner would be best served thereby.

**DATED:** March 24, 2022      /s/ Tom Nikunen  
City Administrator

Published:

Finance and Commerce:      March 31, 2022, April 7, 2022, April 14, 2022  
Jordan Independent Newspaper:      March 31, 2022, April 7, 2022, April 14, 2022  
QuestCDN:      March 31, 2022

\*\*\*\*\*END OF SECTION\*\*\*\*\*

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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. Bidders may rely that sets of Bidding Documents obtained in this manner are complete unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms or other sources, or for a Bidder's failure to obtain Addenda if they are not a registered plan holder.
- 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. 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 2.06.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 This Article is not used.

## **ARTICLE 4—PRE-BID CONFERENCE**

4.01 A pre-bid conference will not be conducted for this Project.

## **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.
      - 1) 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.
  - 3. 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.
- B. *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. No other site related documents are available.

### 5.04 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit, the Bidder must not disturb any ongoing operations at the Site.
- B. Bidder shall conduct the required Site visit during normal working hours.
- 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 to the Issuing Office. Contact information and submittal procedures for such questions are as follows:
- Bolton & Menk, Inc., 12224 Nicollet Avenue, Burnsville, MN 55337-1649, Ph. (952) 890-0509, fax (952) 890-8065.
- 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 5 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 or the unmodified EJCDC version of the same form.
- 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 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.
- 10.03 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 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:
- A. There are no key categories of work.
- 11.03 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.
- 11.04 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.
  - B. Paper bids, if applicable, 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.
  - C. A Bid price must be indicated for each section, bid item, alternate, adjustment unit price item, and unit price item listed therein.
  - D. 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 When submitting a paper bid, 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 When submitting a paper bid, 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 Unit Price

- 13.02 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.
- A. 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.
- B. 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.

#### **ARTICLE 14—SUBMITTAL OF BID**

- 14.01 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. Paper bids, if applicable, 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. Paper bids that are not accepted 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. A tabulation of the total 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. For the determination of the apparent low Bidder(s) when alternate(s) are submitted, Bids will be compared on the basis of the sum of the base bid and the alternate(s) selected by the Owner for 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.
  - E. For the determination of the apparent low Bidder when cost-plus-fee bids are submitted, Bids will be compared on the basis of the Guaranteed Maximum Price set forth by Bidder on the Bid Form.
- 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—SALES AND USE TAXES**

- 21.01 Sales tax is to be included in the Bid.

#### **ARTICLE 22 — CONTRACTS TO BE ASSIGNED**

- 22.01 No Supplementary Conditions in this Article.

Items to Be Submitted with the Bid

for

2022 Infrastructure Improvements

OT1.125691

City of Jordan

Jordan, MN

# BID FORMS

2022 Infrastructure Improvements  
OT1.125691

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: City of Jordan, 210 East First Street, Jordan, MN 55352-1598. Refer to the Advertisement for Bids for submittal location, format, and deadline for consideration.
- 1.02 This bid form is provided for Bidders reference. The Bid must be submitted to City of Jordan electronically through QuestCDN.
- 1.03 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. List of Proposed Subcontractors;
  - C. List of Proposed Suppliers;
  - D. Section 00 45 11 Responsible Contractor Verification and Certification of Compliance Prime Contractor Bid Form Attachment of this Project Manual.

## ARTICLE 3—BASIS OF BID

- 3.01 Unit Price Bids
- 3.02 Bidder will perform the Work listed in the Bid Schedule at the indicated unit prices.
  - A. 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 agrees that the Work shall be substantially complete on or before October 1, 2022. And will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before November 1, 2022.

#### **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 61 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:

<b>Addendum Number</b>	<b>Addendum Date</b>

#### **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)

\_\_\_\_\_

## BIDDING SCHEDULE

2022 INFRASTRUCTURE IMPROVEMENTS

CITY OF JORDAN, MN

BMI PROJECT NO. OT1.125691

ONLY ONE BIDDING SCHEDULE from each BIDDER shall be considered for the project. When more than one BIDDING SCHEDULE from an individual BIDDER is received only the last submittal meeting the bidding requirements shall be considered and all other copies shall be left unopened.

BIDDER agrees to perform all of the work described in the CONTRACT DOCUMENTS for the following unit prices:

NOTE: BIDS shall include sales tax and all applicable taxes and fees.

BIDDER must fill in unit prices in numerals, make extension for each item, and total.

CY (LV) = Cubic Yards, Loose Volume

CY (CV) = Cubic Yards, Compacted Volume (Measured in Place)

(P)=Planned Quantity Basis of Measurement

ITEM NO.	MNDOT SPEC NO.	ITEM	NOTES	APPROX. QUANT.	UNIT	UNIT PRICE	AMOUNT
1		MOBILIZATION		1.00	LUMP SUM		
2		TRAFFIC CONTROL		1.00	LUMP SUM		
3		CLEAR AND GRUB TREE		10	EACH		
4		SALVAGE SIGN & POST		3	EACH		
5		SALVAGE CASTING (SANITARY/STORM)		16	EACH		
6		REMOVE CASTING		4	EACH		
7		REMOVE CURB AND GUTTER (SPOT REPLACEMENT)		560	LIN FT		
8		REMOVE CURB AND GUTTER		2410	LIN FT		
9		REMOVE BITUMINOUS PAVEMENT (DRIVEWAY)		531	SQ YD		
10		REMOVE CONCRETE PAVEMENT (WALK & DRIVEWAY)		600	SQ YD		
11		REMOVE WATERMAIN		2420	LIN FT		
12		REMOVE HYDRANT		6	EACH		
13		ABANDON SANITARY SEWER		217	LIN FT		
14		REMOVE SANITARY SEWER		50	LIN FT		
15		REMOVE DRAINAGE STRUCTURE		6	EACH		
16		REMOVE STORM SEWER PIPE		115	LIN FT		
17		RECLAIM BITUMINOUS PAVEMENT (LOAD & STOCKPILE)		6850	SQ YD		
18		SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		1010	LIN FT		
19		SAWING CONCRETE PAVEMENT (FULL DEPTH) (WALKS AND DRIVEWAYS)		280	LIN FT		
20		COMMON EXCAVATION	(P) (EV)	1590	CU YD		
21		SUBGRADE EXCAVATION	(EV)	120	CU YD		
22		BITUMINOUS MATERIAL FOR TACK COAT		840	GAL		
23		BITUMINOUS WEARING COURSE (SPWEA240C)		1400	TON		
24		BITUMINOUS NON-WEARING COURSE (SPNWB230C)		980	TON		
25		FULL DEPTH BITUMINOUS STREET PATCH		110	SQ YD		
26		3" BITUMINOUS DRIVEWAY PAVEMENT (SPWEA240C)		710	SQ YD		

ITEM NO.	MNDOT SPEC NO.	ITEM	NOTES	APPROX. QUANT.	UNIT	UNIT PRICE	AMOUNT
27		AGGREGATE SURFACEING CLASS 2		160	TON		
28		CONCRETE CURB & GUTTER - DESIGN B618		2463	LIN FT		
29		CONCRETE CURB & GUTTER - DESIGN B618 (SPOT REPLACEMENT)		560	LIN FT		
30		4" CONCRETE WALK		8310	SQ FT		
31		6" CONCRETE WALK (PEDESTRIAN RAMPS)		30	SQ YD		
32		6" CONCRETE DRIVEWAY PAVEMENT		170	SQ YD		
33		8" CONCRETE ALLEY APRON		150	SQ YD		
34		7" CONCRETE VALLEY GUTTER		190	SQ YD		
35		7" CONCRETE DRAINAGE PAN		360	SQ YD		
36		TRUNCATED DOMES		34	SQ FT		
37		REINSTALL CASTING (SANITARY/STORM)		16	EACH		
38		ADJUST CASTING (SANITARY/STORM)		8	EACH		
39		ADJUST VALVE BOX		2	EACH		
40		TEMPORARY WATER SERVICE (SPECIAL)		8	EACH		
41		CONNECT TO EXISTING WATERMAIN		19	EACH		
42		HYDRANT		6	EACH		
43		DUCTILE IRON FITTINGS		2060	POUND		
44		6" WATERMAIN C900 PVC		450	LIN FT		
45		8" WATERMAIN C900 PVC		1970	LIN FT		
46		1" TYPE K COPPER SERVICE PIPE		45	LIN FT		
47		1" CURBSTOP & BOX		1	EACH		
48		1" CORPORATION STOP		1	EACH		
49		6" GATE VALVE & BOX		21	EACH		
50		8" GATE VALVE & BOX		6	EACH		
51		10" X 6" SDR 26 SANITARY SEWER SERVICE WYE		1	EACH		
52		6" PVC SANITARY SEWER SERVICE PIPE		20	LIN FT		
53		10" PVC SANITARY SEWER		289	LIN FT		
54		SANITARY SEWER SPOT REPAIR		105	LIN FT		
55		SANITARY MANHOLE		12	LIN FT		
56		CONNECT TO EXISTING SANITARY SEWER STRUCTURE		3	EACH		
57		CONNECT TO EXISTING SANITARY SEWER PIPE		1	EACH		
58		RECONNECT SANITARY SEWER SERVICE		1	EACH		
59		CASTING ASSEMBLY R-1733(SANITARY MANHOLE)		1	EACH		
60		6" SOLID PVC UNDERDRAIN		115	LIN FT		
61		6" PVC UNDERDRAIN CLEANOUT		3	EACH		
62		12" RCP PIPE SEWER CL III DES 3006 (STORM)		65	LIN FT		

ITEM NO.	MNDOT SPEC NO.	ITEM	NOTES	APPROX. QUANT.	UNIT	UNIT PRICE	AMOUNT
63		15" RCP PIPE SEWER CL V DES 3006 (STORM)		25	LIN FT		
64		18" RCP PIPE SEWER CL III DES 3006 (STORM)		25	LIN FT		
65		21" RCP PIPE SEWER CL III DES 3006 (STORM)		15	LIN FT		
66		STORM CATCH BASIN - DESIGN R-1, 2'X3'		15	LIN FT		
67		CONSTRUCT STORM MH DES 48" 4022		20	LIN FT		
68		CONNECT TO EXISTING STORM PIPE		9	EACH		
69		CONNECT TO EXISTING STORM STRUCTURE		3	EACH		
70		CASTING ASSEMBLY R-1733 (STORM)		2	EACH		
71		CASTING ASSEMBLY (R-1878) (STORM)		1	EACH		
72		STABILIZED CONSTRUCTION EXIT		2	EACH		
73		STORM DRAIN INLET PROTECTION		30	EACH		
74		SILT FENCE (MACHINE SLICED)		1000	LIN FT		
75		HYDROMULCH & SEED MIX 25-151		5510	SQ YD		
76		COMMON TOPSOIL BORROW (LV)		940	CU YD		
77		DECIDUOUS TREE 2" CAL B&B (HACKBERRY)		1	EACH		
78		DECIDUOUS TREE 2" CAL B&B (HONEY LOCUST)		1	EACH		
79		DECIDUOUS TREE 2" CAL B&B (LITTLE LEAF LINDEN)		2	EACH		
80		DECIDUOUS TREE 2" CAL B&B (SWAMP WHITE OAK)		1	EACH		
81		DECIDUOUS TREE 2" CAL B&B (SUGAR MAPLE)		2	EACH		
82		DECIDUOUS TREE 2" CAL B&B (PARKWAY NORWAY MAPLE)		1	EACH		
83		DECIDUOUS TREE 2" CAL B&B (PRINCETON AMERICAN ELM)		1	EACH		
84		DECIDUOUS TREE 2" CAL B&B (RED OAK)		1	EACH		
85		REINSTALL SIGN & POST		3	EACH		
86		CROSSWALK (MULTI COMP)		180	SQ FT		
87		LANDSCAPE ALLOWANCE		1.00	LUMP SUM	\$8,000.00	\$8,000.00
TOTAL AMOUNT BID:						\$	

## BID SECURITY 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: City of Jordan Address <i>(principal place of business)</i> : 210 East First Street Jordan, MN 55352-1598	<b>Bid</b> Project <i>(name and location)</i> : 2022 Infrastructure Improvements - Jordan, MN  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:
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.	

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.



**RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE  
PRIME CONTRACTOR BID FORM ATTACHMENT**

**PROJECT NUMBER: OT1.125691**

**This form includes changes by statutory references from the Laws of Minnesota 2015, chapter 64, sections 1-9. This form must be submitted with the bid form submitted for this project. A bid form received without this form, may be rejected.**

Minn. Stat. § 16C.285, Subd. 7. **IMPLEMENTATION.** ... any prime contractor or subcontractor or motor carrier that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project...

Minn. Stat. § 16C.285, Subd. 3. **RESPONSIBLE CONTRACTOR, MINIMUM CRITERIA.** "Responsible contractor" means a contractor that conforms to the responsibility requirements in the solicitation document for its portion of the work on the project and verifies that it meets the following minimum criteria:

- |     |   |
|-----|---|
| (1) | The Contractor: <ul style="list-style-type: none"><li>(i) is in compliance with workers' compensation and unemployment insurance requirements;</li><li>(ii) is in compliance with Department of Revenue and Department of Employment and Economic Development registration requirements if it has employees;</li><li>(iii) has a valid federal tax identification number or a valid Social Security number if an individual; and</li><li>(iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.</li></ul>   |
| (2) | <p>The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 177.24, 177.25, 177.41 to 177.44, 181.03, 181.101, 181.13, 181.14, or 181.722, and has not violated United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity:</p> <ul style="list-style-type: none"><li>(i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of \$25,000 or more within the three-year period, provided that a failure to pay is "repeated" only if it involves two or more separate and distinct occurrences of underpayment during the three-year period;</li><li>(ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final;</li><li>(iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees;</li><li>(iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27;</li><li>(v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or</li><li>(vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties;*</li></ul> |

This document is a MODIFIED version of the MnDOT Responsible Contractor Verification and Certification of Compliance form

City of Jordan - OT1.125691

RESPONSIBLE CONTRACTOR VERIFICATION AND  
CERTIFICATION OF COMPLIANCE

March 24, 2022

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(3)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order;*
(4)	The contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office;*
(5)	The contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification;*
	*Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5), occurring prior to July 1, 2014, shall not be considered in determining whether a contractor or related entity meets the minimum criteria.
(6)	The contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions that have authority to debar a contractor; and
(7)	All subcontractors and motor carriers that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6).

Minn. Stat. § 16C.285, Subd. 5. **SUBCONTRACTOR VERIFICATION.**

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause (7). A prime contractor and subcontractors shall not be responsible for the false statements of any subcontractor with which they do not have a direct contractual relationship. A prime contractor and subcontractors shall be responsible for false statements by their first-tier subcontractors with which they have a direct contractual relationship only if they accept the verification of compliance with actual knowledge that it contains a false statement.

Subd. 5a. Motor carrier verification. A prime contractor or subcontractor shall obtain annually from all motor carriers with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each motor carrier. A prime contractor or subcontractor shall require each such motor carrier to provide it with immediate written notification in the event that the motor carrier no longer meets one or more of the minimum criteria in subdivision 3 after submitting its annual verification. A motor carrier shall be ineligible to perform work on a project covered by this section if it does not meet all the minimum criteria in subdivision 3. Upon request, a prime contractor or subcontractor shall submit to the contracting authority the signed verifications of compliance from all motor carriers providing for-hire transportation of materials, equipment, or supplies for a project.

Minn. Stat. § 16C.285, Subd. 4. **VERIFICATION OF COMPLIANCE.**

A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3, with the exception of clause (7), at the time that it responds to the solicitation document.

A contracting authority may accept a signed statement under oath as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. A prime contractor, subcontractor, or motor carrier that fails to verify compliance with any one of the required minimum criteria or makes a false statement under oath in a verification of compliance shall be ineligible to be awarded a construction contract on the project for which the verification was submitted.

A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor or motor carrier that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria. A verification of compliance need not be notarized. An electronic verification of compliance made and submitted as part of an electronic bid shall be an acceptable verification of compliance under this section provided that it contains an electronic signature as defined in section 325L.02, paragraph (h).

**CERTIFICATION**

**By signing this document I certify that I am an owner or officer of the company, and I certify under oath that:**

- 1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285, and**
- 2) if my company is awarded a contract, I will submit Attachment A-1 prior to contract execution, and**
- 3) if my company is awarded a contract, I will also submit Attachment A-2 as required.**

Authorized Signature of Owner or Officer:

Printed Name:

Title:

Date:

**Company Name:**

NOTE: Minn. Stat. § 16C.285, Subd. 2, (c) If only one prime contractor responds to a solicitation document, a contracting authority may award a construction contract to the responding prime contractor even if the minimum criteria in subdivision 3 are not met.



Items to Be Executed After Bid Opening  
for  
2022 Infrastructure Improvements  
OT1.125691  
City of Jordan  
Jordan, MN

# NOTICE OF AWARD

Date of Issuance:

Owner: City of Jordan

Owner's Project No.:

Engineer: Bolton & Menk, Inc.

Engineer's Project No.: OT1.125691

Project: 2022 Infrastructure Improvements

Contract Name:

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated \_\_\_\_\_ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

The City of Jordan's 2022 Infrastructure Improvements

The Contract Price of the awarded Contract is \$\_\_\_\_\_. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

Four unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [number of copies sent] counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Deliver to Owner executed Section 00 51 11 "ADDITIONAL SUBCONTRACTORS LIST" in accordance with Minn. Stat. 16C.285 subd.3 Subclauses (1) to (7). Delivery is a condition precedent to execution of this contract and failure to submit this form shall be cause for the Owner to cancel Award of Contract and declare your Bid security forfeited.
4. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: City of Jordan

By (signature): \_\_\_\_\_

Name (printed): \_\_\_\_\_

Title: \_\_\_\_\_

Copy: Engineer

**RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE**

**ATTACHMENT A-1**

**FIRST-TIER SUBCONTRACTORS LIST**

**SUBMIT PRIOR TO EXECUTION OF A CONSTRUCTION CONTRACT**

**PROJECT NUMBER: OT1.125691**

Minn. Stat. § 16C.285, Subd. 5. A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

<b>FIRST TIER SUBCONTRACTOR NAMES*</b> <b>(Legal name of company as registered with the Secretary of State)</b>	<b>Name of city where company home office is located</b>

\*Attach additional sheets as needed for submission of all first-tier subcontractors.

<b>SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-1</b>	
By signing this document I certify that I am an owner or officer of the company, and I certify under oath that: All first-tier subcontractors listed on attachment A-1 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.	
<b>Authorized Signature of Owner or Officer:</b>	<b>Printed Name:</b>
<b>Title:</b>	<b>Date:</b>
<b>Company Name:</b>	

**ADDITIONAL SUBCONTRACTORS LIST  
ATTACHMENT A-2  
ADDITIONAL SUBCONTRACTORS LIST**

**PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT  
PROJECT NUMBER: OT1.125691**

This form must be submitted to the Project Manager or individual as identified in the solicitation document.

Minn. Stat. § 16C.285, Subd. 5. If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors. ...

<b>ADDITIONAL SUBCONTRACTOR NAMES*</b> <b>(Legal name of company as registered with the Secretary of State)</b>	<b>Name of city where company home office is located</b>

\*Attach additional sheets as needed for submission of all additional subcontractors.

<b>SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-2</b>	
<b>By signing this document I certify that I am an owner or officer of the company, and I certify under oath that: All additional subcontractors listed on Attachment A-2 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.</b>	
<b>Authorized Signature of Owner or Officer:</b>	<b>Printed Name:</b>
<b>Title:</b>	<b>Date:</b>
<b>Company Name:</b>	



# AGREEMENT FORMS

This Agreement is by and between City of Jordan ("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: 2022 Infrastructure Improvements

## 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:

Paving, Sewer, Sidewalks, Curb and Gutter, Utility and Street Construction

## ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:  
Infrastructure Improvements

## ARTICLE 3—ENGINEER

3.01 The Owner has retained Bolton & Menk, Inc. ("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 Bolton & Menk, Inc.

## 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 Substantial Completion

A. Substantial completion shall be defined as:

1. The date when construction is sufficiently completed so that the owner can occupy or use the improvement for the intended purpose.
2. For streets, highways, and bridges, the date when construction-related traffic devices and ongoing inspections are no longer required.
3. The Contractor acknowledges that ongoing inspections are required until the conditions of all construction permits for this project are met and specifically during the following work activities: excavation, backfilling, underground utilities including water, sanitary, and storm sewer, compaction, aggregate base, paving, and removal of all traffic control signage and erosion control temporary best management practices.

4.03 Contract Times: Dates

- A. The work will be substantially completed on or before October 1, 2022, and completed and ready for final payment in accordance with Paragraph 15.06 of Section C-700 "General Conditions" of this Project Manual on or before November 1, 2022.
- B. A complete and detailed schedule must be submitted a minimum of 14 days prior to any construction activity. The schedule must provide estimated start/completion dates for each street/phase in the project area and shall be aware of the construction phasing requirements/restrictions in the plans

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and specifications. This schedule may be submitted prior to the award of contract but. Failure to submit a schedule 14 days prior to the start of construction will result in a delayed start date with no modifications to the required completion.

- C. Advanced Notification Signage with a scheduled start date is required to be placed at the east end of Seville Drive and El Dorado Drive within Whispering Meadows 7 days prior to the start of pavement removal and any substantial work on those street segments. Once the signage is in place, the schedule must be maintained for that street segment and interim completion milestone deadlines will be established.
- D. The initiation of construction activity shall be defined as the beginning of pavement removal, reclaiming, or removal of aggregate surfacing. The scheduled initiation of construction activity shall be defined as the start of construction date set by the contractor, communicated to the Engineer and Owner, and posted on the advanced notification signage a minimum of 7 days prior to pavement removal, reclaiming, or removal of aggregate surfacing. Once the advanced notification signage is in place, the schedule must be maintained for that street segment. The milestone completion requirements that follow will be applied to the scheduled start date. For example, if a start date of June 13<sup>th</sup>, 2022 is posted on an advanced notification sign for Whispering Meadows, calendar days will be counted starting on June 13<sup>th</sup>, 2022 for Milestone 1 below, even if construction activity is not initiated in Whispering Meadows until June 14<sup>th</sup>, 2022. Failure to submit a schedule for the start date for construction and posting it on the advanced notification signage 7 days prior to construction on that street segment, will result in no work allowed on that street segment until 7 days after requirements are met.
- E. Temporary water system installation may occur up to 5 working days prior to the scheduled initiation of construction activity.

4.04 Milestones: Upon completion of a project milestone, Contractor must notify the Engineer of its completion. Upon receipt of such notification, Engineer shall inspect the applicable work and issue to the Contractor notice of the Engineer's findings with respect to achievement of the Milestone. Parts of the Work must be completed on or before the following Milestone(s):

- A. Milestone 1: Upon initiation of construction activity within Whispering Meadows, all underground utility construction, roadway grading and excavation, and installation of roadway aggregate base must be completed within 28 calendar days.
- B. Milestone 2: Upon installation of roadway aggregate base within Whispering Meadows, curb & gutter, concrete driveway pavements, and non-wear bituminous pavement construction must be completed within 21 calendar days.
- C. Milestone 3: Upon installation of bituminous non-wear course and completion of lighting conduit and light bases by Xcel Energy within Whispering Meadows, installation of bituminous driveway pavements, sidewalk, turf restoration materials, and final wear course paving must be completed within 14 calendar days.
- D. Milestone 4: Upon initiation of construction on alley improvements, all work must be completed within 21 calendar days.

4.05 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 \$1,866.00 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 \$665.00 for each day that expires after such time until the Work is completed and ready for final payment.
  3. Milestones: Contractor shall pay Owner \$500 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 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.

#### **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 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).
  - B. 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. For all awarded Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.
  - D. The Work awarded shall include:
    1. Base Bid

#### **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 last Friday 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

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and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
  - a. 95% percent of the value of the Work completed (with the balance being retainage).
  - b. 95% percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Within 60 days of the date of Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 99 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 250 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 and all final paperwork is completed. Final paperwork is defined as documents required by the contract which may include but are not limited to:
  1. Operations Manuals, as built drawings, and submittals required by the contract documents, and
  2. Payroll documents for projects with prevailing wage requirements, and
  3. IC 134, and
  4. Lien Releases, if required.
    - a. Mn Department of Commerce Form 40.5.1.
    - b. <http://www.commerce.state.mn.us/UCB/40.5.1.pdf> or equal.

#### 6.03 Progress Payment to Subcontractors

- A. For contracts within the State of Minnesota, MN Statute 471.425 Subd. 4a. shall apply. MN Statute 471.425 Subd. 4a. requires:
  1. The prime contractor shall pay any subcontractor within ten days of the prime contractor's receipt of payment for undisputed services provided by the subcontractor.
  2. The prime contractor shall pay interest of 1-1/2 percent per month or any part of a month to the subcontractor on any undisputed amount not paid on time to the subcontractor.
  3. The minimum monthly interest penalty payment for an unpaid balance of \$100 or more is \$10. For an unpaid balance of less than \$100, the prime contractor shall pay the actual penalty due to the subcontractor.
  4. A subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action."

#### 6.04 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.

6.05 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.

6.06 Interest

- A. All amounts not paid when due will bear interest at the rate of 1.5 percent per month.

**ARTICLE 7—CONTRACT DOCUMENTS**

7.01 Contents

- A. The Contract Documents consist of all 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. Supplementary Conditions.
  - 5. Specifications as listed in the table of contents of the project manual (copy of list attached).
  - 6. Drawings as listed in the table of contents of the project manual (copy of list attached.)
  - 7. Addenda (numbers \_\_\_ to \_\_\_, inclusive).
  - 8. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor's Bid (pages \_\_\_ to \_\_\_, inclusive).
  - 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.

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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:

City of Jordan

(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:

Tom Nikunen

(typed or printed)

Name:

(typed or printed)

Title:

City Administrator

(typed or printed)

Title:

(typed or printed)

(If Contractor 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:

210 East First Street

Jordan, MN 55352-1598

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:



## NOTICE TO PROCEED

Owner: City of Jordan Owner's Project No.: \_\_\_\_\_  
Engineer: Bolton & Menk, Inc. Engineer's Project No.: OT1.125691  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: 2022 Infrastructure Improvements  
Contract Name: \_\_\_\_\_  
Effective Date of Contract: \_\_\_\_\_

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on \_\_\_\_\_ pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

The Substantial Completion and Final Completion must be achieved in accordance with the requirements of the Agreement.

Before starting any Work at the Site, Contractor must comply with the following: None

Owner: City of Jordan  
By (signature): \_\_\_\_\_  
Name (printed): \_\_\_\_\_  
Title: \_\_\_\_\_  
Date Issued: \_\_\_\_\_  
Copy: Engineer



## PERFORMANCE BOND FORM

<b>Contractor</b> Name: Address <i>(principal place of business)</i> :	<b>Surety</b> Name: Address <i>(principal place of business)</i> :
<b>Owner</b> Name: <b>City of Jordan</b> Mailing address <i>(principal place of business)</i> : <b>210 East First Street</b> <b>Jordan, MN, 55352-1598</b>	<b>Contract</b> Description <i>(name and location)</i> : <b>2022 Infrastructure Improvements - Jordan, MN</b>  Contract Price: Effective Date of Contract:
<b>Bond</b> Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature)(Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

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

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

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

- 14.1. Balance of the Contract Price—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
- 14.2. Construction Contract—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
- 14.3. Contractor Default—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
- 14.4. Owner Default—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 14.5. Contract Documents—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: None

## PAYMENT BOND FORM

<b>Contractor</b> Name: Address <i>(principal place of business)</i> :	<b>Surety</b> Name: Address <i>(principal place of business)</i> :
<b>Owner</b> Name: <b>City of Jordan</b> Mailing address <i>(principal place of business)</i> : <b>210 East First Street</b> <b>Jordan, MN 55352-1598</b>	<b>Contract</b> Description <i>(name and location)</i> : <b>2022 Infrastructure Improvements - Jordan, MN</b>  Contract Price: Effective Date of Contract:
<b>Bond</b> Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____	By: _____
<i>(Signature)</i>	<i>(Signature)(Attach Power of Attorney)</i>
Name: _____	Name: _____
<i>(Printed or typed)</i>	<i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____	Attest: _____
<i>(Signature)</i>	<i>(Signature)</i>
Name: _____	Name: _____
<i>(Printed or typed)</i>	<i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

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



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

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
  - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
  - 16.1.7. The total amount of previous payments received by the Claimant; and
  - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. Claimant—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. Construction Contract—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. Owner Default—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. Contract Documents—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: **None**

## WARRANTY BOND FORM

<b>Contractor</b> Name: _____ Address (principal place of business): _____	<b>Surety</b> Name: _____ Address (principal place of business): _____
<b>Owner</b> Name: <b>City of Jordan</b> Address (principal place of business):  <b>210 East First Street</b> <b>Jordan, MN 55352-1598</b>	<b>Construction Contract</b> Description (name and location): _____  Contract Price: _____ Effective Date of Contract: _____  Contract's Date of Substantial Completion: _____
<b>Bond</b> Bond Amount: <u>    <b>[Amount]</b>    </u> Date of Bond: <u>    <b>[Date]</b>    </u> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 9	
Bond Period: Commencing 364 days after Substantial Completion of the Work under the Construction Contract, and continuing until <b>[insert number of years, typically either two or three]</b> years after such Substantial Completion.	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth herein, do each cause this Warranty Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
_____ <i>(Full formal name of Contractor)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <div style="text-align: center;"><i>(Signature)</i></div>	By: _____ <div style="text-align: center;"><i>(Signature) (Attach Power of Attorney)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>	Attest: _____ <div style="text-align: center;"><i>(Signature)</i></div>
Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>	Name: _____ <div style="text-align: center;"><i>(Printed or typed)</i></div>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract's Correction Period Obligations. The Construction Contract is incorporated herein by reference.
2. If the Contractor performs the Correction Period Obligations, the Surety and the Contractor shall have no obligation under this Warranty Bond.
3. If Owner gives written notice to Contractor and Surety during the Bond Period of Contractor's obligation under the Correction Period Obligations, and Contractor does not fulfill such obligation, then Surety shall be responsible for fulfillment of such Correction Period Obligations. Surety shall either fulfill the Correction Period Obligations itself, through its agents or contractors, or, in the alternative, Surety may waive the right to fulfill the Correction Period Obligations itself and reimburse the Owner for all resulting costs incurred by Owner in performing Contractor's Correction Period Obligations, including but not limited to correction, removal, replacement, and repair costs.
4. The Surety's liability is limited to the amount of this Warranty Bond. Renewal or continuation of the Warranty Bond will not modify such amount unless expressly agreed to by Surety in writing.
5. The Surety shall have no liability under this Warranty Bond for obligations of the Contractor that are unrelated to the Construction Contract. No right of action will accrue on this Warranty Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
6. Any proceeding, legal or equitable, under this Warranty Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and must be instituted within two years after the Surety refuses or fails to perform its obligations under this Warranty Bond.
7. Written notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown in this Warranty Bond.
8. Definitions
  - 8.1. Construction Contract—The agreement between the Owner and Contractor identified on the cover page of this Warranty Bond, including all Contract Documents and changes made to the agreement and the Contract Documents.
  - 8.2. Contract Documents—All the documents that comprise the agreement between the Owner and Contractor.
  - 8.3. Correction Period Obligations—The duties, responsibilities, commitments, and obligations of the Contractor with respect to correction or replacement of defective Work, as set forth in the Construction Contract's Correction Period clause, EJCDC® C 700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, as duly modified.
  - 8.4. Substantial Completion—As defined in the Construction Contract.
  - 8.5. Work—As defined in the Construction Contract.
9. Modifications to this Bond are as follows: **None**

General Conditions

for

Edition C-700 EJCDC - 2018

2022 Infrastructure Improvements

OT1.125691

City of Jordan

Jordan, MN



This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

## STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## ARTICLE 1—DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*
    - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
  - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
  - d. A demand for money or services by a third party is not a Claim.
- 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
  - 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
  - 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
  - 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
  - 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
  - 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
  - 17. *Cost of the Work*—See Paragraph 13.01 for definition.
  - 18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
  - 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
  - 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
  - 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
  - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
  - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
  - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.



33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
  - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
  - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

## 1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - 1. does not conform to the Contract Documents;
  - 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
  - 1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  - 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
  - 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2—PRELIMINARY MATTERS**

### **2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance***

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

### **2.03 *Before Starting Construction***

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
  - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

## ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

### 3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
  - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
  - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

### 3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
  - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

#### B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
  - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

### 3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

### 3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
  - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
  - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

## **ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK**

### 4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

### 4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

### 4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the



established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

#### 4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
  - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  - 2. Abnormal weather conditions;
  - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
  - 4. Acts of war or terrorism.

- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
  2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
  3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
  2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
  3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
  4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
  5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

## **ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS**

### **5.01 *Availability of Lands***

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

## 5.02 *Use of Site and Other Areas*

### A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
  2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
  - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

### 5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings 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; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
  2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
  3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
  4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

#### 5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
  2. is of such a nature as to require a change in the Drawings or Specifications;
  3. differs materially from that shown or indicated in the Contract Documents; or
  4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
  - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
  - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
    - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
    - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
    - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
  3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
  4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

#### 5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
  2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
  4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
  5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
  2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
  3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
  4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
  - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
  - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
  3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
  4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

#### 5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures



- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special

conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 6—BONDS AND INSURANCE**

### **6.01 *Performance, Payment, and Other Bonds***

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

#### 6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
- H. Contractor shall require:
  - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
  - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

#### 6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
  - 1. include at least the specific coverages required;
  - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
  - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
  - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
  - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
  - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
  - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
  - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
  2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

**ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.



- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

#### 7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
  - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
      - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
  - 3) has a proven record of performance and availability of responsive service; and
  - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
    - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
    - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

#### 7.06 Substitutes

- A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
  2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
  - a. will certify that the proposed substitute item will:
    - 1) perform adequately the functions and achieve the results called for by the general design;
    - 2) be similar in substance to the item specified; and
    - 3) be suited to the same use as the item specified.
  - b. will state:
    - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
    - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
    - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
  - c. will identify:
    - 1) all variations of the proposed substitute item from the item specified; and
    - 2) available engineering, sales, maintenance, repair, and replacement services.
  - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

#### 7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

### 7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
  - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determine and verify:
    - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
    - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
    - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
  - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.



3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
    - a. Contractor shall submit the number of copies required in the Specifications.
    - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
  2. *Samples*
    - a. Contractor shall submit the number of Samples required in the Specifications.
    - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
  3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
  3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
  4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will

document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

*D. Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

*E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
  - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
  - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
  - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
- 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

**7.17 Contractor's General Warranty and Guarantee**

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
  - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
  - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
  - 1. Observations by Engineer;
  - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
  - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  - 4. Use or occupancy of the Work or any part thereof by Owner;
  - 5. Any review and approval of a Shop Drawing or Sample submittal;
  - 6. The issuance of a notice of acceptability by Engineer;
  - 7. The end of the correction period established in Paragraph 15.08;
  - 8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

**7.18 Indemnification**

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

**7.19 Delegation of Professional Design Services**

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
  - 1. Checking for conformance with the requirements of this Paragraph 7.19;
  - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
  - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

## **ARTICLE 8—OTHER WORK AT THE SITE**

### **8.01 *Other Work***

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

#### 8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
  - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
  - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
  - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
  - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
  - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

## **ARTICLE 9—OWNER'S RESPONSIBILITIES**

### **9.01    *Communications to Contractor***

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### **9.02    *Replacement of Engineer***

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

### **9.03    *Furnish Data***

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### **9.04    *Pay When Due***

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.



## ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

### 10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

### 10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

### 10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

### 10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

**10.05 *Determinations for Unit Price Work***

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

**10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work***

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

**10.07 *Limitations on Engineer's Authority and Responsibilities***

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

**10.08 *Compliance with Safety Program***

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

## ARTICLE 11—CHANGES TO THE CONTRACT

### 11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

### 11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
  - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
  - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

### 11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
  - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
  - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

#### 11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

#### 11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

#### 11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

#### 11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
  2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
  3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
  2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
    - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
    - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
    - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
    - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
    - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

#### 11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

#### 11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

- B. *Change Proposal Procedures*

- 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
- 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
  - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
  - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

- 3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
- 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

#### 11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

### ARTICLE 12—CLAIMS

#### 12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
  1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
  3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
  4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
  - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
  - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
  - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

## **ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **13.01 *Cost of the Work***

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
  - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or



2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
  2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
  4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
  5. Other costs consisting of the following:
    - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
    - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
  - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
  - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:
  - 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
  - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
  - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  - 6. Expenses incurred in preparing and advancing Claims.
  - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
  - 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
    - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
    - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
      - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
      - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
  - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

### 13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
  2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

### 13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
  - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

**ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  3. by manufacturers of equipment furnished under the Contract Documents;
  4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

#### 14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

#### 14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
  - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

#### 14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

**14.07 Owner May Correct Defective Work**

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

**ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

**15.01 Progress Payments**

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
  - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
  - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation



establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

*C. Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work;
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
  - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
  - a. the Work is defective, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
  - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

**D. *Payment Becomes Due***

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

**E. *Reductions in Payment by Owner***

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
  - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. The Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - h. The Contract Price has been reduced by Change Orders;
  - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
  - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
  - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
  - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
  3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

#### 15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

#### 15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

#### 15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 15.06 *Final Payment*

##### A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents;
  - b. consent of the surety, if any, to final payment;
  - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
  - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
- 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

#### 15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

#### 15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. correct the defective repairs to the Site or such adjacent areas;
  - 2. correct such defective Work;
  - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

## **ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

### **16.02 *Owner May Terminate for Cause***

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
  - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
  - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
  - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
  - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,



attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

#### 16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
  - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

#### 16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The

provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

## **ARTICLE 17—FINAL RESOLUTION OF DISPUTES**

### **17.01 *Methods and Procedures***

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
  - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
  - 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
  - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
  - 2. agree with the other party to submit the dispute to another dispute resolution process; or
  - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

## **ARTICLE 18—MISCELLANEOUS**

### **18.01 *Giving Notice***

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
  - 1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
  - 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
  - 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

### **18.02 *Computation of Times***

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.



Supplementary Conditions

for

*Edition C-800 EJCDC® - 2018*

2022 Infrastructure Improvements

OT1.125691

City of Jordan

Jordan, MN

## SUPPLEMENTARY CONDITIONS

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# **SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT**

These Supplementary Conditions amend or supplement EJCDC® C 700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC 4.05."

## **ARTICLE 1—DEFINITIONS AND TERMINOLOGY**

### **1.01 Defined Terms**

SC-1.01.A.33 Insert the following sentence at the end of Paragraph 1.01.A.33:

The term Construction Project Representative (CPR) shall have the same meaning as RPR.

SC-1.01.A.42. Delete Paragraph 1.01.A.42 in its entirety and insert the following in its place:

42. Substantial Completion – Substantial Completion shall be as defined in the Agreement.

## **ARTICLE 2—PRELIMINARY MATTERS**

### **2.01 Delivery of Bonds and Evidence of Insurance**

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. Evidence of Contractor's Insurance: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. Evidence of Owner's Insurance: After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

### **2.02 Copies of Documents**

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

- A. Owner shall furnish to Contractor four printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and one in electronic portable document format (PDF).

### **2.06 Electronic Transmittals**

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

B. Electronic Documents Protocol: The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol (“EDP” or “Protocol”) for exchange of electronic transmittals.

1. Basic Requirements

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.
- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party’s use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed, and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. System Infrastructure for Electronic Document Exchange

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions (“System Infrastructure”) at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.



- 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is 5 MB. Attachments larger than that may be exchanged using large file transfer functions or physical media.
  - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology ("IT") for maintaining operations of its System Infrastructure during the Project, including coordination with the party's individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
  - c. Each party will operate and maintain industry-standard, industry-accepted, ISO standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
  - d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
  - e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
  - f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
  - g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of

the Electronic Document or use an alternative delivery method to complete the communication.

C. Software Requirements for Electronic Document Exchange; Limitations

1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.
  - a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. Requests by Contractor for Electronic Documents in Other Formats

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
  - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.

- b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.
  - c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
  - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at \$150 per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

### **ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

#### **3.01 Intent**

No Supplementary Conditions in this Article.

### **ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK**

#### **4.03 Reference Points**

4.03.A. Delete Paragraph 4.03.A of the General Conditions in its entirety and insert the following Paragraph 4.03.A in its place:

- A. The OWNER will provide engineering surveys to establish reference points for construction.

#### **4.05 Delays in Contractor's Progress**

SC 4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

- 5. Weather-Related Delays
  - a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
- 1) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the Table 1803-2—Anticipated Work Days Lost Due to Weather in MnDOT Standard Specifications for Construction. The days in Table 1803-2 are cumulative and the number of allowable bad weather days will be determined by totaling the monthly number of days throughout the specified Contract Time. The days in Table 1803-2 will prorated when Contract Time starts or ends mid-month.
  - 2) Work days lost to inclement weather exceeding the allowable number, established as described in Paragraph 4.05.C.2 will be considered as “abnormal weather conditions.” The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor’s then-current Progress Schedule’s critical path for the Project.
  - 3) The Owner will not consider weekends or holidays, as eligible for extensions of Contract Time due to weather unless the Engineer or Owner directs the Contractor to work those days, or the Contractor’s accepted progress schedule in place at the time the delay occurred indicated that the Contractor intended to perform Critical Path Work on those days.

## **ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS**

### **5.03 Subsurface and Physical Conditions**

SC 5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

<b>Report Title</b>	<b>Date of Report</b>	<b>Technical Data</b>
Geotechnical Evaluation	December 22, 2022	Explorations and tests of subsurface conditions including borings and soil summaries.

- F. The following table lists the drawings 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, and specifically identifies the Technical Data upon which Contractor may rely:

<b>Drawings Title</b>	<b>Date of Drawings</b>	<b>Technical Data</b>
Project Plans	March 28, 2022	Existing conditions and proposed improvements

- G. Contractor may examine copies of reports and drawings identified in SC 5.03.E and SC 5.03.F that were not included with the Bidding Documents at 12224 Nicollet Avenue,

Burnsville, MN 55337-1649, (952) 890-0509, fax (952) 890-8065 during regular business hours or may request copies from Engineer.

**5.06 Hazardous Environmental Conditions**

SC 5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
N/A		

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A		

**ARTICLE 6—BONDS AND INSURANCE**

**6.01 Performance, Payment, and Other Bonds**

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

1. Required Performance Bond Form: The performance bond that Contractor furnishes will be in the form of EJCDC® C 610, Performance Bond (2010, 2013, or 2018 edition).
2. Required Payment Bond Form: The payment bond that Contractor furnishes will be in the form of EJCDC® C 615, Payment Bond (2010, 2013, or 2018 edition).

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.B:

1. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be 2 years after Substantial Completion.
2. After Substantial Completion, Contractor shall furnish a warranty bond issued in the form of EJCDC® C 612, Warranty Bond (2018). The warranty bond must be in a bond amount of 10 percent of the final Contract Price. The warranty bond period will extend to a date 2 years after Substantial Completion of the Work. Contractor shall deliver the fully executed warranty bond to Owner prior to final payment, and in any event no later than 11 months after Substantial Completion.
3. The warranty bond must be issued by the same surety that issues the performance bond required under Paragraph 6.01.A of the General Conditions.

**6.02 Insurance—General Provisions**

SC 6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been

accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

6.03 Contractor's Insurance

SC 6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. Other Additional Insureds: As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: None
- E. Workers' Compensation and Employer's Liability: Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, Jones Act, stop-gap employer's liability coverage for monopolistic states, and foreign voluntary workers' compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

<b>Workers' Compensation and Related Policies</b>	<b>Policy limits of not less than:</b>
<b>Workers' Compensation</b>	
State	Statutory
Applicable Federal (e.g., Longshoreman's)	Statutory
Foreign voluntary workers' compensation (employer's responsibility coverage), if applicable	Statutory
<b>Jones Act (if applicable)</b>	
Bodily injury by accident—each accident	Not Applicable
Bodily injury by disease—aggregate	Not Applicable
<b>Employer's Liability</b>	
Each accident	\$1,000,000.00
Each employee	\$1,000,000.00
Policy limit	\$1,000,000.00
<b>Stop-gap Liability Coverage</b>	
For work performed in monopolistic states, stop-gap liability coverage must be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of:	Not Applicable

- F. Commercial General Liability—Claims Covered: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
  - 1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
  - 2. damages insured by reasonably available personal injury liability coverage, and
  - 3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. Commercial General Liability—Form and Content: Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial

general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.
    - a. Such insurance must be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
  4. Underground, explosion, and collapse coverage.
  5. Personal injury coverage.
  6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
  7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. Commercial General Liability—Excluded Content: The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
  2. Any exclusion for water intrusion or water damage.
  3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
  4. Any exclusion of coverage relating to earth subsidence or movement.
  5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
  6. Any limitation or exclusion based on the nature of Contractor's work.
  7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. Commercial General Liability—Minimum Policy Limits

Commercial General Liability	Policy limits of not less than:
General Aggregate	\$2,000,000.00

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<b>Commercial General Liability</b>	<b>Policy limits of not less than:</b>
Products—Completed Operations Aggregate	\$2,000,000.00
Personal and Advertising Injury	\$1,500,000.00
Bodily Injury and Property Damage—Each Occurrence	\$1,500,000.00

- J. Automobile Liability: Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

<b>Automobile Liability</b>	<b>Policy limits of not less than:</b>
<b>Bodily Injury</b>	
Each Person	\$1,000,000.00
Each Accident	\$1,000,000.00
<b>Property Damage</b>	
Each Accident	\$1,000,000.00
<b>[or]</b>	
<b>Combined Single Limit</b>	
Combined Single Limit (Bodily Injury and Property Damage)	\$1,000,000.00

- K. Umbrella or Excess Liability: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

<b>Excess or Umbrella Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence	Not Applicable
General Aggregate	Not Applicable

- L. Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements: Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of \$0.00 after accounting for partial attribution of its limits to underlying policies, as allowed above.
- M. Contractor's Pollution Liability Insurance: Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance must be maintained for no less than three years after final completion.



<b>Contractor's Pollution Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence/Claim	Not Applicable
General Aggregate	Not Applicable

- N. Contractor's Professional Liability Insurance: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

<b>Contractor's Professional Liability</b>	<b>Policy limits of not less than:</b>
Each Claim	Not Applicable
Annual Aggregate	Not Applicable

- O. Railroad Protective Liability Insurance: No Supplementary Conditions in this Article.
- P. Unmanned Aerial Vehicle Liability Insurance: No Supplementary Conditions in this Article.
- Q. Other Required Insurance: No Supplementary Conditions in this Article.

6.04 Builder's Risk and Other Property Insurance: No Supplementary Conditions in this Article.

Guidance Notes—Installation Floater—An installation floater is insurance carried by a specific contractor, covering only the materials and equipment to be incorporated in the contractor's work. It typically does not insure against losses that occur after installation. In most cases, builder's risk insurance offers broader coverage, covers the Owner, Contractor, and Subcontractors, and is the preferred risk management instrument. On some projects, an installation floater may be an acceptable alternative to a builder's risk policy. For example, on a pipeline project it may be sufficient from a risk management standpoint to insure against loss or damage to the piping until installation, at which time there is little further risk from standard insurable perils such as fire or windstorm. Because the Owner will typically not be an insured, the use of an installation floater also assumes a risk management decision that protecting the Contractor's interest in the materials and equipment is sufficient to assure the best interests of the project. See EJCDC® C 001, Commentary on the 2018 EJCDC Construction Documents (2018).

If, after consultation with its risk managers, Owner elects to allow purchase of an installation floater rather than a builder's risk policy, the following SC 6.04.A should be included as a Supplementary Condition; GC 6.04.B, GC 6.04.C, GC 6.04.D, and GC 6.04.E should be retained; SC 6.04.F, Builder's Risk Requirements, should not be included; and SC 6.04.H, Builder's Risk, and other Property Insurance Deductibles, should be included. Owner should determine whether soft cost and related coverage is available and warranted, and if so modify the contents of SC 6.04.G, Coverage for Completion Delays, for the installation floater requirement.

SC 6.04 Delete Paragraph 6.04.A of the General Conditions and substitute the following in its place:

A. Installation Floater

1. Contractor shall provide and maintain installation floater insurance on a broad form or "all risk" policy providing coverage for materials, supplies, machinery, fixtures, and equipment that will be incorporated into the Work ("Covered Property"). Coverage under the Contractor's installation floater will include loss from covered "all risk" causes (perils) to Covered Property:
  - a. of the Contractor, and Covered Property of others that is in Contractor's care, custody, and control;
  - b. while in transit to the Site, including while at temporary storage sites;
  - c. while at the Site awaiting and during installation, erection, and testing;
  - d. continuing at least until the installation or erection of the Covered Property is completed, and the Work into which it is incorporated is accepted by Owner.
2. The installation floater coverage cannot be contingent on an external cause or risk or limited to property for which the Contractor is legally liable.
3. The installation floater coverage will be in an amount sufficient to protect Contractor's interest in the Covered Property. The Contractor will be solely responsible for any deductible carried under this coverage.
4. This policy will include a waiver of subrogation applicable to Owner, Contractor, Engineer, all Subcontractors, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them.

**ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

7.03 Labor; Working Hours

SC 7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be 7:00 A.M. to 7:00 P.M. Monday - Friday; 8:00 A.M. to 6:00 P.M. Saturday.
2. Owner's legal holidays are: New Year's Day, January 1; Martin Luther King's Birthday, the third Monday in January; Washington's and Lincoln's Birthday, the third Monday in February; Memorial Day, the last Monday in May; Independence Day, July 4; Labor Day, the first Monday in September; Christopher Columbus Day, the second Monday in October; Veterans Day, November 11; Thanksgiving Day, the fourth Thursday in November; and Christmas Day, December 25.
3. When a legal holiday occurs on Sunday, the subsequent Monday shall be the observed holiday. When a legal holiday occurs on Saturday, the preceding Friday shall be the observed holiday.

**ARTICLE 8—OTHER WORK AT THE SITE**

Coordination - No Supplementary Conditions in this Article.

## ARTICLE 9—OWNER’S RESPONSIBILITIES

Owner's Site Representative. No Supplementary Conditions in this Article.

## ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

### 10.03 Resident Project Representative

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
  - 1. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor’s safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
  - 2. Safety Compliance: Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR’s own personal safety while at the Site.
  - 3. Liaison
    - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
    - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-site operations.
    - c. Assist in obtaining from Owner additional details or information, when required for Contractor’s proper execution of the Work.
  - 4. Review of Work; Defective Work
    - a. Conduct on-site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02 if the Work is in general proceeding in accordance with the Contract Documents.
    - b. Observe whether any Work in place appears to be defective.
    - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection, or approval.
  - 5. Inspections and Tests
    - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
    - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
  - 6. Payment Requests: Review Applications for Payment with Contractor.

7. Completion
  - a. Participate in Engineer's visits regarding Substantial Completion.
  - b. Assist in the preparation of a punch list of items to be completed or corrected.
  - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work and prepare a final punch list of items to be completed or corrected by Contractor.
  - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
  1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
  2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
  3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
  4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction.
  5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
  6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
  7. Authorize Owner to occupy the Project in whole or in part.

#### **ARTICLE 11—CHANGES TO THE CONTRACT**

SC-11.02.C Insert the following after 11.02.B

- C. In complying with any Minnesota Governmental Data Practices Act (MGDPA) request, Contractor will be reimbursed by Change Order only for its reasonable direct labor and other direct expenses, without mark-up or increase in 11.07.C. Fee; but only to the extent that the request is not due to a negligent, intentional, or willful act or omission by the Contractor or other failure to comply with its obligations under this contract.

#### **ARTICLE 12—CLAIMS**

No Supplementary Conditions in this Article.

#### **ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK**

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.

13.03 Unit Price Work

SC 13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

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E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
  - a. the extended price of a particular item of Unit Price Work amounts to five percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than twenty percent from the estimated quantity of such item indicated in the Agreement; and
  - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

**ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

No Supplementary Conditions in this Article.

**ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD**

15.01 Progress Payments

SC-15.01.B Replace Paragraph 15.01.B.1 with the following:

1. The Engineer shall, in communication with Contractor, prepare a draft partial payment estimate on or about the day as specified in Paragraph 5.1 of the Agreement in any given month where significant work has been completed. The Pay Estimate shall then be forwarded to the Contractor for its review, approval, and submittal. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect the Owner's interest therein, all of which must be satisfactory to Owner.

SC-15.01.C Delete paragraph 15.01.C.1 in its entirety.

SC-15.01.D Delete Paragraph 15.01.D.1 in its entirety and replace with the following:

1. The time period for payment shall be in accordance with the Agreement.

SC-15.01.E.1 Add the following new Paragraph 15-01.E.1.m

- m. All out-of-state contractors shall comply with all State of Minnesota surety deposit requirements. The OWNER may withhold an additional sum of 8 percent of the amount due the CONTRACTOR from each payment and forward it to the Department of Revenue until the CONTRACTOR's state tax obligations are

considered fulfilled unless the CONTRACTOR can show reason for exemption. Exemption will be granted provided the out-of-state CONTRACTOR meets the exemption guidelines established for the Minnesota Department of Revenue. All necessary forms may be obtained from the Minnesota Department of Revenue, Mail Station 4450, St. Paul, Minnesota 55146-4450, or phone 1-800-657-3777 or online at:  
<http://www.revenue.state.mn.us/businesses/withholding/Pages/Forms.aspx>.

SC-15.01 Add the following new Paragraph 15.01.F:

- F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

#### 15.03 Substantial Completion

SC-15.03.A. Delete Paragraph 15.03.A. in its entirety and replace with the following:

- A. When Contractor considers the entire Work to be substantially complete Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

SC-15.03.B. Add the following new subparagraph to Paragraph 15.03.B:

- 1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

#### 15.06 Final Payment

SC-15.06 Add the following Paragraph 15.06.A.4. Immediately following Paragraph 15.06.A.3.

- 4. Final payment will not be made to the CONTRACTOR until a certificate showing that the CONTRACTOR has complied with the provisions of M.S.A. 290.92 requiring withholding of income tax on wages at the source. Said certificate shall be executed by the Commissioner of Revenue. Forms for certification may be obtained from the Commissioner of Revenue, Centennial Building, St. Paul, Minnesota 55145.

#### 15.08 Correction Period

SC-15.08 Add the following new Paragraph 15.08.G:

- G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC 6.01.B.1; or if no such revision has been made in SC 6.01.B, then the correction period is hereby specified to be 2 years after Substantial Completion.

**ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

No Supplementary Conditions in this Article.

**ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES**

No Supplementary Conditions in this Article.

**ARTICLE 18—MISCELLANEOUS**

No Supplementary Conditions in this Article.

**EXHIBIT A —SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE**

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contractors Submittals (Shop Drawings, "or equal" requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner's and Engineer's responses to Contractor's Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports, and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version.			
DWG	Autodesk® AutoCAD .dwg format Version.			
DOC	Microsoft® Word .docx format Version.			
EXC	Microsoft® Excel .xls or .xml format Version.			
DB	Microsoft® Access .mdb format Version.			

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CONDITIONS OF THE CONTRACT  
for  
2022 Infrastructure Improvements

City of Jordan  
Jordan, MN



## SECTION 01 11 00 - SUMMARY OF WORK

### PART 1 - GENERAL

#### 1.1 PROJECT LOCATION

- A. The project location is shown on the vicinity map in the design drawing set.

#### 1.2 PROJECT DESCRIPTION

- A. The project involves but is not limited to the complete construction of public improvements for the reconstruction of several streets. Individual elements of work shall include, but are not limited to:
1. Removal of bituminous pavement, concrete curb and gutter, sidewalk and driveways, pipe and other miscellaneous items.
  2. Clearing and grubbing.
  3. Street excavation.
  4. Sanitary sewer construction.
  5. Water main construction.
  6. Water and sewer service construction.
  7. Storm sewer construction.
  8. Concrete walk construction.
  9. Concrete curbing and driveway pavement construction.
  10. Bituminous street construction.
  11. Turf restoration and erosion control construction.
  12. Traffic Control.
  13. Other miscellaneous work shown on the plans or specified herein.

#### 1.3 ALTERNATE MATERIALS & METHODS OF CONSTRUCTION

- A. The Contractor may present alternative materials and/or methods of construction for consideration by the Owner. Proposals for such alternatives shall be in accordance with the provisions of Section 01 23 00 "Alternates" of this Project Manual.

#### 1.4 CONTRACTOR USE OF PROJECT SITE

- A. The Contractor's use of the project site shall be limited to its construction operations, including on-site storage of materials and field offices. No materials shall be stored in a location as to limit access to the affected public. Any damage caused by Contractor operations to private property, including but not limited to, parking lots, trees, shrubs, material spatter, etc. shall promptly be corrected at the Contractor's expense.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

#### 3.1 OPERATIONAL LIMITATIONS AND REQUIREMENTS

- A. The Contractor shall confine its work within the limits of the easements, public rights-of-way, and/or construction limits as shown on the plans. If the Contractor desires additional space, it shall be the Contractor's responsibility to acquire easements and/or permission, as desired.

#### 3.2 BARRICADES

- A. The Contractor shall furnish and install any necessary barricades to protect the public or workers during the project. Barricades to keep public out of construction areas shall be left in place until removed by Contractor after they are no longer required for protection. The Contractor is responsible to secure the site at all times during the demolition.
- B. The Contractor shall furnish names, addresses, and phone numbers of at least two local individuals capable of immediate response who will be responsible for the site security and traffic control devices to:
  - The Engineer
  - The Owner
  - Local Law Enforcement Agencies
- C. The Contractor shall respond with sufficient personnel, equipment and/or materials and conduct the required work **or be subject to a \$100 per hour deduction from the time of notification for non-attention to project security and safety.**

### 3.3 SAFETY HAZARDS

- A. The Owner, Engineer or their representatives may indicate potential safety hazards noticed at the Construction site. However, the Contractor shall remain the only party liable for the maintenance of safe construction practices.

### 3.4 INTERFERENCE WITH TREES

- A. The Contractor may be required to trim tree branches that overhang the work zone as specifically identified during construction by the Engineer, where branches are likely to be broken or excessively damaged by construction equipment and activities. Branches which are accidentally damaged during construction shall be trimmed immediately. All trimmed ends shall be coated with an appropriate coating material.
- B. The Contractor shall protect existing trees within close proximity of the construction from stripping and root damage. Roots extending into excavations shall be cut before excavating in their vicinity. Roots cut or otherwise damaged shall be coated with an appropriate protective dressing prior to backfilling.
- C. No direct compensation for tree protection and interference shall be made, unless specifically identified in the Schedule of Unit Prices.

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 01 29 00 - PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Methods of measurement and payment for all items not individually specified shall be according to the appropriate referenced specification standard.

#### 1.2 MEASUREMENT & PAYMENT

- A. **Payment for Plan Quantity (P) Items:** Items designated as Plan Quantity (P) shall be measured and paid for based on the quantity listed in the plans and no field measurement shall be made. The Engineer will only adjust the quantities on Plan Quantity (P) designated Contract items when the Engineer authorizes changes to the dimensions of that work (in which case only the affected portion will be re-determined) or when the Engineer determines that the quantity designated as a Plan Quantity (P) is incorrect.
- B. **Payment for Hauled Materials:** No compensation will be paid for any weigh ticket received after the date shown on the ticket unless prior arrangements are made with the Engineer.
- C. **Payment for Major Lump Sum Items:** The Contractor shall submit a schedule of values for major items of construction that are bid as lump sum. The schedule shall identify major sections of work and the percentage of the bid price applied to each. Payment shall be made according to the percentage complete of each major section of work.

#### 1.3 SUBMITTALS

- A. The Contractor shall submit a schedule of values for major items of construction that are bid as lump sum.
- B. The Contractor shall submit to the Engineer a "Certificate of Conformance" statement stating that the scale used to weigh hauled materials has been tested and calibrated for the current construction season. This Certificate shall be from MnDOT or other reliable scale servicing company. Providing a certified scale and obtaining such "Certificate of Conformance" is the sole responsibility of the Contractor and all costs associated are considered incidental to the materials being supplied.
- C. **Hauled Materials:** The Contractor shall furnish numbered weigh tickets which list the Date, Project, Type of Material, Gross Weight, Tare Weight, Material Weight in tons, and Truck Number for each load brought to the construction site. If the individual pay items are identified on a unit weight basis, the Contractor shall provide the Engineer with a summary type spreadsheet which provides accumulative job totals of all aggregate and bituminous materials hauled to the project. This spreadsheet shall be submitted to the Engineer on a weekly basis.
- D. **Procured Materials:** The Contractor shall furnish an insurance bond showing the type of material, the amount of material, the valuation of the material, the stored location, the project, the date, the name, and address of the surety.
- E. **Compacted Volume Materials:** When measurement is specified by the CUBIC YARD, (CY) COMPACTED VOLUME (CV), will be determined by length, width and depth measurements of the material in its placed and compacted position, according to the placement dimensions as shown in the Contract or as designated by the Engineer.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION (NOT USED)

\*\*\*\*\*END OF SECTION\*\*\*\*\*



## SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

### PART 1 - GENERAL

#### 1.1 SEQUENCE OF CONSTRUCTION

- A. A written project management scheduling tool (i.e., critical path (CPM), detailed bar chart, etc.) shall be employed by the Contractor for cost value reporting, planning and scheduling of all work required under the Contract Documents. This schedule shall show the order in which the Contractor proposes to execute the work with dates on which it proposes to start the various phases of the work and the estimated completion date of each phase. The Contractor shall submit a preliminary version of its intended schedule within 10 working days following the *Notice of Award* on the attached form or on a form of its own choosing. **The Contractor is required to show the initial critical path (CPM) of tasks to be performed.**
- B. Unless otherwise approved by the Engineer, the schedule shall also include an anticipated payment schedule for the volume of work to be completed each month. This schedule shall indicate the Contractor's intention and ability to complete the work within the contract times, as specified in Article 4 of Section 00 52 00 "Agreement Forms" of this Project Manual.
- C. The Preconstruction Conference as outlined in Section 01 31 19 "Project Meetings" of this Project Manual will not be conducted until the schedule is submitted. In addition, no construction staking shall be provided until the schedule is submitted by the Contractor and reviewed by the Engineer.

#### 1.2 WORKING HOURS

- A. Except in connection with safety or emergency situations, all work at the site shall be performed during normal working hours as defined in the Supplementary Conditions.
- B. The Contractor shall notify the Owner and Engineer of any work planned on Saturday, Sunday, or any legal holidays at least 48 hours prior to such work.
- C. The Contractor shall coordinate any construction or hauling activity in the vicinity of churches, schools, medical facilities, and funeral homes. The Contractor shall be cognizant of the disruptive effects of continued construction during funerals. The Owner reserves the right to temporarily stop construction within one block of, and during the time of, any funeral procession. No compensation shall be granted to the Contractor due to temporary delays caused by funerals.

#### 1.3 TRAFFIC CONTROL

- A. Reference Section 01 55 26 "Traffic Control" of this Project Manual.

#### 1.4 COORDINATION WITH BUSINESSES AND PRIVATE PROPERTY OWNERS ADJACENT TO THE PROJECT

- A. The Contractor shall notify all property owners and occupants adjacent to the project 7 days in advance to allow moving machinery and/or vehicles or other items that may be blocked in or damaged due to the upcoming construction in the area. Access to the properties shall be restored as soon as possible after each phase of construction.

#### 1.5 COORDINATION WITH UTILITY COMPANIES

- A. The Contractor is responsible for working with public and private utility companies in protecting and/or relocating existing or new utility lines located near and affected by this construction.
  - 1. Coordination with the utility companies is very important and should be considered in planning the work and the associated extra costs involved.
  - 2. Private utility companies are responsible for their own lines and are so obligated under City Code Agreements to protect and/or relocate their utilities, if required to install new City owned utilities in a given area.
  - 3. Xcel Energy intends to install a new lighting system within Whispering Meadows in conjunction with the City's 2022 Infrastructure Improvements Project. Coordination between the contractor and Xcel

Energy will be necessary. The contractor must account for Xcel's work in the phasing/scheduling of the work for the 2022 Infrastructure Improvements project. No additional compensation will be made for coordination efforts between the contractor and Xcel Energy.

- B. The Contractor shall consult with the City's maintenance personnel when working around or performing the required sanitary sewer installations.
- C. The Contractor shall also work with the City's maintenance personnel to provide for scheduled water shut-downs in a given area and to provide for continued water service to the properties along the project throughout the duration of the project.
- D. The Contractor shall work with all utility companies, as necessary, to allow for installation and for maintenance of service of gas, power, lighting, telephone, cable TV, etc. in the boulevards or across the streets prior to final shaping of aggregate base and/or topsoil. This coordination with the utility companies is the responsibility of the Contractor and is considered incidental to the construction and no additional compensation shall be granted.

#### 1.6 COOPERATION WITH FIRE & EMERGENCY DEPARTMENTS

- A. The Contractor shall coordinate all work requiring shutting down water service or limiting access to buildings by emergency equipment with the fire & emergency departments. This shall include notification of the daily construction schedule by the Contractor.

#### 1.7 COOPERATION WITH OTHER CONTRACTORS

- A. The Contractor shall cooperate with other contractors performing construction on other projects in the vicinity of this Project, including but not limited to allowing access for the delivery of equipment and materials.

#### 1.8 COORDINATION WITH SERVICE PROVIDERS

- A. The Contractor shall coordinate with the postal service, recycling service, garbage collection service, school bus service, etc. to maintain continual uninterrupted service to all residences and businesses throughout the duration of the project.
- B. The Contractor shall temporarily relocate mailboxes, haul recycling and garbage for residents to a designated pick up location, etc., as required by the subject service provider. All equipment materials and labor required to coordinate with service providers and maintain services shall be incidental to the Contract.

#### 1.9 SUBMITTALS

- A. Written Progress Management Schedule Tool- to be reviewed at the Preconstruction Conference. Notice to proceed will not be issued until a schedule is submitted to the Engineer. See Article 4 of Section 00 52 00 "Agreement Forms" of this Project Manual for contractual time requirements.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION (NOT USED)**

**\*\*\*\*\*END OF SECTION\*\*\*\*\***



## SECTION 01 31 19 - PROJECT MEETINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Pre-construction Conference

1. Prior to the start of the work, a joint meeting will be held with representatives of the Contractor, the Owner, the Engineer, and any other interested parties. This meeting is intended to introduce the various key personnel from each organization and to discuss the start of the work, order of work, labor and legal requirements, insurance requirements, method of payment, shop drawing requirements, protection of existing facilities, location of disposal and stockpile areas, and other pertinent items associated with the project.
2. The Contractor shall be prepared to discuss his proposed detailed construction progress schedule. The construction schedule shall be subject to the review of the Owner, Engineer and applicable agencies.

##### B. Construction Progress Meetings

1. These meetings will require the attendance of the Contractor's Project Manager or other designated staff authorized by the Contractor to discuss project status and negotiate agreements between the Contractor and Owner. Failure of the Contractor to attend scheduled project meetings as required may result in project delays expensed by the Contractor.
2. Meetings will be held between the Owner, Contractor and Engineer for the purpose of reviewing the project schedule or the status of the project. These meetings will be arranged by the Owner, and/or Engineer, as deemed necessary.

##### C. Safety Meetings

1. The Owner, Engineer or their representatives shall be allowed to attend Contractor's onsite safety meetings. The Contractor shall be responsible for meeting content and coordination and shall inform the Owner, Engineer or their representatives of the time and location of the meeting a minimum of two business days prior to the meeting.
2. The Contractor shall make additional copies of any safety related handouts or materials for distribution to the Owner, Engineer or their representatives. However, the Contractor shall remain the only party responsible for the maintenance of project safety materials.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION (NOT USED)

\*\*\*\*END OF SECTION\*\*\*\*



**CONSTRUCTION PROGRESS SCHEDULE**

Completion Date:

Project Title: 2022 Infrastructure Improvements, By: City of Jordan, BMI Project #: OT1.125691

The Contractor is REQUIRED to highlight the critical path sequence (CPM).

Weeks Following 'Notice to Proceed'	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DATE:																		
BLOCK # 1																		
BLOCK # 2																		
BLOCK # 3																		
BLOCK # 4																		
PRELIMINARY ITEMS:																		
Traffic Control:																		
Removals:																		
Temporary Water Installation																		
Excavation																		
STREET / ROADWAY																		
Subgrade Preparation																		
Aggregate Base																		
Curb & Gutter																		
Bituminous Base																		
Sidewalks & Driveways																		
Seeding / Sodding / Planting																		
STORM SEWER																		
Catch Basin Leads																		
SANITARY SEWER:																		
Mainline Sanitary Sewer																		
Service Laterals																		
WATER DISTRIBUTION:																		
Water Mains																		
Water Services																		

The Contractor is REQUIRED to highlight the critical path sequence (CPM).

\*\*\*\*END OF SECTION\*\*\*\*

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## SECTION 01 33 00 – SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. The Contractor shall submit all required submittals and sample items as noted below. The Engineer will review them with reasonable promptness. The Contractor shall make all required corrections and file with the Engineer three corrected sets for final review.
- B. Additional submittals are required in the technical specifications. The responsibility for completeness of submittals lies with the Contractor.
- C. If the Engineer and/or Owner sign the submittal with no exception taken, such action shall not absolve the responsibilities of the Contractor in any way.
- D. Emailed submittals to the Engineer in pdf format will be accepted.

#### 1.2 ITEMS TO BE SUBMITTED

- A. Written Progress Management Schedule Tool - to be reviewed at the Preconstruction Conference. See Article 4 of Section 00 52 00 "Agreement Forms" of this Project Manual for contractual time requirements.
- B. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001) – Reference Section 01 57 13 "Temporary Erosion & Sediment Control" of this Project Manual.
- C. Concrete Mix Design
- D. Bituminous Mix Design (wear and non-wear)
- E. Gradation Test Results from 2 separate tests, as required in Source Quality Control provisions of individual sections contained herein, from material stockpiles of aggregates to be used on this project. These tests may be run by the Contractor or its supplier during aggregate production.
- F. Geotextile Fabrics - Certificates of Compliance.
- G. Sanitary Sewer and Sanitary Sewer Service
  - 1. Manhole structure - shop drawings.
  - 2. Manhole casting - shop drawings.
  - 3. Piping and fittings - Certificates of Compliance.
  - 4. Final televising DVD and log.
- H. Storm Sewer, Subdrain and Sump Drain Lines
  - 1. Manhole and catch basin structure - shop drawings.
  - 2. Manhole and catch basin casting - shop drawings.
  - 3. Piping and fittings - Certificates of Compliance.
- I. Watermain and Water Service Lines
  - 1. Hydrants - Certificates of Compliance.
  - 2. Valves & boxes - Certificates of Compliance.
  - 3. Pipe & fittings - Certificates of Compliance.
  - 4. Corporation stops, saddles, curb stops, curb boxes, copper pipe - Certificates of Compliance.
- J. Seeding - Certificates of Compliance for seed mixture.
- K. Trees & Shrubs - Certificates of Compliance.

L. Lift Stations

1. Pumps & panels - shop drawings
2. Valve manhole - shop drawings.
3. Valves - shop drawings and Certificates of Compliance.
4. Maintenance and operations manuals.

1.3 MATERIAL SAFETY DATA SHEETS

- A. The Contractor shall submit two copies of Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) for each material on site to the Owner.
- B. The Contractor shall maintain an orderly file of Safety Data Sheets at the job site.

1.4 RECORD DRAWINGS

- A. The Contractor shall maintain at the construction site one complete set of drawings suitably marked to show all deviations from the original set of drawings and other information as specified. Supplementary sketches shall be included, if necessary, to clearly indicate all work as constructed. Sanitary and water service tie-in or stub-out locations shall show station and distances left or right of the survey control centerline. Existing sanitary and water service piping material type and size at the tie-in locations shall be noted also.
- B. All manholes, watermain bends and valves shall be located with tie-off dimensions to known items on the plans or in the field to enable the Contractor or City personnel to locate these structures for adjustment.
- C. The Contractor shall fill out a service record form for each water service and sanitary sewer service connection or stub out. A blank service record form will be supplied by the Engineer to be used by the Contractor. The completed service record forms and photos taken of the services shall be submitted to the Engineer in a digital format and in booklet form.
- D. All work shall be clearly shown and the record drawings and service record forms shall be satisfactory to the Owner in order to insure that adequate information is indicated to show the actual construction. The complete set of the record drawings shall be submitted to the Engineer prior to submittal of the final Application for Payment. Failure of the Contractor to maintain an up-to-date set of record drawings on the project site shall be reason to withhold payments. All underground lines shall be determined from the record drawings.

1.5 CONSTRUCTION PHOTOS

- A. The Contractor shall take digital photos during the course of construction using only cameras or smart phones with Global Positioning System (GPS) capabilities. GPS location settings shall be turned on at the time of taking each photo. The quality of the photos submitted shall be sufficient to clearly depict the focal points in the photo.
- B. The Contractor shall take photos of underground construction work prior to backfilling. Such items to be photographed include but are not limited to: connections to existing utilities, watermain fittings, small/private underground utilities, utility stub-outs, manholes, etc.
- C. The Contractor shall take photos of all water service and sanitary sewer service connections at the main and at the tie in or stub out locations prior to backfilling the service. The photo shall indicate the house address number or lot description of the service location.
- D. After the first couple days of underground construction, the Contractor shall submit to the Engineer a sample set of digital photos. The test set of photos will be reviewed to verify that the date, GPS coordinates, and other photo features are being recorded.
- E. All photos shall be submitted to the Engineer in a digital format immediately upon completion of the utility installation. The digital properties of the photos, such as date and time taken and GPS coordinates, shall be full intact at the time of submittal. Failure of the Contractor to maintain a set of construction photos shall be reason to withhold payments.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.1 SUBMITTAL ROUTING**

- A. Submittals shall be submitted via email or digital transfer method acceptable to the Engineer.
- B. Acceptable File Formats
  - 1. Reports: Searchable PDF
  - 2. Shop Drawings and Material Certifications: PDF
  - 3. Photos: JPG with GPS location
  - 4. Video: MP4 or WAV with both audio and video

### **3.2 SAMPLES**

- A. Samples shall be delivered to the address specified in the Specification Section.

### **3.3 PHOTOS**

- A. Photos shall be taken using a device with the Global Positioning System (GPS) setting enabled.
- B. The quality of the photos submitted shall be sufficient to clearly depict the focal points in the photo.

### **3.4 RESPONSIBILITY**

- A. The Contractor shall allow a minimum 5-business days for Engineer review unless otherwise agreed by the Engineer.
- B. Where review is required by a regulatory agency or permitting agency that is not the Owner, the Contractor shall allow additional time in the schedule to accommodate the agency review.
- C. All submittals shall be reviewed by the Engineer prior to their incorporation into the project. If materials are installed without prior review, they will be subject to removal, at the Contractor's expense, if the material is found to be non-conforming to the Specifications.
- D. Time delays or costs incurred by the Contractor due to late submittals by the Contractor shall not be acceptable cause for claims by the Contractor.
- E. Failure of the Contractor to make submittals may be cause to withhold payment until submittals are received.

**\*\*\*\* END OF SECTION \*\*\*\***





## **SECTION 01 41 00 - REGULATORY REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Applicable codes and standards referred to in these specifications shall establish minimum requirements and shall be superseded by more stringent requirements of drawings and specifications when and where they occur.
- B. Any conflicts between specifications and applicable codes and standards shall be referred to the Engineer.

#### **1.1 SUBMITTALS**

- A. The Contractor shall submit copies of Safety Data Sheets (SDSs) for each material on site to the Engineer.

### **PART 2 - PRODUCTS**

#### **2.1 EQUIPMENT**

- A. All equipment furnished and installed under the contract shall be designed, fabricated, assembled, installed, and placed into service. The equipment will conform to the applicable provisions of the Federal and State Safety and Health Standards, including but not limited to Federal Occupational Safety and Health Regulations for Construction; the Division of Environmental Health, Minnesota Department of Health; the Minnesota Pollution Control Agency; the Department of Natural Resources; the Minnesota Department of Transportation, Division of Highways; the Minnesota Industrial Commission and ordinances of the City that apply to this work.

### **PART 3 - EXECUTION**

#### **3.1 CONSTRUCTION**

- A. All construction methods and tools shall comply with commonly accepted standards for safety and health of personnel engaged on construction, including but not limited to Federal Occupational Safety and Health Regulations for Construction; the Division of Environmental Health, Minnesota Department of Health; the Minnesota Pollution Control Agency; the Department of Natural Resources; the Minnesota Department of Transportation, Division of Highways; the Minnesota Industrial Commission and ordinances of the City that apply to this work.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 01 41 26 - PERMIT REQUIREMENTS

### PART 4 - GENERAL

#### 1.1 SUMMARY

- A. Any conflicts between specifications and permits for this project shall be referred to the Engineer.

#### 1.2 PERMITS OBTAINED BY OWNER

- A. The Owner has applied for the following permits from appropriate authorities. It is anticipated that permission to proceed will be authorized prior to execution of Contract. The Contractor shall perform all work and conduct itself in full accordance with the requirements of the applicable permit:
1. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001)
  2. Minnesota Health Department - Watermain Plan Review.
- B. The Contractor shall be responsible for meeting any bonding or insurance requirements which may be required as a condition to any permit, listed above.

#### 1.3 PERMITS OBTAINED BY CONTRACTOR

- A. The Contractor shall secure and pay the cost of any other permits not mentioned above, which may be required for work within the project limits including but not limited to:
1. None.
- B. The Contractor shall identify, secure, and pay for any required permission, fee, or permit for work not within the project limits, but which may be considered a connected action. A connected action shall be defined as including but not limited to:
1. Obtaining borrow for the project,
  2. Disposal of any waste product or excess material resulting from the project, and
  3. Any action by the Contractor that is closely related by proximity in location and time to the project that may be perceived by the public or any regulatory body to be part of the project.

#### 1.4 SUBMITTALS

- A. Contractor shall provide a draft copy of all notifications, submittals, and permit applications to the Engineer for review a minimum of 5-business days prior to submittal to any regulatory or permitting agency.
- B. Contractor shall copy the Engineer on all notifications, submittals, and permit applications at the time of submittal to the agency or permitting authority.
- C. If requested by the Owner, the Contractor shall provide copies of permits and/or permissions acquired for work.

### PART 5 - PRODUCTS (NOT USED)

### PART 6 - EXECUTION (NOT USED)

\*\*\*\*\*END OF SECTION\*\*\*\*\*



## SECTION 01 42 13 – ABBREVIATIONS AND ACRONYMS

### PART 1 - GENERAL

#### 1.1 WHEREVER THE FOLLOWING ABBREVIATIONS ARE USED, THEY SHALL HAVE THE MEANINGS INDICATED:

- A. AASHTO American Association of the State Highway and Transportation Officials
- B. ACI American Concrete Institute
- C. AI The Asphalt Institute
- D. ASTM American Society for Testing and Materials
- E. AWWA American Water Works Association
- F. CEAM City Engineer's Association of Minnesota
- G. CLFMI Chain Link Fence Manufacturers Institute
- H. MnDOT Minnesota Department of Transportation
- I. OSHA Occupational Safety and Health Administration
- J. PCA Portland Cement Association or Minnesota Pollution Control Agency (context obvious)
- K. SWPPP Storm Water Pollution Prevention Plan

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION (NOT USED)

\*\*\*\*END OF SECTION\*\*\*\*



## SECTION 01 42 19 - REFERENCE STANDARDS

### PART 1 - GENERAL

The references listed in this section are not all inclusive. There may be other references in individual specification sections that are not listed in this Section.

Portions of referenced specifications not specifically affected by the supplemented information of modification shall remain in effect as originally written.

It is the Contractor's responsibility to have these and all other referenced specifications listed in individual Sections available onsite and to be familiar with them.

#### 1.1 ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE (EJCDC)

- A. Documents with the EJCDC copyright notice in the footer are used in this Project Manual under a licensing agreement with EJCDC.

#### 1.2 SOIL DISTURBING ACTIVITIES

- A. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001) in force at the day of bid: <http://www.pca.state.mn.us/water/stormwater/stormwater-c.html>

#### 1.3 WATERMAIN, SANITARY SEWER AND STORM SEWER CONSTRUCTION

- A. "Construction Standard Specifications 2018" as published by the City Engineers Association of Minnesota, in force 30 calendar days prior to bid date: <http://www.ceam.org>
- B. American Water Works Association (AWWA) Standards: <http://www.awwa.org/>

#### 1.4 GRADING, STREET AND SURFACE IMPROVEMENTS

- A. All of Divisions II and III, and any specifically referenced Division I sections of the Minnesota Department of Transportation (MnDOT), "MnDOT Standard Specifications for Construction 2020 edition", together with all the Supplemental Specifications in force 30 calendar days prior to bid date: <http://www.dot.state.mn.us/pre-letting/spec/>
- B. MnDOT Technical Memoranda in force 30 calendar days prior to bid date and referencing the use of English units of measure: <http://www.dot.state.mn.us/design/tools/index.html>
- C. MnDOT Standard Plans: <http://standardplans.dot.state.mn.us/>
- D. MnDOT Standard Details: <http://standardplates.dot.state.mn.us/>
- E. Whenever the word "Contracting Authority," "Department" or "Owner" is used in the sense of ownership as part of any of the MnDOT Documents, it shall mean Owner as defined in the Agreement.

#### 1.5 STATE AID FOR LOCAL TRANSPORTATION (SALT) SCHEDULE OF MATERIALS CONTROL

#### 1.6 TRAFFIC CONTROL

- A. The Minnesota Manual of Uniform Traffic Control Devices (MMUTCD) shall apply to this project and is available at: <http://www.dot.state.mn.us/trafficeng/publ/mutcd/>.
- B. The MnDOT's Temporary Traffic Control Zone Layouts Field available at: <http://www.dot.state.mn.us/trafficeng/publ/fieldmanual/>.

#### 1.7 OTHER

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

- A. The Contractor shall have access to the reference documents at the site at all times during the construction either in paper or digital format.

\*\*\*\*END OF SECTION\*\*\*\*



## SECTION 01 45 00 - QUALITY CONTROL

### PART 1 - GENERAL

#### 1.1 SCOPE OF TESTS

- A. All materials, equipment, installation, and workmanship included in this contract, if so required by the Engineer, shall be tested and inspected to prove compliance with the contract requirements.
- B. All tests and inspections shall be completed under the direct supervision of a licensed professional engineer. All tests and inspections shall be the responsibility as identified in the individual sections of these specifications and shall be reported directly to the Owner and Engineer.
- C. No tests specified herein shall be applied until the item to be tested has been inspected and approval given for the application of such tests.
- D. Tests and inspections shall include all those specified in the individual sections and shall be compensated in accordance with the individual sections.
- E. Tests and inspection, unless otherwise specified or accepted, shall be in accordance with the recognized standards of the industry.
- F. Soil compaction testing performed by the Owner is deemed to be for the convenience of the Owner for documentation of the progress and performance of the work. Soil compaction testing results will be made available to the Contractor. However, the Owner and Engineer make no representations that the number of tests taken will be sufficient to accurately characterize the condition of any trench, and the Contractor shall take any supplemental test it deems necessary to monitor its own performance. The Owner may, at its discretion, eliminate soil and compaction testing on any part or the entire project. The presence or absence of soil and compaction testing or the approval of the results thereof shall in no way reduce the Contractor's obligation to correct trench settlement as described in these Special Provisions.

#### 1.2 FINAL TESTING AND START-UP

- A. If, under test, any portion of the work fails to fulfill the contract requirements and is altered, renewed or replaced, tests on that portion so altered, removed, replaced, together with all other portions of the work as are affected thereby, shall, if so required by the Engineer, be repeated within reasonable time and in accordance with the specified conditions and the Contractor shall pay to the Owner all reasonable expenses incurred by the Owner as a result of the carrying out of such tests.

#### 1.3 TESTING AND LABORATORY SERVICES

- A. Independent Testing Laboratory
  - 1. Where in the individual sections of this Specification, tests or inspections are required to be furnished by the Contractor by an independent testing laboratory, the Contractor shall employ and arrange for, at its expense, the services of an approved independent testing laboratory satisfactory to the Engineer to perform the testing utilizing recognized standard procedures and criteria.
- B. Reports and Certificates
  - 1. The Contractor shall submit reports and certificates of all inspections and test to the Engineer in duplicate. The reports and certificates become the property of the Owner.
- C. Sample Materials
  - 1. The Contractor shall furnish all sample materials required for these tests and shall deliver the same without charge to the testing laboratory or other designated agency when and where directed by them.
- D. Additional Tests
  - 1. In addition to those tests required by the individual technical specifications and/or referenced specifications:

- (a) Additional tests required beyond these required under this specification may be ordered by the Engineer to settle disagreements with the Contractor regarding quality of work done. If the work is defective, the Contractor shall pay all costs of the additional tests and shall correct the work. If the work is satisfactory, the Owner will pay for the additional tests.
- (b) The Owner may perform televised inspection of any and/or all underground construction included in this project, at its own expense, at any time prior to final payment. All deficiencies discovered in the course of such investigation shall be corrected at the Contractor's expense and, the Owner's satisfaction, prior to final payment.

#### 1.4 ENGINEER'S REPRESENTATIVES AND TESTING

- A. The Engineer may provide a Resident Project Representative (RPR) to ascertain that the work is accomplished properly and in accordance with the plans and specifications. The RPR shall have full access to the work and shall be given full cooperation. The RPR shall have the authority, subject to the final decision of the Engineer, to reject any defective work or material. The RPR shall have no authority to permit any deviation from the plans and specifications except on written order from the Engineer.
- B. The presence of the Engineer or any RPRs, however, shall not relieve the Contractor of the responsibility for the proper execution of the work in accordance with all requirements of the Contract Documents. Compliance is a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the Engineer or any RPRs.

#### 1.5 SITE INVESTIGATION AND CONTROL

- A. The Contractor shall verify all dimensions in the field and shall check field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the work due to his failure to comply with this requirement.
- B. The Contractor shall inspect related and appurtenant work and shall report in writing to the Engineer any conditions, which will prevent proper completion of the work. Failure to report any such conditions shall constitute acceptance of all site conditions, and any required removal, repair or replacement caused by unsuitable conditions shall be performed by the Contractor at his sole cost and expense.

#### 1.6 RIGHT OF REJECTION

- A. The Engineer, acting for the Owner, shall have the right, at all time and places, to reject any articles or materials to be furnished hereunder which in any respect, fail to meet the requirements of these specifications, regardless of whether the defects in such articles or materials are detected at the point of manufacture or after completion of the work at the site. If the Engineer or RPR, through an oversight or otherwise, has accepted materials or work which is defective or which is contrary to the specifications, such material, no matter in what stage or condition of manufacture, deliver, or erection, may be rejected by the Engineer for the Owner.

#### **PART 2 - PRODUCTS (NOT USED)**

#### **PART 3 - EXECUTION (NOT USED)**

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 01 55 17 - HAUL ROUTES AND TEMPORARY ACCESS

### PART 1 - GENERAL

#### 1.1 MAINTENANCE

- A. The Contractor shall notify and obtain the approval of the local governmental authority for the use of all haul roads and construction easement areas within the City limits not specifically noted below. The Contractor will be required to deliver new materials and dispose of all excavated material plus removal items only on designated haul roads. This also applies to equipment entering and leaving the project site such as backhoes and front-end loaders.
- B. Allowable city street and project haul roads are described as follows:
  - 1. Creek Lane, TH 282 to Seville Drive
  - 2. Varner Street, TH 282 to Third Street
  - 3. Wood Street, TH 282 to Third Street
- C. The Contractor shall confine all operations, ingress and egress to the designated haul roads. The Owner may **assess a fee in the amount of \$ 500 per day for each day** that the Contractor occupies or travels on non-designated haul roads. The fee shall be in addition to damages assessed against the Contractor to repair damage caused to the roadway.
- D. The Contractor shall maintain and repair any damage to haul roads. Maintenance shall include, but not be limited to, the following: blading, patching, signing, graveling and dust control. This work will be at the Contractor's expense, without any direct compensation being made other than the payment received for Contract items.
- E. The Contractor shall be responsible for all roadbed maintenance over backfilled trenches and roadbed subgrade during the construction period.

#### 1.2 REFERENCED SPECIFICATION

- A. The following referenced Specifications will apply to this Section:
  - 1. MnDOT 1513, Restrictions on Movement and Storage of Heavy Loads and Equipment.
  - 2. MnDOT 1515, Control of Haul Roads
  - 3. MnDOT 2051, Maintenance and Restoration of Haul Roads.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. Reclaimed bituminous and salvaged aggregate base may be used for temporary access surfacing. No additional compensation shall be granted for the installation, removal and disposal of materials utilized in this way.

\*\*\*\*END OF SECTION\*\*\*\*



## SECTION 01 55 26 - TRAFFIC CONTROL

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Traffic Control

1. All traffic control methods shall conform to the provisions of the latest edition of the Minnesota Manual of Uniform Traffic Control Devices (MN MUTCD), including its supplements and Part VI, "Field Manual for Temporary Traffic Control Zone Layouts", the "Guide to Establishing Speed Limits in Highway Work Zones", the Minnesota Flagging Handbook, the provisions of MnDOT 1404 and 1710, the Minnesota Standard Signs Manuals Parts I and II, the Traffic Engineering Manual Chapter 8 Appendixes 8-8.02 and 8-8.03, the Traffic Control Layouts/Typical Traffic Control Layouts in the Plans.
2. The Contractor shall furnish, install, maintain and remove all traffic control devices including, but not limited to, construction signs, barricades and barricade weights, traffic marking tape, and warning lights which are needed for the guidance, warning and control of traffic adjacent to and through this project.
3. The Contractor shall provide sufficient surveillance of the traffic control devices to ensure compliance during the entire construction period. The Contractor shall furnish names, addresses, and phone numbers of at least two local individuals capable of immediate response who will be responsible for the site security and traffic control devices to:

The Engineer  
The Owner  
Local Law Enforcement Agencies

4. The Contractor shall respond with sufficient personnel, equipment and/or materials and conduct the required work or be subject to a \$100 per hour deduction from the time of notification for non-attention to project security and safety.
5. The Contractor shall schedule the work to cooperate fully with residential and business property owners abutting the project to minimize the time of restricted access to their property during the construction period. Driveway access to any property adjacent to the construction zone shall be restricted no more than seven days to allow for curing of the concrete curb and driveway pavement.
6. The cost of maintaining vehicular and pedestrian traffic on temporary aggregate surfaced drives, walkways, including the eventual removal of the aggregate material, shall be considered incidental to traffic control.
7. If it is necessary to enter upon a right-of-way controlled by the County or Minnesota Department of Transportation, the Contractor shall notify the appropriate agency before commencing construction within the right-of-way.
8. In the event that any of the above right-of-way require traffic to be detoured around the construction zone, the Contractor shall prepare the detour route with the appropriate Agency representatives. The Contractor shall provide and maintain all signing and other traffic control required. The affected Agency shall be notified by the Contractor before re-routing traffic. Dust control and road maintenance of the by-pass route shall be the Contractor's responsibility.
9. The Contractor shall be responsible for securing a site for storage of construction equipment and materials.

##### B. General Construction and Traffic Requirements

1. The parking of Contractor's Vehicles that obstruct any traffic control devices will not be permitted.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. If no bid item for Traffic Control has been included in the Schedule of Unit Prices, then Traffic Control shall be considered incidental to the project and no compensation will be granted.

1.3 SUBMITTALS

- A. Traffic Control – Contact information for (2) local individuals.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall notify the Engineer in writing at least 72 hours prior to the start of any construction operation that will necessitate lane closure or internal traffic control signing.
- B. The traffic control devices required along the project corridor shall be delivered and installed prior to the start-up of the work.
- C. The Contractor shall maintain traffic through the intersections whenever possible.
- D. The Contractor shall monitor and maintain all traffic control devices.
- E. The Contractor shall furnish and install advanced notification signage (static signs) for El Dorado Drive and Seville Drive prior to the start of construction. The signage shall specify the intended start date, be compliant with the MUTCD, and be placed a minimum of 7 days in advance and shall be placed at all public entrances to each street segment.

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 01 57 13 – TEMPORARY EROSION AND SEDIMENT CONTROL

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to stormwater management as indicated on the plans, as specified herein or as directed by the Engineer.
- B. The Contractor and Owner shall identify a person(s) knowledgeable and experienced in the application of erosion and sediment control Best Management Practices (BMPs) who will oversee the implementation of the SWPPP.
- C. Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001)
  1. The **Owner** has developed a **Stormwater Pollution Prevention Plan (SWPPP)** in accordance with Part III (Stormwater Discharge Design Requirements) of the National Pollutant Discharge Elimination System (NPDES)/State Disposal System Permit. The SWPPP is included in the project plans.
  2. As a condition of the Award, the Contractor shall be a co-permittee and assume the role of “**Operator**” under the NPDES Permit.
  3. The Owner shall initiate the permit and pay the required fee and submit the NPDES Permit using the data shown in the SWPPP located on Plan Sheets.
  4. **Permittee(s)** will ensure that their **SWPPP** meets all terms and conditions of this permit and that their activities do not render ineffective another party’s **Erosion Prevention and Sediment Control BMPs**.
  5. The Contractor shall maintain copies of the SWPPP on the project site at all times and comply with all provisions contained therein, including performing the required inspections of the erosion control devices and maintaining an Inspector’s Log for the MPCA Stormwater Permit. An Inspector’s Log form is attached at the end of this Section.
  6. The Contractor shall be responsible for keeping the on-site SWPPP documents current and updated to reflect changing conditions as construction progresses.
  7. Process Summary:
    - (a) Owner issues *Notice of Award* to Contractor.
    - (b) The Contractor shall review the SWPPP and may propose changes or a new SWPPP to the Engineer and Owner for review, comment, and Authorization. Changes may be recommended by the Contractor, Engineer, and/or Owner at any time during the construction period to address changing conditions.
      - (1) The responsibility for SWPPP amendments proposed by the Contractor lies with the Contractor. If the Engineer and/or Owner authorize the revisions with no exception taken, such action will not absolve the responsibilities of the Contractor in any way.
      - (2) During the review and modification period, on-site Erosion Control will comply with or exceed the current SWPPP. Pending review by the Engineer and/or Owner shall not alleviate the Contractor’s responsibility to install necessary BMPs to address site issues.
      - (3) Once a SWPPP is modified and/or amended, the Contractor shall distribute new copies to the Owner, the Engineer, the on-site project supervisor, and the resident project representative.
    - (c) The Contractor acknowledges the Notice of Award and provides the Owner with the contact information for the Contractor’s designated SWPPP contact to be used by the Owner for the online Stormwater Permit Application. Required information includes; Name, Title, Business Mailing Address, Phone Number, and Email for the designated individual.

- (d) Within 7 days of acknowledgment of the Notice of Award by the Contractor, the Owner/Contractor shall submit the Online Stormwater Permit Application to the MPCA.
- (e) No earth disturbing work will begin until the permit coverage date shown on the Coverage Card issued by the MPCA.
- (f) Work will follow the sequence of major activities outlined in the SWPPP.

## 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for erosion and sediment control will be paid according to the referenced specification or as modified below:
  - 1. Payment for all work associated with Erosion and Sediment Control will be at the contract unit price bid for that item and will be considered full compensation for furnishing, installing, maintaining, and utilizing stormwater best management practices and any work specified in conjunction therewith as well as removing temporary sediment control devices when no longer necessary.
  - 2. For temporary erosion control, best management practices, (80%) of payment will be made upon installation. The remaining 20% will be made upon complete removal of the control measure, removal of any accumulated sediment, and surface restoration.
- B. The furnishing and installing specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the associated erosion control and excavation items. Such items of work include but are not limited to:
  - 1. Complying with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001)
  - 2. Providing trained Construction SWPPP Manager and BMP Installer.
  - 3. Inspect, maintain, repair, and remove (if necessary) temporary surface stabilization practices throughout the project.
  - 4. Maintaining clean exit areas or roads from the site.
  - 5. Sweeping adjacent streets clean of excess soil.
  - 6. Cleaning storm sewers, drain tiles, and culverts that have been partially or completely obstructed by sediment that originated from the site.
  - 7. Geotextile fabric for rock installation.
  - 8. Geotextile fabric to wrap prefabricated inlet protection devices.
  - 9. Aggregate to anchor and act as a filter for prefabricated inlet protection devices.
  - 10. Aggregate associated with the construction of temporary sediment traps.
  - 11. Emergency erosion control mobilization.
  - 12. Construction, maintenance, and removal of rock construction entrance.
  - 13. Changing the type of inlet protection for different phases of construction.
- C. No additional payment will be made for Erosion Control BMPs necessary to accommodate Contractor phasing of the project.

## 1.3 SPECIFICATION REFERENCES

- A. The following referenced Specifications will apply to this Section:
  - 1. MnDOT 1717
  - 2. MnDOT 2573
  - 3. MnDOT 2574



4. MnDOT 2575

- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. Notice of Coverage from MPCA.
- B. Contact information and training documentation for Construction SWPPP Manager and BMP Installer.
- C. SWPPP Plan Amendments.
- D. Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.
- E. Site Management Plans meeting the minimum requirements of MnDOT 1717. An updated Site Management Plan will be submitted as needed to reflect changes to:
1. Types and/or Locations of BMPs
  2. Material Storage and Spill Response
  3. Fueling Plans
  4. Locations for Stockpiles, Concrete Washout, and Sanitation Facilities and
  5. Project Phasing
- F. PDF copies of all SWPPP Documentation including but not limited to:
1. Field Copy of the SWPPP. If the Field Copy has been replaced during Construction with an updated SWPPP, a copy of both the final Field Copy and all intermediate copies will be provided.
  2. Inspection Logs including all supporting documents.

**PART 2 - PRODUCTS**

2.1 MATERIALS

- A. For all materials not specifically discussed below no exceptions to the referenced specification are made.
- B. Bale checks shall not be used.

**PART 3 - EXECUTION**

3.1 GENERAL

- A. Construction and/or installation of all appropriate erosion & sediment control devices will be completed before any soil disturbing activities.
- B. Before construction, the Contractor shall observe and document the existing stormwater outfall system and discharge area. Sediment deposits not documented before the construction may be assumed to have originated from the project site and be required to be removed and disposed of by the Contractor.
- C. Before construction, the Owner, Engineer, and Contractor shall review the project to identify critical areas that could require rapid stabilization during the construction process, and develop mitigation and rapid stabilization plans to be incorporated into the SWPPP.

3.2 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall provide one or more trained Construction SWPPP Manager(s). The Construction SWPPP Manager will be knowledgeable and experienced in the application of erosion prevention and sediment control BMPs and will oversee the implementation of the SWPPP, and the installation, inspection, and maintenance of the erosion prevention and sediment control BMPs. A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the Owner and/or MPCA. Failure to provide a trained Construction SWPPP Manager or failure of the Contractor to rectify the situation within 24 hours of written notice if the provided Construction SWPPP Manager fails to adequately

perform the duties of Construction SWPPP Manager may result in the Owner or Engineer arranging for the performance of these duties by others.

- B. If the Contractor fails to install and/or perform the appropriate erosion and sediment control practices, as determined by the Engineer, the Engineer may issue a written order to the Contractor. Failure to perform this work within 24 hours of the written notification may result in the Owner or Engineer arranging for the completion of the work by others.
- C. When the Engineer determines that the erosion and/or sediment control practices installed by the Contractor have failed, the Contractor shall correct the cause and alleviate all sediment deposition, to the fullest extent possible. If the corrective action is not taken promptly, the Engineer may issue a written order to the Contractor. Failure to perform this work within 24 hours of notification of non-compliance may result in the Owner or Engineer arranging for the completion of the work by others.
- D. **A contract deduction will be made equal to the total of all costs incurred by the Owner due to the failure of the Contractor to take corrective action within the timeframe of any written notice of non-compliance. Such costs include but are not limited to labor, materials, equipment, and administrative costs.**

### 3.3 TRAINING

- A. The Contractor shall ensure the individual(s) designated by the Contractor for this project to perform the Construction SWPPP Manager and Installation Supervision duties have been trained in accordance with Minnesota Pollution Control Agency (MPCA) General Stormwater Permit for Construction Activity (MN R100001) training requirements.
- B. Documentation incorporated by the Contractor into the SWPPP must include either:
  - 1. Proof of current certification through the University of Minnesota Erosion and Stormwater Management Certification Program, or
  - 2. Documentation of training satisfactory to the MN Pollution Control Agency showing training is commensurate with the individual's job duties.

### 3.4 TERMINATION OF COVERAGE

- A. Upon completion of all final stabilization, the Contractor shall provide the Engineer a signed MN MPCA Notice of Termination (NOT) form and a PDF copy of the SWPPP Documentation. Final payment will not be made for the project until the NOT is submitted and the SWPPP Documentation is received.
- B. The NOT form is available on the MPCA website at: <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/construction-stormwater/index.html>

\*\*\*\*END OF SECTION\*\*\*\*

**STORMWATER POLLUTION PREVENTION PLAN - INSPECTION LOG**Project Title: 2022 Infrastructure Improvements, Owner: City of Jordan, Permit ID: C000\_\_\_\_\_

General Contractor: \_\_\_\_\_

The Contractor is REQUIRED to maintain this record throughout the project.

Inspectors should enter their initials, type, date, and time of the inspection in the blanks provided. After inspecting each shaded area, inspectors should check each box, and make any necessary comments regarding their findings in the blanks provided below and on the back of this sheet.

Refer to the MPCA's Compliance Guide for Erosion and Sediment Control during the inspection.

Name of Inspector	Type of Inspection		Date and Time of Inspection				Weather		Areas to be Inspected			
	Routine Weekly	24 Hr after a rain event	Month	Day	Year	Time (AM/PM)	Temperature (degrees Fahrenheit)	Rainfall Amount (inches)	All erosion and sediment control BMPs	Temporary Sedimentation Basins	Drainage ditches and other waters of the State	Construction Site Exits
Comments:												
Comments:												
Comments:												
Comments:												

(A digital version of this form is available by request to the Engineer)



## **SECTION 01 71 13 – MOBILIZATION**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. This section covers the mobilization of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to construct the project, including but not limited to, the demobilization associated with closing the project, removing all equipment, removing excess materials, and general clean-up.

#### **1.2 METHOD OF MEASUREMENT AND PAYMENT**

- A. Mobilization shall be measured by the Lump Sum and paid in accordance with the following schedule.
  - 1. On the first partial estimate that shows work performed on at least one major contract item, 25 percent of the amount bid for Mobilization will be paid, but not more than 3 percent of the original Contract amount.
  - 2. On subsequent partial estimates, payment shall be made at the same percentage as the value of work completed to date relative to the original Contract amount, except that payment shall not be reduced from the original 25 percent. Materials on hand shall be excluded from the payment ratio computation.
  - 3. At such time that 95 percent of the original Contract amount is earned, full payment for Mobilization shall be made.

#### **1.3 SPECIFICATION REFERENCES**

- A. MnDOT 2021 shall apply to this Section.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION (NOT USED)**

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 01 71 23 - FIELD ENGINEERING

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. This section covers staking and record documents, as specified herein, and/or as specified by the Engineer.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

A. No direct payment is made for fulfilling the requirements of this section.

#### 1.3 SPECIFICATION REFERENCE

A. The following referenced Specifications will apply to this Section:

1. CEAM 2600.
2. CEAM 2621.

B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

A. Record Documentation, if required in Section 3.2 "Record Documentation" as shown below in this Section.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

#### 3.1 STAKING

A. Unless otherwise specified in the specific sections, Owner shall provide engineering surveys to establish reference points for construction as follows:

1. Sanitary Sewer and Storm Sewer: Staking will be furnished and set by the Engineer at 50.0-foot spacing (usually offset for construction) for the control of the underground construction herein described. Cuts to the proposed pipeline grade will be furnished by the Engineer. Manholes and catch basins will be staked with an offset and a witness with a cut to the lowest structure invert. Location staking will be provided for service wyes for new construction. No staking will be provided for service wyes for reconstruction projects or where existing services are being connected to the new sewer line.
2. Watermain: The staking interval for watermain will be 50.0-feet. Cuts to the proposed pipeline grade will be furnished by the Engineer. Location staking will be provided for valves and fittings. Hydrants will be staked with an offset and a witness with a cut to the ground elevation at the hydrant.
3. Services: Staking will be provided for the end points of service lines with a cut to the invert for sanitary services and a reference stake to proposed finished grade for water services. No staking will be provided for service line construction for reconstruction projects or where existing services are being connected to the new sewer line.
4. Street Grading and Top of Curb:
  - (a) A control line (usually offset from the curb line) with cuts and fills to proposed grade at 50.0-foot spacing on tangents, and 25.0-foot spacing on horizontal or vertical curves, will be furnished and set on both sides for control of the construction herein described.
  - (b) Unless otherwise stated in the applicable section of the Specifications or waived by the Engineer, the Contractor shall provide Blue Tops prior to final paving for subgrade and aggregate base construction.

5. Concrete Paving: Control lines for paving forms or string line control with cuts and fills to proposed finished grade at 25.0 or 50.0-foot stations will be furnished and set by the Engineer for control of the concrete construction herein described. The offset and actual form or string line locations will be in accordance with the paver manufacturer's recommendations and the approved paving strategy as determined at the Preconstruction conference.
  6. Site Grading: Centerline stakes, with cut or fill to finished grade will be provided at 50.0-foot spacing. Stakes with cut or fill to finished grade will be provided for; contours representing grade breaks at 100.0-foot spacing along the contour, contours representing the top and bottom of ponds at 100.0-foot spacing along the contour, and for building pad corners (usually offset from the actual corner).
  7. Miscellaneous: Location stakes will be provided for silt fence locations at 100.0-foot spacing. Location stakes representing clearing and grubbing limits will be provided at 100.0-foot spacing.
  8. The Engineer will provide horizontal and vertical control points on the project's datum.
  9. The Engineer will provide stakes indicating the right of way and/or temporary easement construction limits.
  10. The Engineer will provide stakes indicating the project stationing.
  11. Contractor is responsible to have all areas where stakes need to be set to be clear of debris. The contractor needs to also provide a clear line of sight for staking.
  12. The Contractor shall submit staking requests a minimum two (2) working days, excluding Saturdays, Sundays, and legal holidays, prior to the date requested stakes are needed on the project. Staking requests submitted after 2pm will be recorded as being received the next business day.
  13. The stakes are an integral part of the project and the Contractor shall protect and preserve all such stakes and marks, and will be charged with the expense of resetting all such stakes and marks destroyed or disturbed due to the Contractor's carelessness or negligence. Stakes that are destroyed due to vandalism, erosion or other incidents will be re-staked by the Engineer and will not be at the Contractor's expense.
  14. In the event of apparent or questionable errors or inconsistencies in such stakes set for control of line and/or grade, the Contractor shall promptly notify the Engineer of such error or inconsistency and shall not proceed with the work until such stake, grade, or mark has been verified or corrected by the Engineer.
  15. The Engineer will mark the existing boundary monuments prior to construction. The Contractor is responsible for protecting the monuments during construction. If monuments are removed the Engineer will reset them post construction at the Contractor's expense.
  16. All other line and grade staking will be the responsibility of the Contractor. The Contractor shall furnish sufficient equipment and personnel for determination of plan grades, cross sections, course thicknesses, etc. The survey cost of establishing stakes requested by the Contractor for the convenience of the Contractor, beyond those cited as basic project control, will be charged to the Contractor or withheld from the amounts due to the Contractor.
- B. Unless otherwise stated in the applicable section of the Specifications or waived by the Engineer, the Contractor shall provide Blue Tops prior to final paving for subgrade and aggregate base construction.

### 3.2 RECORD DOCUMENTATION

#### A. RECORD DRAWINGS

1. The Contractor shall maintain at the construction site one complete set of drawings suitably marked to show all deviations from the original set of drawings and other information as specified. Supplementary sketches shall be included, if necessary, to clearly indicate all work as constructed. Sanitary and water service tie-in or stub-out locations must show station and distances left or right of



the survey control centerline. Existing sanitary and water service piping material type and size at the tie-in locations must also be noted.

2. All manholes, watermain bends and valves shall be located with tie-off dimensions to known items on the plans or in the field to enable the Contractor or City personnel to locate these structures for adjustment.
3. The Contractor shall fill out a service record form for each water service and sanitary sewer service connection or stub out. A blank service record form will be supplied by the Engineer to be used by the Contractor. The completed service record forms and photos taken of the services shall be submitted to the Engineer in a digital format and in booklet form.
4. All work shall be clearly shown on record drawings and service record forms in order to ensure that adequate information is indicated to show the actual construction. The complete set of the record drawings shall be submitted to the Engineer prior to submittal of the final Application for Payment. Failure of the Contractor to maintain an up-to-date set of record drawings on the project site will be reason to withhold final payments.

**\*\*\*\*END OF SECTION\*\*\*\***



## **SECTION 01 77 00 - CLOSEOUT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 FINAL INSPECTION**

- A. After the cleaning up of the work, premises, and all other areas and structures connected with the performance of the contract, the work as a whole, will be examined by the Engineer and Owner; and, any workmanship or materials found which do not meet the specified requirements will be identified and included on a punch list given to the Contractor.
- B. The Contractor shall, at its own expense, promptly remove, replace, repair, or otherwise correct the deficiencies with good and satisfactory workmanship and material to the satisfaction of the Owner and Engineer.
- C. In the event that the Contractor does not satisfactorily remove, replace, repair, or otherwise correct the deficiencies within thirty calendar days after receipt of the punch list, the Owner reserves the right to employ the services of other contractors and/or service organizations to conduct the necessary work and deduct any and all associated costs from final payment to the Contractor. The entry of such other agents on the project to perform this work will not relieve the Contractor from any of its warranty, maintenance or start-up obligations.

#### **1.2 PROJECT ACCEPTANCE**

- A. The project will be accepted after the final examination has been conducted and all settlement, defects, damages, etc., discovered during the previous examination have been remedied.

### **PART 2 - PRODUCTS (NOT USED)**

### **PART 3 - EXECUTION (NOT USED)**

**\*\*\*\* END OF SECTION \*\*\*\***



TECHNICAL SPECIFICATIONS  
for  
2022 Infrastructure Improvements

City of Jordan  
Jordan, MN



## SECTION 02 32 19 - EXPLORATORY EXCAVATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to conducting a subsurface investigation as shown on the drawings, as specified herein, and/or as specified by the Engineer.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
  - 1. No direct compensation will be made for exploratory excavation. All costs of labor, equipment, and ultimate disposal required to complete the work shall be included in the unit price bid for the associated removal and excavation items.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the associated removal and excavation items. Such items of work include but are not limited to:
  - 1. Exploratory excavation without prior authorization and approval by the Engineer.
  - 2. Exploratory excavation to locate and connect to existing pipes unless the Engineer agrees that excavation beyond what could be considered reasonable is required.
  - 3. Materials for re-grouting of inverts.
- C. All costs of off-site disposal of excess excavated material and debris including but not limited to hauling, fees, and permits for such disposal.

#### 1.3 SPECIFICATION REFERENCES

- A. The following referenced Specifications will apply to this Section:
  - 1. MnDOT 2123.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. No submittals for this Section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. No exception to this specification is made.

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall:
  - 1. Perform underground utility exploration as directed by the Engineer which involves excavation to locate pipelines for location and elevation verification.
  - 2. Clean debris and gravel which is present before the Project, out of existing manholes and catch basins along the Project and to regROUT the inverts, as directed by the Engineer.
  - 3. Other work associated with the Project, as directed by the Engineer.

- B. Where exploratory excavation is performed in a location that will not be disturbed later, the backfill will be placed and compacted to the density specified elsewhere in these Specifications for the type of utility located.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 02 41 13 - SELECTIVE SITE DEMOLITION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to the removal of pavement and miscellaneous structures as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
1. The unit price bid for removing pavement and miscellaneous structures will include all costs of labor, materials, equipment, and ultimate disposal required to complete the work, as specified.
  2. The UNIT PRICE bid for salvaging and/or reinstalling items as specified in the schedule of unit prices shall include all costs for carefully salvaging, protecting, storing, and if specified, reinstalling the item. Payment for items reinstalled shall be made upon successful reinstallation of the item to its full function in a condition matching or improving its original condition.
    - (a) It is the intent of the project to reinstall salvaged, privately owned materials in some cases. Where such materials are found to be in poor, existing condition and not allowing proper reinstallation as determined by the Engineer, the contractor shall purchase new materials in replacement of salvaged materials. The contractor shall be responsible for locating suitable replacement materials to the satisfaction of the property owner, purchase of, and delivery of such materials. Compensation for replacement materials shall be made at cost (per invoices or receipts provided by the supplier) plus 15 percent markup for freight and overhead costs. Payment for replacement materials shall be made under the bid item Landscape Allowance in addition to the unit price bid for the respective reinstallation item. No other payments for labor, profit, overhead, freight, disposal, or other costs shall be made above and beyond the amount bid for reinstallation or material cost plus 15 percent.
    - (b) All other work necessary to restore reinstalled items to equal or better condition than prior to the project shall be incidental.
  3. Remove Curb & Gutter, Remove Bituminous Pavement (Driveway), Sawing Bituminous Pavement, and Sawing Concrete Pavement
    - (a) No exception to the referenced specification is made, except as modified herein.
  4. Remove Curb & Gutter (Spot)
    - (a) Remove Curb & Gutter (Spot) shall be measured and paid per LINEAR FOOT (LIN FT) for concrete curb removals less than 50' of contiguous removal. Any removals that include over 25' of contiguous removal shall be paid under the Remove Curb & Gutter bid item.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the associated removal and excavation items. Such items of work include but are not limited to:
1. Saw cutting - bituminous and/or concrete, driveways, sidewalks, pavements, curb & gutter, and other impervious surfaces.
  2. Removing storing and reinstalling mailboxes, street/traffic signs, or similar structures which must be moved to construct the project.
  3. Off-site disposal of excess excavated material and debris.

4. Removal and off-site disposal of bituminous or concrete, unless designated for salvaging.
5. Removing, salvaging, and storing, or disposing of manhole and catch basin castings.
6. Loading, hauling, stockpiling, and placing as directed (i.e., leveling) designated salvage items to a location directed by the Owner.
7. Fees and permits for the disposal of materials.
8. Removal and disposal of existing sanitary sewer pipe, storm sewer pipe, watermain, and service pipes.
9. Bulkheading the ends of existing pipes designated by the Engineer to be abandoned in place.
10. Protection from damage of structures or other surface improvements that are not to be removed, and subsequent repair and/or replacement if damaged by Contractor operations.

### 1.3 SPECIFICATION REFERENCES

A. The following referenced Specifications will apply to this Section:

1. MnDOT 2104.

B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

### 1.4 SUBMITTALS

A. No submittals for this section.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. No exception to this Section is made.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION REQUIREMENTS

- A. Remove existing bituminous, curb and gutter, walks, drives, steps, and other specified items where shown on the plans and/or required for the construction of the project.
- B. Saw cut bituminous and concrete surfaces before excavation, to produce a clean-cut breakage joint.
- C. Dispose of all concrete and bituminous removal items, rubbish, and debris outside of the construction zone. It will be the Contractor's responsibility to secure all required permits and pay all fees associated with the disposal of the material and secure the disposal site.
- D. Remove existing mailboxes, street/traffic signs, and similar structures that must be removed to construct the project. Restore these facilities to the original location or a location designated by the Owner, when work has progressed past the location of the structure.
- E. The Contractor shall take full responsibility to protect structures or other surface improvements from damage that are not to be removed. If damage to these facilities occurs due to the construction of the project, the Contractor shall replace or repair them.
- F. The Owner will designate which existing hydrants, valves and boxes, manhole castings, and other items removed as part of the construction, are to be salvaged. All other items will be disposed of by the Contractor.
- G. All existing watermain, sanitary sewer, and storm sewer pipes being removed and replaced by new improvements will be considered as debris and removed during the construction process.
- H. Where existing pipes are to be abandoned in place, the pipe will be filled with sand or flowable fill as noted on the plans. The exposed pipe ends shall be bulkheaded shut with a watertight non-shrink concrete grout at a thickness of not less than one pipe diameter.

\*\*\*\*END OF SECTION\*\*\*\*



## SECTION 31 11 00 - CLEARING AND GRUBBING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to clearing and grubbing trees, stumps, and brush as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
  - 1. No exception to the referenced specification is made.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for clearing and grubbing. Such items of work include but are not limited to:
  - 1. Permits and fees for the disposal of materials.
  - 2. Protecting existing improvements from damage.

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2101 will apply to this Section.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. No submittals for this section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. No exception to this section is made.

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. All trees, stumps, brush, seed, grass, roots, or other undesirable material within the construction limits will be disposed of by the Contractor.
- B. Disposal methods will be approved by the Engineer and shall meet all Local, State, and Federal regulations.
- C. Burning or burial will not be allowed within city limits.

\*\*\*\*END OF SECTION\*\*\*\*



## SECTION 31 20 00 - EARTH MOVING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performance of all work and services necessary or incidental to the excavation and embankment for roadways and pavements as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
1. Common Excavation:
    - (a) Measurement and payment for Common Excavation will be based upon the cubic yard (P).
    - (b) Excavation for construction of aggregate base to the depths specified or shown on the plans under concrete curb and gutter, concrete sidewalk, and concrete driveways are not included with the Common Excavation (P) quantity. Such excavation is considered incidental to the construction of the respective concrete items.
    - (c) Removal and disposal of excess reclaim material is included with the Common Excavation (P) quantity.
    - (d) Excavation of subgrade material under the full depth reclaim section to bottom of proposed aggregate base (salvaged reclaim) section is included in the Common Excavation (P) quantity.
    - (e) Unless specifically identified as a separate bid items, loading and temporarily stockpiling, reinstalling/spreading, shaping, and compacting reclaim mixture are considered incidental to the Reclaim (Load and Stockpile) item.
  2. Subgrade Excavation:
    - (a) All excavation directed by the Engineer below the common excavation zone or limits indicated in the typical sections or cross-sections in the plans will be considered Subgrade Excavation.
    - (b) Measurement and payment for Subgrade Excavation will be by the cubic yard (EV) based on the dimensions of the excavated area.
    - (c) The quantities for Subgrade Excavation are strictly an estimate and may be increased or decreased by any amount with no adjustment in unit price according to the conditions revealed.
  3. Backfill for Subgrade Excavations:
    - (a) No direct compensation will be made for backfilling subcut areas with suitable material from the excavation.
    - (b) Stabilizing aggregate, reclaimed bituminous/aggregate, or aggregate base used to backfill subgrade excavations shall be considered incidental to the unit price bid for subgrade excavation.
  4. Topsoil Borrow:
    - (a) No direct compensation will be made for salvaging, stockpiling, and replacing topsoil salvaged from within the construction limits.
    - (b) Measurement and payment for Furnishing and Installing Topsoil Borrow will be based upon the cubic yard (LV).

- (c) The quantities for topsoil borrow are strictly estimates and may be increased or decreased by any amount with no adjustment in unit price according to the extent of existing topsoil salvaged and other conditions revealed.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for work. The costs will be included in the unit price bid for the associated excavation items. Such items of work include but are not limited to:
  - 1. Loading and temporarily stockpiling, reinstalling/spreading, shaping, and compacting reclaim mixture (unless specifically identified as a separate bid item).
  - 2. Disposal of bituminous/aggregate reclamation material that is determined by the Engineer to be unsuitable for re-use.
  - 3. Salvaging, separating, separately stockpiling, and re-spreading topsoil material in turf areas to the depths specified or indicated on the plans.
  - 4. Salvaging and separately stockpiling suitable aggregate base material, as determined by the Engineer.
  - 5. Separating, salvaging, stockpiling, and replacing clay borrow in roadway, structure, and embankment areas.
  - 6. Earthwork balancing including adjustments for shrinkage loss, and excess materials resulting from the additional volume created from pipe bedding, utility pipe, and/or underground structures will be included in the unit price bid for Common Excavation.
  - 7. Protecting existing improvements and previously accepted in-process improvements from damage.
  - 8. Protecting infiltration areas.
  - 9. The avoidance of wetlands.
  - 10. Subcutting the existing topsoil before placing embankment in all roadway, patio, and trail locations.
  - 11. Subgrade excavation, furnishing stabilizing aggregate, geotextile fabric installation, compaction, regrading, and/or other efforts necessary to repair the subgrade for failing to protect the integrity of the subgrade after it has been accepted (test rolled).
  - 12. Restoring the borrow site by grading the area to drain properly to slopes not-to-exceed 6:1 and by restoring the topsoil to a minimum thickness of 6.0-inches will be included in the contract unit price for Common Borrow.
  - 13. Shaping, stockpiling, & seeding of all disposal sites will be included in the price bid for Common Excavation.
  - 14. Gradation and compaction testing and geotechnical inspection services to meet requirements of source and field quality control if required

### 1.3 SPECIFICATION REFERENCES

- A. The following referenced Specifications will apply to this Section:
  - 1. MnDOT 2106.
  - 2. MnDOT 2574.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

### 1.4 SUBMITTALS

- A. Gradation testing will be taken from material in stock at locations approved by the Engineer. All sampling methods will be approved by the Engineer.

## PART 2 - PRODUCTS



## 2.1 MATERIALS

- A. All excess excavated material will become the property of the Contractor and will be removed from the site and disposed of at a site secured by the Contractor.
- B. Frozen material will be considered unsuitable material unless otherwise authorized in writing by the Engineer.
- C. Excavated material unsuitable for embankment and backfill construction will become the property of the Contractor and will be removed from the site and disposed of at a site secured by the Contractor.
- D. Stabilizing aggregates for use in backfilling subgrade excavations shall be salvaged reclaim material generated on the project or Aggregate Base, CL 5.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION REQUIREMENTS

- A. At the end of each day, the Contractor will eliminate surface indentations, including those caused by sheep's foot rollers, tractor tires, and tracked equipment, and roll the surface with a steel wheel or rubber-tired roller except in those areas designated to be protected from compaction.
- B. Subgrade excavation shall be performed, as directed by the Engineer, for the removal of any unstable soils that may be encountered. Such excavation will be backfilled with suitable excess common excavation material or stabilizing aggregate as directed by the Engineer. If the Contractor proceeds without approval from the Engineer or Owner, all work and material to restore the roadbed to the proper grade will be at the Contractor's expense.
- C. Once the subgrade has been successfully test rolled, no traffic or construction equipment will be permitted to operate directly on the subgrade without the prior approval of the Engineer. The subgrade will be relatively smooth before the placement of the aggregate base. All equipment will be restricted to operating only in areas where the aggregate base has been installed to its full design depth.
- D. Material suitable for curb backfill will be segregated and stockpiled at a site selected by the Contractor. Following curb construction, the material will be placed behind the curb to the subgrade level of the topsoil.
- E. The Contractor shall salvage and stockpile all topsoil removed during the construction. This topsoil will be used where required for turf establishment as directed by the Engineer.
- F. Sufficient excavated material will be utilized by the Contractor to replace lost volume due to soil shrinkage from trench excavation that may occur through the course of construction. The Contractor shall make their own determination of the amount of shrinkage that will occur.

### 3.2 COMPACTION

- A. All embankment grading will be compacted using:
  - 1. Under areas with proposed paved or structural improvements, Specified Density Method :
    - (a) 100 percent Standard Proctor dry density within 3.0-feet of the proposed sub-grade or building pad hold-down elevation.
    - (b) 95 percent of the maximum Standard Proctor dry density below 3.0-feet from the proposed sub-grade or building pad hold-down elevation.
  - 2. Under areas with no proposed paved or structural improvements, Quality Compaction Method.

### 3.3 SOURCE QUALITY CONTROL

- A. The Owner may arrange for having the following testing performed:
  - 1. One (1) gradation test per every 500 tons or 275 cu yd (CV) of select granular borrow.

2. One (1) gradation test per every 500 tons or 275 cu yd (CV) of stabilizing aggregate.
- B. All testing will be performed by an independent testing laboratory approved by the Engineer.

#### 3.4 FIELD QUALITY CONTROL

- A. The Owner may arrange for and pay all costs associated with having the following testing and inspections, with written certification, performed:
  1. Areas with Proposed Structural Improvements:
    - (a) One compaction test (including Standard Proctor) per each 500 square yards per each 3.0-foot depth of embankment.
    - (b) Building Pads shall have a minimum of one compaction test (including Standard Proctor) per each 3.0-foot depth of embankment for each pad.
    - (c) Inspection following the removal of unsuitable material and before placement of embankment material to ensure that all topsoil and unsuitable material has been removed and that the exposed subgrade has sufficient bearing capacity for the anticipated structural improvement.
- B. The Contractor shall notify the Engineer 24 hours prior to completing the removal of topsoil and unsuitable material in areas with proposed structural improvements to ensure that appropriate inspection may be performed.
- C. All testing will be performed by an independent testing laboratory. All inspections will be performed under the direct supervision of a licensed Geotechnical Engineer who shall provide written certification of the results.
- D. Samples for testing will be taken from material in place, in building sites, and/or paved areas. All sampling methods shall be approved by the Engineer.
- E. The Contractor shall coordinate the site grading and inform the Engineer when the roadway subgrade is ready for test rolling, prior to installing any aggregate base. The Engineer may order some subgrade correction prior to allowing the installation of the aggregate base.
- F. Should any of the specified tests or inspections fail, the Contractor may arrange and pay for additional tests or inspections as may be necessary to satisfy the Engineer that the specified requirements have been met.

**\*\*\*END OF SECTION\*\*\***

## SECTION 31 23 13 - SUBGRADE PREPARATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performance of all work and services necessary or incidental to the subgrade preparation as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
  - 1. No direct payment will be made for subgrade preparation. Costs will be included in the unit prices bid for the various excavation items.
  - 2. No exception to the referenced specification is made.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the various excavation items. Such items of work include but are not limited to:
  - 1. Drying and adding water to the subgrade.
  - 2. Subgrade excavation, furnishing stabilizing aggregate, geotextile fabric installation, compaction, regrading, and/or other efforts necessary to repair the subgrade after satisfying the rolling test and failing to protect the integrity of the subgrade.

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2112 will apply to this Section.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. No submittals for this section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. No exception to the referenced specification is made.

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. At the end of each day, and before the placement of aggregate base, the Contractor shall eliminate surface indentations, including those caused by sheeps foot rollers and tractor cletes, and roll the surface with a steel wheel or rubber-tired roller.
- B. The Contractor shall disc, scarify, shape and compact the street subgrade or existing base, adding water or drying as may be necessary to give uniform and desired density.
- C. If the subgrade is unstable and the instability is due to excessive moisture, the subgrade will be scarified and dried over a reasonable period. When the material has reached acceptable moisture limits, the material will be returned to the roadbed and compacted into place to the proper elevation. The roadbed will once again be test rolled. If the material continues to be unstable, the Engineer may authorize the removal of the undesirable material as subgrade excavation.

- D. Once the subgrade has been test rolled and accepted by the Engineer, no traffic or construction equipment will be permitted to operate directly on the subgrade without the prior approval of the Engineer. All equipment will be restricted to operating only in areas where the aggregate base has been installed to its full design depth. If inclement weather occurs after a test roll, and before placement of the aggregate base or first course of bituminous, the test roll will be voided and a new test roll will be performed.
- E. The subgrade will be compacted in accordance with the Quality Compaction Method.
- F. The aggregate base shall be shaped to a minimum 2% crown. Where this is infeasible due to existing curb elevations or other reasons, the Contractor shall immediately inform the Engineer.

### 3.2 FIELD QUALITY CONTROL

- A. "Blue Top" stakes will be provided by the Contractor at 50.0-foot intervals to confirm that the subgrade is constructed to the required grades and elevations. Methods other than "Blue Top" staking may be allowed if approved by the Engineer.
- B. The compacted subgrade will be test rolled using a fully loaded aggregate truck (tandem) in a pattern approved by the Engineer. The subgrade stability will be considered adequate when the surface shows less than 1.0-inch of yielding or rutting after one pass, or as otherwise approved by the Engineer.

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 31 23 19 - DEWATERING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to the dewatering of trenches as necessary to construct the elements shown on the drawings or as specified herein.
- B. This item will be considered exempt from the requirements of Supplementary Condition 13.03.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. No direct payment shall be made for dewatering. The Contractor shall make their own determination of its necessity and include any associated costs in the unit price bid for the associated bid items.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the dewatering items, as indicated. Such items of work include but are not limited to:
  - 1. Interference of other underground structures and utilities.
  - 2. Protection of existing improvements from damage.

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2451 will apply to this Section.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. No submittals for this section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. No exception to this section is made.

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall furnish and install all necessary discharge piping and obtain all permits, easements, rights-of-way, etc. to convey and discharge the water at a sufficient distance from the project area to eliminate recharge of the groundwater at the project site.
- B. Water from dewatering operations will not be discharged where it will pond or cause damage to cropland or personal property due to the presence of standing or flowing water.
- C. Unless otherwise provided in the contract documents; the Contractor shall be responsible for obtaining all necessary permits required for dewatering prior to the beginning of dewatering. The Contractor shall provide a plan for the discharge showing the discharge location, energy dissipation, and water quality treatment to the Engineer for approval before beginning discharge. The discharge rate, location, and water quality will meet all local, State, and Federal requirements.
- D. Existing and/or proposed sanitary system(s) shall not be used as an outlet for the dewatering operations.

\*\*\*\*\*END OF SECTION\*\*\*\*\*



## SECTION 32 01 16.12 - ASPHALT PAVEMENT RECLAMATION (LOAD & STOCKPILE)

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the reclaiming of bituminous pavement and aggregate materials as shown on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
  - 1. Reclaiming Bituminous and Aggregate Materials:
    - (a) Payment for the reclaiming, loading, hauling, stockpiling, intallation/spreading, shaping, and compacting reclaimed aggregate and bituminous materials will be paid for under the bid item: Reclaim Bituminous Pavement (Load & Stockpile) by the square yard (P).
    - (b) Reuse of excess salvaged aggregate and bituminous mixture obtained from reclaim project areas may be used as aggregate base. Aggregate base shall be considered incidental to the associated bid items.
    - (c) See Section 31 20 00 "Earth Moving" of this Project Manual.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the reclaiming items, as indicated. Such items of work include but are not limited to:
  - 1. Disposal of bituminous/aggregate reclamation material that is determined by the Engineer to be unsuitable for re-use.
  - 2. Reclaiming around manhole and catch basin castings and valve boxes, include in the price bid for bituminous pavement reclamation.
  - 3. Protection of and/or Interference with underground structures and utilities which are shown on the plans and for which there is no bid item for removing and restoring or working around the structure or utility.
  - 4. Protecting the inverts of utility pipes from the accumulation of debris and soil, the removal of blockages which threatens to damage property, and/or the cleaning of both the newly constructed lines and the existing lines of all debris and soil which accumulated during the construction.
  - 5. The reuse of the salvaged bituminous and aggregate mixture for haul road maintenance.
  - 6. No direct compensation will be made for water used in conjunction with the operations associated with pulverizing, blending, placing, shaping and compacting the reclaimed material nor for water used in maintaining the finished surface, or for water used for dust control purposes.

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2232 will apply to the reclaiming of all pavements, except as modified as follows.
  - 1. Reclaiming shall be accomplished with a machine specifically designed for such work, capable of reclaiming / mixing the entire depth of bituminous and aggregate.
  - 2. The maximum size of reclaimed material shall be 2.0-inches.
- B. MnDOT 2211 will apply to the installation of reclaimed materials as an aggregate base, except as modified herein.

1. The maximum bituminous content of MnDOT 3138.2.A2(a)(a) of 3 percent will not apply, however, if the bituminous content appears to be high, the Contractor shall blend the salvage material with new virgin aggregate base, Class 5 prior to or during the placement of the salvage material into the roadway section.
  2. All salvaged aggregate and bituminous shall be compacted using the Quality Compaction Method
- C. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. No submittals for this section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Salvaged bituminous and granular mixture shall be temporarily stockpiled at a location determined by the Contractor.
- B. Excess material that is considered by the Owner to be unsuitable shall be disposed of by the Contractor at a site secured by the Contractor and at the Contractor's expense.

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. Prior to utility construction in project reconstruct street areas, the existing bituminous surface and the existing gravel base shall be reclaimed with a self-propelled reclaim machine, salvaged, and temporarily stockpiled at a site located by the Contractor or as noted earlier in these specifications.
- B. Reclaiming shall be accomplished with a machine specifically designed for such work, capable of reclaiming / mixing the entire depth of bituminous and aggregate.
- C. The maximum size of reclaimed material shall be 2.0-inches.
- D. The Contractor may leave the reclaimed bituminous and aggregate mixture in the street until it is necessary to salvage the material prior to utility work. If this procedure is performed, it is the Contractor's responsibility to maintain the surface to a smooth condition and to prevent and control dusting.
- E. Reclaiming in any block of street shall be performed no more than two weeks prior to the initiation of underground utility construction within that block.
- F. It is the intent of the project to reuse all reclaimed salvage aggregate and bituminous material on the project in the subgrade excavation areas, as base for sidewalks, driveways, and alley improvements, or in the lower portion of the Aggregate Base, Class 5 Zone.
- G. The construction and / or reuse of salvaged aggregate and bituminous in the street roadways shall be as specified in Section 32 11 23 "Aggregate Base Courses" of this Project Manual, except that reclaimed material shall be compacted using the Quality Compaction method.
- H. Note, as specified in Section 01 55 17 "Haul Routes and Temporary Access" of this Project Manual, salvaged aggregate and bituminous may also be used to maintain City owned street haul roads. The use of this material for haul road maintenance is incidental to the excavation operations and therefore no separate payment will be made.

#### 3.2 SOURCE QUALITY CONTROL

- A. The Owner may arrange for having the following testing performed:
1. One (1) gradation test per each 500 cubic yards (CV) of salvage aggregate and bituminous. The material shall meet the gradation requirements provided with the reclaiming specification.



**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 32 11 23 - AGGREGATE BASE COURSES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to construct the aggregate base course as indicated on the drawings or as specified herein.

#### 1.2 METHODS OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Reclaimed bituminous and aggregate material will be utilized for a portion of the aggregate base and material necessary to backfill subgrade excavations on this project. Aggregate base shall be considered incidental to the associated bid item.
  - 2. Salvaged aggregate base/surfacing from the proposed alleys may be utilized as aggregate base for the alleys. Aggregate base shall be considered incidental to the associated bid item.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated aggregate items. Such items of work include but are not limited to:
  - 1. Protecting existing improvements and previously accepted in-process improvements from damage.
  - 2. Subgrade excavation, furnishing stabilizing aggregate, geotextile fabric installation, compaction, regrading and/or other efforts necessary to repair the subgrade after satisfying the rolling test and failing to protect the integrity of the subgrade.
  - 3. The cost of all labor, equipment and materials necessary for meeting the testing requirements of field quality control, if required, include in price bid for Aggregate Base.
  - 4. Furnishing and installing blue tops for gravel surface.
  - 5. Test rolling of the compacted aggregate base using a fully loaded aggregate truck (tandem).

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2211 shall apply to the construction of aggregate base, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. Provide the following test results for each source of aggregate:
  - 1. Two gradation tests
  - 2. One percent crushing test (only if requested by Engineer).
  - 3. One aggregate quality test (only if requested by Engineer).

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. No exception to the referenced specification is made.

### PART 3 - EXECUTION

### 3.1 CONSTRUCTION REQUIREMENTS

- A. At the end of each day the Contractor shall eliminate surface indentations, including those caused by sheeps foot rollers and tractor cletes, and roll the surface with a steel wheel or rubber tired roller.
- B. The depth and class of aggregate base to be constructed shall be as shown on the plans. Aggregate base construction shall take place only after the street subgrade condition and grade has been examined by the Engineer.
- C. All aggregate base courses shall be compacted using the Quality Compaction Method.
- D. The compacted aggregate base shall be test rolled using a fully loaded aggregate truck (tandem) in a pattern approved by the Engineer. The stability of the compacted base shall be considered adequate when the surface shows less than 1.0-inch of yielding or rutting after one pass, or as otherwise approved by the Engineer. The test rolling of the compacted aggregate base using a fully loaded aggregate truck (tandem) shall be incidental.

### 3.2 SOURCE QUALITY CONTROL

- A. The Owner may arrange for having the following testing performed:
  - 1. One gradation test for each 500 tons or 275 cubic yards (CV) of each class of aggregate base.
  - 2. One percent crushing test.
  - 3. One aggregate quality test.
- B. Samples for testing shall be taken from material in stock at locations approved by the Engineer. All sampling methods shall be approved by the Engineer.
- C. The Contractor shall cooperate fully with the individuals performing the tests.
- D. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy the Engineer that the requirements have been met.

### 3.3 FIELD QUALITY CONTROL

- A. "Blue Top" stakes shall be provided by the Contractor at 50.0-foot intervals to confirm that the base is constructed to the required grades and elevations. Methods other than "Blue Top" staking may be allowed, if approved by the Engineer.

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 32 12 00 - FLEXIBLE PAVING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the construction of plant-mixed bituminous surfacing utilizing the MnDOT Gyratory Design Specification (2360) as indicated on the plans or as specified herein.
- B. This is a Certified Plant Project. The supplier shall have sufficient testing facilities and qualified personnel including Certified Technicians. All required plant and field tests shall be performed in a timely manner and with a good quality control program.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Payment for the accepted quantity of asphalt emulsion and cutback shall be at the Contract price per gallon for undiluted asphalt emulsion and neat cutback. Should the Contract fail to include a Contract Item covering payment for the bituminous material used for tack coat, all costs of furnishing and applying bituminous tack coat material will be included in the compensation provided for the bituminous mixture, with no measurement made of the bituminous material used and with no direct compensation being made therefore.
  - 2. Payment shall be at the unit price bid per TON of bituminous surfacing for the respective bituminous courses. The amount bid shall include all material and work required to mix and place the bituminous course specified.
  - 3. The Contractor shall allow one thousand dollars (\$1,000) in the bid to cover the expense of taking ten (10) random, 3.0-inch diameter core samples and patching the bore holes. Should any or all of the core samples be deleted, the proportionate core expense shall be deducted from the final project cost. Additional core samples required by the Engineer shall be compensated at thirty dollars (\$30) per core.
- B. The maximum payment factor for density is 100 percent.
- C. This project is not subject to the provisions of MnDOT 2399.
- D. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated bituminous paving items. Such items of work include but are not limited to:
  - 1. Equipment and materials necessary for meeting the testing requirements of Source Quality Control for the bituminous tack coat, if required, include in price bid for bituminous tack coat.
  - 2. The cost of all labor, equipment and materials necessary to comply with plant and field testing requirements of MnDOT 02360, include in price bid for Plant-Mixed Bituminous Surfacing.
  - 3. The cost of all labor, equipment and materials necessary for constructing clean, vertical, solid edge at the adjacent asphalt surface for both non-wear and wear courses, include in the price bid for Plant-Mixed Bituminous surfacing.
  - 4. Sawcutting the bituminous edges and removing of damaged bituminous just prior to the construction of the next lift of bituminous course.

#### 1.3 SPECIFICATION REFERENCE

- A. MnDOT 2360 shall apply, except as modified herein.

- B. MnDOT 2357 shall apply, except as modified herein.
- C. MnDOT 3139 shall apply, except as modified herein.
- D. Unless noted otherwise, the provisions in this Section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. Bituminous Mix Design (wear and non-wear).
- B. Submit the companion cores to the Engineer immediately after coring and sawing

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Bituminous Tack Coat:
  - 1. The bituminous material for tack coat will be limited to one of the following kinds of emulsified asphalt. However, the Engineer may authorize the use of medium cure cutback asphalt (MC-250) during the early and late construction season when it is anticipated the air temperature may drop below 32 degrees Fahrenheit. Cutback asphalt shall be used only when approved by the Engineer.
    - (a) Emulsified Asphalt
      - (1) Anionic SS-1, SS-1h
      - (2) Cationic CSS-1, CSS-1h
    - (b) Cutback Asphalt:
      - (1) Medium Cure Liquid Asphalt MC-250
  - 2. Only Certified Sources are allowed for use. MnDOT's Certified Source List is located at the following link: <http://www.dot.state.mn.us/products/index.html>.
- B. Bituminous material and aggregate shall be as shown on the typical sections in the plans.

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. Bituminous Tack Coat
  - 1. The tack coat shall not be applied when the road surface or weather conditions are unsuitable as determined by the Engineer.
  - 2. At the time of applying bituminous tack coat material, the road surface shall be dry and clean and all necessary repairs or reconditioning work shall have been completed as provided for in the Contract and approved by the Engineer.
  - 3. Unless otherwise indicated in the Plans or provisions, the bituminous tack coat material shall be applied within the application rates shown in the table below as based on pavement type or condition and type of bituminous material. The Engineer shall approve the time and rate of application. Only a MnDOT certified asphalt emulsion supplier is allowed to dilute the emulsion. When diluted, the supplier shall provide asphalt emulsion diluted 1-part emulsion to 1-part water. Dilution of asphalt emulsion in the field is not allowed. The Engineer may waive the tack coat requirement when multiple lifts are paved on the same day.

Pavement Type or Condition	Application Rate - gallons/sy		
	Undiluted Emulsion SS-1, SS-1H, CSS-1, CSS-1H	Diluted Emulsion (1 part Emulsion to 1 part water) <sup>1</sup> SS-1, SS-1H, CSS-1, CSS-1H	MC Cutback <sup>2</sup> MC-250
New HMA	0.03 – 0.05	0.06 – 0.10	0.03 – 0.05
Aged HMA <sup>3</sup> or Un-milled PCC	0.05 – 0.08	0.10 – 0.15	0.05 – 0.08
Milled HMA or Milled PCC	0.07 – 0.10	0.14 – 0.20	0.07 – 0.10

<sup>1</sup>As provided by the asphalt emulsion supplier

<sup>2</sup>When approved by the Engineer

<sup>3</sup>Older than 1 year

4. The temperature of the bituminous material at the time of application shall be approved by the Engineer, within the limits specified following:
  - (a) SS-1, SS-1H, CSS-1, CSS-1H .....70 to 160 Degrees Fahrenheit
  - (b) MC-250 .....165 to 220 Degrees Fahrenheit
- B. The Contractor is required to use the self-propelled pneumatic tire roller as an intermediate roller on the wearing courses.
- C. Cut the adjacent asphalt surface prior to construction of the bituminous surface course to obtain a clean, vertical, solid edge.
- D. Compaction of all bituminous mixtures shall be by the Maximum Density Method.
  1. Longitudinal Joint Cores:
    - (a) The first paragraph of 2360.3.D.1 of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted and replaced with the following:
 

**D.1 Maximum Density**

Compact the pavement to at least the minimum required maximum density values in accordance with table 2360 19, "required minimum lot density (mat)".
    - (b) Table 2360-20 Longitudinal Joint Density Requirement of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted.
    - (c) 2360.3.D.1.h Mat Density Cores of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted and replaced with the following:
 

**D.1.h Mat Density Cores**

Obtain four cores in each lot. Take two cores from random locations as directed by the Engineer. Take the third and fourth cores, the companion cores, within 1.0-foot longitudinally from the first two cores. Submit the companion cores to the Engineer immediately after coring and sawing. If the random core location falls on an unsupported joint, at the time of compaction, (the edge of the mat being placed does not butt up against another mat, pavement surface, etc.) cut the core with the outer edge of the core barrel 1.0-foot away (laterally) from the edge of the top of the mat (joint). If the random core location falls on a confined joint (edge of the mat being placed butts up against another mat, pavement surface, curb and gutter, or fixed face), cut with the outer edge of the core barrel 6.0-inches ± 0.5-inch from the edge of the top of the mat (ex. center of 4.0-inch core barrel 8.0-inches ± 0.5-inches] from the edge of the top of the mat).

Cores will not be taken within 1.0-foot of any unsupported edge. The Contractor is responsible for maintaining traffic, coring, patching the core holes, and sawing the cores to the paved lift thickness before density testing.

The Engineer may require additional density lots to isolate areas affected by equipment malfunction, heavy rain, or other factors affecting normal compaction operations.

- (d) 2360.3.D.1.j Companion Core Testing of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted and replaced with the following:

(1) The Engineer will select at least one of the two companion cores per lot to test for verification

- (e) 2360.3.D.1.n Longitudinal Joint Density of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted.

- (f) 2360.3.D.1.p Shoulders of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted.

- (g) Table 2360-24 Payment Schedule for Longitudinal Joint Density (SP Wear and SP Shoulders, 4 percent Void) of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted.

- (h) Table 2360-25 Payment Schedule for Longitudinal Joint Density (SP Non-wear and SP Shoulders, 3 percent Void) of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted.

- (i) 2360.3.D.1.r Pay Factor Determination of the referenced MnDOT 2360 (Plant Mixed Asphalt Pavement) Specification is hereby deleted.

### 3.2 SOURCE QUALITY CONTROL

- A. The bituminous mix shall be designed using Contractor Trial Mix Designs. A current MnDOT mix design may be accepted provided it represents the aggregate source and bituminous plant being used for the project, and is approved by the Engineer. No bituminous mixture shall be placed without an approved mix design.
- B. Testing of the material bituminous tack coat may be required, if determined by the Engineer, that the material appears suspect.

### 3.3 FIELD QUALITY CONTROL

- A. If required by the Engineer, cores for mat density and for lift thickness verification shall be taken, except that for daily production less than 300 tons, the Engineer may require that two cores are taken (one for Contractor testing and one companion core). Sample locations shall be designated by the Engineer and made with a drilling device that produces clean sharp, vertical edges.
- B. Lift Thickness Tolerances:
1. If any cores indicate lift thicknesses outside of the specified tolerances, the Contractor may, at its own cost and expense, take additional core samples to further define the extent of the deficiency.
  2. The Engineer shall calculate deficient pavement areas using the locations and thickness results of all core samples and prorating the thickness profile.
  3. Reduction in payment for bituminous courses constructed to more than the maximum permissible thickness, except that the thickness tolerances specified herein apply.
- C. Testing:
1. For projects with 2000 tons or less of a particular mix type, delete Tables 2360-10 and 2360-11 of the referenced MnDOT 2360 and substitute the following:



Production Test	Sampling and Testing Rates (each mix type)	Test Reference (Laboratory Manual unless otherwise indicated)	Spec Section
Bulk Specific Gravity	Divide the planned production by 500. Round up to the next whole number	1806	2360.2.G.7.b
Maximum Specific Gravity		1807	2360.2.G.7.c
Air Voids (calculated)		1808	2360.2.G.7.d
Asphalt Content		1853	2360.2.G.7.a
Add AC/Total AC Ratio (calculated)		1853	2360.2.G.7.a
Adj. AFT (Calculated)		1854	2360.2.E.7.e
Gradation	1 gradation per 500 tons or portion thereof (at least one per day)	1203	2360.2.G.7.f
Coarse Aggregate Angularity	1 test per 500 tons or portion thereof. If CAA >8 percent of requirement, 1 sample per day but test 1 per week.	1214	2360.2.G.7.g
Fine Aggregate Angularity (FAA)	1 test per 500 tons or portion thereof. If FAA >5 percent of requirement, 1 sample per day but test 1 per week.	1213	2360.2.G.7.h
Fines to Effective Asphalt Ratio (calculated)	Divide the planned production by 500. Round up to the next whole number	1203 & 1853	2360.2.G.7.f & 2360.2.G.7.a
TSR	As directed by the Engineer	1213	2360.G.7.i
Aggregate Specific Gravity	As directed by the Engineer	1204, 1205, and 181	2360.G.7.j
Mixture Moisture Content	Daily unless otherwise required by the Engineer	1805	2360.G.7.k
Asphalt Binder	As directed by the Engineer]	MnDOT Bituminous Manual 5-693.920	2360.G.7.l

- Contractor shall send a copy of the testing results to the Engineer.
- Should any of the specified tests fail, the Contractor shall notify the Engineer immediately and shall arrange and pay for additional test as may be necessary to satisfy the Engineer that the requirements have been met.

\*\*\*\*END OF SECTION\*\*\*\*



## SECTION 32 12 01 - FLEXIBLE PAVEMENT PATCHING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the construction of plant-mixed bituminous surfacing as indicated on the plans or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Payment for full depth bituminous street patch shall be at the unit price bid per square yard (SY) of bituminous patch. The assumed compacted depth of bituminous patch on streets adjacent to the alley improvements can be assumed to be 3.5". The amount bid shall include all material and work required to construct the bituminous patch as specified on the plans, including:
    - (a) Removal and disposal of bituminous pavements.
    - (b) Common excavation
    - (c) Subgrade Preparation
    - (d) Aggregate Base Course
    - (e) Bituminous Base Course, if specified
    - (f) Bituminous Tack Coat
    - (g) Bituminous Wearing Course
    - (h) Constructing clean vertical edges on adjacent asphalt surfaces.
  - 2. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated bituminous patch. Such items of work include but are not limited to:
    - (a) No exception to the referenced specifications is made.

#### 1.3 SPECIFICATION REFERENCE

- A. MnDOT 2104 shall apply, except as modified herein.
- B. MnDOT 2106 shall apply, except as modified herein.
- C. MnDOT 2112 shall apply, except as modified herein.
- D. MnDOT 2211 shall apply, except as modified herein.
- E. MnDOT 2357 shall apply, except as modified herein.
- F. MnDOT 2360 shall apply, except as modified herein.
- G. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. Bituminous Mix Design (wear and non-wear).

### PART 2 - PRODUCTS

## 2.1 MATERIALS

### A. Subgrade Preparation

1. No exception to the referenced specification is made.

### B. Aggregate Base Course

1. The material to be used shall conform to the requirements for Aggregate Base, Class 5.

### C. Bituminous Tack Coat

1. The bituminous material for tack coat shall be CSS-1H.

### D. Bituminous Paving Materials

1. Bituminous material and aggregates shall conform to the typical sections shown in the plans.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION REQUIREMENTS

#### A. Unless otherwise shown on the typical sections in the plans, the depth and class of aggregate base and bituminous surface to be constructed shall be:

##### 1. Bituminous Patch - 5 Ton

- (a) 2.0-inches Type MV Bituminous Wearing Course
- (b) 12.0-inches MnDOT 2211 Aggregate Base, Class 5

##### 2. Bituminous Patch - 7 Ton

- (a) 1.0-inches Type MV Bituminous Wearing Course
- (b) 3.0-inches Type MV Bituminous Base Course
- (c) 10.0-inches MnDOT 2211 Aggregate Base, Class 5

##### 3. Bituminous Patch - 9 Ton

- (a) 1.0-inches Type MV Bituminous Wearing Course
- (b) 4.0-inches Type MV Bituminous Base Course
- (c) 12.0-inches MnDOT 2211 Aggregate Base, Class 5

#### B. The subgrade, aggregate and bituminous base courses of patches whose smallest dimension is less than the width of the compaction equipment shall be hand tamped.

#### C. The subgrade shall be compacted using Quality Compaction Method.

#### D. When the Contractor believes subgrade preparation is complete, he shall notify the Engineer for a final examination. If the Engineer requests it, the subgrade shall be test rolled with a fully loaded tandem truck to verify subgrade stability.

#### E. Aggregate base construction shall take place only after the street subgrade condition and grade has been examined by the Engineer.

#### F. Cut the adjacent asphalt surface prior to the Construction of the bituminous surface course to obtain a clean, vertical, solid edge.

#### G. Compaction of the aggregate base courses shall be by the Quality Compaction Method.

#### H. The bituminous tack coat shall be applied at the rate of 0.08 gallons per square yard.

- I. The contact surfaces of all fixed structures, the edge of the in-place mixture in all courses at transverse joints, and the wearing course at longitudinal joints shall be given a uniform coating of Liquid Asphalt or Emulsified Asphalt before placing the adjoining mixture. The bituminous material shall be applied by methods that will ensure uniform coating and in no case shall the application be excessive.
- J. The bituminous surfacing shall be constructed with maximum deviation of plus or minus ¼-inch from the planned compacted thickness.
- K. Compaction of all bituminous mixtures shall be by the Ordinary Compaction Method. A nuclear density meter and operator shall be provided by the Contractor, if requested by the Engineer.

### 3.2 FIELD QUALITY CONTROL

- A. The bituminous mix shall be designed using Contractor Trial Mix Designs. A current MnDOT mix design may be accepted provided it represents the aggregate source and bituminous plant being used for the project, and is approved by the Engineer. No bituminous mixture shall be placed without an approved mix design.
- B. Final line and grade of the wearing surface shall not exceed the following tolerances from the adjacent pavement surfaces:

	Distance Below Adjacent Bituminous Pavement (inch)
City Streets	1/8
County Highways	1/8
State Highways	1/8
Sidewalks	1/8
Parking Areas	1/4

\*\*\*\*END OF SECTION\*\*\*\*



## SECTION 32 15 00 - AGGREGATE SURFACING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to construct the aggregate surfacing / shouldering as indicated on the drawings or as specified herein.

#### 1.2 METHODS OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. No exception to the referenced specification is made.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated aggregate surfacing items. Such items of work include but are not limited to:
  - 1. Protecting existing improvements and previously accepted in-process improvements from damage.
  - 2. Subgrade excavation, furnishing stabilizing aggregate, geotextile fabric installation, compaction, regrading and/or other efforts necessary to repair the subgrade after satisfying the rolling test and failing to protect the integrity of the subgrade.
  - 3. The cost of all labor, equipment and materials necessary for meeting the testing requirements of field quality control, if required.
  - 4. Furnishing and installing blue tops for aggregate surfacing.
  - 5. Test rolling of the compacted aggregate surface using a fully loaded tandem axle truck.

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2118 shall apply to the construction of aggregate surfacing, except as modified herein.
- B. MnDOT 2221 shall apply to the construction of aggregate shouldering, except as modified herein.
- C. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. Provide the following test results for each source of aggregate:
  - 1. Two gradation tests One percent crushing test (only if requested by Engineer).
  - 2. One aggregate quality test (only if requested by Engineer).
  - 3. One aggregate quality test (only if requested by Engineer).

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Materials included here consist of new aggregate surfacing, Class 2. If additional rock is used to provide a coarser Class 2 gradation, the added materials must pass the Los Angeles Rattler (L.A.R.) test.

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. At the end of each day the Contractor shall eliminate surface indentations, including those caused by sheeps foot rollers, tractor tires and tracked equipment, and roll the surface with a steel wheel or rubber tired roller.
- B. The depth and class of aggregate surfacing to be constructed shall be as shown on the plans. Aggregate surfacing construction shall take place only after the subgrade or aggregate base condition and grade has been examined by the Engineer.
- C. Existing aggregate surfacing shall be salvaged prior to commencing trenching activities, and shall be restored after underground construction is completed.
- D. Compaction of the aggregate surfacing courses shall be by the Quality Compaction Method.
- E. The compacted aggregate surface shall be test rolled using a fully loaded tandem axel truck in a pattern approved by the Engineer. The stability of the compacted aggregate shall be considered adequate when the surface shows less than one ¼-inch of yielding or rutting after one pass, or as otherwise approved by the Engineer. Test rolling shall be incidental.

### 3.2 SOURCE QUALITY CONTROL

- A. The Owner may shall arrange for and pay all costs associated with having the following testing performed:
  - 1. One gradation test for each 500 tons or 275 cubic yards (CV) of each class of aggregate.
  - 2. One percent crushing test (if required by the Engineer).
  - 3. One aggregate quality test (if required by the Engineer).
- B. Samples for testing shall be taken from material in stock at locations approved by the Engineer. All sampling methods shall be approved by the Engineer.
- C. The Contractor shall cooperate fully with the individuals performing the tests.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 32 16 14 - CURBS, GUTTERS, AND DRIVEWAYS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This work consists of constructing cast-in-place concrete curbs, curb and gutter, medians, driveway pavement, pedestrian ramps, and other similar traffic delineation or service items as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
1. Special curb and gutter sections shall be measured and paid for as a part of the design style of curb and gutter shown on the plans.
  2. 6" Concrete Driveway
    - (a) This item shall be measured and paid per SQUARE YARD (SY). The amount bid shall include all costs for subgrade preparation, furnishing and installing aggregate base to depth as specified, and furnishing, placing, jointing, curing, protecting, and scoring concrete to depth as specified.
  3. 8" Concrete Alley Apron
    - (a) This item shall be measured and paid per SQUARE YARD (SY). The amount bid shall include all costs for subgrade preparation, furnishing and installing aggregate base to depth as specified, and furnishing, placing, jointing, curing, protecting, and scoring concrete to depth as specified.
  4. 7" Concrete Valley Gutter
    - (a) This item shall be measured and paid per SQUARE YARD (SY). The amount bid shall include all costs for subgrade preparation, furnishing and installing aggregate base to depth as specified, and furnishing, placing, jointing, curing, protecting, and scoring concrete to depth as specified.
  5. 7" Concrete Drainage Pan
    - (a) This item shall be measured and paid per SQUARE YARD (SY). The amount bid shall include all costs for subgrade preparation, furnishing and installing aggregate base to depth as specified, and furnishing, placing, jointing, curing, protecting, and scoring concrete to depth as specified.
  6. Concrete Curb & Gutter Design B618
    - (a) This item shall be measured and paid per LINEAR FOOT (LF) per the referenced specification.
    - (b) This item shall be used for the replacement of concrete curb and gutter along the interior of loop of El Dorado Dr and Seville Dr, and at the alley aprons.
  7. Concrete Curb & Gutter Design B618 (Spot)
    - (a) This item shall be measured and paid per LINEAR FOOT (LF) per the referenced specification. The amount bid shall include all costs for subgrade preparation, furnishing and installing aggregate base to depth as specified, furnishing, placing, jointing, curing, protecting, and scoring concrete to depth as specified, and furnishing and installing NO.4 reinforcement bars to tie new curb and gutter sections to existing curb & gutter.
    - (b) This item shall be used for the spot replacement of concrete curb and gutter on stretches less than or equal to 50' of contiguous curb and gutter.
    - (c) This item shall

- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated concrete curb and gutter, and concrete driveway items. Such items of work include, but are not limited to:
1. Aggregate base placed under pavements.
  2. Cold weather concrete protection methods and materials required.
  3. High early strength concrete.
  4. Provide adequate barricades and personnel to protect fresh concrete from pedestrian traffic and graffiti.
  5. Provide temporary walk ways spanning fresh concrete where required to maintain access into building entrances.
  6. Casting and curing concrete compressive test cylinders and the performance of compressive strength tests as specified.
  7. Slump and air entrainment testing.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2301.
- B. MnDOT 2531.
- C. MnDOT 3137.
- D. MnDOT Standard Plates.
- E. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. The mix proportions shall be determined by an independent certified testing laboratory secured by the Contractor. A current mix design may be submitted and accepted, provided the aggregate source is the same as that being used for this project. Two copies of the certified mix design shall be submitted to the Engineer for review prior to the construction of the project.

**PART 2 - PRODUCTS**

2.1 MATERIAL

- A. One hundred percent of the coarse aggregate shall be Class B material as specified in MnDOT 3137.
- B. The coarse aggregate designation shall be ASTM #67\* from MnDOT Table 3137-4.
- C. High early strength concrete shall be used for all driveway pavement.

**PART 3 - EXECUTION**

3.1 CONSTRUCTION REQUIREMENTS

- A. The use of dimensional lumber as forms is permitted if the dimension of the lumber is within ½-inch of the specified dimension of the finished concrete.
- B. The width of all driveways shall be established in the field by the project Engineer or Owner.
- C. The joints in the driveway pavement shall match with the sidewalk and curb control joints. The Contractor shall be fully responsible for proper jointing patterns. Mismatched jointing will require removal and replacement of components in order to achieve the desired results. All removal and replacement of rejected construction shall be at the Contractor's expense.

- D. The tooling tolerances as outlined in MnDOT 2531 for surface uniformity, alignment and jointing shall be reviewed by the Contractor prior to the construction. Defects found during examinations will require the Contractor to remove and replace those areas. No deduction in unit price will be acceptable to satisfy defective areas found.
- E. Backfill along exposed edges of slabs and/or behind the curb with selected salvage material from the excavation to the elevation shown on the design detail plate.
- F. The Contractor shall imprint the concrete curb at the locations of the utility service locations if indicated and in accordance with the plans.
- G. When the pavement is placed directly on natural subgrade, earth check dams shall be constructed immediately after passage of the slip forms or removal of the forms to prevent water from flowing along the edge of the pavement and undermining the concrete. They shall not be spaced or be of a width to provide an approach over which a vehicle may be driven onto the pavement.

### 3.2 FIELD QUALITY CONTROL

#### A. Testing

- 1. The Owner may conduct various material tests throughout the construction to determine conformance with these specifications, including but not limited to:
  - (a) Air and slump cone tests.
  - (b) Beam and cylinder testing.
- 2. The Contractor's shall cooperate with the individuals conducting the testing operations.

#### B. Warranty Period

- 1. During the warranty period indicated in the Supplementary Conditions, necessary repairs shall include but not be limited to defects in concrete and workmanship such as cracking, pop-outs, spalling, improper joint placement and settlement.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 32 16 23.13 – CONCRETE WALKS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This work consists of constructing concrete or bituminous walks.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Payment for constructing pedestrian ramps shall be measured and paid as concrete walk at the unit price bid in the Schedule of Unit Prices, complete and in place.
  - 2. Payment for constructing truncated domes shall be measured and paid at the unit price bid per Square Foot (SF) in the Schedule of Unit Prices, complete and in place.
  - 3. Special walk sections shall be measured and paid for as a part of the design style of walk as shown on the plans.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated walks - concrete items. Such items of work include but are not limited to:
  - 1. Aggregate base placed under walk.
  - 2. Cold weather concrete protection methods and materials required.
  - 3. Provide adequate barricades and personnel to protect fresh concrete from pedestrian traffic and graffiti.
  - 4. Provide temporary walk ways spanning fresh concrete where required to maintain access into building entrances.
  - 5. Use of high early strength concrete.

#### 1.3 SPECIFICATIONS REFERENCES

- A. MnDOT 2521 shall apply to the construction of concrete walks, except as modified herein.
- B. MnDOT 3137 shall apply, except as modified herein.
- C. MnDOT Standard Plates.
- D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. A copy of the certified mix design shall be submitted to the engineer for review prior to the construction of the project. The mix proportions shall be determined by an independent certified testing laboratory secured by the Contractor. A current MnDOT Design Mix may be accepted provided the aggregate sources are the same as that being used for this project.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. CONCRETE
  - 1. One hundred percent of the coarse aggregate shall be Class B material as specified in MnDOT 3137.

2. The coarse aggregate designation shall be ASTM #67\* from MnDOT Table 3137-4.
  3. No modification to reference specification.
- B. The foundation materials shall be in accordance with the plans.
- C. TRUNCATED DOME SYSTEMS FOR PEDESTRIAN CURB RAMPS.
1. The approved products are those listed on the MnDOT web site – No Stainless Steel ramps are allowed.  
<http://www.dot.state.mn.us/products/detectablewarningsurfaces/index.html>.
  2. Truncated domes shall be powder coated and red in color.

### **PART 3 - EXECUTION**

#### **3.1 CONSTRUCTION REQUIREMENTS**

- A. The use of dimensional lumber as forms is permitted if the dimension of the lumber is within ½-inch of the specified dimension of the finished concrete.
- B. When the pavement is placed directly on natural subgrade, earth check dams shall be constructed immediately after passage of the slip forms or removal of the forms to prevent water from flowing along the edge of the pavement and undermining the concrete. They shall not be constructed to provide an approach over which a vehicle may be driven onto the pavement.

#### **3.2 FIELD QUALITY CONTROL**

- A. Testing
1. The Owner may conduct various material tests throughout the construction to determine conformance with these specifications, including but not limited to:
    - (a) Air and slump cone tests.
    - (b) Beam and cylinder testing.
  2. The Contractor's shall cooperate with the individuals conducting the testing operations.
- B. Warranty Period
1. During the warranty period indicated in the Supplementary Conditions, necessary repairs shall include but not be limited to defects in concrete and workmanship such as cracking, pop-outs, spalling, improper joint placement and settlement.

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 32 91 19.13 - TOPSOIL PLACEMENT AND GRADING

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. All labor, materials, equipment, and supervision required to furnish and install amended soil and topsoil to finished grade, as shown on the Plan Sheets.

#### 1.2 MEASUREMENT AND PAYMENT

##### A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:

1. Payment for amended soil and topsoil shall be by the CUBIC YARD based on plan quantity for each type of topsoil specified. The amount bid shall be compensation in full for all costs of area preparation, transportation, placement, and final grading as shown on the plan sheets.

#### 1.3 SPECIFICATION REFERENCE

##### A. MnDOT 3877 Topsoil Materials

##### B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

##### A. No submittals for this section.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

##### A. Unless otherwise specified on the plans, topsoil types shall be provided as follows:

1. Common Topsoil Borrow shall be used for areas to be seeded or sodded.
2. Loam Topsoil Borrow shall be used for landscape and planting beds.
3. Sandy Clay Loam Topsoil Borrow shall be used in areas of steep slopes and as top dressing for Turf Reinforcement Mats.

##### B. The following Topsoil Borrow types shall only be used where specified on the plans:

1. Rooting Topsoil Borrow
2. Boulevard Topsoil Borrow
3. Filter Topsoil Borrow

### PART 3 - EXECUTION

#### 3.1 SHRUB, TREE, AND PERENNIAL PLANT BED PREPARATION

- A. Loosen surface of subgrade to minimum 2.0-inch depth to insure a positive bond between subgrade and topsoil.
- B. Do not place finish topsoil until after clean-up and removal of construction debris, trash, surplus materials, and equipment from project site.
- C. In perennial and shrub planting beds, place and spread topsoil to a uniform settled depth that is approximately 66.67 percent of the overall settled depth.

- D. Where topsoil is spread, use a cultipacker, pulverizer, or similar tool to pulverize the soil and eliminate all lumps. Do not compact topsoil.
- E. Provide settled depth of amended soil in all shrub and perennial plant beds as shown in the drawings. Provide backfill for tree root balls as shown on the plans.
- F. Finish grade plant bed areas as shown on the Drawings.

### 3.2 TOPSOIL PLACEMENT AND FINISH GRADING FOR SOD

- A. Topsoil should be placed to a 6.0-inch finished depth in all areas to be sodded.
- B. Prepare soil for planting so that only light raking, or scarifying will be required.
- C. Round finished surfaces at abrupt changes in slope.
- D. Should spot elevations for finished grades conflict with finished contours, the spot elevations shall govern.
- E. Finished grades shall be to top of sod.
- F. Finished grades to uniform levels or slopes between points where levels are given or between such points and existing grades.
- G. Positively drain all sod and planting areas to designated surface water collection points, streets, and/or waterways.
- H. Protect paving, sidewalks, utilities, and plants during finish grading; repair or replace any items damaged by construction operations at no cost to Owner. Equipment that may leave black tire marks should not be driven on sidewalk or paver areas, or marks must be removed, without damage to walks or pavers, prior to project acceptance.
- I. After placement, maintain surfaces to indicated finished grades; deposit additional topsoil or amended soil to repair settlement or erosion up to the date of final acceptance. Scarify surfaces upon which additional topsoil is to be deposited.

### 3.3 BORROW TOPSOIL IN ABOVE-GRADE PLANTERS

- A. Place according to manufacturer's recommendations.

### 3.4 MAINTENANCE

- A. Protection of graded areas:
  - 1. Protect newly graded areas from traffic and erosion.
  - 2. Keep free of trash and debris.
  - 3. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
  - 4. Keep public streets clean from soil, soil tracking, and debris at all times.
- B. Reconditioning Compacted Areas: Where completed graded areas are disturbed by subsequent construction operations, erosion or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction at no cost to the Owner.
- C. Settling: Where settling is measurable or observable during general project warranty period, add topsoil or amended soil, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work and eliminate evidence of restoration at no cost to the Owner.

### 3.5 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove waste materials, including unacceptable excavated material, trash, and debris from the job site.

### 3.6 PROTECTION OF SIDEWALK



- A. Equipment that may leave black tire marks shall not be driven on sidewalk or special paver areas, or marks must be removed without damage to walks prior to acceptance.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 32 92 00 – TURF AND GRASSES AND LANDSCAPE ALLOWANCE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to turf restoration as indicated on the drawings or as specified herein.
- B. A variety of different seeding mixtures may be utilized on this project. The Contractor shall refer to the plan for the locations of the different turf establishment areas.
- C. Temporary seeding may be necessary during construction in erosion sensitive areas. The Contractor shall do temporary seeding work as specified herein or as directed by the Engineer.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. All measurements for payments for turf establishment items shall be based on the Unit Price bid per item.
  - 2. Payment for miscellaneous landscaping items including but not limited to landscape rock, sprinkler system repair and underground (invisible) dog fence system repair shall be measured and paid for under the provisions of the Mn.DOT specification 1904 for Force Account Work, and will be paid for on a percentage of pre-determined LUMP SUM bid for Landscaping Allowance. The percentage paid shall be measured based on the value of work performed and the full bid amount may not be paid in full.
- B. The furnishing and installing specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated seeding and sodding items. Such items of work include but are not limited to:
  - 1. Application of starter fertilizer on all areas to be sodded shall be included in the price bid for sodding.
  - 2. Subgrade preparation and topsoil placement as required on all areas shown on the plans.
  - 3. Maintenance of newly sodded and seeded areas, as specified, include in the unit price for the associated items.
  - 4. Stapling of sod on sloped areas, include in the unit price bid for sodding.

#### 1.3 SPECIFICATION REFERENCES

- A. The following referenced Specifications will apply to this Section:
  - 1. MnDOT 2574.
  - 2. MnDOT 2575.
  - 3. MnDOT 3876.
  - 4. MnDOT 3877.
  - 5. MnDOT 3878.
  - 6. MnDOT 3881.
  - 7. MnDOT 3882.
  - 8. MnDOT 3884.
  - 9. MnDOT 3885.

B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

A. Seeding - Certificates of Compliance for seed mixture.

### **PART 2 - PRODUCTS**

#### 2.1 MATERIALS

A. Seeding

1. The seed mixtures to be used are shown on the plans.
2. Unless otherwise specified on the plans, all application rates for MnDOT mixes, except temporary seed, are 150 percent the specified rate.
3. Type 1 mulch shall consist of clean straw with no pasture hay.
4. Seed must be obtained from as close to the project site as reasonably possible with an emphasis on obtaining seed from the local ecotype region.
5. All seed shall be supplied as pure-live seed (PLS).
6. All seed and seed mixes shall conform to State seed requirements for noxious weed content.
7. All seed and seed mixes shall conform to State labeling requirements. For all species in the mix, the label and or invoice shall include the county of origin, and if from Canada, the province.

B. Sodding Items

1. Unless otherwise indicated on the plans, sod shall be Lawn Sod as defined in the referenced specification except when located within MnDOT right-of-way where Salt Tolerant Sod shall be utilized.

C. Imported Topsoil

1. Unless otherwise indicated on the plans, imported topsoil borrow for general use as a turf growing medium shall comply with MnDOT 3877.2.A.
2. Unless otherwise indicated on the plans, imported topsoil borrow for use as a plant growing medium in designated areas such as landscape beds shall meet the requirements of MnDOT 3877.2.B.

### **PART 3 - EXECUTION**

#### 3.1 CONSTRUCTION REQUIREMENTS

A. GENERAL

1. The subgrade shall be shaped to the approximate contour of the finished surface. All construction debris shall be removed from the area prior to the placement of the topsoil. The subgrade shall be loosened with a disc or harrow to a depth of 6.0-inches prior to application of the topsoil.
2. The topsoil shall be shaped to the approximate contour of the finished surface, with a minimum depth of 6.0-inches, unless otherwise shown on the plan. All construction debris, rocks and trash shall be removed from the area prior to seeding or sodding. The topsoil shall be loosened with a disc or harrow to its full depth prior to seeding or sodding.
3. The Contractor shall be responsible for providing water and maintenance for a period of 30 calendar days, or until final acceptance by the Owner, to firmly establish the seed or sod. The term maintenance includes mowing, weed control and watering, as necessary. Failure to perform this work within 24-hours of notification of non-compliance may result in the Owner or Engineer arranging for completion of the work by others. A contract deduction will be made equal to the total of all costs to

perform such work so arranged, including but not limited to, labor, materials, equipment and administrative costs.

4. Where dormant seeding or sodding is authorized, the maintenance period will be extended to include the first 30 calendar days after the beginning of the growing season or until final acceptance by the Owner. The beginning of growing season will be defined as bud burst.

**B. SEEDING REQUIREMENTS**

1. Turf establishment by seeding shall be done utilizing the various combinations of seed mixtures (including aquatic plants), fertilizing and mulching at disturbed areas as shown on the plans.
2. Areas prepared for seeding shall be free of rocks, debris and clumps of soil. The areas shall be graded uniformly, and vegetated areas shall be raked free of chunks exceeding ½-inch diameter.
3. Seed shall be applied with a drill seeder, unless otherwise approved by the Owner.
4. The Contractor shall furnish weight tickets documenting pounds of hydraulic soil stabilizer placed, pounds of fertilizer placed, and pounds of seed placed. The seed tickets shall show individual plant species along with the percent purity and percent germination. The fertilizer tickets shall show mix proportions. The Contractor shall also furnish its QA/QC data to the Engineer.
5. Dormant seeding and snow seeding may be utilized in accordance with the referenced specification and technical memorandum, provided the final acceptance standards are met.
6. Use of seed mix carriers: In some cases, it can be beneficial to add seed mix carriers to mixes such as cracked corn, vermiculite or sand, the choice often depends on the type of seeder used. Manufacturers of seeding equipment should be consulting about carrier recommendations. The material used and rate applied must be approved by the Engineer prior to use. The cost of seed mix carriers will be incidental to the unit price bid for the seed.
7. Final acceptance of seeding will be based on an established growth of 6.0-inches with a uniform density to cover 70 percent of the designated area, free of weeds and bare spots. Any re-seeding necessary shall be performed at the Contractor's expense.

**C. SODDING REQUIREMENTS**

1. Sod shall be placed by the Contractor in the locations shown on the plans as directed by the Engineer.
2. When placing sod in irregularly shaped locations, the Contractor shall produce sharp, straight joints between sod rolls.
3. Sod shall be placed to create a firm, smooth, uniform surface without ruts, knobs or wrinkles.
4. Sod placed on slopes greater than 1:4 (v:h), in ditch bottoms, and around storm sewer inlets or outlets shall be anchored with staples. Staples shall be U shaped 0.12-inch diameter or heavier steel wire having a span width of 1.0-inch and a length of 8.0-inches from top to bottom, after bending.
5. All re-work necessary to repair imperfections in sod placement shall be made at the Contractor's expense.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 33 01 30.86 - MANHOLE RIM ADJUSTMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to adjusting a casting assembly frame and ring or valve box as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Measurement and payment for adjusting existing manhole frame and rings, catch basin frame and rings, and valve boxes shall be paid per EACH scheduled adjustment, not caused by the Contractor's activities or delays.
  - 2. The initial installation and adjustment of the casting assembly for new manholes and valve boxes, whether to match the bituminous base course or the bituminous wear course shall be incidental to the installation of the item. Subsequent adjustments, not caused by the Contractor's activities or delays, shall be paid per EACH of the type of item indicated.
  - 3. Raise/Lower Existing Manhole
- B. Payment for raising or lowering an existing manhole shall be measured and paid based on the vertical difference between the existing and final rim elevations. The payment shall include all cost of labor, materials and equipment required to complete the work.
- C. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated adjustment items. Such items of work include but are not limited to:
  - 1. Saw cutting the wall of the existing structure, if necessary.
  - 2. Adjusting chimney seals on existing structures, if necessary.

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2506 shall apply to adjusting frame and ring, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. No submittals for this section.

### PART 2 - PRODUCTS

#### 2.1 ADJUSTING RINGS

- A. **Only concrete adjusting rings shall be permitted.**

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall bring manhole castings and valve boxes to grade. The manhole casting shall be placed on a full mortar bed or bituminous mastic upon final setting. The inside and outside of the adjusted area shall be plastered with a minimum thickness of 1/2-mortar.

- B. All inverts of manholes and valves boxes shall be cleaned of debris and gravel which may have fallen into the structures as a result of construction.
- C. Finished grade of the casting or valve box in paved areas shall be according to the following, unless otherwise specified on the plans:

	Distance Below Adjacent Concrete Pavement (in)	Distance Below Adjacent Bituminous Pavement (in)	Distance Below Adjacent Gravel Surface/Green Area (in)
City Streets	1/8 to ¼	¼ to 3/8	1
County Highways	1/8 to ¼	¼ to 3/8	1
State Highways	1/8 to ¼	¼ to 3/8	1
Sidewalks	1/8 to ¼	1/8 to ¼	1
Parking Areas	1/8 to ¼	¼ to 3/8	1

- D. In no case shall the casting or valve box extend above the finished surface.
- E. Raising and/or lowering an existing manhole to meet a proposed finished rim elevation is performed when the addition and/or deletion of 2.0-inch adjusting rings will not reach a minimum of 2 rings or exceed a maximum of 6 rings. Typically, it will require the:
1. Removal of the manhole cone section or concrete slab top
  2. Addition, removal or exchange of barrel sections
  3. Replacement of the cone section or the flat slab top
  4. Installation of the proper number of adjusting rings.
  5. Replacement of the manhole frame and casting.
  6. In some cases, the existing structure may require saw cutting.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 33 05 06 - TRENCHING AND BACKFILLING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to the maintenance of utility service, trench excavation, bedding, and backfill necessary for the construction of underground utilities and structures, as indicated on the drawings or as specified herein.

#### 1.2 DEFINITIONS

- A. Excess Material - Material that is not needed to complete the earthwork balance.
- B. Suitable Material - Sand, silty sand, or low plasticity clay soils with no organic content. The Engineer shall make the final determination as to what material will be considered suitable.
- C. Unsuitable Material - Soil with organic content including topsoil, swamp deposits, peat, muck, or other material deemed by the Engineer to be unsuitable for fill or embankment construction.
- D. Flexible Pipe Materials – For this specification section, flexible pipe materials will include the following:
  - 1. Polyvinyl chloride (PVC) pipe – solid wall and profile wall pipe.
  - 2. Polypropylene profile wall pipe.
  - 3. High-density polyethylene pipe – solid wall and profile wall pipe.
  - 4. Corrugated steel or aluminum pipe.
  - 5. Centrifugally cast glass-fiber-reinforced, polymer mortar (CCFRPM) pipe.
- E. Rigid Pipe Materials – For this specification section, rigid pipe materials will include the following:
  - 1. Reinforced concrete pipe.
  - 2. Reinforced concrete box culverts.
  - 3. Ductile iron pipe.

#### 1.3 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
  - 1. Items specifically identified in the Schedule of Unit Prices will be compensated following the description of measurement and payment contained in the section applicable to the individual item. No direct compensation will be granted for compliance with the provisions contained herein.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the individual pipeline items associated with the stated specific item or work effort. Such items of work include but are not limited to:
  - 1. Interference with other above and underground structures and utilities.
  - 2. The removal and restoration, or protection of existing structures and utilities that are shown on the plans and for which there is no bid item for removing and restoring or working around the utility.
  - 3. Unless separately itemized in the Schedule of Unit Prices, any dewatering is necessary for construction.
  - 4. Foundation materials placed instead of performing necessary dewatering.

5. Bulkheading of existing pipes to be abandoned in place.
6. Granular foundation, granular bedding, and granular encasement materials.
7. Granular foundation materials used instead of bedding materials in the specified bedding zone, where specified.
8. Granular foundation materials used in unstable trench conditions.
9. The removal and disposal of native materials that are unsuitable for bedding and/or backfill.
10. Providing and maintaining utility service.
11. The replacement of all material displaced due to shrinkage or loss during the excavation and backfilling operations.
12. The removal of excess materials above the original topography resulting from the additional volume created from pipe bedding, utility pipe, and/or underground structures.
13. Delays due to other utility conflicts that result during construction.
14. Protecting existing improvements and previously accepted elements of this construction from damage.
15. Protecting the inverts of other utility pipes from the accumulation of debris and soil, the removal of blockages that threaten to damage property, and/or the cleaning of both the newly constructed lines and the existing lines of all debris and soil that accumulated during the construction.
16. If a separate bid item for bypass pumping is NOT included in the Schedule of Unit Prices, providing temporary bypass pumping/control of stormwater flows around the construction zone, will be included in the price bid for the associated items being installed.
17. The use of special construction techniques such as trench boxes, sheeting, shoring, etc., will be included in the price bid for the associated items being installed.
18. Compaction testing and compaction, if required, will be included in the price bid for the associated items being installed.

#### 1.4 SPECIFICATION REFERENCES

- A. CEAM 2600 will apply, except as modified herein.
- B. MnDOT 2451 will apply, except as modified herein.
- C. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.5 SUBMITTALS

- A. Gradation Test Results for any granular borrow materials.
- B. Two separate tests, as required in Source Quality Control provisions of individual sections contained herein, from material stockpiles of aggregates to be used on this project. These tests may be run by the Contractor or its supplier during aggregate production.

### **PART 2 - PRODUCTS**

#### 2.1 GRANULAR MATERIALS

- A. Granular Bedding and Granular Encasement – No exception to the referenced specification is made.
- B. Granular Backfill - No exception to the referenced specification is made.

### **PART 3 - EXECUTION**

#### 3.1 EXCAVATION AND PREPARATION OF TRENCH

A. Interference and Protection of Underground Structures

1. If an existing utility is shown on the plans and there is no bid item for removing and restoring, or working around the utility, the Contractor shall be required to remove and restore, or protect the utility.
2. The inverts of existing sewers (storm & sanitary), culverts, subdrains, etc. will be protected during construction. The Contractor is responsible to inspect and clean, if necessary, all lines which have become compromised by the construction operations.

B. Excavation Limits and Requirements

1. The trench for all flexible pipe will be undercut 6.0-inches below the pipe barrel to permit the installation of granular bedding or foundation material.
2. The trench for all rigid pipe will be undercut 3.0-inches below the pipe barrel, or as shown in the bedding detail, to permit the installation of granular bedding or foundation material.
3. The Contractor shall install and operate a dewatering system to maintain all trenches free of water wherever necessary. The Contractor shall make their subsurface investigations and determine what dewatering methods to utilize to prevent such damage.
4. The Contractor shall be responsible for any damage to adjacent structures or buildings caused by the dewatering operations.
5. Use of granular foundation material in place of performing dewatering is permitted.
6. All excess excavated material will become the property of the Contractor and will be removed from the site and disposed of at a location secured by the Contractor.

3.2 INSTALLATION OF PIPE AND FITTINGS

- A. The Contractor shall keep accurate records as to the location of the service connections, field tile, utility crossings, etc. either constructed or encountered during the construction. Measurements to service lines will be taken from the two nearest permanent structures (i.e., hydrants, valves, manholes, buildings). Final payment for the project will not be made until the information is in the possession of the Owner.
- B. When connection to an existing conduit is required at an existing or proposed manhole, the Contractor shall expose and verify the elevation of the existing conduit before laying any pipe toward, or away from, the connection point. If the elevation of the existing conduit does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.
- C. Sewer Pipe at Structures
1. The pipe end(s) will be extended inside the structure a maximum of 3.0-inches unless approved otherwise by the Engineer or shown on the plans.
- D. Connection and Assembly of Joints
1. For sanitary sewer, watermain, forcemains, and culverts, all joints will be water-tight.
  2. For storm sewers and subdrains, all joints will not permit the intrusion of soil or backfill materials.
    - (a) If a reinforced concrete pipe is used, the Contractor may at its discretion choose to wrap each joint with a geotextile filter fabric, as specified, rather than place mastic in the joint.
- E. Bulkheading Open Pipe Ends
1. The Contractor shall furnish, install and maintain a temporary, water-tight plug adequately blocked in place to prevent flooding of the existing downstream sewer system. The plug will be placed at the beginning of the project or the end of each working day at the end of the day's operation.

2. When flows are diverted from an existing sewer or tile to be abandoned in place, the Contractor will construct a water-tight plug on the open end of the abandoned pipe.
3. Permanent watertight plugs will be constructed with concrete grout with a thickness of not less than 1 pipe diameter.

### 3.3 BEDDING AND BACKFILLING OPERATIONS

- A. Backfill material around all manholes, catch basins, valve boxes, curb boxes, and hydrants will be compacted with hand machines. The maximum lift thickness will be 6.0-inches.
- B. Flexible Pipe Materials
  1. Unless otherwise shown on the plans, the pipe will be bedded and backfilled with granular material compacted to 95 percent Standard Proctor Density or as recommended by the pipe manufacturer, whichever is denser, from 6.0-inches below the bottom of the pipe to 12.0-inches above the top of the pipe the full width of the trench. The Contractor shall bed and backfill the pipe as shown on the plan details.
  2. Where the trench foundation is unstable and not suitable for bedding, the trench will be undercut until acceptable conditions are found. The Contractor shall then install compacted foundation material to meet the line and grade specified on the plan.
  3. Unless otherwise shown on the plans, select native material will be used as a trench backfill above the granular bedding up to the bottom of the subgrade except in those conditions where the top of the pipe is less than 12.0-inches from the bottom of the subgrade in which case granular material compacted to 100 percent Standard Proctor Density will be used as trench backfill the full width of the trench to the bottom of the subgrade excavation zone.
- C. Rigid Pipe Materials
  1. Unless otherwise shown on the plans, in ordinary or stable trench conditions, the bottom of the trench will be first excavated to a depth of approximately 15 percent of the outside pipe diameter below the established grade for the bottom of the pipe. Then the bottom of the trench will be further excavated to allow for the placement of 6.0-inches of granular bedding for a width of at least 60 percent of the outside diameter of the pipe. A pipe will be placed on the bottom of the pre-shaped excavated trench. The bottom of the excavated trench will be shaped to fit the circumference of the pipe up to 0.15 of the outside diameter of the pipe. The Contractor shall encase the pipe from the 0.15 outside diameter to the 0.60 diameter height of the pipe with granular material compacted to 95 percent Standard Proctor Density or as recommended by the pipe manufacturer, whichever is denser.
  2. Where the trench foundation is unstable and not suitable for bedding, the trench will be undercut until acceptable conditions are found. The Contractor shall then install compacted foundation material to meet the line and grade specified on the plan.
  3. Unless otherwise shown on the plans, select native material may be used as trench backfill above the granular bedding up to the bottom of the subgrade except in those conditions where the top of the pipe is less than 12.0-inches from the bottom of the subgrade in which case granular material compacted to 100 percent Standard proctor Density will be used as trench backfill the full width of the trench to the bottom of the subgrade excavation zone.
- D. Structures
  1. All manholes, catch basins, valve boxes, water vaults, headwalls, and miscellaneous structures will be backfilled with granular backfill material and will be compacted with a hand-operated motorized compactor.
- E. All trench backfill will be compacted in accordance with the Specified Density Method:
  1. Under areas with proposed paved or structural improvements:

- (a) 100 percent Standard Proctor from the proposed pavement subgrade elevation down 3.0-feet.
- (b) 95 percent Standard Proctor from the bottom of excavation up to 3.0-feet below the subgrade elevation
- 2. Under areas with no proposed paved or structural improvements:
  - (a) 95 percent Standard Proctor

3.4 SOURCE QUALITY CONTROL

- A. The Owner may arrange for having the following testing performed:
  - (a) One gradation test per every 500 tons or 275 cu yd (CV) of granular material.

3.5 FIELD QUALITY CONTROL

- A. The Owner may arrange for having the following testing performed:
  - 1. One compaction test (including Standard Proctor) on subgrade per every 300 lineal feet of trench per 3.0-feet of depth
- B. The Contractor shall cooperate fully with the individuals performing the tests.
- C. Samples for testing will be taken from material in place, in the trench at locations approved by the Engineer. All sampling methods will be approved by the Engineer.
- D. Should any of the specified tests fail, the Contractor may arrange and pay for additional tests as may be necessary to satisfy the Engineer that the requirements have been met.

**\*\*\*END OF SECTION\*\*\***



## SECTION 33 05 97.36 - UNDERGROUND UTILITY LOCATION SYSTEM

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to providing a system for the location of underground utilities as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Payment for all work associated with the construction of the underground utility location system will be incidental to the unit price bid for the utility associated with the system and no separate compensation will be granted, unless bid items are specifically identified in the bid form.

#### 1.3 SPECIFICATION REFERENCES

- A. NOT USED

#### 1.4 SUBMITTALS

- A. Submit the following items consistent with Section 01 33 00 "Submittal Procedures" of this Project Manual.
1. Complete catalog information, descriptive literature, specification, and identification of materials of construction.
  2. Submit Operations and Maintenance Manual for Locate Equipment provided to the City under their Contract.

### PART 2 - PRODUCTS

#### 2.1 TRACE WIRE

#### 2.2 ALL TRACE WIRE AND TRACE WIRE PRODUCTS WILL BE DOMESTICALLY MANUFACTURED IN THE U.S.A.

- A. All wire will be rated for direct burial use at 30 volts. The insulation color will meet the APWA color code standard for the identification of buried utilities (blue for water, green for sewer). High-density polyethylene (HDPE) insulation will be RoHS compliant and utilize virgin grade material.
- B. Trace wire for open-cut trench installation will be #12 AWG Copper Clad Steel (CCS) High Strength with minimum 450 lb. break load with 30 mil HDPE insulation, as manufactured by Copperhead Industries, or approved equal.
- C. Trace wire for directional drilling applications will be #12 AWG Extra High Strength CCS wire with minimum 1,150 lb. break load, with 45 mil HDPE insulation as manufactured by Copperhead Industries, or approved equal. The Contractor shall use a smaller wire gauge if increased breaking strength is needed.
- D. Trace wire for pipe bursting, bore & jack or slip lining applications will be SoloShot TM Xtreme trace wire, 7x7 stranded CCS with Extreme Strength 4,700 lb. break load, with 50 mil HDPE insulation, as manufactured by Copperhead Industries or approved equal.
- E. All trace wire termination points must utilize an approved trace wire access box (above ground access box or grade level/in-ground access box as applicable), specifically manufactured for this purpose. Unless otherwise noted on the plans access boxes will be:

Yards and Ditches	SnakePit Light Duty, Lite Duty Adjustable, or equal with two terminal lids
Driveways, Sidewalks, and Trails	SnakePit Concrete/Driveway or equal with two terminal lids

Roadways	SnakePit Roadway Access or equal with two terminal lids
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F. The following materials are not acceptable:

1. Uninsulated trace wire.
2. Trace wire insulations other than HDPE.
3. Trace wires not domestically manufactured.

## 2.3 CONNECTORS

A. Trace wire connectors will be filled with silicone waterproofing sealant suitable for direct bury applications according to UL 486D test standard.

1. All mainline trace wires must be interconnected in intersections, at mainline tees and mainline crosses. At tees, the three wires will be joined using a single 3-way lockable connector. At crosses, the four wires will be joined using a 4-way connector. The use of two 3-way connectors with a short jumper wire between them is an acceptable alternative.
2. Where two wires are connected end to end along a continuous run, the connectors will be DBSR Aqua as manufactured by King Innovation or approved equal.
3. Where a trace wire is branched off of the mainline trace wire for a service or intersecting main, the connector will be DryConn™ Direct Bury Lug Aqua as manufactured by King Innovation or approved equal.
4. Where three wires are connected the connector will be SnakeBite Connector as manufactured by Copperhead Industries or approved equal. The mainline trace wire will not be cut to create a three-way splice.

B. The following connectors will not be acceptable:

1. Non-locking friction fit, twist-on, or taped connectors.
2. Wire connections utilizing taping or spray-on waterproofing.
3. Brass fittings with trace wire connection lugs.
4. The connecting trace wire to existing conductive utilities.

## 2.4 AT-GRADE ACCESS BOXES

A. Trace wire access boxes for at-grade installation will be SnakePit as manufactured by Copperhead Industries or approved equal. Covers will be cast iron, with locking pentagon nut and appropriate labeling and color-coded per utility. Covers will have two trace wire terminals inside the cover, with a removable electrical shunt between the terminals. All grade level/in-ground access boxes will be appropriately identified with "sewer" or "water" cast into the cap and be color-coded.

## 2.5 TEST STATIONS

A. Trace wire test stations to be installed at hydrants will be Cobra T3 test stations as manufactured by Copperhead Industries or approved equal. The test station will have two terminals with a jumper and will include an HDPE or stainless steel flange for mounting to the hydrant. The test station will be mounted on a 24.0-inch length of 1.0-inch diameter schedule 40 PVC pipe.

## 2.6 GROUNDING ANODES

A. Grounding anodes will consist of a one-pound magnesium alloy anode rod, with approximate dimensions of 1.3-inches in diameter and 18-inches in length. The anode rod will come preassembled with a PE cap and 12.0-feet of #14 AWG Copper Clad Steel (CCS) wire with a 30 mil high-density polyethylene (HDPE) insulating jacket. The insulation will be red or black.



- B. Brass or copper ground rods are not acceptable.

### **PART 3 - EXECUTION**

#### **3.1 TRACE WIRE SYSTEM INSTALLATION**

#### **3.2 GENERAL:**

1. Trace wire will be installed with all sanitary sewer mains, sewer services, forcemains, watermain, water services, and stormsewer mains in accordance with the details shown on the plans.
2. Trace wire installation will be performed in such a manner that allows proper access for connection of line tracing equipment, proper locating of wire without loss or deterioration of low frequency (512Hz) signal for distances over 1,000 linear feet, and without distortion of signal caused by multiple wires being installed close to one another.
3. Trace wire will be installed at the bottom half of the pipe and secured (taped/tied) at 5.0-inch intervals. Trace wire will not be wrapped around the corresponding utility piping.
4. The trace wire along the main will be installed continuously, without cutting or splicing the main wire at services and intersecting mains. The wire will not be looped or coiled or near one another. The completed trace wire system will be fully sealed, with no exposed wire or connections.
5. Wire damaged during installation must be repaired by removing the damaged wire and installing a new section of wire with approved connectors. Taping and/or spray coating is not an acceptable repair method.
6. All service lateral or intersecting main trace wires will be a single wire, connected to the mainline wire using a main to lateral lug connector, installed without cutting or splicing the mainline wire.

#### **B. Sanitary Sewer System**

1. A mainline trace wire must be installed, with all service lateral trace wires properly connected to the mainline trace wire, to ensure full tracing/locating capabilities from a single connection point.
2. Lay mainline trace wire continuously, by-passing around the outside of manholes/structures on the North or East side.
3. Trace wire on all sanitary service laterals must terminate at an approved trace wire access box color-coded green and located directly above the service lateral at the edge of the road right of way.

#### **C. Water System**

1. A mainline trace wire must be installed, with all service lateral trace wires properly connected to the mainline trace wire, to ensure full tracing/locating capabilities from a single connection point.
2. Lay mainline trace wire continuously, by-passing around the outside of valves and fittings on the North or East side.
3. Trace wire on all water service laterals must terminate at an approved trace wire access box color-coded blue and located directly above the service lateral at the edge of the road right of way.
4. Above-ground trace wire access boxes will be installed on all fire hydrants.
5. All conductive and non-conductive service lines will include trace wire.

#### **D. Storm Sewer System**

1. If the storm sewer system includes service laterals for connection of private drains and tile lines, it will be specified the same as a sanitary sewer application.
2. Lay mainline trace wire continuously, by-passing around the outside of manholes/structures on the North or East side.

### 3.3 TERMINATION/ACCESS

#### A. General:

1. All trace wire termination points must utilize an approved trace wire access box (above ground access box or grade level/in-ground access box as applicable), specifically manufactured for this purpose.
2. A minimum of 2.0-feet of excess/slack wire is required in all trace wire access boxes after meeting final elevation.
3. Grounding anode wire will be connected to the identified (or bottom) terminal on all access boxes.

#### B. Trace Wire at Hydrants

1. At hydrants, a single strand of trace wire will be connected to the main wire and installed along the hydrant lead to the hydrant. The trace wire will be extended up the hydrant barrel to the ground surface and attached to one of the terminals on the trace wire access box.
2. A one-pound grounding anode rod will be installed at the base of each hydrant. Trace wire will be extended from the anode to the ground surface and attached to the second terminal on the trace wire access box. The shunt between the terminals will be installed in the closed position.

#### C. Trace Wire at Water Services

1. Public property - a single strand of trace wire will be connected to the main wire and installed along the service to the location of the curb stop. A one-pound grounding anode rod will be installed at the base of each curb stop. Both the blue trace wire and the black/red anode wire will be extended to the ground surface and attached to the trace wire access box.
2. Private property - a single strand of trace wire will be connected to the main wire and installed along the service to the building. The trace wire will terminate in a test station installed directly above where the utility enters the building, at an elevation not greater than 5.0-vertical feet above finished grade, or terminate at an approved grade level/in-ground trace wire access box, located within 2.0-LF of the building. A one-lb grounding anode rod will be installed at the termination point and both the blue trace wire and the black/red anode wire will be extended to the ground surface and attached to the trace wire access box.

#### D. Trace Wire at Sanitary Sewer Services

1. Public property - a single strand of trace wire will be connected to the main wire and installed along the service to the property line or the location at which the trace wire access box will be installed. A 1.0-lb grounding anode rod will be installed at the elevation of the service connection. Both the green trace wire and the black/red anode wire will be extended to the ground surface and attached to the trace wire access box.
2. Private property - a single strand of trace wire will be connected to the main wire and installed along the service to the building. The trace wire will terminate in a test station installed directly above where the utility enters the building, at an elevation not greater than 5.0-vertical feet above finished grade, or terminate at an approved grade level/in-ground trace wire access box, located within 2.0-LF of the building. A one-lb grounding anode rod will be installed at the termination point and both the blue trace wire and the black/red anode wire will be extended to the ground surface and attached to the trace wire access box.

#### E. Trace Wire at Connections to Existing Watermains and Dead Ends

1. Where connection is made to an existing main with an existing trace wire, the trace wires will be connected. A grounding anode will be connected to the trace wires at the connection point.
2. Where connection is made to an existing main without trace wire, or where constructing a new dead-end stub, or where connecting to existing conductive pipe material, the trace wire will terminate at the

end of the new main. Provide a grounding anode at the end of the trace wire. Do not connect trace wire to conductive mains.

F. Trace Wire along Gravity Sanitary Sewer

1. Where connection is made to an existing gravity sanitary sewer with an existing trace wire, the trace wires will be connected. A grounding anode will be connected to the trace wires at the connection point.
2. Where connection is made to an existing gravity sanitary sewer without trace wire or where constructing a new dead-end stub, the trace wire will terminate at the end of the new main. Provide a grounding anode at the end of the trace wire.
3. Where the trace wire terminates at an existing sanitary sewer manhole, connect to a grounding anode. Do not extend wires to the surface.

G. Trace Wire along Forcemains

1. Provide an access box and grounding anode in the turf area, near the gate valve downstream of the valve vault.
2. Provide trace wire access boxes and grounding anodes at various locations along the forcemain, as noted in the plans.
3. Where the trace wire terminates at an existing sanitary sewer manhole, connect to a grounding anode. Do not extend wires to the surface.

H. Long Runs:

1. In long runs above 500.0-LF without service laterals or hydrants, trace wire access must be provided utilizing an approved grade level/in-ground trace wire access box, located at the edge of the road right-of-way, and out of the roadway.
2. In rural areas, the grade level/in-ground trace wire access box will be delineated using a minimum 48.0-inch polyethylene marker post, color-coded per APWA standard for the specific utility being marked.

3.4 GROUNDING

- A. Trace wire must be properly grounded at all dead ends/stubs.
- B. When grounding the trace wire at dead ends/stubs, the grounding anode will be installed in a direction 180 degrees opposite of the trace wire, at the maximum possible distance.
- C. When grounding the trace wire in areas where the trace wire is continuous and neither the mainline trace wire nor the grounding anode wire will be terminated at/above grade, install grounding anode directly beneath and in-line with the trace wire. Do not coil excess wire from grounding anode. In this installation method, the grounding anode wire will be trimmed to an appropriate length before connecting to trace wire with a mainline to lateral lug connector.
- D. Where the anode wire will be connected to a trace wire access box, a minimum of 2.0-ft of excess/slack wire is required after meeting final elevation.

3.5 FIELD QUALITY CONTROL

- A. The Contractor shall demonstrate the ability to locate the entire trace wire system using a handheld locating device. Locating will be witnessed by the Owner and Engineer.
- B. All new trace wire installations will be located using typical low frequency (512Hz) line tracing equipment, witnessed by the Contractor, Engineer, and facility owner as applicable, before acceptance of ownership.
- C. This verification will be performed upon completion of rough grading and again before final acceptance of the project.

D. Continuity testing instead of actual line tracing will not be accepted.

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 33 14 00 – WATER UTILITY TRANSMISSION AND DISTRIBUTION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to watermain and service line construction as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
1. Watermain
    - (a) No exception to the referenced specification is made.
  2. Hydrants
    - (a) No exception to the referenced specification is made.
  3. Hydrant Extensions
    - (a) Hydrant extensions will be measured and paid per each of the lengths as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid.
  4. Valves and Valve Boxes
    - (a) No exception to the referenced specification is made.
  5. Fittings
    - (a) Unless otherwise noted on the plans, watermain fittings will be measured by the pound without joint accessories. The standard weight of watermain fittings, for payment purposes, will be as published in AWWA C-153, as follows:

Bends, Caps, Plugs & Sleeves							
Size	Fitting Weights, lbs. (AWWA C153)						
	Bends – MJ x MJ, (degrees)				Caps MJ x MJ	Plugs MJ x MJ	Sleeves <sup>1</sup> MJ x MJ
	90	45	22.5	11.25			
3	19	16	15	14	8	8	18
4	25	22	18	16	9	10	20
6	39	32	31	30	15	16	33
8	57	46	46	42	22	26	46
10	89	70	64	58	32	36	62
12	108	86	80	67	42	46	76
14	210	160	136	93	66	75	140
16	264	202	172	148	92	95	170
18	335	250	255	205	114	121	200
20	400	305	310	245	125	135	255
24	565	405	412	315	166	175	335
<sup>1</sup> Weights are based on the use of long sleeves.							

Tees, Crosses & Reducers									
Run Large Small		Fitting Weights, lbs. (AWWA C153)			Branch Large Small		Fitting Weights, lbs. (AWWA C153)		
		Tee	Cross	Reducers			Tee	Cross	Reducers
		MJ x MJ	MJ x MJ	MJ x MJ			MJ x MJ	MJ x MJ	MJ x MJ
4	4	32	40	-	18	6	275	-	-
6	4	46	62	24	18	8	295	-	190
6	6	56	75	-	18	10	315	-	195
8	4	60	84	32	18	12	335	-	180
8	6	72	98	36	18	14	380	-	190
8	8	86	105	-	18	16	405	-	195
10	4	78	98	46	18	18	435	-	-
10	6	90	121	47	20	6	315	-	-
10	8	105	135	50	20	8	345	-	-
10	10	120	145	-	20	10	370	-	220
12	4	94	119	58	20	12	395	-	205
12	6	110	138	58	20	14	440	-	200
12	8	125	149	57	20	16	465	-	200
12	10	140	187	61	20	18	505	-	225
12	12	160	213	-	20	20	535	-	-
14	4	172		-	24	6	415	-	-
14	6	182	210	100	24	8	445	-	-
14	8	206	231	100	24	10	470	-	-
14	10	228	255	100	24	12	500	-	305
14	12	234	269	100	24	14	550	-	310
14	14	280	299		24	16	580	-	320
16	6	228	250	124	24	18	625	-	305
16	8	248	264	124	24	20	660	-	300
16	10	264	286	124	24	24	720	-	-
16	12	280	312	112					
16	14	316	-	140					
16	16	322	385	-					

(b) The weight for fittings not listed in the tables above will be in accordance with AWWA C153. The weight for fittings not listed in the tables above or in AWWA C153 will be the actual weight of the fitting(s) furnished and installed based on acceptable documentation provided by the Contractor.

6. Corporation Stops & Curb Stops

(a) No exception to the referenced specification is made.

7. Water Service Lines

(a) The quantities for water service line items shown in the proposal are approximate. Since the extent of service line work that will be required is unknown, the Owner reserves the right to increase or decrease the quantities by any amount with no adjustment in unit price.

8. Cut in Tee (Wet Tap)

(a) Payment for cutting in a new tee with valve in an existing watermain, under pressure, will be measured and paid per each of the size tee specified in the Schedule of Unit Prices, complete and

in place, at the appropriate unit price bid. Any "Connect to Existing Watermain" bid item will not be paid for wet taps.

9. Polystyrene Insulation (1½-inch thickness)
    - (a) Polystyrene insulation will be measured by the square yard in place and will be paid at the unit price bid.
    - (b) Since the extent of insulation work that will be required is unknown, the Owner reserves the right to increase or decrease the quantities by any amount with no adjustment in unit price.
  10. Connect to Existing Watermain
    - (a) Connection to existing watermain shall include all costs of locating and connecting to the existing watermain. Payment shall be measured per EACH water main to which connection is made. Fittings and valves shall be measured and paid separately, as specified in the schedule of unit prices.
  11. Connect to Existing Water Service
    - (a) The amount bid for connecting to existing water services shall include all costs for locating and connecting to the existing service, including any required fittings. Payment shall be measured per EACH service line to which connection is made on the House/Business side. No payment for connection to existing water service shall be made for connection at the existing corporation stop.
  12. Temporary Water Service
    - (a) Payment shall be measured per EACH property temporary service is provided for. The amount bid shall include all temporary piping, disinfection, testing, excavation (if necessary), coordination, and maintenance. Temporary water service shall be provided to all properties scheduled to receive a new water service in the construction plans.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the water system items, as indicated. Such items of work include but are not limited to:
1. Furnishing and installing underground utility location system.
  2. The furnishing and installing polyethylene encasement material will be included in the price bid for the watermain.
  3. Concrete blocking or metal ties will be included in the price bid for the watermain.
  4. Valve umbrella anchorage assembly will be included in the unit price bid for valves.
  5. Locating and connecting to an existing watermain or a hydrant will be included in the price bid for the watermain.
  6. Locating and connecting to an existing water service line will be included in the price bid for the watermain.
  7. Compaction, hydrostatic, leakage, disinfecting, coliform bacteria, and conductivity testing will be included in the price bid for the watermain.
  8. Furnishing and installing thrust block, tie rods, joint restraints, and sacrificial zinc anode caps as shown on the plans and as specified.
  9. Turning hydrant heads to a location as directed by the Engineer will be included in the price bid for hydrants.

10. If a separate bid item for temporary water service is NOT included in the Schedule of Unit Prices, providing continuous temporary water service to affected users will be included in the price bid for the watermain.
11. The wood and/or metal parts necessary to identify the ends of the unattached service lines and curb stops will be included in the price bid for water services.
12. If a separate bid item for bypass pumping is NOT included in the Schedule of Unit Prices, providing temporary bypass pumping/control of stormwater flows around the construction zone will be included in the price bid for the watermain.
13. The painting or re-painting of hydrants with scratches and/or abrasions will be included in the price bid for hydrants.
14. Providing temporary corporations, copper pipes, plugs, etc. for hydrostatic watermain testing will be included in the unit price bid for the watermain.
15. The cost to furnish and install copper water service couplings will be included in the unit price bid for the water service pipe.
16. If the watermain is to be installed inside a casing pipe, furnishing and placing the carrier pipe, carrier pipe support materials, sand fill, and grout seals will be included in the unit price bid for the watermain.

### 1.3 SPECIFICATION REFERENCES

- A. The following referenced Specifications will apply to this Section:
  1. ANSI/AWWA C550 and C116/A21.16
  2. ASTM D1248
  3. ASTM D1784
  4. ASTM D2513
  5. ASTM D3261
  6. ASTM D3350
  7. ASTM D2412
  8. ASTM D3034
  9. AWWA C651
  10. AWWA C900
  11. AWWA C905
  12. AWWA C906
  13. CEAM 2611
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

### 1.4 SUBMITTALS

- A. Work plan for temporary water service.
- B. Watermain and Water Service Lines
  1. Hydrants - Certificates of Compliance.
  2. Valves & boxes - Certificates of Compliance.
  3. Pipe & fittings - Certificates of Compliance.



4. Corporation stops, saddles, curb stops, curb boxes, copper pipe - Certificates of Compliance.
- C. Record Drawings
  1. The Contractor shall maintain at the construction site one complete set of drawings suitably marked to show all deviations from the original set of drawings and other information as specified.
  2. Water service tie-in or stub-out locations will show station and distances left or right of the survey control centerline. Existing water service piping material type and size at the tie-in locations will be noted also.
  3. All watermain bends and valves will be located with tie-off dimensions to known items on the plans or in the field to enable the Contractor or City personnel to locate these structures for adjustment.
  4. The complete set of the record drawings will be submitted to the Engineer before submittal of the final Application for Payment.
  5. Failure of the Contractor to maintain an up-to-date set of record drawings on the project site will be a reason to withhold payments.
- D. The Contractor shall fill out a service record form for each water service connection or stub out. A blank service record form will be supplied by the Engineer to be used by the Contractor.
- E. Photos
  1. The Contractor shall take photos of underground construction work before backfilling. Such items to be photographed include but are not limited to: connections to existing utilities, watermain fittings, small/private underground utilities, utility stub-outs, etc.
  2. Photos will be named as follows:
    - (a) For services, the file will be named with the street address of the service.
- F. All other photos will be named to indicate the station number and offset left or right.

## **PART 2 - PRODUCTS**

### **2.1 THREADED ITEMS**

- A. All threaded items furnished under this contract, including but not limited to mechanical joint connectors, flanged joint connectors, mainline valves, saddles, corporation stops, curb stops, hydrants, and air release valves will be furnished to the nominal size as specified with ENGLISH threads.

### **2.2 OPEN CUT WATERMAIN MATERIAL**

- A. The following water pipe materials will be allowed for use on this project:
  1. DR 11 900/C905 PVC pipe with a tracer wire system may be used.

### **2.3 TRENCHLESS PIPE MATERIAL & STRUCTURAL REQUIREMENTS**

- A. All pipe will be made from virgin material. No rework except that obtained from the manufacturer's production of the same formulation will be used.
- B. The pipe will be homogenous throughout and will be free of visible cracks, holes, foreign material, blisters, and/or other deleterious faults.
- C. Any section of pipe with a gash, blister, abrasion, nick scar, or other deleterious faults greater than 10 percent of the wall thickness, will not be used and must be removed from the site. However, a defective portion of the pipe, as defined above may be cut out and butt-fused in accordance with the procedures herein.

- D. Any section of pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness, or any other defect of manufacturing and/or handling will not be used and will be removed from the site.
- E. The actual inside barrel diameter of the pipe used for pressure pipe will not be less than that of PVC, C900 DIPS DR 18 for the corresponding nominal pipe size.
- F. Fusible C900/C905TM
  - 1. As manufactured by Underground Solutions ([www.undergroundsolutions.com](http://www.undergroundsolutions.com) ). ASTM D 1784-02. with Cell Classification 12454. The formulation for extrusion of Fusible C-900™/C-905™/PVC™ will be compounded to the specific proprietary recipe for Fusible pipe, and meet the requirements of **PPI TR-2**.
  - 2. Butt joint fused PVC pressure pipe conforming to the current requirements of AWWA C900 (DR 18) for pipe diameters 4.0-inch through 12.0-inch or AWWA C905 (DR 25) for pipe diameters 14.0-inch through 24.0-inch. However, a structurally stronger pipe may be required to ensure resistance to pulling stresses. The pipe will be manufactured in cast iron outside diameters. The pipe and components will meet the requirements of ANSI/NSF 61 for the conveyance of potable water.
  - 3. Pipe fusing will meet manufacturer requirements.
  - 4. A manufacturer's representative will be present during fusing and installation.
- G. Restrained Joint DIP Pipe and Fittings
  - 1. Flex-Ring Joint Pipe (DIP), as manufactured by American Ductile Iron Pipe or equal. The pipe will be a pressure pipe with a 350 psi working pressure for diameters up to and including 12.0-inch, and 250 psi for diameters 14.0-inch to and including 20.0-inch. Structurally stronger pipe may be needed to ensure resistance to damaging stresses relative to the trenchless construction technique.
  - 2. Joints will be Flex-Ring Restrained Joint couplings as manufactured by American Ductile Iron Pipe or equal.
- H. High-Density Polyethylene (HDPE) Pipe and Fittings
  - 1. The pipe will be manufactured with PE 4710 per ANSI/AWWA C906 and NSF/ANSI 61. PE 4710 compound will conform to ASTM D3350 minimum cell classification 445574C-CC3. Manufacturers' certification of cell classification will be required.
  - 2. The pipe to be used will be (HDPE) pressure pipe conforming to the requirement of AWWA C906 of a 235 psi minimum working pressure. Unless otherwise specified, the dimensions and tolerances of the pipe barrel will conform to ductile iron pipe equivalent outside diameters.
  - 3. HDPE pipe will have butt-fused joints.
  - 4. The Contractor shall verify the lengths of conduit necessary in the field before fabrication.
  - 5. Polyethylene fittings and adaptors will be butt-fused, EHMW-HDPE, PE3408 meeting the same resin requirements as specified for the pipeline. In addition, the fittings will meet the applicable requirements of ASTM D2513 and ASTM D3261.
  - 6. Mechanical joint pressure pipe joints will be restrained using ductile iron clamps (series Ebaa Iron, Inc. or equal) supplied with a sufficient number of ductile iron bolts to restrain the working and test pressures for this application.

## 2.4 WATERMAIN FITTING MATERIALS

- A. The following pressure pipe fitting materials will be allowed for use on this project:
  - 1. Mechanical Class 350 ductile iron fittings will be used. Adaptors, backup rings, and oversize sleeves will be provided for transitions and connections to dissimilar types of pipe materials. All sleeve fittings will be long mechanical joints.

2. All fittings, valves, hydrants, and restraining rods will be protected by using sacrificial zinc anode caps, ASTM B418 6 oz. Large Zinc Anode Caps as manufactured by Trumbull Industries Inc., or an approved equal. Contractors shall supply 2 anode caps per mechanical joint gland installed.
3. All fittings, valves, hydrants, etc. will be secured utilizing COR-BLUE T-BOLTS as manufactured by NSS Industries or approved equal.

## 2.5 FIRE HYDRANTS

- A. Hydrants will be Waterous Improved Pacer Style, Model WB67-250, UL, 250 psi rating, with safety flange and stem coupling. The bury length will be 8.0-feet unless otherwise noted on the plans. The break-off height install will be 16.0-inches. The Contractor shall install the hydrant so that the center of the nozzle is 24.0-inches above the finished grade. The hydrant will be painted red.
- B. All hydrants will have been manufactured in the year of construction or prior two calendar years.
  1. All hydrant extensions will be manufactured by the same manufacturer as the hydrant.
  2. The local fire department will be contacted before ordering hydrants to obtain the correct nozzle threads and type of operating nut and cap bolts.

## 2.6 VALVE AND VALVE HOUSING

- A. All water valves will have been manufactured in the year of construction or prior two calendar years.
- B. All nuts and bolts will be 304 stainless steel.
- C. Valve Housing
  1. Cast-iron screw-type valve boxes will be installed where indicated on underground valves. The cast-iron valve boxes will be of either the two-piece or three-piece style and will be furnished with a stay-put cover with raised letters indicating "WATER." The shaft will be 5¼-inch inside diameter.
  2. All valve box assemblies will be furnished with a valve umbrella anchorage assembly. The valve umbrella anchorage assembly will be manufactured by Adaptor, Inc., Oak Crest, WI, or equivalent.
  3. High-Density Polyethylene valve housings will not be allowed on this project.
- D. Gate Valves
  1. All valves up to and including 12.0-inch diameter to be furnished and installed on the watermain will be, non-rising stem, iron body, resilient-seated gate valves, with two-inch square opening nut rated for a 200 psi working pressure conforming to the current editions of AWWA C-509-or AWWA C-515. Double disc-type valves (AWWA C-500) will not be allowed.
- E. Butterfly Valves
  1. All valves greater than 12.0-inch diameter will be butterfly valves conforming to the referenced specification.
  2. All butterfly valves will be manufactured with the rubber seat bonded to the body. Valve discs will be furnished with 316 stainless steel seating edge.

## 2.7 WATER SERVICE PIPE AND FITTINGS

- A. Service Pipe and Fittings
  1. General
    - (a) Water service pipe and fittings will conform to the provisions of 2611.2D, AWWA C800, and the following:
    - (b) Valves and fitting models vary according to watermain pipe size. See mfg. catalog data.
    - (c) Saddles will be provided for all corporation stops larger than 1½-inches if DIP pipe is installed

- (d) Curb boxes will be adjustable with Minneapolis Pattern. Stationary rods are required. The depth of curb boxes will typically be 8.0-feet.
2. Copper Service Pipe Notes & Specifications:
- (a) Copper pipe will conform to ASTM B88, Seamless Copper Water Tubing, Type K, Soft Annealed Copper.
- (b) Copper water service pipe connections will be flared type at connections to the new pipe.
- (c) Copper water service pipe connectors will be compression type at connections to the existing pipe.
3. Polyethylene (PE) Service Pipe Notes & Specifications
- (a) PE pipe will conform to Grade PE-3408 or PE-4710 pipe and will be rated for 200 psi working pressure, SDR-9.
- (b) PE pipe will conform to ASTM D-1248 & D-2737 for Copper Tube Size, outside diameter controlled.
- (c) PE water service pipe connections will be compression type.
- (d) PE pipe will be permanently marked at 2.0-foot intervals indicating Mfg., PE Material Type, Date of Manufacture, etc.
- (e) Type 304 stainless steel pipe inserts/stiffeners will be furnished and installed in the ends of the PE pipe at all connections. Inserts will meet the requirements of AWWA C901 and ASTM 240-92B unless otherwise shown on the plans.
- (f) PE pipe will not be allowed within the public right-of-way.
4. Tracer Wire
- (a) Tracer wire will be supplied when using PE water service pipe. Tracer wire will be fastened to the underside of the top of the curb stop boxes with waterproof connections, unless otherwise indicated in the Engineering Plans or other as approved by the Owner.
5. The Utility should be contacted before ordering to verify the manufacturers' type and style. The water service materials style commonly used by the Utility are to be considered as a basis for quality are:

WATER SERVICE PIPE & APPURTENANCES			
ITEM:	SERVICE PIPE SIZE	FLARED TYPE Valves & Fittings For TYPE K COPPER PIPE	
		MUELLER MODEL #	
Corporation Stop		MUELLER	
	3/4"	B-25000-N	
	1"	B-25000-N	
	1.5"	B-25000-N	
	2"	B-25000-N	
Tapping Saddle		FORD	FORD
		for DIP WMN	for PVC WMN
	3/4"	F202	FS323
	1"	F202	FS323
	1.25"	F202	FS323
	1.5"	F202	FS323
	2"	F202	FS323

Curb Stop		<b>MUELLER</b>
	3/4"	P-25154-N
	1"	P-25154-N
	1.5"	P-25154-N
	2"	P-25154-N
Curb Box	1.5" Diam. Base Tap for 3/4" to 1.25" Curb Stops	H-10300
Curb Box	2" Diam. Base Tap for 1.5" to 2" Curb Stops	N/A

WATER SERVICE PIPE & APPURTENANCES		
ITEM:	SERVICE PIPE SIZE	COMPRESSION TYPE Valves & Fittings For POLYETHYLENE PIPE
		MUELLER MODEL #
Corporation Stop		<b>MUELLER</b>
	3/4"	B-25008-N
	1"	B-25008-N
	1.5"	B-25008-N
	2"	B-25008-N
Tapping Saddle		<b>FORD</b> <b>FORD</b>
		for DIP WMN      for PVC WMN
	3/4"	F202      FS323
	1"	F202      FS323
	1.25"	F202      FS323
	1.5"	F202      FS323
Curb Stop		<b>MUELLER</b>
	3/4"	B-25155-N
	1"	B-25155-N
	1.5"	B-25155-N
	2"	B-25155-N
Curb Box	1.5" Diam. Base Tap for 3/4" to 1.25" Curb Stops	N/A
Curb Box	2" Diam. Base Tap for 1.5" to 2" Curb Stops	N/A

## 2.8 RESTRAINED JOINT RETAINER GLANDS

- A. Where stainless steel is not used restrained joint retainer glands shall be coated with a 6-8 mil nominal thickness fusion bonded epoxy conforming to the requirements of ANSI/AWWA C550 and C116/A21.16 or approved equal.

## 2.9 POLYETHYLENE ENCASEMENT

- A. Where DIP watermain is installed, the Contractor shall furnish and install polyethylene encasement for the entire main and all appurtenances in accordance with the referenced specification.

### **PART 3 - EXECUTION**

#### **3.1 CONSTRUCTION REQUIREMENTS**

##### **A. Temporary Service**

1. Before proceeding with the project, the Contractor shall establish a work plan and submit the plan to the utility personnel and Engineer for review and comment. The plan will outline the method to be used to maintain service to the affected consumers and estimate the duration of any anticipated interruptions of service. The plan will include provisions to fully disinfect all temporary piping, valves, and fittings in accordance with CEAM Specification No. 2611. The Contractor is the sole party responsible to notify the Utility and consumers who may be affected by limitations and/or interruption of water service. Planned service interruptions will not exceed 6 hours in any 72 hour period unless previously approved by the Utility.
2. The Contractor shall coordinate watermain shut-downs with the water utility at least 24 hours before the requested shut-down.
3. No warranty is expressed or implied that privately owned valves in homes or businesses will be operable.
4. The contractor shall provide backflow prevention devices on the temporary water system.
5. The Contractor shall coordinate with the Owner's representative and private property owners as necessary to make temporary connections. If the Contractor elects to operate private valves or coordinate closure of private valves in homes, the Contractor shall make staff available for operation of such valves outside normal working hours for completion of such work at the schedule of private property owners.
6. The Contractor shall make available a contact list of three individuals capable of responding to and repairing the temporary water system at all times, including holidays, weekends, and outside of normal working hours. In emergency response conditions where property owners are left without water service, the Contractor may (as determined by the Owner) be deducted an amount of \$100 per hour from the time water service is not provided until it is restored. This amount shall be in addition to any deductions made per occurrence
7. If the Contractor fails to provide water service to affected residents within the constraints specified above, an amount equal to \$ 500.00 may be deducted from the amount due the Contractor for each occurrence.

#### **3.2 INSTALLATION OF PIPE AND FITTINGS**

##### **A. Aligning and Fitting of Pipes**

1. The Contractor, together with the utility's personnel, will jointly examine and operate all curb stops and mainline valves prior to final acceptance.
2. Anchoring of Pipe
  - (a) A thrust block of cast-in-place concrete, which covers the installed fitting, is not permitted. Restrained joint retainer glands will be provided at all bends, tees, hydrants, valves, and plugged crosses or wherever the watermain changes direction or dead ends

##### **B. Polystyrene Insulation**

1. The Contractor shall install polystyrene insulation in those areas where the watermain or services may be susceptible to frost or freezing, or as directed by the Engineer.
2. Rigid foam insulation will be placed between the watermain and storm or sanitary sewer where adequate vertical clearance cannot be maintained. The insulation will be placed on a bed of sand and sand will be placed above the insulation to isolate the insulation from rocks and other sharp objects. The ultimate thickness of insulation required will be achieved by using 2 layers of insulation, the second layer will be placed perpendicular to the first layer and the joints will be offset.

C. Water Service Installation

1. The Contractor shall imprint the concrete face of the curb at the locations of the utility service locations in accordance with City standards.
2. The Contractor shall keep accurate records as to the location of the service connections, as specified in the referenced specification. Final payment for the project will not be made until the information is in the possession of the Owner.
3. No warranty is expressed or implied as to the location, size, or material type of existing service lines. The Contractor shall furnish and install all fittings required to make the connections.
4. The Contractor shall install a new service pipe, at 7.0-foot bury depth, from the corporation stop to the property line, or as shown on the plans, or as directed by the Engineer.
5. The water services will be hydrostatically tested and disinfected.
6. All water services will be verified as operative and the corporation stops will be turned to open position prior to backfilling.

D. Polyethylene Encasement

1. Where DIP watermain is installed, the Contractor shall furnish and install polyethylene encasement for the entire main and all appurtenances in accordance with the referenced specification.

E. Utility Location System

1. The Contractor shall install an underground utility location system (tracer wire) with all watermain and services in accordance with Section 33 05 97.36 "Underground Utility Location System" of this Project Manual.

3.3 FIELD QUALITY CONTROL

A. Hydrostatic Testing

1. Hydrostatic tests will be conducted in accordance with the referenced specification. Individual tests from valve to valve are required. These tests will be conducted prior to the bacteriological tests required with the disinfection of the main. No drop in pressure will be allowed during the last two hours of the pressure test.
2. Water services, including corporation and curb stops, will be tested. The Contractor may choose to include services at the time of watermain testing or as a separate operation at a reduced pressure of 100 PSIG. If performed separately, testing will be done with the corporation stops open.

B. Disinfection

1. The Contractor shall disinfect and perform bacteriological testing on all temporary and permanent water distribution systems in accordance with the provisions of AWWA C651.
2. Testing Options A and B as described in AWWA C651 and below will be required for the bacteriological testing for total coliform analysis.

Option A: Before approving a main for release, take an initial set of samples after flushing and then resample again after a minimum of 16 hours using the sampling site procedures outlined. Both sets of samples must pass for the main to be approved for release.

Option B: Before approving a main for release, flush the main and let it sit for a minimum of 16 hours without any water use. Then collect, using the sampling site procedures outlined and without flushing the main, two sets of samples a minimum of 15 minutes apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release.

3. If the initial disinfection fails to produce satisfactory bacteriological results, or if other results indicate unacceptable water quality, the main may be re-flushed and will be resampled. If check samples fail to produce acceptable results, the main will be re-chlorinated by the continuous-feed or slug method until satisfactory results are obtained.
4. No lines will be placed in service until a satisfactory result is obtained.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 33 31 00 - SANITARY SEWERAGE PIPING

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment, and performances of all work and services necessary or incidental to sanitary sewer and service lateral construction as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items will be paid according to the referenced specification or as modified below:
  - 1. Manholes
    - (a) Payment for all manholes will be at the unit price bid per linear foot of structure as measured from the invert of the outlet pipe to the top of the manhole casting. The amount bid includes all work and material required to complete the structure. Casting assemblies will be paid separately for each assembly furnished and installed.
  - 2. Casting Assemblies
    - (a) Casting assemblies will be measured per each, complete in place, and paid at the unit price bid
  - 3. Chimney Seal
    - (a) Chimney seals shall be considered incidental to the Casting Assembly bid item and includes all work and materials required to place the chimney seal from the top of the precast concrete structure to the middle of the casting.
  - 4. Sewer Pipe
    - (a) No exception to the referenced specification is made.
  - 5. Service Connections
    - (a) The exact number of service connections, i.e., new service lines or connections to existing service lines, is unknown. The quantities listed on the proposal are approximate. Final payment will be based upon the number constructed for the various diameter of services constructed.
  - 6. Wye Branches
    - (a) No exception to the referenced specification is made.
  - 7. Outside Drop Section
    - (a) Payment for the respective diameter outside drop connection will be at the unit price per linear foot of structure as measured from the invert of the lower pipe to the invert of the higher pipe.
  - 8. Connect to Existing Sanitary Manhole
    - (a) Payment for connecting a new sanitary sewer to an existing sanitary manhole will be measured and paid per each as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid. The amount bid will include removing the existing sewer pipe, enlarging the hole, constructing a water-tight joint, removing the bench, and reshaping the invert, if necessary to fit the proposed sewer pipe.
  - 9. Raise / Lower Existing Manhole

- (a) Payment for raising and or lowering an existing sanitary manhole will be measured and paid per linear foot of depth as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid. The measurement will be based on the difference between the existing and the final rim elevations.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances will not be individually paid in the absence of a specific bid item for the work. The costs will be included in the unit price bid for the sanitary sewer items, as indicated. Such items of work include but are not limited to:
  - 1. Locating and connecting to an existing sanitary sewer pipe will be included in the price bid for sanitary sewer.
  - 2. Dye water testing of all service lines encountered and the subsequent plugging of abandoned sewer services will be included in the unit price bid for sanitary sewer.
  - 3. The costs of furnishing bends, adapters, cutting, and removing the existing sanitary sewer pipe will be included in the price bid for sanitary sewer.
  - 4. Locating and connecting to an existing sanitary sewer service laterals will be included in the price bid for sanitary sewer.
  - 5. Adapters to adjust the diameter of the new service connections to match the existing service lines will be included in the price bid for service connections.
  - 6. All work and material required to complete the outside drop manhole structure as shown on the Design Detail Plate will be included in the price bid for the outside drop section.
  - 7. Leakage, vacuum, air, and deflection testing will be included in the price bid for sanitary sewer.
  - 8. Post-construction televising will be included in the price bid for sanitary sewer.
  - 9. The wood and/or metal parts necessary to identify the ends of unattached service lines will be included in the price bid for sanitary sewer services.
  - 10. If a separate bid item for bypass pumping is NOT included in the Schedule of Unit Prices, providing temporary bypass pumping/control of sanitary and stormwater flows around the construction zone will be included in the price bid for the associated sewer items.
  - 11. Furnishing and installing an underground utility location system will be included in the price bid for sanitary sewer.
  - 12. If the sewer is to be installed inside a casing pipe, furnishing and placing the carrier pipe, carrier pipe support materials, sand, fill, and grout seals will be included in the unit price bid for sewer.

### 1.3 SPECIFICATION REFERENCES

- A. The following referenced Specifications will apply to this Section:
  - 1. ASTM D2321
  - 2. ASTM D3034
  - 3. ASTM F679
  - 4. ASTM D1784
  - 5. ASTM D543
  - 6. ASTM D1248
  - 7. ASTM D3350
  - 8. AWWA C900

9. AWWA C-906
10. CEAM 2621
11. MnDOT 2506

B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

A. Sanitary Sewer and Sanitary Sewer Service

1. Manhole structure - shop drawings.
2. Manhole casting - shop drawings.
3. Piping and fittings - Certificates of Compliance.

B. Final post-construction televised inspection report and video files.

## PART 2 - PRODUCTS

### 2.1 OPEN CUT SEWER PIPE AND FITTINGS

A. All pipe and fittings must be laid on a continuous granular bed. Installation must comply with ASTM D2321

B. Solid Wall Polyvinyl Chloride (PVC) Pipe

1. 4.0-inch through 6.0-inch Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform with the requirements of the Standard Dimension Ratio (SDR) of 26, unless otherwise specified on the plans.
2. 8.0-inch through 15-inch Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform with the requirements of ASTM D3034 for the Standard Dimension Ratio (SDR) of 35, for depths of less than 20.0-feet, unless otherwise specified on the plans. The SDR for depths exceeding 20.0-feet shall be 26, unless otherwise specified on the plans.
3. Over 15" Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform with the requirements of ASTM F679 with a minimum wall thickness for a minimum pipe stiffness of 46, for depths less than 20.0-feet, unless otherwise specified in the plans. A minimum SDR of 26 shall be used for depths exceeding 20.0-feet, unless, unless otherwise specified on the plans.
4. WYES: All wyes shall be heavy wall and shall conform with the requirements of ASTM D3034 for the Standard Dimension Ratio (SDR) of 26, unless otherwise specified on the plans.
5. The connection shall be push-on with elastomeric gasketed joints, which are bonded to the inner walls of the gasket recess of the bell socket.
6. The pipe grade used shall be resistant to aggressive soil and corrosive substances in accordance with the requirements of ASTM D543.

C. Ductile Iron Pipe (DIP)

1. No exception to the referenced specification is made.

D. Reinforced Concrete Pipe (RCP)

1. No exception to the referenced specification is made.

### 2.2 INTERNAL PIPE DIAMETERS

1. The actual inside barrel diameter of the pipe used for gravity pipe shall not be less than that of PVC – SDR 35 for the corresponding nominal pipe size.

ACTUAL INTERIOR PIPE DIAMETERS FOR VARIOUS GRAVITY PIPE MATERIALS					
Nominal	PVC – SDR 35	HDPE 4000	HDPE 4100	PVC	Fusible PVC
		DR 11 ductile sizes	DR 11 Ductile Iron Pipe sizes	DR 18 <sup>1</sup> Restrained Joint	DR-18
8	7.92	7.375	6.963	8.044	8.05
10	9.90	9.041	8.679	9.866	9.87
12	11.78	10.750	10.293	11.734	11.73
14			11.301	12.444	13.60
15	14.426				
16		14.170	12.915	14.222	15.50
18	17.629	15.925	14.532		17.30
20		17.590	16.146		19.20
21	20.78				
22			17.760		
24	23.381	21.014	19.374		22.90
27	26.35				

## 2.3 MANHOLES

### A. Precast Concrete Manholes

- Sanitary sewer manholes will conform to the MnDOT Standard Plate No. 4007C, unless otherwise shown on the plans, including integral base sections and rubber gasketed tongue and groove joints. All pipe openings will have an integral cast watertight seal.
- Reinforced polypropylene plastic steps will be furnished for all sanitary sewer manholes eight or more feet in depth.

### B. Outside Drop Manhole

### C. All pipe materials used to construct the drop section and the incoming pipe shall be ductile iron, Class 52.

- The DI pipe shall extend from the tee to 2.0-feet beyond the point where the elevation of the virgin soil becomes a uniform 6.0-inches below the invert elevation of the incoming pipe.

### D. Castings

- The type of casting assembly to be used will be Neenah R-1733 solid lid with two concealed pick holes, 2.0-inch raised letters stamped "SANITARY SEWER" and a self-sealing lid. The frame will be Neenah R-1733.
- All casting assemblies will meet the certification requirements of the Minnesota Department of Transportation and be manufactured by a MnDOT approved source.

### E. Chimney Seal

- Chimney seals accepted for use, when shown in the plans, will be one of the following listed as the standard of quality:
  - Infi-Shield (exterior only)
  - Cretex (exterior only)
  - Interior Chimney seals will only be allowed with pre-approval by the City Engineer.

<sup>1</sup> Certa-Lok® Restrained Joint Catalog

F. Adjusting Rings

1. Only concrete adjusting rings shall be permitted.

**PART 3 - EXECUTION**

3.1 INSTALLATION OF PIPE AND FITTINGS

A. Sanitary Main Installation

1. No exception to the referenced specification is made.

B. Sewer Service Installation

1. The Contractor shall imprint the concrete face of the curb at the locations of the utility service locations in accordance with City standards.
2. The Contractor shall dye water test all existing sanitary sewer service line connections cut, severed, or encountered during the construction to determine whether they are still active. Those service lines which are no longer in use will be abandoned by plugging the severed upstream end with a suitable watertight plug approved by the Engineer.
3. The Contractor shall keep accurate records as to the location of the service connections, manholes, cleanouts, wyes, bends, risers, and connections to existing structures, pipes, and stub outs as constructed. Measurements to the service line will be taken from the two nearest permanent structures (i.e., hydrants, valves, manholes, buildings) as directed by the Engineer. Final payment for the project will not be made until the information is in the possession of the Owner.
4. The Contractor shall install new service pipe from the wye branch to the property line, as shown on the plans.
5. At the end of all services that are not immediately connected to working services, the Contractor shall furnish and install a wood or metal pole that extends to just below the ground surface. If wood is used, there will be attached to the top of the pole a 6.0-inch x 2.0-inch metal piece, capable of being located by a metal detector from the ground surface.
6. The Contractor shall imprint the concrete face of the curb at the locations of the utility service locations in accordance with City standards.

3.2 MANHOLE STRUCTURE

A. Connect to Existing Sanitary Sewer

1. When connection to an existing sanitary sewer is made at an existing or proposed manhole, the Contractor shall expose and verify the elevation of the existing sewer prior to laying any sanitary sewer to, or from, the connection point. If the elevation of the existing sewer does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.
2. Connections to existing sanitary sewers will be watertight.
3. Connections to existing structures will be watertight. The installation of Cor-N-Seal boots, or equal, will be required.

B. Outside Drop Manhole

1. All pipe materials used to construct the drop section and the incoming pipe will be PVC - SDR 26 with heavy-duty fittings.
2. The PVC pipe will extend from the tee to 2.0-feet beyond the point where the elevation of the virgin soil becomes a uniform 6.0-inches below the invert elevation of the incoming pipe.

C. Manhole Base

1. Pre-cast bases will be used for all manholes.
2. Integral cast base is required unless otherwise shown on the plans or approved by the Engineer.
3. Manholes will be set on a minimum of 6.0-inches of compacted foundation material.

D. Miscellaneous Work

1. If concrete adjusting rings are used, they will be set with bituminous mastic or cement mortar and will be plastered inside and out, with a minimum thickness of ½-inch of mortar. A maximum of 3 individual adjusting rings will be used. Taller 6.0-inch or 12.0-inch rings will be used where adjustment requires more than three 2.0-inch rings.
2. If HDPE adjusting rings are permitted in Part 2 and used, the sealant material and method will be in accordance with the manufacturer's recommendations.

E. Utility Location System

1. The Contractor shall install the underground utility location system (tracer wire) with all sanitary sewer and services in accordance with Section 33 05 97.36 "Underground Utility Location System" of this Project Manual.

3.3 FIELD QUALITY CONTROL

A. Deflection test

1. No exception to the referenced specification is made.

B. Sanitary sewer leakage testing

Leakage tests will be conducted as described in the referenced specification. However, leakage testing will not be necessary where existing services are connected directly to the new sewer as it is being constructed.

1. Air Testing

- (a) No exception to the referenced specification is made.

2. Hydrostatic Testing

- (a) Hydrostatic testing will not be allowed on this project.

C. Cleaning and Televising

1. Cleaning and Televising is required after the installation and backfill are complete and prior to the placement of roadway aggregate base or pavement.
2. Reference Section 33 01 30.12 "Cleaning and Television Inspection of Sewers" of this Project Manual for cleaning and televising requirements.

**\*\*\*\*END OF SECTION\*\*\*\***

## SECTION 33 41 00 - SUBDRAINAGE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary to construct subsurface drains as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
1. Subsurface Drains
    - (a) Solid wall PVC underdrain shall be measured per Linear Foot at the unit price bid per specified diameter.
    - (b) No exception to the referenced specification is made.
  2. Inspection Tees
    - (a) Inspection tee assemblies shall be measured per EACH type and style indicated, complete in place and paid at the price unit bid.
  3. PVC Underdrain Cleanout
    - (a) PVC Underdrain Cleanouts shall be measured per EACH type and style indicated, complete in place and paid at the price unit bid. Furnishing and installing of the specified cap/grate/casting at the top of the cleanout shall be considered incidental to the underdrain cleanout item.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated subsurface drain items, as indicated. Such items of work include but are not limited to:
1. Interference of other underground structures and utilities include in the price bid for subsurface drains.
    - (a) The removal and restoration, or protection of existing utilities that are shown on the plans and for which there is no bid item for removing and restoring or working around the utility.
  2. Unless separately itemized in the Schedule of Unit Prices, any dewatering necessary for subsurface drains construction, include in the price bid for subsurface drains.
  3. Foundation materials placed in lieu of performing necessary dewatering include in the price bid for subsurface drains.
  4. Connection to a proposed or existing pipe culvert, storm sewer pipe, catch basin, manhole or subdrain, include in the price bid for subsurface drains.
  5. Bulkheading of existing pipes to be abandoned in place, include in the price bid for subsurface drains.
  6. Bedding and encasement materials, include in the price bid for subsurface drains.
  7. Crushed rock foundation materials used in lieu of bedding materials in the specified bedding zone, include in the price bid for subsurface drains.
  8. Maintenance of service, include in the price bid for subsurface drains.
  9. The replacement all material displaced due to shrinkage or loss during the excavation and backfilling operations, include in the price bid for subsurface drains.

10. Protecting existing improvements from damage include in the price bid for subsurface drains.

1.3 SPECIFICATION REFERENCES

- A. MnDOT 2502 shall apply to the subsurface drains, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. Subdrain and Sump Drain Lines
  - 1. Sump Pump Inlet Structures - shop drawings.
  - 2. Piping and fittings - Certificates of Compliance.

**PART 2 - PRODUCTS**

2.1 SUBSURFACE PIPE AND FITTINGS

- A. Perforated PVC drain pipe, SDR35 (ASTM D3034).
- B. Perforated PVC drain pipe, A-2000 (ASTM D2412).
- C. Perforated corrugated polyethylene drainage tubing, PE (ASTM D3350).
- D. Cleanout caps on inspection tees shall be cast iron screw in type.

2.2 GRANULAR MATERIALS

- A. The filter aggregate shall conform to the requirements of MnDOT 3149 for coarse filter aggregate, unless otherwise shown on the plans.

**PART 3 - EXECUTION**

3.1 CONSTRUCTION REQUIREMENTS

- A. Geo-textile fabric sock shall not be installed.
- B. If an existing utility is shown on the plans and there is no bid item for removing and restoring, or working around the utility, the Contractor shall be required to remove and restore, or protect the utility.
- C. The Contractor shall install and operate a dewatering system to maintain all trenches free of water wherever necessary. The Contractor shall be responsible for any damage to adjacent structures or buildings caused by the dewatering operations. The Contractor shall make his own subsurface investigations and determine what dewatering methods to utilize to prevent such damage.
- D. Existing inverts shall be protected during construction. If debris enters culverts or sewers, it shall be the responsibility of the Contractor to clean.
- E. Inspection tees shall be installed flush with the finished boulevard grade.
- F. Where subdrains are connected to catch basins or manholes, rodent protection shall be installed.

**\*\*\*\*END OF SECTION\*\*\*\***



## SECTION 33 42 00 – STORMWATER CONVEYANCE

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to storm sewer construction as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
1. Manholes
    - (a) Payment for all manholes shall be at the unit price bid per EACH of structure installed. The amount bid includes all work and material required to complete the structure. Casting assemblies shall be paid separately for each assembly furnished and installed.
  2. Catch Basins
    - (a) Payment for all catch basins shall be at the unit price bid per EACH of structure installed. The amount bid includes all work and material required to complete the structure. Casting assemblies shall be paid separately for each assembly furnished and installed.
  3. Casting Assemblies
    - (a) Casting assemblies shall be measured per EACH, complete in place and paid at the unit price bid.
  4. Sewer Pipe
    - (a) No exception to the referenced specification is made.
  5. Aprons
    - (a) No exception to the referenced specification is made.
  6. Connect to Existing Storm Manhole
    - (a) Payment for connecting a new storm sewer to an existing storm manhole shall be measured and paid per EACH, as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid. The amount bid shall include removing the existing storm sewer pipe, enlarging the hole, removing the bench and reshaping the invert, if necessary to fit the proposed storm sewer pipe.
  7. Connect to Existing Storm Pipe
    - (a) Payment for connecting a new storm sewer to an existing storm sewer shall be measured and paid per EACH, as specified in the Schedule of Unit Prices, complete and in place, at the appropriate unit price bid. The amount bid shall include locating the existing storm sewer pipe, cleaning and preparing the end of the existing pipe, constructing a watertight connection point between the new and existing sewer pipe or constructing the new drainage structure, paid separately, around the existing pipe. When connecting a new pipe to an existing pipe, the existing pipe must be removed to the nearest gasketed joint when possible. The existing gasket shall be removed and a new gasket installed when connecting the new pipe. When infeasible to make a connection at a gasketed joint, the joint must be wrapped with geotextile fabric and mortar mix to make a watertight connection. Adjustments to the drainage structure may be required and shall be included in the amount bid for connecting to the existing pipe.

8. Raise / Lower Existing Manhole

- (a) Payment for raising or lowering an existing manhole shall be measured and paid per lineal foot based on the vertical difference between the existing and final rim elevations. The payment shall include all cost of labor, materials and equipment required to complete the work.

B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the storm sewer items, as indicated. Such items of work include but are not limited to:

1. Locating and connecting to an existing storm sewer, include in the price bid for storm sewer.
2. The costs of furnishing bends, adapters, cutting and removing the existing storm sewer pipe, include in the price bid for storm sewer.
3. Locating and connecting to an existing storm sewer service laterals, include in the price bid for service connections.
4. Use of geotextile fabric to wrap pipe joints in lieu of using mastic, include in the price bid for storm sewer.
5. Maintenance of an appropriate storm water outlet during construction, include in the price bid for storm sewer.
6. The cost of all labor, equipment and materials necessary for testing of storm sewer, if required, included in the price bid for storm sewer.
7. If a separate bid item for bypass pumping is NOT included in the Schedule of Unit Prices, providing temporary bypass pumping / control of storm water flows around the construction zone, include in the price bid for the associated sewer items.
8. If the sewer is to be installed inside a casing pipe, furnishing and placing the carrier pipe, carrier pipe support materials, sand fill and grout seals, include in the unit price bid for sewer.
9. Furnishing and installing underground utility location system, include in the price bid for sewer

1.3 SPECIFICATION REFERENCES

A. The following Sections of this Project Manual as listed:

1. Section 33 05 06 "Trenching and Backfilling".
- B. ASTM D543 shall apply, except as modified herein.
  - C. ASTM D1248 shall apply, except as modified herein.
  - D. ASTM D1784 shall apply, except as modified herein.
  - E. ASTM D3034 shall apply, except as modified herein.
  - F. ASTM D3213 shall apply, except as modified herein.
  - G. ASTM D3261 shall apply, except as modified herein.
  - H. ASTM D3350 shall apply, except as modified herein.
  - I. ASTM F679 shall apply, except as modified herein.
  - J. ASTM F949 shall apply, except as modified herein.
  - K. AWWA C900 shall apply, except as modified herein.
  - L. AWWA C906 shall apply, except as modified herein.
  - M. CEAM 2621 shall apply, except as modified herein.

- N. MnDOT 2503 shall apply, except as modified herein.
- O. MnDOT 2506 shall apply, except as modified herein.
- P. MnDOT 3236 shall apply, except as modified herein.
- Q. MnDOT 3245 shall apply, except as modified herein.
- R. MnDOT 3733 shall apply, except as modified herein.
- S. MnDOT Standard Plates Manual with latest revisions.
- T. State of Minnesota Plumbing Code shall apply to all underground pipe sewers installed through areas to be occupied by buildings. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. Storm Sewer
  - 1. Manhole and catch basin structure - shop drawings.
  - 2. Manhole and catch basin casting - shop drawings.
  - 3. Piping and fittings - Certificates of Compliance.

### PART 2 - PRODUCTS

#### 2.1 OPEN CUT SEWER PIPE AND FITTINGS

- A. Reinforced Concrete Pipe (MnDOT 3236)
  - 1. No exception to the referenced specification is made.
- B. Solid Wall Polyvinyl Chloride (PVC) Pipe (MnDOT 3245) (Thermoplastic, TP)
  - 1. 4-inch through 15-inch Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform with the requirements of ASTM D3034 for the Standard Dimension Ratio (SDR) of 35.
  - 2. Over 15-inch Diameters: Smooth-walled polyvinyl chloride pipe and fittings shall conform with the requirements of ASTM F679 with a minimum wall thickness for a minimum pipe stiffness of 46.
  - 3. The connection shall be push-on with elastomeric gasketed joints, which are bonded to the inner walls of the gasket recess of the bell socket.
  - 4. The pipe grade used shall be resistant to aggressive soil and corrosive substances in accordance with the requirements of ASTM D543.
- C. Profile Wall Polyvinyl Chloride (PVC) Pipe
  - 1. Large diameter (21-inches through 48-inches) closed profile polyvinyl chloride pipe and fittings shall conform with the requirements of ASTM F794. Pipe and fittings shall be made from polyvinyl chloride compounds which comply with the requirements for a minimum cell classification of 12364A as defined by ASTM D1784.
  - 2. All joints shall be of the bell and spigot type with elastomeric seals and conform to the requirements of ASTM-D3212. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe
  - 3. PVC pipe conforming to Contech A-2000 (ASTM F949) will not be allowed.
- D. Corrugated Polyethylene (CP) Pipe and Fittings (MnDOT 3247)
  - 1. Smooth interior and corrugated exterior polyethylene pipe and fittings shall conform to the requirements of AASHTO M294 or ASTM F2648 and MnDOT 3247. All joints shall be installed using an approved watertight sleeve with gaskets meeting the requirements of ASTM F477.

2. CP pipe shall not be allowed under paved roadways within the public right-of-way.
3. CP pipe up to and including 24-inch diameter shall be allowed outside of paved areas.

E. Flexible Pipe Jointing

1. Pipe joints for solid wall and profile wall polyvinyl chloride (PVC) pipe shall be in accordance with ASTM 3212. This includes the flexible elastomeric seals being rated at sustaining an internal pressure of 10.8 psi for 10 minutes.
2. Pipe joints for high density polyethylene (HDPE) pipe shall be in accordance with ASTM D3261.

F. Corrugated Aluminized Steel (CAS) Pipe, Type 2 - Smooth Interior Corrugated Exterior Pipe and Fittings (MnDOT 3222)

1. Pipe shall be formed from Aluminized Steel Type 2 coil (12 ga.) and conform to the current AASHTO M274 and ASTM A819 material specification. Pipe shall be manufactured to conform to the current ASTM A760 Type 1R. Each pipe shall be fabricated with a minimum of two (2) annular corrugations to join the pipe with band connectors. Pipe shall be joined together with hugger band connectors made from the same material as the pipe. All joints shall be constructed with the hugger band drawn together by two (2) diameter bolts through the use of a bar and strap connector, or an angle type connector. All joints shall have two O-ring gaskets that conform to the requirements of ASTM C361 (Section 5.9).

G. Corrugated Steel (CS) Pipe (MnDOT 3226)

1. No exception to the referenced specification is made.

H. Polypropylene Pipe

1. Pipe:
  - (a) Twelve- through 24-inch pipe shall have smooth interior and annular exterior corrugated polypropylene (PP) pipe meeting the requirements of ASTM F2736, ASTM F2881 or AASHTO MP-21-11, Type S, for respective diameters. The pipe supplied shall be watertight as defined in the joint performance requirements of this specification.
  - (b) Virgin material for 12- through 24-inch pipe and fitting production shall be an impact modified copolymer meeting the material requirements of ASTM F2736, ASTM F2881 and AASHTO MP-21-11, for respective pipe diameters.
  - (c) Pipe shall be ADS N-12® HP or pre-approved equal.
  - (d) Polypropylene pipe greater than 24-inch diameter will not be allowed.
  - (e) Polypropylene pipe may be used under paved surfaces with the approval of the City Engineer.
2. Joints and Fittings:
  - (a) Watertight joints shall be bell-and-spigot meeting the watertight requirements of ASTM F2736 or ASTM F2881. Gaskets shall be made of polyisoprene meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly.
  - (b) Fittings: Fittings shall conform to ASTM F2736 or ASTM F2764. Joint shall meet watertight joint performance requirements of ASTM D3212. Bell & spigot connections shall utilize a spun-on, welded or integral bell and spigot with gaskets meeting ASTM F477.

2.2 TRENCHLESS PIPE MATERIAL & STRUCTURAL REQUIREMENTS

- A. All pipe shall be made from virgin material. No rework except that obtained from the manufacturer's own production of the same formulation shall be used.

- B. The pipe shall be homogenous throughout and shall be free of visible cracks, holes, foreign material, blisters, and/or other deleterious faults.
- C. Any section of pipe with a gash, blister, abrasion, nick scar, or other deleterious fault greater than 10 percent of the wall thickness, shall not be used and must be removed from the site. However, a defective portion of pipe, as defined above may be cut out and butt-fused in accordance with the procedures herein.
- D. Any section of pipe having other defects such as concentrated ridges, discoloration, excessive spot roughness, pitting, variable wall thickness or any other defect of manufacturing and/or handling shall not be used and shall be removed from site.
- E. INTERNAL PIPE DIAMETERS
1. The actual inside barrel diameter of the pipe used for gravity pipe shall not be less than that of PVC-SDR 35 for the corresponding nominal pipe size.

ACTUAL INTERIOR PIPE DIAMETERS FOR VARIOUS GRAVITY PIPE MATERIALS					
Nominal	PVC – SDR 35	HDPE 4000 DR 11 ductile sizes	HDPE 4100 DR 11 steel sizes	PVC DR 182 Restrained Joint	Fusible PVC DR-18
8	7.92	7.375	6.963	8.044	8.05
10		9.041	8.679	9.866	9.87
12	11.78	10.750	10.293	11.734	11.73
14			11.301	12.444	13.60
15	14.426				
16		14.170	12.915	14.222	15.50
18	17.629	15.925	14.532		17.30
20		17.590	16.146		19.20
21	20.78				
22			17.760		
24	23.381	21.014	19.374		22.90
27	26.35				

F. Gravity Sewers

1. Fusible C900/C905TM

- (a) As manufactured by Underground Solutions ([www.underground solutions.com](http://www.underground solutions.com) ). ASTM D1784, with cell classification 12454. The formulation for extrusion of Fusible C-900™/C-905™/PVC™ shall be compounded to the specific proprietary recipe for Fusible pipe and meet the requirements of PPI TR-2.
- (b) Butt joint fused PVC pressure pipe conforming to AWWA C900 for 150 psi pressure rating (SDR 18). However, structurally stronger pipe may be required to ensure resistance to pulling stresses.
- (c) Pipe fusing shall meet manufacturer requirements.
- (d) A manufacturer's representative shall be present during fusing and installation.

2. Restrained Joint PVC Pipe and Fittings

(a) Restrained Joint Polyvinyl Chloride (PVC) pressure pipe with a 150 psi working pressure. The working pressure dictates a maximum standard dimension ratio (DR) of 18; however, structurally stronger pipe may be needed to ensure resistance to damaging stresses relative to the trenchless construction technique. The grade used shall be resistant to aggressive soils or corrosive substances in accordance with the requirements of ASTM D543.

(b) Restrained joints shall be Certa-Lok® C900/RJ Restrained Joint PVC couplings, or equal.

3. High Density Polyethylene (HDPE) Pipe

(a) The pipe material shall be extra high molecular weight, high density polyethylene (EHMW-HDPE, PE3408) conforming with the minimum structural standards of ASTM D3350 with Cell Classification 345434C as manufactured by Chevron Phillips Chemical Company 4000/4100 Series, or equal. All HDPE pipe material shall meet the requirements of ASTM D1248 for a Type III, Class C, Category 5, Grade P34.

(b) The pipe to be used shall be (HDPE) pressure pipe conforming to the requirement of AWWA C-906 of a 160 psi working pressure. The grade used shall be resistant to aggressive soils or corrosive substances present. Unless otherwise specified, the dimensions and tolerances of the pipe barrel should conform to ductile iron or cast iron pipe equivalent outside diameters.

(1) The dimension ratio (DR) shall be 11.

(2) HDPE pipe shall have butt-fused joints with the internal fusing bead removed.

(c) The Contractor shall verify the lengths of conduit necessary in the field before fabrication.

2.3 MANHOLES & CATCH BASINS

A. Precast Concrete Manholes and Catch Basin Section

1. Storm sewer manholes shall conform to the MnDOT Standard for the design type shown on the plans.
2. Reinforced polypropylene plastic steps shall be furnished for all storm sewer manholes 8.0-feet or more in depth.

B. Castings

1. All casting assemblies shall meet the certification requirements of the Minnesota Department of Transportation and be manufactured by a MnDOT approved source.
2. The type of casting assembly to be used shall be Neenah R-1733 solid lid with two open lift holes and 2.0-inch raised letters stamped "STORM SEWER". The frame shall be Neenah R-1733.
3. The Type of curb and gutter catch basin casting assembly to be used shall be Neenah R-3067-V (Vane Grate).
4. The type of non-street / rear yard inlet casting assembly to be used shall be Neenah R-4342 stool grate.

C. Adjusting Rings

1. Only concrete adjusting rings shall be permitted.

2.4 GEOTEXTILE FABRIC

A. MnDOT 3733, Type I, non-woven for use in wrapping joints in storm sewer.

**PART 3 - EXECUTION**

3.1 MANHOLE AND CATCH BASIN STRUCTURES

A. Raise / Lower Existing Structure

1. Raising and/or lowering an existing manhole to meet a proposed finished rim elevation is performed when the addition and/or deletion of 2.0-inch adjusting rings will not reach a minimum of 2 rings or exceed a maximum of 6 rings. Typically, it will require: the removal of the manhole cone section or the concrete slab top; the addition, removal, or exchange of barrel sections; the replacement of the cone section or the concrete slab top; the installation of the proper number of adjusting rings; and the replacement of the manhole casting and frame.

B. Miscellaneous Work

1. If concrete adjusting rings are used, plaster all manhole adjusting rings installed inside and out, with a minimum thickness of ½-inch of mortar. A maximum of 3 individual adjusting rings shall be used. Taller 6.0-inch or 12.0-inch rings shall be used where adjustment requires more than three 2.0-inch rings.
2. If HDPE adjusting rings are used, the sealant material and method shall be in accordance with manufacturer's recommendations.

3.2 FIELD QUALITY CONTROL

- A. Deflection test - No exception to the referenced specification is made.
- B. Visual Inspection - Storm sewer shall be visually inspected between all structures to verify pipe is straight and to grade and all joints are soil tight.

**\*\*\*\*\*END OF SECTION\*\*\*\*\***





## SECTION 34 41 05 - TRAFFIC SIGNS AND DEVICES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools equipment and performances of all work and services necessary or incidental to project signing as indicated on the drawings or as specified herein.

#### 1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
  - 1. Modify Post shall be paid at the unit price bid for related items and includes the cost of modifying each post as required by the contract.
  - 2. Traffic Signs shall be paid at the unit price bid for related items and includes the cost of providing and installing the sign, sign posts, stringers, brackets, attachment angles or strap mounting hardware, and all other materials and labor required for sign installation per the plan details.
- B. The furnishing and installing specific items and/or the performance of work under certain circumstances shall not be individually paid in the absence of a specific bid item for the work. The costs shall be included in the unit price bid for the associated project signing item. Such items of work include but are not limited to:
  - 1. No exception to the referenced specification is made.

#### 1.3 SPECIFICATION REFERENCES

- A. MnDOT 2564 - Traffic Signs and Devices.
- B. MnDOT 3401 -Flanged Channel Sign Posts.
- C. Current "Minnesota Manual for Uniform Traffic Control Devices" - <http://www.dot.state.mn.us/trafficeng/publ/mutcd/index.html>
- D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

#### 1.4 SUBMITTALS

- A. No submittals for this section.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION (NOT USED)

\*\*\*\*END OF SECTION\*\*\*\*



**APPENDIX A**

**GEOTECHNICAL EVALUATION REPORT**



# Geotechnical Evaluation Report

City of Jordan 2022 Infrastructure Improvements  
Eldorado Drive and Seville Drive  
Jordan, Minnesota

*Prepared for*

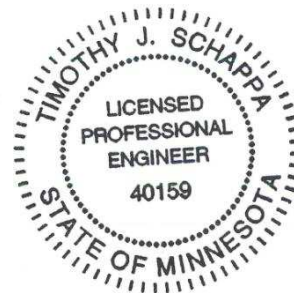
**Bolton & Menk, Inc.**

## Professional Certification:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Timothy J. Schappa, PE  
Project Engineer  
License Number: 40159  
December 22, 2021



December 22, 2021

Project B2110449

Luke Wheeler, PE  
Bolton & Menk, Inc.  
12224 Nicollet Avenue  
Burnsville, MN 55337

Re: Geotechnical Evaluation  
City of Jordan 2022 Infrastructure Improvements  
Eldorado Drive and Seville Drive  
Jordan, Minnesota

Dear Mr. Wheeler:

We are pleased to present this Geotechnical Evaluation Report for the for the proposed 2022 infrastructure improvements to Eldorado and Seville Drive in Jordan, Minnesota. Please see the attached report for a detailed discussion on the field exploration results and our recommendations. The report should be read in its entirety.

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Tim Schappa at 651.319.3091 (tschappa@braunintertec.com) or Neil Lund at 952.995.2284 or (nlund@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION



Timothy J. Schappa, PE  
Project Engineer



Neil G. Lund, PE  
Technical Manager, Senior Engineer

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### Appendix

Soil Boring Location Sketch  
Log of Boring Sheets (ST-2 to ST-5)  
Descriptive Terminology of Soil  
ESAL Estimation Worksheets  
MnPAVE-Flexible Design Output



## A. Introduction

### A.1. Project Description

This Geotechnical Evaluation Report addresses the design and construction for the proposed infrastructure improvements to Eldorado and Seville Drive in Maple Grove, Minnesota. We understand the project will consist of street reconstruction with watermain replacement.

**Table 1. Site Aspects and Grading Description**

Aspect	Description
Pavement type(s)	Bituminous (Assumed based on existing pavements)
Assumed pavement loads	778,000 Bituminous ESALs* (Estimated from publicly available traffic information using the MnDOT State Aid ESAL Forecast Calculator)
Grade changes	Minimal (Assumed; profiles and cross-sections not available at the time of this report)
Rehabilitation methods	Full depth reclamation
Utilities	Watermain replacement in selected areas, with several options including open-cut, horizontal directional drilling (HDD) or pipe bursting

\*Equivalent 18,000-lb single axle loads based on 20-year design.

The figure below shows an illustration of the proposed site layout for the 2022 infrastructure improvements Project.

**Figure 1. Existing Site Layout**

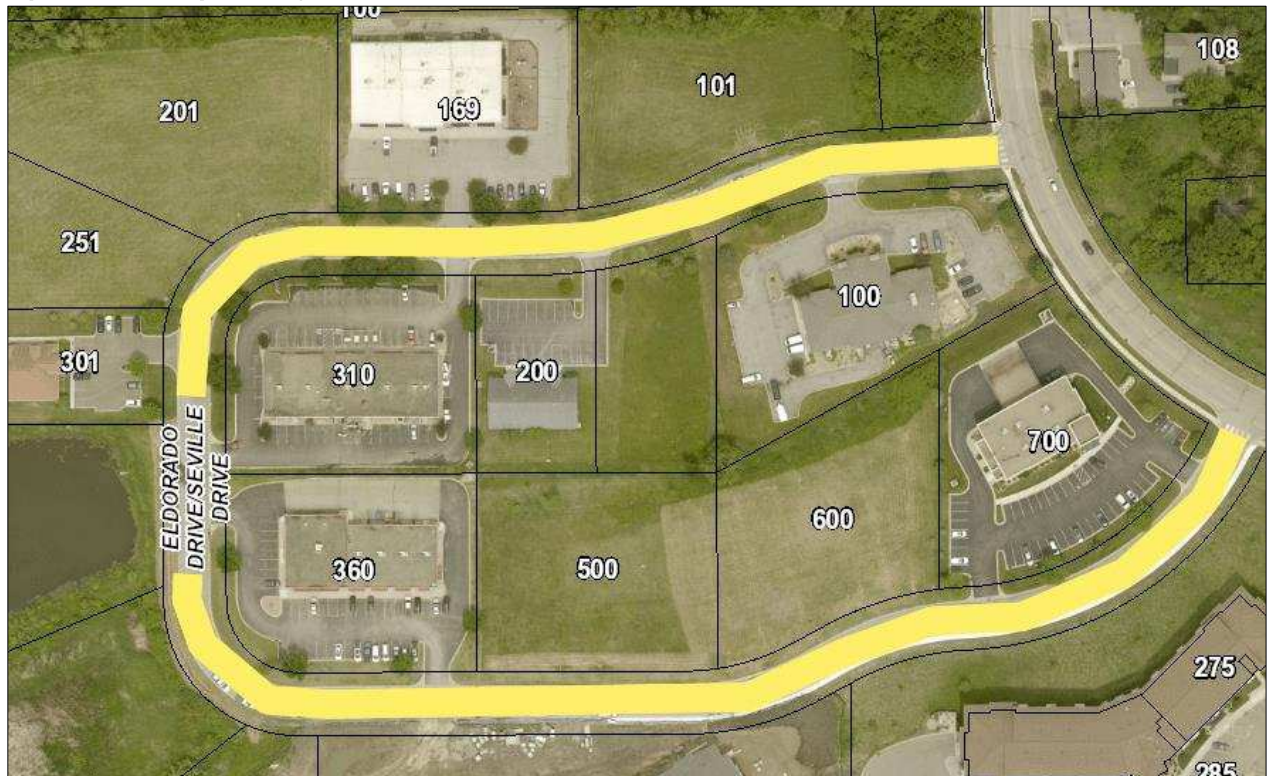


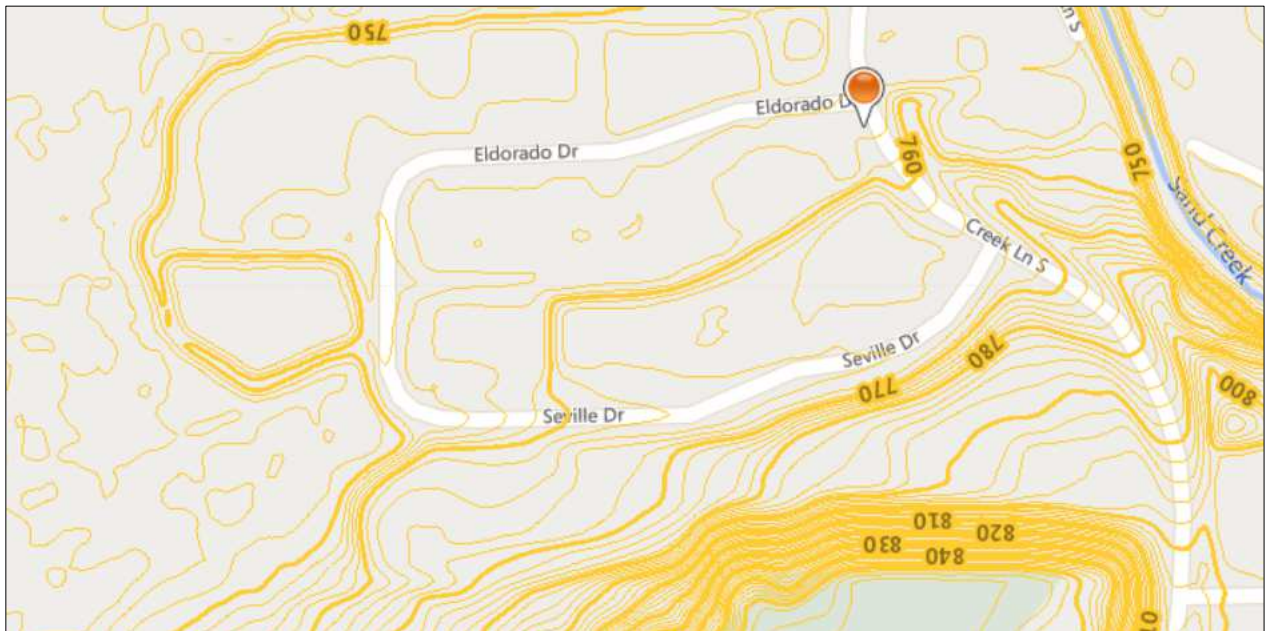
Figure provided by Bolton and Menk, Inc..

## **A.2. Site Conditions and History**

The project area is a small commercial development off Creek Lane. Based on a review of historical imagery through the Minnesota Historical Aerial Photographs Online website and Google Earth®, the project area appears to have been undeveloped until the early-2000s when construction of the commercial development began. We were not provided with previous plans or a pavement history for the project streets.

Based on the Minnesota Department of Natural Resources (MNDNR) website MnTOPO, site grades ranged from about 756 feet above mean sea level (MSL) in the northern and western portion of the site up to about 766 feet above MSL in the south-central and southeastern portion. A ponding area exists along the western portion of the site, adjacent to the roadway, with grades sloping down to about 748 feet MSL. Site grades remain relatively flat beyond the pond to the west and to the north and east. Site grades, however, rise significantly along the south and southeast to elevations greater than 800 feet MSL.

**Figure 2. MnTOPO Image of Site**



### **A.3. Purpose**

The purpose of our geotechnical evaluation is to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of the proposed infrastructure improvements to Eldorado and Seville Drive.

#### **A.4. Background Information and Reference Documents**

We were provided and/or reviewed the following documentation:

- Aerial photographs of the project site showing the pavement areas to be improved.
- Geologic Map of Scott County, Surficial Geology by Barbara A. Lusardi, dated 2006.
- Aerial imagery available through the Minnesota Historical Aerial Photographs Online website provided by the University of Minnesota, <https://apps.lib.umn.edu/mhapo/>.
- Traffic data available via the Minnesota Department of Transportation (MnDOT) Traffic Mapping Application, <http://www.dot.state.mn.us/traffic/data/tma.html>.

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses and/or recommendations.

#### **A.5. Scope of Services**

We performed our scope of services for the project in accordance with our Proposal for Geotechnical Evaluation (QTB148683), dated November 3, 2021. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewing the background information and reference documents previously cited.
- Staking and clearing the exploration location of underground utilities. We selected and staked the exploration locations. We acquired the surface elevations and locations with GPS technology using the State of Minnesota's permanent GPS base station network. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.

- Performing five standard penetration test borings at various locations within the proposed pavement areas to nominal depths of 5 feet below existing grade. Boring ST-3 was drilled prior to ST-1 and glanced the side of a large storm sewer pipe that was not located. The City was immediately called out to investigate. The storm sewer pipe and watermain pipe could not be located by the City near the location of ST-1 was therefore not drilled due to potential utility conflicts.
- Preparing this report containing a boring location sketch, logs soil borings, a summary of the soils encountered, and recommendations for utility and pavement subgrade preparation and the design of utilities and pavements.

Our scope of services did not include environmental services or testing, and we did not train the personnel performing this evaluation to provide environmental services or testing. We can provide these services or testing at your request.

## **B. Results**

### **B.1. Geologic Overview**

We based the geologic origins used in this report on the soil types, in-situ and laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.

### **B.2. Boring Results**

Table 2 provides a summary of the soil boring results; in the general order we encountered the strata. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheet in the Appendix include definitions of abbreviations used in Table 2.

For simplicity in this report, we define fill to mean existing, uncontrolled or undocumented fill.

**Table 2. Subsurface Profile Summary**

Strata	Soil Type - ASTM Classification	N-values	Commentary and Details
Pavement	Not Applicable (N/A)	N/A	<ul style="list-style-type: none"> <li>▪ Bituminous thicknesses of about 4 1/2 to 6 inches.</li> <li>▪ Aggregate thicknesses of about 5 to 8 inches.</li> <li>▪ Total pavement sections of about 9 1/2 to 14 inches thick.</li> </ul>
Fill	SC	7 to 27	<ul style="list-style-type: none"> <li>▪ Present below the pavement materials in Borings ST-2 and ST-3 to depths of about 7 and 9 feet below existing grade.</li> <li>▪ Generally, appears consistent with uncontrolled fill based on the variable consistency and soil composition, including organic materials.</li> <li>▪ Grayish brown to dark brown in color.</li> <li>▪ Moisture condition generally moist.</li> </ul>
Alluvium	SP, SP-SM, SM	4 to 34	<ul style="list-style-type: none"> <li>▪ Fine-grained sands.</li> <li>▪ Loose to dense.</li> <li>▪ Brown, grayish brown and gray in color.</li> <li>▪ Contained variable amounts of gravel.</li> <li>▪ Moisture condition generally moist to wet.</li> </ul>

We did not perform gradation analysis on the apparent aggregate base material encountered as part of the pavement section and there cannot determine if the encountered material satisfies a particular specification.

### B.3. Groundwater

Table 3 summarizes the depths where we observed groundwater; the attached Log of Boring sheets in the Appendix also include this information and additional details.

**Table 3. Groundwater Summary**

Location	Surface Elevation	Measured or Estimated Depth to Groundwater (feet)	Corresponding Groundwater Elevation (feet)
ST-2	752.9	10	743
ST-3	752.2	7 1/2	744 1/2
ST-4	762.1	12	750
ST-5	764.6	13	752



At the time of our observation, the groundwater surface elevation around the 2021 Street Rehabilitation Project appeared to range between elevations 843 to 852 feet. Groundwater may take days or longer to reach equilibrium in the silty subgrade soils within the borehole which was immediately backfilled in accordance with our scope of work.

## **B.4. Laboratory Test Results**

We performed laboratory testing on select samples including moisture content (MC) tests per ASTM D2216 and grain size tests per ASTM D1140 to evaluate the percent of particles passing the #200 sieve (P200). The tests results are summarized below in Table 4.

**Table 4. Laboratory Classification Test Results**

<b>Location</b>	<b>Sample Depth (feet)</b>	<b>Classification (USCS)</b>	<b>MC (%)</b>	<b>P200 (%)</b>
ST-2	2 1/2	Fill: Clayey Sand (SC)	11	40
ST-3	2 1/2	Fill: SC	13	38
ST-4	5	Silty Sand (SM)	8	33
ST-5	2 1/2	SM	7	26

The Log of Boring sheets attached in the Appendix present the results of the MC tests in the “MC” column and list the results of P200 tests in the “Tests or Remarks” column.

## **C. Recommendations**

### **C.1. Design and Construction Discussion**

#### **C.1.a. Anticipated Grade Changes**

Final grading plans were not available at the time of this report. We assume grade changes will closely match those of the existing roadways. We should be notified if grade changes exceed 1-foot.

#### **C.1.b. Reuse of Pavement Materials and On-Site Soils**

From a materials standpoint, reclamation of the existing bituminous pavement for reuse as recycled aggregate base or as a component of new pavements is acceptable assuming the produced products meet the applicable project specifications. We recommend implementing thorough quality control practices, including frequent sieve analyses, asphalt contents, and other tests, to achieve desirable characteristics for reclaimed material that will be processed on site or left in place.

#### **C.1.c. Utility Installation**

For the watermain replacement in select areas, we understand consideration is being given to providing options for installation that will likely consist of open-excavation, horizontal directional drilling (HDD) and/or pipe bursting. Based on the soils conditional encountered and depth to groundwater, an open-excavation approach appears to be the most feasible option, especially given the smaller quantities and select areas to be replaced. HDD and pipe bursting will require specialized equipment to be mobilized to the site that will likely increase construction costs considering the small amount of required replacement lengths (scale of economy).

#### **C.1.d. Groundwater**

Excavations for watermain replacement may encounter occasional zones of groundwater at the anticipated invert depths of 7 to 8 feet below grade. We recommend project planning anticipate temporary excavation dewatering for utility construction if utilizing open-cut methods. Based upon the borings, we anticipate sump pumps would be suitable for temporary dewatering. Some of the soils, such as the silty or clayey sands will collect water from precipitation or if water drains to the site. We recommend the contractor remove any water that collects in work areas before performing further work.

#### **C.1.e. Construction Disturbance**

The silty and clayey roadway subgrades will be sensitive to disturbance and strength loss if subjected to repeated vehicle traffic. Subexcavation and recompaction or replacement of subgrade soils may be required if they lose strength. The project team can minimize rework of the soils by provided a “blister” or layer of surficial soil above the proposed subgrade elevations or by placing an aggregate layer to act as a construction road.



## **C.2. Subgrade Preparation**

### **C.2.a. Pavement Subgrade Preparation**

We recommend the following steps for pavement subgrade preparation, understanding the new sections will generally match existing grades.

1. Following pavement reclamation or removals, have a geotechnical engineer or an engineering technician working under the direction of the geotechnical engineer (geotechnical representative) observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.
2. Scarify, moisture condition, and surface compact to at least 100 percent of standard Proctor density for fine-grained soils or to the requirements of the MnDOT penetration index method for granular soils.
3. Place pavement engineered fill to grade where required and compact in accordance with Section C.2.b. to bottom of pavement section.
4. Test roll the pavement subgrade as described in Section C.2.c.

In any case where granular embankments or backfill join non-granular soil embankments or backfill, provide a 20:1 (H:V) transition between the change in material to prevent an abrupt soils differential. Construct the 20:1 (H:V) transition such that the granular backfill material overlays the adjacent non-granular soil backfill. Provide a similar taper for changing subcut depths or materials (i.e., differing in color, soil classification, moisture content, and density).

### **C.2.b. Engineered Fill Materials and Compaction**

If imported material is to be used, Table 5 contains our recommendations for engineered fill. Note that similar materials compared to existing should be used to the degree possible; importing different soils for backfill may create lenses that could trap water and result in differential frost heave and other performance issues. If longitudinal transitions in soil type are required, we recommend tapering them at a rate of 20H:1V (horizontal:vertical) or flatter. Transitions in the transverse direction, such as at intersections, should be at least 4H:1V (horizontal:vertical).

**Table 5. Recommended Fill and Compaction Specifications\***

<b>Material</b>	<b>Material Specification</b>	<b>Compaction Specification</b>
Subgrade fill	Select Grading Material MnDOT 2105.1.A.6	MnDOT 2105.3.F.1
Optional pavement subbase fill	Select Granular Material MnDOT 3149.2.B.2	MnDOT 2105.3.F.1
Below landscaped surfaces, where subsidence is not a concern	Non-Structural Grading Material MnDOT 2105.1.A.8	MnDOT 2105.3.F.2

\*More select soils comprised of MnDOT 3149.2.J.2 Fine Filter Aggregate may be needed to accommodate work occurring in periods of wet or freezing weather.

We recommend spreading engineered fill in loose lifts approximately 12 inches thick. We recommend compacting engineered fill in accordance with the MnDOT specifications listed in Table 5 above. The project documents should specify relative compaction of engineered fill, based on the structure located above the engineered fill, and vertical proximity to that structure.

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material. Frost should not penetrate under pavements during construction.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

### **C.2.c. Pavement Subgrade Test Roll**

After preparing the subgrade as described above and prior to the placement of the sand subbase or aggregate base, we recommend test rolling the subgrade soils with a fully loaded tandem-axle truck in general accordance with MnDOT Specification 2111 (Test Rolling). We also recommend having a geotechnical representative observe the test roll. Areas that fail the test roll likely indicate soft or weak soils that will require additional correction work to support pavements.

We recommend performing a second test roll after the aggregate base material is in place, and prior to placing bituminous pavement.

### C.3. Pavements

#### C.3.a. Reconstruction

Our scope of services for this project did not include laboratory tests on subgrade soils to determine an R-value for pavement design. Based on our experience with similar soils anticipated at the pavement subgrade elevation, we recommend pavement design assume an R-value of 20. Note the contractor may need to perform limited removal of unsuitable or less suitable soils to achieve this value. Table 6 provides our recommended minimum pavement thickness design.

**Table 6. Recommended Bituminous Pavement Section**

Material	Thickness (inches)	Designation	Specification
Bituminous Wear	3 (2 lifts)	SPWEA340C	2360
Bituminous non-wear	2 (1 lift)	SPNWB330B	2360
Aggregate base	10*	Class 5 or 6	3138
Optional Sand subbase	12	Select Granular Material	3149.2.B.2

\*If a subbase is included, the aggregate base section can be reduced to 6 inches.

#### C.3.b. Pavement Materials and Compaction

We recommend specifying materials based on those provided in Table 6.

Bituminous pavements should generally meet the requirements of Specification 2360, which includes gyratory tests to evaluate strength and air voids and density tests to evaluate compaction.

We recommend tack coat meeting MnDOT Specification 2357 be placed between the lifts and along vertical faces where paving will match adjacent pavement.

We recommend compacting aggregate base to a minimum of 100 percent of its maximum standard Proctor dry density or to the requirements of the Penetration Index Method as per MnDOT Specification 2211.

### **C.3.c. Performance and Maintenance**

We based the above reconstruction section pavement designs on a 20-year performance life. This is the amount of time before we anticipate the pavement will require major rehabilitation. This performance life assumes routine maintenance, such as seal coating and crack sealing. The actual pavement life will vary depending on variations in weather, traffic conditions and maintenance.

It is common to place the non-wear course of bituminous and then delay placement of wear course. For this situation, we recommend evaluating if the reduced pavement section will have sufficient structure to support construction traffic.

Many conditions affect the overall performance of pavements. Some of these conditions include the environment, loading conditions and the level of ongoing maintenance. Regarding bituminous pavements, it is common to have thermal cracking develop within the first few years of placement and continue throughout the life of the pavement. We recommend developing a regular maintenance plan for filling cracks in pavements to lessen the potential impacts for cold weather distress due to frost heave or warm weather distress due to wetting and softening of the subgrade.

## **C.4. Utilities**

### **C.4.a. Excavation Side Slopes**

Based on the borings, we anticipate on-site soils in excavations will generally consist of granular soils with variable fines contents. These soils are typically considered Type C Soil under OSHA (Occupational Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type C soils should have a gradient no steeper than 1.5H:1V. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

All excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states that excavation safety is the responsibility of the contractor. Reference to these OSHA requirements should be included in the project specifications.

#### **C.4.b. Subgrade Stabilization**

For utilities, we anticipate the soils at typical invert elevations will be generally suitable for utility support. If any unsuitable and/or unstable materials (soft clays, silts, or organic soils) are encountered, some additional subcutting of up to 2 feet and replacement with sand or crushed rock will be required to prepare a proper subgrade for pipe support, such as MNDOT Specification 3149.2G Aggregate Bedding. If crushed rock is used as pipe bedding, we recommend wrapping the aggregate in geotextile fabric to prevent the migration of fine-grained materials into the voids of the aggregate.

#### **C.4.c. Corrosion Potential**

Based on our experience, the soils encountered by the borings are moderately corrosive to metallic conduits, but only marginally corrosive to concrete. We recommend specifying non-corrosive materials or providing corrosion protection, unless project planning chooses to perform additional tests to demonstrate the soils are not corrosive.

### **D. Procedures**

#### **D.1. Penetration Test Borings**

We drilled the SPT borings with a truck-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2-foot intervals in general accordance to ASTM D1586. The Log of Boring Sheets show the actual sample intervals and corresponding depths.

#### **D.2. Exploration Logs**

##### **D.2.a. Log of Boring Sheets**

The Appendix includes Log of Boring Sheets (exploration logs) for our SPT borings. The exploration logs identify and describe the penetrated geologic materials, and present the results of penetration resistance tests performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater measurements.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

#### **D.2.b. Geologic Origins**

We assigned geologic origins to the materials shown on the exploration logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

### **D.3. Material Classification and Testing**

#### **D.3.a. Visual and Manual Classification**

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

#### **D.3.b. Laboratory Testing**

The laboratory test results follow the exploration logs. We performed the tests in general accordance with ASTM procedures.

### **D.4. Groundwater Measurements**

The drillers checked for groundwater while advancing the penetration test borings. They then filled the boreholes with auger cuttings and/or grout as noted on the exploration logs.

## **E. Qualifications**

### **E.1. Variations in Subsurface Conditions**

#### **E.1.a. Material Strata**

We developed our evaluation, analyses and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work, or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

#### **E.1.b. Groundwater Levels**

We made groundwater measurements under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. Note that the observation periods were relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

### **E.2. Continuity of Professional Responsibility**

#### **E.2.a. Plan Review**

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

### **E.2.b. Construction Observations and Testing**

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

### **E.3. Use of Report**

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

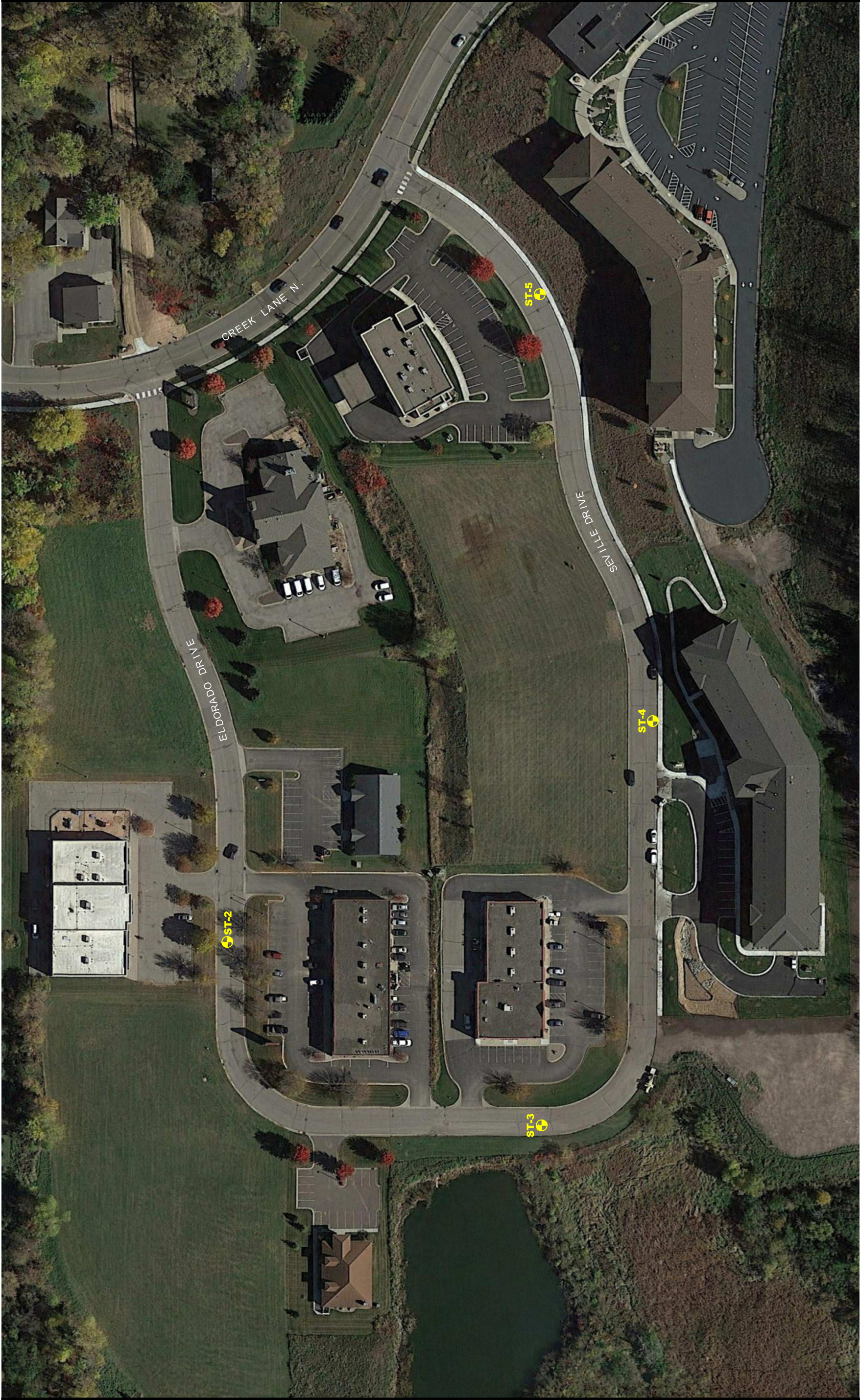
### **E.4. Standard of Care**

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.



## Appendix





⦿ DENOTES APPROXIMATE LOCATION OF  
STANDARD PENETRATION TEST BORING

NOTE: ST-1 WAS NOT DRILLED



Drawing Information

Project No:  
B2110449

Drawing No:  
B2110449

Drawn By: JAG  
Date Drawn: 11/3/21  
Checked By: NGL  
Last Modified: 11/16/21

Project Information

City of Jordan  
2022 Infrastructure  
Improvement Project

Eldorado Drive  
and Seville Drive

Jordan, Minnesota

Soil Boring  
Location Sketch



See Descriptive Terminology sheet for explanation of abbreviations

<b>Project Number B2110449</b> <b>Geotechnical Evaluation</b> <b>City of Jordan 2022 Infrastructure Improvement Project</b> <b>Eldorado Drive and Seville Drive</b> <b>Jordan, Minnesota</b>					BORING: <b>ST-2</b>		
					LOCATION: See attached sketch		
					NORTHING: 171396	EASTING: 415368	
DRILLER: C. McClain/A. Tross		LOGGED BY: T. Schappa		START DATE: 11/08/21	END DATE: 11/08/21		
SURFACE ELEVATION: 752.9 ft		RIG: 7514	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q <sub>p</sub> tsf	MC %	Tests or Remarks
751.9		PAVEMENT, 5 inches of bituminous over 7 inches of apparent aggregate base					
1.0		FILL: CLAYEY SAND (SC), intermixed with Silty Sand, and Lean Clay, grayish brown, moist		3-4-3 (7) 16"		11	P200=40%
			5	5-6-6 (12) 18"			
				3-4-9 (13) 18"			
743.9		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, brown, wet, medium dense (ALLUVIUM)	10	6-5-6 (11) 16"			
9.0							
740.9		SILTY SAND (SM), fine to medium-grained, trace Gravel, brown, wet, loose (ALLUVIUM)		3-2-3 (5) 18"			
12.0							
738.4		END OF BORING	15				Water observed at 10.0 feet with 11.5 feet of tooling in the ground while drilling.
14.5		Boring immediately backfilled					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

<b>Project Number B2110449</b> <b>Geotechnical Evaluation</b> <b>City of Jordan 2022 Infrastructure Improvement Project</b> <b>Eldorado Drive and Seville Drive</b> <b>Jordan, Minnesota</b>					BORING: <b>ST-3</b>		
					LOCATION: See attached sketch		
					NORTHING: 171062	EASTING: 416173	
DRILLER: C. McClain/A. Tross		LOGGED BY: T. Schappa		START DATE: 11/08/21	END DATE: 11/08/21		
SURFACE ELEVATION: 752.2 ft		RIG: 7514	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny		
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q <sub>p</sub> tsf	MC %	Tests or Remarks
751.4 0.8		PAVEMENT, 4 1/2 inches of bituminous over 5 inches of apparent aggregate base					
		FILL: CLAYEY SAND (SC), intermixed with Silty Sand, trace Gravel, brownish gray with dark brown, moist		3-3-6 (9) 15"		13	P200=38%
			5	7-9-18 (27) 12"			
745.2 7.0	≈	POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, grayish brown, wet, medium dense (ALLUVIUM)		8-14-16 (30) 18"			
743.2 9.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, brown, wet, loose (ALLUVIUM)	10	4-5-5 (10) 16"			
740.2 12.0		SILTY SAND (SM), fine-grained, contains seams of Lean Clay, trace Gravel, gray, wet, very loose (ALLUVIUM)		1-2-2 (4) 18"			
737.6 14.5		END OF BORING	15				Water observed at 7.5 feet with 9.5 feet of tooling in the ground while drilling.
		Boring immediately backfilled					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

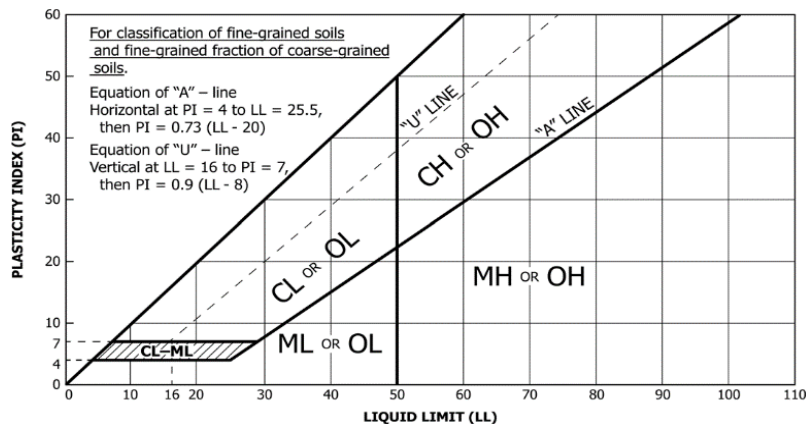
<b>Project Number B2110449</b> <b>Geotechnical Evaluation</b> <b>City of Jordan 2022 Infrastructure Improvement Project</b> <b>Eldorado Drive and Seville Drive</b> <b>Jordan, Minnesota</b>					BORING: <b>ST-4</b>		
					LOCATION: See attached sketch		
					NORTHING: 170944	EASTING: 416603	
DRILLER: C. McClain/A. Tross		LOGGED BY: T. Schappa		START DATE: 11/08/21	END DATE: 11/08/21		
SURFACE ELEVATION: 762.1 ft		RIG: 7514	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q <sub>p</sub> tsf	MC %	Tests or Remarks
761.0		PAVEMENT, 5 1/2 inches of bituminous over 8 inches of apparent aggregate base					
1.1		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, brown, moist, medium dense (ALLUVIUM)		9-13-14 (27) 16"			
758.1							
4.0		SILTY SAND (SM), fine-grained, trace Gravel, brownish gray, moist, medium dense (ALLUVIUM)	5	8-7-8 (15) 16"		8	P200=33%
755.1							
7.0		SILTY SAND (SM), fine to medium-grained, little Gravel, brown, moist, medium dense (ALLUVIUM)		11-9-8 (17) 15"			
753.1							
9.0		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, brown, moist, medium dense (ALLUVIUM)	10	10-8-13 (21) 18"			
750.1							
12.0		SILTY SAND (SM), fine to medium-grained, with Gravel, layers of CLAYEY SAND, grayish brown, wet, loose (ALLUVIUM)		3-3-3 (6) 12"			
747.6							
14.5		END OF BORING	15				Water not observed while drilling.
		Boring immediately backfilled					
			20				
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

<b>Project Number B2110449</b> <b>Geotechnical Evaluation</b> <b>City of Jordan 2022 Infrastructure Improvement Project</b> <b>Eldorado Drive and Seville Drive</b> <b>Jordan, Minnesota</b>					BORING: <b>ST-5</b>		
					LOCATION: See attached sketch		
					NORTHING: 171064	EASTING: 417057	
DRILLER: C. McClain/A. Tross		LOGGED BY: T. Schappa		START DATE: 11/08/21		END DATE: 11/08/21	
SURFACE ELEVATION: 764.6 ft		RIG: 7514	METHOD: 3 1/4" HSA		SURFACING: Bituminous		WEATHER: Sunny
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q <sub>p</sub> tsf	MC %	Tests or Remarks
763.4 1.2		PAVEMENT, 6 inches of bituminous over 8 inches of apparent aggregate base					
		SILTY SAND (SM), fine-grained, trace Gravel, gray, moist, medium dense to dense (ALLUVIUM)		7-8-12 (20) 18"		7	P200=26%
			5	8-12-16 (28) 18"			
				8-12-12 (24) 18"			
			10	6-15-19 (34) 18"			
750.1 14.5		END OF BORING	15	2-6-12 (18) 18"			Water observed at 13.0 feet with 13.0 feet of tooling in the ground while drilling.
		Boring immediately backfilled					
			20				
			25				
			30				

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 $1 \leq C_c \leq 3^D$	GW	Well-graded gravel <sup>E</sup>	
			$C_u < 4$ and/or ( $C_c < 1$ or $C_c > 3$ ) <sup>D</sup>	GP	Poorly graded gravel <sup>E</sup>	
		Gravels with Fines (More than 12% fines <sup>C</sup> )	Fines classify as ML or MH	GM	Silty gravel <sup>EFG</sup>	
			Fines Classify as CL or CH	GC	Clayey gravel <sup>EFG</sup>	
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines <sup>H</sup> )	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand <sup>I</sup>	
			$C_u < 6$ and/or ( $C_c < 1$ or $C_c > 3$ ) <sup>D</sup>	SP	Poorly graded sand <sup>I</sup>	
		Sands with Fines (More than 12% fines <sup>H</sup> )	Fines classify as ML or MH	SM	Silty sand <sup>FGI</sup>	
			Fines classify as CL or CH	SC	Clayey sand <sup>FGI</sup>	
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line <sup>J</sup>	CL	Lean clay <sup>KLM</sup>	
			PI < 4 or plots below "A" line <sup>J</sup>	ML	Silt <sup>KLM</sup>	
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OL	Organic clay <sup>KLMN</sup> Organic silt <sup>KLM O</sup>	
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay <sup>KLM</sup>	
			PI plots below "A" line	MH	Elastic silt <sup>KLM</sup>	
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OH	Organic clay <sup>KLMP</sup> Organic silt <sup>KLMQ</sup>	
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor			PT	Peat

- A. Based on the material passing the 3-inch (75-mm) sieve.  
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.  
C. Gravels with 5 to 12% fines require dual symbols:  
GW-GM well-graded gravel with silt  
GW-GC well-graded gravel with clay  
GP-GM poorly graded gravel with silt  
GP-GC poorly graded gravel with clay  
D.  $C_u = D_{60} / D_{10}$   $C_c = (D_{30})^2 / (D_{10} \times D_{60})$   
E. If soil contains  $\geq 15\%$  sand, add "with sand" to group name.  
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.  
G. If fines are organic, add "with organic fines" to group name.  
H. Sands with 5 to 12% fines require dual symbols:  
SW-SM well-graded sand with silt  
SW-SC well-graded sand with clay  
SP-SM poorly graded sand with silt  
SP-SC poorly graded sand with clay  
I. If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.  
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.  
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.  
L. If soil contains  $\geq 30\%$  plus No. 200, predominantly sand, add "sandy" to group name.  
M. If soil contains  $\geq 30\%$  plus No. 200 predominantly gravel, add "gravelly" to group name.  
N.  $PI \geq 4$  and plots on or above "A" line.  
O.  $PI < 4$  or plots below "A" line.  
P. PI plots on or above "A" line.  
Q. PI plots below "A" line.



Laboratory Tests			
DD	Dry density, pcf	$q_p$	Pocket penetrometer strength, tsf
WD	Wet density, pcf	$q_u$	Unconfined compression test, tsf
P200	% Passing #200 sieve	LL	Liquid limit
MC	Moisture content, %	PL	Plastic limit
OC	Organic content, %	PI	Plasticity index

## Particle Size Identification

Boulders..... over 12"  
Cobbles..... 3" to 12"  
Gravel  
Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)  
Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)  
Sand  
Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)  
Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)  
Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)  
Silt..... No. 200 (0.075 mm) to .005 mm  
Clay..... < .005 mm

## Relative Proportions<sup>L M</sup>

trace..... 0 to 5%  
little..... 6 to 14%  
with.....  $\geq 15\%$

## Inclusion Thicknesses

lens..... 0 to 1/8"  
seam..... 1/8" to 1"  
layer..... over 1"

## Apparent 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 Blows Per Foot Approximate Unconfined Compressive Strength

Very soft..... 0 to 1 BPF..... < 0.25 tsf  
Soft..... 2 to 4 BPF..... 0.25 to 0.5 tsf  
Medium..... 5 to 8 BPF..... 0.5 to 1 tsf  
Stiff..... 9 to 15 BPF..... 1 to 2 tsf  
Very Stiff..... 16 to 30 BPF..... 2 to 4 tsf  
Hard..... over 30 BPF..... > 4 tsf

## Moisture Content:

**Dry:** Absence of moisture, dusty, dry to the touch.  
**Moist:** Damp but no visible water.  
**Wet:** Visible free water, usually soil is below water table.

## Drilling Notes:




**Blows/N-value:** Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

**Partial Penetration:** If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.









**Recovery:** Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

**WOH:** Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

**WOR:** Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

**Water Level:** Indicates the water level measured by the drillers either while drilling ( , at the end of drilling ( , or at some time after drilling ( .

## Sample Symbols

	Standard Penetration Test		Rock Core
	Modified California (MC)		Thinwall (TW)/Shelby Tube (SH)
	Auger		Texas Cone Penetrometer
	Grab Sample		Dynamic Cone Penetrometer

# State Aid 10 Ton ESAL Traffic Forecast Calculator

This ESAL calculator is for use with **default Heavy Commercial Traffic values**; click "User Defined Traffic Values" sheet below if you wish to enter your own Heavy Commercial Traffic values.

Instructions: All yellow boxes require an input value.

Dropdown choices are provided for Base Year (C18), Number of Lanes (C19), and Urban or Rural (C21).

You must click on cells C18, C19, and C21 to access the dropdown choices.

## General Information

Date  
Forecast Performed by  
Name of County or City  
Project Number  
Project Description  
Route Number  
Base Year (i.e. opening to traffic)  
Number of Lanes (total both directions)  
Current AADT  
Urban or Rural  
Historical AADT (enter a minimum of two years)  
Enter oldest traffic data here  
Enter second oldest traffic data here  
Enter third oldest traffic data here  
Enter fourth oldest traffic data here  
Base Year AADT  
20-Year AADT  
35-Year AADT  
Growth Rate

November 9, 2021	
Tim Schappa	
Jordan	
B2110449	
2022 Infrastructure Improvement Project	
Creek Lane	
2022	
2 = typical 2 lane	
5,600	
Urban	
<b>Year</b>	<b>AADT</b>
2007	4,450
2010	4,410
2014	4,300
2018	5,600
2022	5,600
2042	7,480
2057	8,880
	1.68%

Vehicle Type	Vehicle Class %	ESAL Factors	
		Flexible	Rigid
2AX-6TIRE SU	1.42%	0.25	0.24
3AX+SU	0.07%	0.58	0.85
3AX TST	0.11%	0.39	0.37
4AX TST	0.22%	0.51	0.53
5AX+TST	1.64%	1.13	1.89
TR TR, BUSES	0.65%	0.57	0.74
TWIN TRAILERS	0.00%	2.40	2.33
<b>Total</b>	<b>4.10%</b>	<b>NA</b>	<b>NA</b>

20-Year Flexible Forecast (10 Ton) = 778,000  
 20-Year Rigid Forecast (10 Ton) = 1,160,000  
 35-Year Flexible Forecast (10 Ton) = 1,476,000  
 35-Year Rigid Forecast (10 Ton) = 2,202,000

Note: This ESAL Calculator provides reasonable estimation of ESAL's based on accurate AADT values. It is limited to an AADT value of 20,000. For roadways exceeding an AADT of 20,000, it is recommended to use the MnDOT ESAL Forecasting Tool found on MnDOT's Pavement Design web page at:  
<http://www.dot.state.mn.us/materials/pvmtdesign/software.html>



# MnPAVE Design Summary

MnPAVE 6.405 Simulation Input File: MnPAVE1

Confidence Level for Preliminary Life Estimate = 70%

Confidence and Reliability may not agree. Thickness and modulus are reduced when Confidence > 50%.

Monte Carlo Reliability randomly selects values for each layer. Use Reliability for final design.

Preliminary Life Estimate		20-Year Reliability (5,000 cycles)	
Fatigue	Rutting	Fatigue	Rutting
>50 years	24 years	99.9%	92.6%

## Project Information

District	County	City
Metro	Scott	
Project Number	Route	Reference Post
		from to
Letting Date	Construction Type	
11/22/21		
Designer	Soils Engineer	

## Climate Information

Seasons	Location
5	44° 38' Latitude, 93° 29' Longitude

## Structural Information (Design Level: Intermediate)

Layer	Type	Subtype	Height (in.)
1	Hot-Mix Asphalt (Pb = 5.0%)	PG58-34 (2360F 1/2")	5.00
2	Aggregate Base	FDR	10.00
3	Engineered Soil	R-Value = 20 (CL)	12.00
4	Undisturbed Soil	Engineered Soil Modulus/2	

## Traffic Information (Speed = 30 mph)

Load Type	First Year ESAL	Growth Rate	Axle Repetitions
ESAL	35,530	1.0% (simple)	778,000

## Notes

*The Minnesota Department of Transportation makes no guarantee or warranty, either express or implied, with respect to the reuse of the data provided herewith, regardless of its format or means of its transmission. The user accepts the data "as is", and assumes all risks associated with its use. By accepting this data, the user agrees not to transmit this data or provide access to it or any part of it to another party unless the user shall include with the data a copy of this disclaimer. The Minnesota Department of Transportation assumes no responsibility, actual or consequential, for damage that results from any user's reliance on this data.*

Printed Monday, November 22, 2021 at 10:24:33



CITY OF JORDAN

CONSTRUCTION PLANS FOR

2022 INFRASTRUCTURE IMPROVEMENTS

FULL DEPTH RECLAIM, BITUMINOUS PAVING, SPOT CURB AND GUTTER REPLACEMENT, CONCRETE SIDEWALK, ADA IMPROVEMENTS,  
WATERMAIN REPLACEMENT, SANITARY SEWER REALIGNMENT, SPOT SANITARY SEWER REPAIR, SPOT STORM SEWER REPLACEMENT, ALLEY IMPROVEMENTS

MARCH, 2022



SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01 - G0.03	TITLE SHEET, LEGEND, GENERAL NOTES
CIVIL	
C0.01 - C0.03	EXISTING CONDITIONS, REMOVALS PLAN
C1.01 - C1.11	TYPICAL SECTIONS, DETAILS
C1.12	TEMPORARY WATERMAIN PLAN/PHASING
C2.01 - C2.06	STORMWATER POLLUTION PREVENTION PLANS
C4.01 - C4.04	SANITARY SEWER & WATERMAIN PLAN & PROFILE
C5.01 - C5.03	STORM SEWER PLAN & PROFILE
C6.01 - C6.06	STREET PLAN & PROFILE
C9.01 - C9.14	CROSS SECTIONS
THIS PLAN SET CONTAINS 51 SHEETS.	

MAP LEGEND

PROJECT LIMITS



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*Lukas W. Wheeler*  
LUKAS W. WHEELER  
57855  
DATE 03/28/2022



12224 NICOLLET AVENUE  
BURNSVILLE, MINNESOTA 55337  
Phone: (952) 890-0509  
Email: BurnsVille@bolton-menk.com  
www.bolton-menk.com



DESIGNED	AC	NO.	ISSUED FOR	DATE
DRAWN	AC			
CHECKED	LWW			
CLIENT PROJ. NO.				

CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS


TITLE SHEET

SHEET





















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EXISTING TOPOGRAPHIC SYMBOLS

	ACCESS GRATE		REGULATION STATION GAS
	AIR CONDITION UNIT		SATELLITE DISH
	ANTENNA		SIGN NON TRAFFIC
	AUTO SPRINKLER CONNECTION		SIGN TRAFFIC
	BARRICADE PERMANENT		SIGNAL CONTROL CABINET
	BASKETBALL POST		SOIL BORING
	BENCH		SIREN
	BIRD FEEDER		TELEPHONE BOOTH
	BOLLARD		TILE INLET
	BUSH		TILE OUTLET
	CATCH BASIN RECTANGULAR CASTING		TILE RISER
	CATCH BASIN CIRCULAR CASTING		TRANSFORMER-ELECTRIC
	CURB STOP		TREE-CONIFEROUS
	CLEAN OUT		TREE-DEAD
	CULVERT END		TREE-DECIDUOUS
	DRINKING FOUNTAIN		TREE STUMP
	DOWN SPOUT		TRAFFIC ARM BARRIER
	FILL PIPE		TRAFFIC SIGNAL
	FIRE HYDRANT		TRASH CAN
	FLAG POLE		UTILITY MARKER
	FLARED END / APRON		VALVE
	FUEL PUMP		VALVE POST INDICATOR
	GRILL		VALVE VAULT
	GUY WIRE ANCHOR		VAULT
	HANDHOLE		VENT PIPE
	HANDICAP SPACE		WATER SPIGOT
	IRRIGATION SPRINKLER HEAD		WELL
	IRRIGATION VALVE BOX		WETLAND DELINEATED MARKER
	LIFT STATION CONTROL PANEL		WETLAND
	LIFT STATION		WET WELL
	LIGHT ON POLE		YARD HYDRANT
	LIGHT-GROUND		







PROPOSED TOPOGRAPHIC SYMBOLS

	CLEANOUT
	MANHOLE
	LIFT STATION
	STORM SEWER CIRCULAR CASTING
	STORM SEWER RECTANGULAR CASTING
	STORM SEWER FLARED END / APRON
	STORM SEWER OUTLET STRUCTURE
	STORM SEWER OVERFLOW STRUCTURE
	CURB BOX
	FIRE HYDRANT
	WATER VALVE
	WATER REDUCER
	WATER BEND
	WATER TEE
	WATER CROSS
	WATER SLEEVE
	WATER CAP / PLUG
	RIP RAP
	DRAINAGE FLOW
	TRAFFIC SIGNS







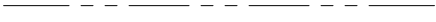







SURVEY SYMBOLS

	BENCHMARK LOCATION
	CONTROL POINT
	MONUMENT FOUND
	CAST IRON MONUMENT
	STONE MONUMENT








EXISTING TOPOGRAPHIC LINES

	RETAINING WALL
	FENCE
	FENCE-DECORATIVE
	GUARD RAIL
	TREE LINE
	BUSH LINE


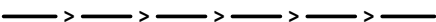




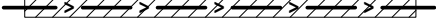

SURVEY LINES

	CONTROLLED ACCESS
	BOUNDARY
	CENTERLINE
	EXISTING EASEMENT LINE
	PROPOSED EASEMENT LINE
	EXISTING LOT LINE
	PROPOSED LOT LINE
	EXISTING RIGHT-OF-WAY
	PROPOSED RIGHT-OF-WAY
	SETBACK LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	TEMPORARY EASEMENT






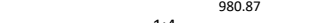

EXISTING UTILITY LINES

	FORCEMAIN
	SANITARY SEWER
	SANITARY SERVICE
	STORM SEWER
	STORM SEWER DRAIN TILE
	WATERMAIN
	WATER SERVICE


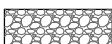
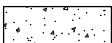
PROPOSED UTILITY LINES

	FORCEMAIN
	SANITARY SEWER
	SANITARY SERVICE
	STORM SEWER
	STORM SEWER DRAIN TILE
	WATERMAIN
	WATER SERVICE
	PIPE CASING

GRADING INFORMATION

	EXISTING CONTOUR MINOR
	EXISTING CONTOUR MAJOR
	PROPOSED CONTOUR MINOR
	PROPOSED CONTOUR MAJOR
	PROPOSED GRADING LIMITS / SLOPE LIMITS
	PROPOSED SPOT ELEVATION
	RISE:RUN (SLOPE)







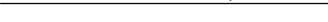
HATCH PATTERNS

	BITUMINOUS		GRAVEL
	CONCRETE		



EXISTING PRIVATE UTILITY LINES

NOTE:  
EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA"

	UNDERGROUND FIBER OPTIC
	UNDERGROUND ELECTRIC
	UNDERGROUND GAS
	UNDERGROUND COMMUNICATION
	OVERHEAD ELECTRIC
	OVERHEAD COMMUNICATION
	OVERHEAD UTILITY

UTILITIES IDENTIFIED WITH A QUALITY LEVEL :

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL  
EXAMPLE:  G-A  G-A UNDERGROUND GAS, QUALITY LEVEL A  
UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-02.

UTILITY QUALITY LEVELS:

QUALITY LEVEL D: PROVIDES THE MOST BASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. RECORDS MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES, CONSTRUCTION PLANS, ETC.

QUALITY LEVEL C: INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. INCLUDES QUALITY LEVEL D ACTIVITIES.

QUALITY LEVEL B: INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND COLLECTING THE INFORMATION THROUGH A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL A: PROVIDES THE HIGHEST LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN QUALITY LEVELS B, C, AND D. THE LOCATED FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND PROFILE INFORMATION.

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT
ADJ	ADJUST	GU	GUTTER	RT	RIGHT
ALT	ALTERNATE	GV	GATE VALVE	SAN	SANITARY SEWER
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BIT	BITUMINOUS	HH	HANDHOLE	SERV	SERVICE
BLDG	BUILDING	HP	HIGH POINT	SHLD	SHOULDER
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STA	STATION
BR	BEGIN RADIUS	HYD	HYDRANT	STD	STANDARD
BV	BUTTERFLY VALVE	I	INVERT	STM	STORM SEWER
CB	CATCH BASIN	K	CURVE COEFFICIENT	TC	TOP OF CURB
C&G	CURB AND GUTTER	L	LENGTH	TE	TEMPORARY EASEMENT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TEMP	TEMPORARY
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	TNH	TOP NUT HYDRANT
CL	CENTER LINE	LT	LEFT	TP	TOP OF PIPE
CL	CLASS	MAX	MAXIMUM	TYP	TYPICAL
CLVT	CULVERT	MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VERT	VERTICAL
C.O.	CHANGE ORDER	MR	MID RADIUS	VPC	VERTICAL POINT OF CURVE
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	VPI	VERTICAL POINT OF INTERSECTION
CON	CONCRETE	NMC	NON-METALLIC CONDUIT	VPT	VERTICAL POINT OF TANGENT
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE	WM	WATERMAIN
DIA	DIAMETER	NWL	NORMAL WATER LEVEL		
DIP	DUCTILE IRON PIPE	OHW	ORDINARY HIGH WATER LEVEL		
DWY	DRIVEWAY	PC	POINT OF CURVE	AC	ACRES
E	EXTERNAL CURVE DISTANCE	PCC	POINT OF COMPOUND CURVE	CF	CUBIC FEET
ELEC	ELECTRIC	PE	PERMANENT EASEMENT	CV	COMPACTED VOLUME
ELEV	ELEVATION	PED	PEDESTRIAN, PEDESTAL	CY	CUBIC YARD
EOF	EMERGENCY OVERFLOW	PERF	PERFORATED PIPE	EA	EACH
ER	END RADIUS	PERM	PERMANENT	EV	EXCAVATED VOLUME
ESMT	EASEMENT	PI	POINT OF INTERSECTION	LB	POUND
EX	EXISTING	PL	PROPERTY LINE	LF	LINEAR FEET
FES	FLARED END SECTION	PRC	POINT OF REVERSE CURVE	LS	LUMP SUM
F-F	FACE TO FACE	PT	POINT OF TANGENT	LV	LOOSE VOLUME
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE PIPE	SF	SQUARE FEET
F&I	FURNISH AND INSTALL	PVMT	PAVEMENT	SV	STOCKPILE VOLUME
FM	FORCEMAIN	R	RADIUS	SY	SQUARE YARD
FO	FIBER OPTIC	R/W	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RCP	REINFORCED CONCRETE PIPE		
GRAN	GRANULAR	RET	RETAINING		

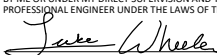
CITY OF JORDAN, MINNESOTA

2022 INFRASTRUCTURE IMPROVEMENTS

LEGEND

SHEET

G0.02

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
LUKAS W. WHEELER  
57855  
DATE 03/28/2022



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DESIGNED	AC	NO.	ISSUED FOR	DATE
DRAWN	AC			
CHECKED	LWW			
CLIENT PROJ. NO.				

## GENERAL TRAFFIC CONTROL NOTES

1. ADVANCED NOTIFICATION SIGNAGE WITH A SCHEDULED START DATE IS REQUIRED TO BE PLACED AT EL DORADO DR AND SEVILLE DR 7 DAYS PRIOR TO THE START OF PAVEMENT REMOVAL OR ANY SUBSTANTIAL WORK. ONCE THE SIGNAGE IS IN PLACE, THE SCHEDULE MUST BE MAINTAINED.
2. ACCESS TO RESIDENCES AND BUSINESSES SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL ALSO SUPPLY ACCESS TO AND FROM THE SITE FOR CONCURRENT CONSTRUCTION PROJECTS, PRIVATE UTILITY IMPROVEMENTS/RELOCATIONS, AND AS OTHERWISE PROVIDED FOR IN THE SPECIFICATIONS.
3. COMMERCIAL DRIVEWAYS AND ALLEY ENTRANCES SHALL REMAIN OPEN AS MUCH AS POSSIBLE. CONCRETE DRIVEWAY OR ALLEY APRON REPLACEMENT MUST BE DONE IN HALVES TO MAINTAIN ACCESS AND HIGH EARLY STRENGTH CONCRETE MUST BE USED. TEMPORARY DRIVEWAY ACCESSES MAY BE REQUIRED. THE LOCATIONS OF TEMPORARY ACCESSES MUST BE COORDINATED WITH THE ENGINEER AND PROPERTY OWNER. ALL COST ASSOCIATED WITH SUPPLYING ACCESS SHALL BE CONSIDERED INCIDENTAL TO THE TRAFFIC CONTROL BID ITEM.
4. THE CONTRACTOR SHALL MAINTAIN GARBAGE AND RECYCLING SERVICE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ACCESS FOR GARBAGE TRUCKS. WHEN INFEASIBLE TO MAINTAIN SUCH ACCESS, THE CONTRACTOR SHALL COLLECT CONTAINERS, RELOCATE THEM TO A LOCATION WHERE SUITABLE ACCESS CAN BE PROVIDED, AND RETURN CONTAINERS IN GOOD WORKING CONDITION TO THE SAME PROPERTY FROM WHICH THEY WERE TAKEN. COSTS FOR PROVIDING ACCESS OR HAULING CONTAINERS TO AN ACCESSIBLE LOCATION SHALL BE INCIDENTAL TO THE CONTRACT.
5. THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MN MUTCD) AND INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. TRAFFIC CONTROL NOT IN COMPLIANCE WITH MN MUTCD WILL BE SUBJECT TO VIOLATION IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
6. THE ITEM "TRAFFIC CONTROL" BID AS "LUMP SUM" SHALL INCLUDE ALL COSTS FOR PROVIDING TEMPORARY CONTROLS SPECIFIED IN THE PLAN AND OTHER TRAFFIC CONTROL REQUIRED PER THE MN/MUTCD DUE TO THE CONTRACTORS OPERATIONS FOR COMPLETION OF THE PROJECT INCLUDING BUT NOT LIMITED TO, RECLAIMING & PAVING UNDER TRAFFIC, TEMPORARY ROAD CLOSURES IN FULL OR TO THRU TRAFFIC, TEMPORARY LANE CLOSURES, ADJUSTMENTS TO THE TRAFFIC CONTROL PLAN FOR LARGE AND SMALL SCALE STAGING OPERATIONS, AND NECESSARY DETOURS FOR MOTORISTS, BICYCLISTS, AND/OR PEDESTRIANS. THE AMOUNT BID SHALL ALSO INCLUDE SUFFICIENT TRAFFIC CONTROL FOR WARNING OF POTENTIAL HAZARDS DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO FLASHING BARRICADES AROUND EQUIPMENT AND OBSTRUCTIONS.
7. CONTRACTOR SHALL PREVENT TRACKING OF BITUMINOUS MATERIAL ONTO THE ADJACENT STREETS OF ALL PROJECT AREAS. IF MATERIAL IS TRACKED ONTO ADJACENT ROADWAYS, THE CONTRACTOR SHALL RESTORE THE PAVEMENT TO THE SATISFACTION OF THE AGENCY HAVING JURISDICTION OVER THE ROADWAY AND CITY.

## GENERAL PHASING NOTES

1. STAGING REQUIREMENTS SHOWN IN THE PLANS, DESCRIBED BELOW, AND IN THE PROJECT MANUAL ARE INTENDED AS CONSTRAINTS WITHIN WHICH THE CONTRACTOR MUST SCHEDULE AND COMPLETE WORK. THE CONTRACTOR MUST ALSO DEVELOP AND IMPLEMENT A STAGING PLAN BASED ON THE CONTRACTOR'S RESOURCES, SCHEDULE, SPECIFIED WORK, AND CONTRACT DEADLINES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROGRESSION OF WORK AND SHALL SUBMIT A DETAILED SCHEDULE TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMMENCING WORK ON ANY PHASE.
3. UPON INITIATION OF CONSTRUCTION ACTIVITY ALONG EL DORADO DRIVE AND SEVILLE DRIVE, ALL UNDERGROUND UTILITY CONSTRUCTION, ROADWAY GRADING AND EXCAVATION, AND INSTALLATION OF ROADWAY AGGREGATE BASE MUST BE COMPLETED WITHIN 28 CALENDAR DAYS.
4. UPON INSTALLATION OF ROADWAY AGGREGATE BASE ALONG EL DORADO DRIVE AND SEVILLE DRIVE, CURB & GUTTER, CONCRETE DRIVEWAY PAVEMENTS, AND NON-WEAR BITUMINOUS PAVEMENT CONSTRUCTION MUST BE COMPLETED WITHIN 21 CALENDAR DAYS.
5. UPON INSTALLATION OF BITUMINOUS NON-WEAR COURSE AND COMPLETION OF LIGHTING CONDUIT AND LIGHT BASES BY XCEL ENERGY ALONG EL DORADO DRIVE AND SEVILLE DRIVE, INSTALLATION OF BITUMINOUS DRIVEWAY PAVEMENTS, SIDEWALK, TURF RESTORATION MATERIALS, AND FINAL WEAR COURSE PAVING MUST BE COMPLETED WITHIN 14 CALENDAR DAYS.
6. UPON INITIATION OF CONSTRUCTION ON ALLEY IMPROVEMENTS, ALL WORK MUST BE COMPLETED WITHIN 21 CALENDAR DAYS.

## UTILITY CONSTRUCTION NOTES

1. WATER AND SANITARY SERVICE LOCATIONS SHOWN ARE APPROXIMATE AND ALL SERVICES MAY NOT BE SHOWN.
2. NEW SERVICES SHALL MATCH EXISTING SERVICE SIZE EXCEPT MINIMUM SERVICE SIZE SHALL BE 1-INCH FOR WATER AND 6-INCH FOR SANITARY. PROVIDE FITTINGS AND COUPLERS AS REQUIRED TO CONNECT TO EXISTING SERVICES.
3. CONNECT TO EXISTING SERVICES AT R.O.W. LINE UNLESS OTHERWISE DIRECTED BY ENGINEER.
4. ROUTING OF NEW SERVICE LINES AROUND TREES AND DRIVEWAYS AS DIRECTED BY ENGINEER MAY BE REQUIRED AND SHALL BE CONSIDERED INCIDENTAL.
5. SANITARY SEWER MAIN PIPE SHALL BE SDR-35 UNLESS OTHERWISE NOTED. SANITARY SEWER SERVICE PIPE SHALL BE SDR-26 AND WATER SERVICES SHALL BE COPPER TYPE "K" FOR SERVICES SMALLER THAN 4" AND C900 PVC FOR SERVICES 4" OR GREATER.
6. CONTRACTOR SHALL LOCATE ALL EXISTING SANITARY AND WATER SERVICE CONNECTIONS AND CONSTRUCT NEW SERVICES TO THE R.O.W. LINE UNLESS DIRECTED BY THE ENGINEER.
7. CONTRACTOR SHALL FIELD VERIFY THE SIZE, LOCATION, AND ELEVATION OF ALL SANITARY SEWER AND WATER SERVICES THAT ARE BEING REPLACED SUCH THAT THEY WILL FUNCTION PROPERLY UPON COMPLETION OF WORK. (INCIDENTAL)
8. MAINTAIN 10' MINIMUM HORIZONTAL SEPARATION OF WATERMAIN WITH SANITARY AND STORM SEWER MAINS, UNLESS OTHERWISE NOTED ON PLANS. WHERE INFEASIBLE , MAINTAIN 18" VERTICAL CLEARANCE.
9. ALL CONNECTIONS TO EXISTING UTILITIES (WMN, SAN, STM, ETC.) SHALL BE FIELD VERIFIED FOR LOCATION AND ELEVATION. (INCIDENTAL)
10. WATER AND SANITARY SERVICE PIPE SHALL BE REMOVED TO SERVICE INSTALLATION LIMITS. REMOVAL OF EXISTING SERVICE PIPES AND VALVES/CURB STOPS SHALL BE CONSIDERED INCIDENTAL TO NEW SERVICE INSTALLATION. ABANDONED SERVICES WHERE NO NEW SERVICES ARE TO BE INSTALLED (DESIGNATED ON THE PLANS OR FIELD DETERMINED) SHALL HAVE THE EXISTING VALVE REMOVED AND THE EXISTING SERVICE PIPE REMOVED AND BULKHEADED (AS DETERMINED BY THE ENGINEER) (INCIDENTAL).
11. EXISTING WATERMAIN DEPTHS AS SHOWN ARE APPROXIMATE. REMOVAL AND INSTALLATION OF OVER DEPTH WATERMAIN SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID FOR WATERMAIN.
12. REPLACE ALL WATER SERVICES BETWEEN NEW MAIN AND ROW WITH NEW 6" C900 PVC , UNLESS EXISTING IS DIFFERNT SIZE, THEN MATCH EXISTING SIZE.
13. A TEMPORARY WATER SERVICE PLAN MUST BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL A MINIMUM OF 48 HOURS PRIOR TO PROPOSED TEMPORARY WATER SYSTEM INSTALLATION.
14. THE CONTRACTOR SHALL COORDINATE WATERMAIN WORK WITH THE FIRE DEPARTMENT AND THE CITY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ARRANGING AND PROVIDING ANY REQUIRED WATERMAIN SHUT OFFS WITH THE CITY DURING CONSTRUCTION. ANY COSTS ASSOCIATED WITH WATERMAIN SHUTOFF WILL BE INCIDENTAL.
15. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH UTILITY OWNERS TO RELOCATE AND PROTECT PRIVATE UTILITIES AS NECESSARY TO CONSTRUCT STREET AND UTILITIES.
16. REFER TO PROJECT SPECIFICATIONS FOR STRUCTURE CASTING FRAME & COVER REQUIREMENTS.
17. A MINIMUM OF 48 HOURS AND MAXIMUM OF 72 HOURS NOTICE SHALL BE GIVEN TO ALL MULTI-FAMILY AND COMMERCIAL PROPERTIES. A MINIMUM OF 1 WEEK NOTICE OF ANY SERVICE INTERRUPTIONS (OF ANY TYPE) SHALL BE GIVEN TO ANY DAYCARE ON SITE.

## CONSTRUCTION NOTES

1. PROVIDE FOR A SAW-CUT WHERE PLACING NEW PAVEMENT IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
2. ALL MATERIALS TESTING SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
3. ALL USES OF THE WORD "INCIDENTAL" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSTRUED TO MEAN INCIDENTAL WORK FOR WHICH NO DIRECT COMPENSATION SHALL BE MADE

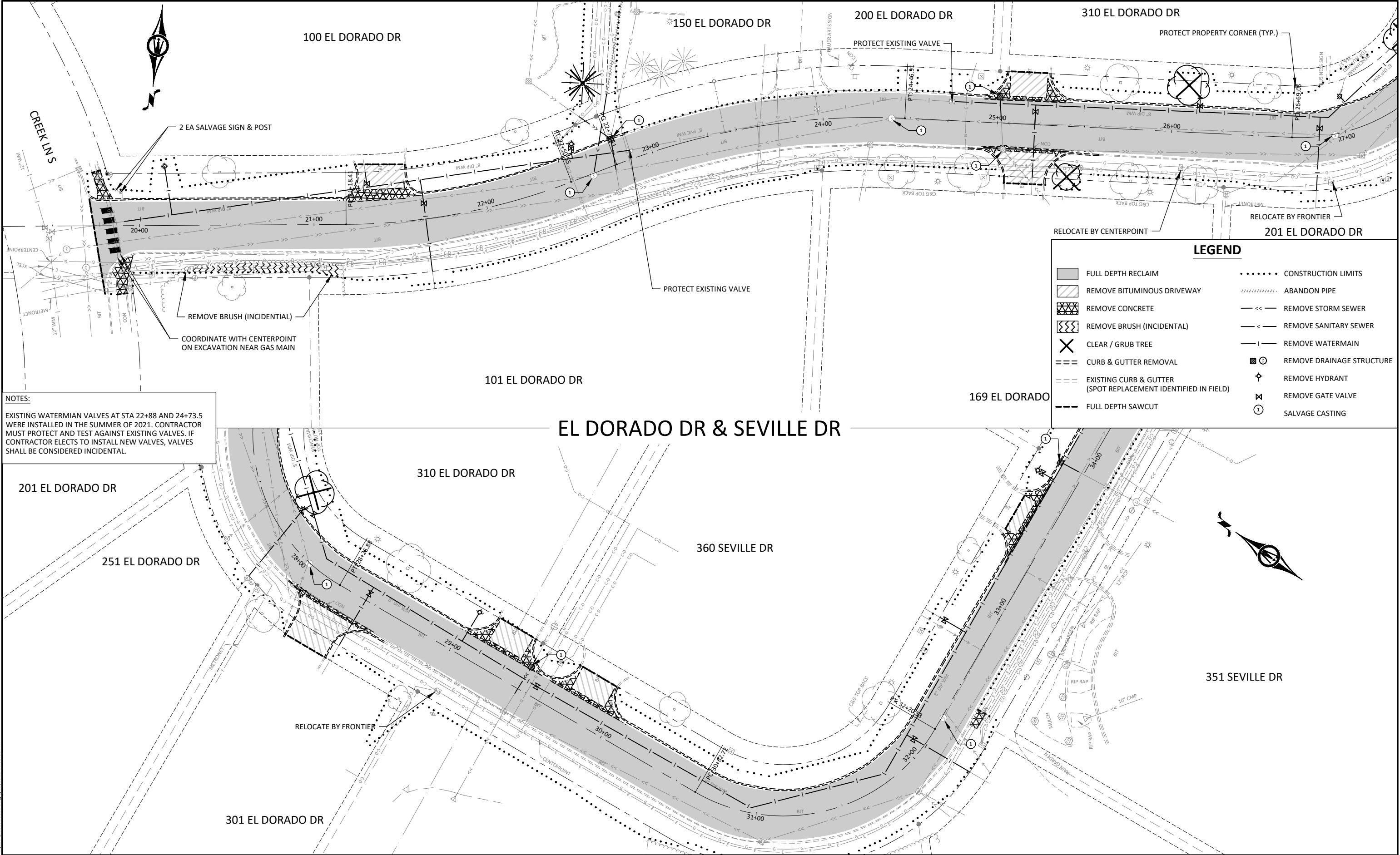
## COORDINATION WITH PRIVATE UTILITIES

1. ALL PRIVATE UTILITIES SHALL BE PROTECTED. CONTRACTOR SHALL COORDINATE WITH ALL PRIVATE UTILITY OWNERS. CALL 1-800-GOPHER1.
2. THE CONTRACTOR MUST COORDINATE SCHEDULES WITH PRIVATE UTILITY OWNERS AND OTHER CONTRACTORS THAT NEED TO WORK IN THE PROJECT AREA, INCLUDING BUT NOT LIMITED TO:
  - 2.1. XCEL ENERGY FOR LIGHTING WORK IN WHISPERING MEADOWS.
  - 2.2. OTHER PRIVATE UTILITY RELOCATIONS.
  - 2.3. DEVELOPMENT WORK AT 201 AND 251 EL DORADO DR
3. WORK BY XCEL ENERGY IS EXPECTED TO TAKE ABOUT 2 WEEKS FOR UNDERGROUND CONDUIT/WIRING, LIGHT POLE BASES, AND INSTALL OF NEW POLES AND FIXTURES. THE CONTRACTOR SHALL NOTIFY XCEL ENERGY A MINIMUM OF 14 CALENDAR DAYS PRIOR TO WHEN THE CONTRACTOR ANTICIPATES THE SITE WILL BE READY FOR THEIR WORK. MOST WORK BY XCEL CAN BE DONE PRIOR TO OR AFTER MAJOR MILESTONES OF THE CONTRACT WORK. HOWEVER, SOME WORK WILL NEED TO OCCUR DURING THE CONTRACT WORK SUCH AS CONDUIT CROSSINGS UNDER THE ROAD OR DRIVEWAYS.

## REMOVAL NOTES

1. PRIOR TO REMOVALS, REQUIRED EROSION CONTROL DEVICES ARE TO BE INSTALLED.
2. COORDINATE WITH UTILITY OWNER TO RELOCATE POWER AND LIGHT POLES, PEDESTALS, AND OTHER PRIVATE UTILITIES AS NECESSARY.
3. ALL ADJACENT BITUMINOUS AND CONCRETE SURFACES SHALL BE CLEANLY SAWCUT PRIOR TO REMOVAL.
4. REMOVALS SHALL BE LIMITED TO AREAS WITHIN THE DEFINED PROJECT LIMITS. RESTORATION OF AREAS OUTSIDE OF PROJECT LIMITS SHALL BE COMPLETED AT THE CONTRACTOR'S COST UNLESS OTHERWISE APPROVED.
5. CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS IN DISPOSING OF MATERIALS REMOVED FROM THIS SITE.
6. PAVEMENT REMOVAL LIMITS SHOWN ON THE PLAN ARE APPROXIMATE. REMOVAL LIMITS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
7. ANY TREES, SHRUBS, AND PLANTINGS TO BE REMOVED SHALL BE DESIGNATED IN ADVANCE BY THE ENGINEER.
8. CONTRACTOR SHALL PROTECT ALL ITEMS DESIGNATED FOR SALVAGE AND PROVIDE APPROPRIATE STORAGE UNTIL RE-INSTALLATION. ANY ITEMS DESIGNATED TO BE SALVAGED WHICH ARE DAMAGED SHALL BE REPLACED WITH NEW AT NO COST TO THE OWNER. REPAIR OF DAMAGED ITEMS SHALL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
9. ANY LANDSCAPING MATERIALS WITHIN R.O.W. TO BE REMOVED SHALL BE DESIGNATED IN ADVANCE BY THE ENGINEER AND SHALL BE CONSIDERED INCIDENTAL.
10. ALL ITEMS NOT IDENTIFIED FOR REMOVAL SHALL BE PROTECTED DURING CONSTRUCTION.
11. REMOVAL & DISPOSAL OF EXCESS RECLAIM SHALL BE PAID FOR AS PART OF THE PLAN QUANTITY (P) FOR THE "COMMON EXCAVATION" BID ITEM.

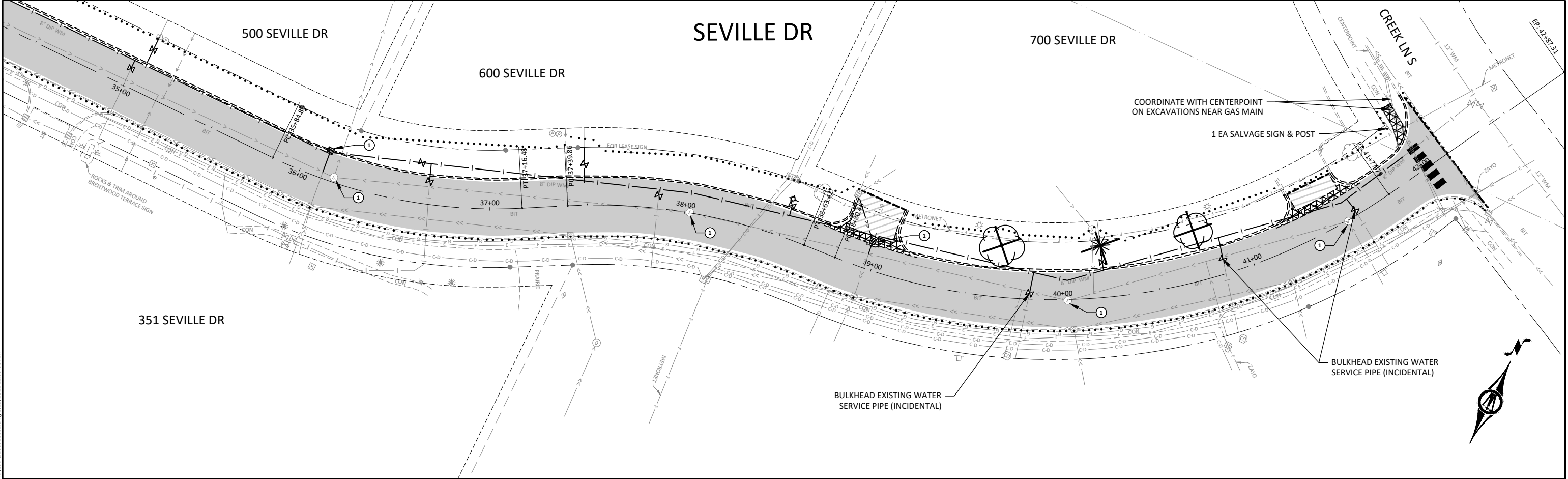
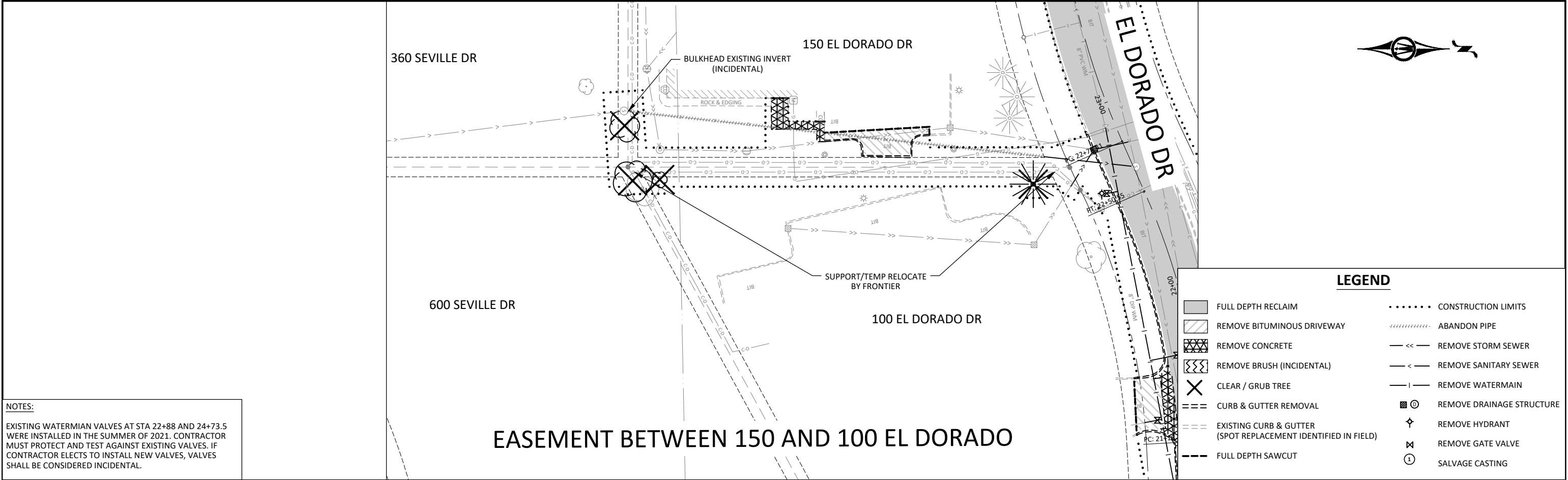




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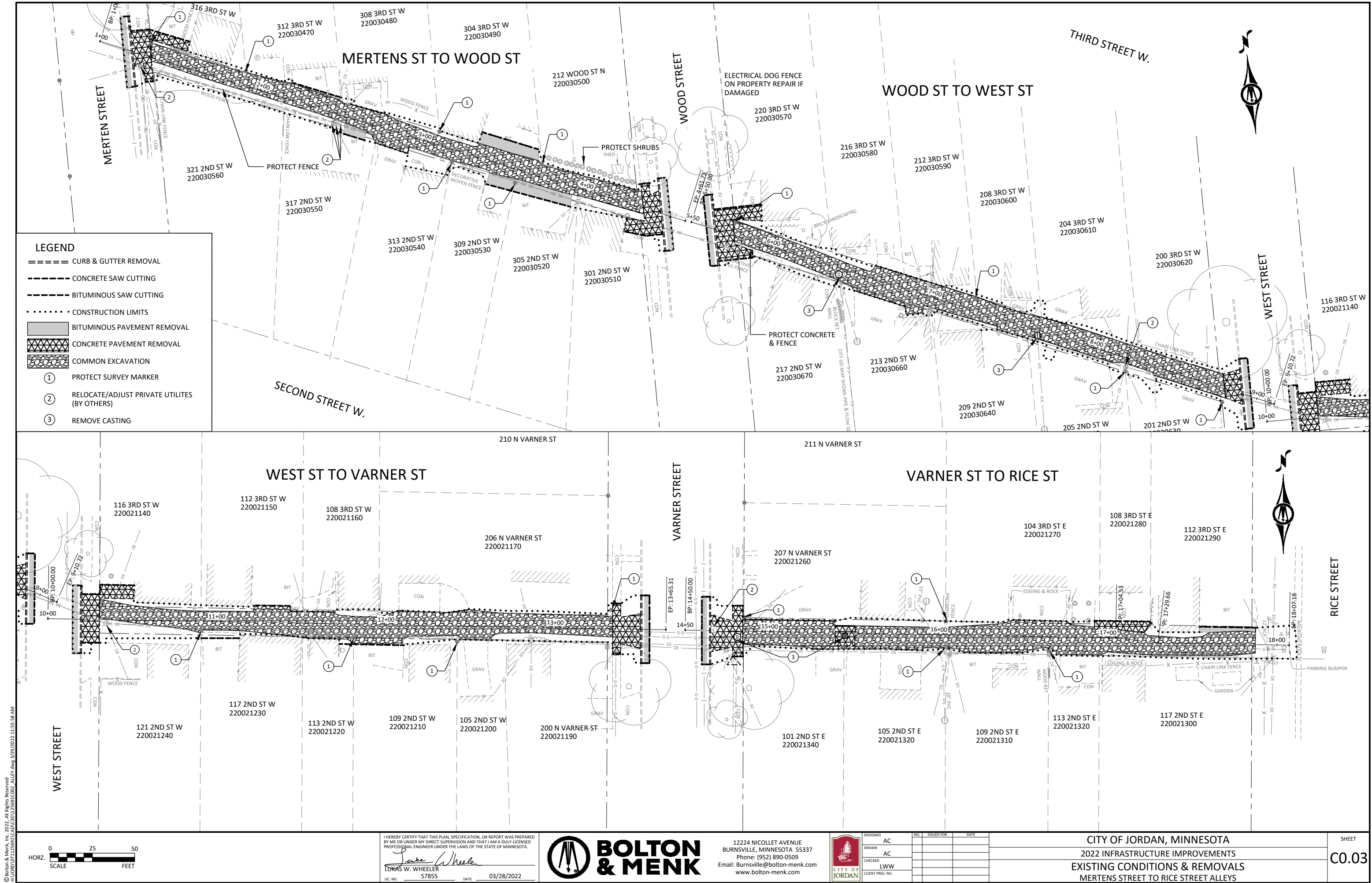
EXISTING WATERMAIN VALVES AT STA 22+88 AND 24+73.5 WERE INSTALLED IN THE SUMMER OF 2021. CONTRACTOR MUST PROTECT AND TEST AGAINST EXISTING VALVES. IF CONTRACTOR ELECTS TO INSTALL NEW VALVES, VALVES SHALL BE CONSIDERED INCIDENTAL.

LEGEND	
	FULL DEPTH RECLAIM
	REMOVE BITUMINOUS DRIVEWAY
	REMOVE CONCRETE
	REMOVE BRUSH (INCIDENTAL)
	CLEAR / GRUB TREE
	CURB & GUTTER REMOVAL
	EXISTING CURB & GUTTER (SPOT REPLACEMENT IDENTIFIED IN FIELD)
	FULL DEPTH SAWCUT
	CONSTRUCTION LIMITS
	ABANDON PIPE
	REMOVE STORM SEWER
	REMOVE SANITARY SEWER
	REMOVE WATERMAIN
	REMOVE DRAINAGE STRUCTURE
	REMOVE HYDRANT
	REMOVE GATE VALVE
	SALVAGE CASTING



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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*Lukas W. Wheeler*  
LUKAS W. WHEELER  
LIC. NO. 57855 DATE 03/28/2022



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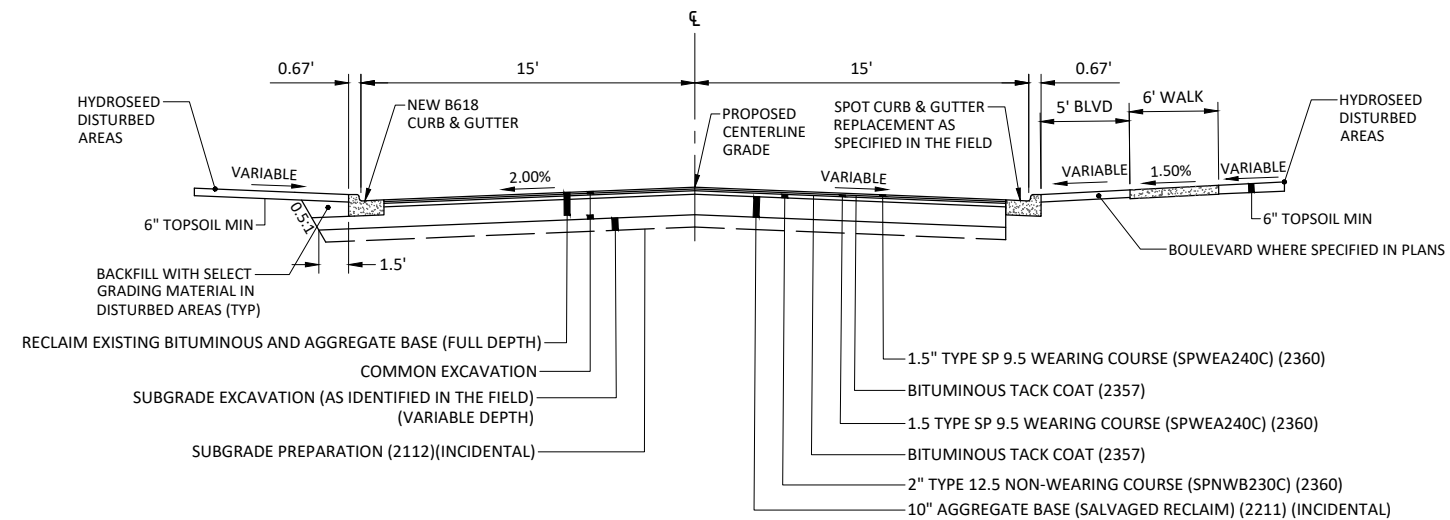
CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS  
EXISTING CONDITIONS & REMOVALS  
MERTENS STREET TO RICE STREET ALLEYS

SHEET  
C0.03



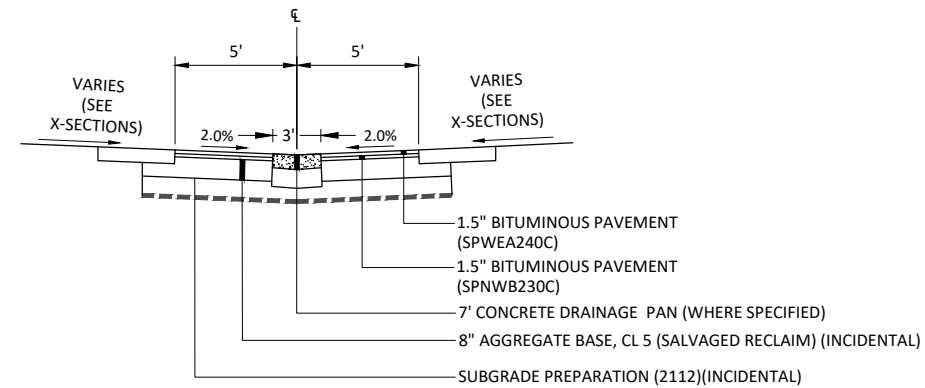
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### EL DORADO DR & SEVILLE DR



NOTE: SEE PLAN AND/OR CROSS SECTIONS FOR CROSS SLOPE VARIATIONS FROM TYPICAL SECTIONS

### ALLEYS MERTENS ST - RICE ST



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*Lukas W. Wheeler*  
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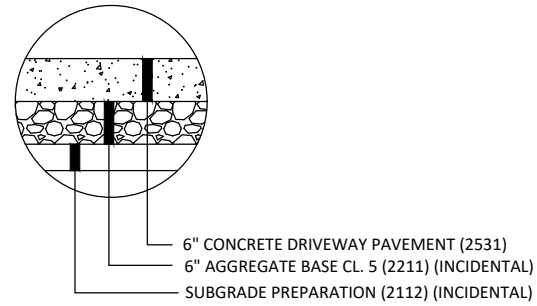
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CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS

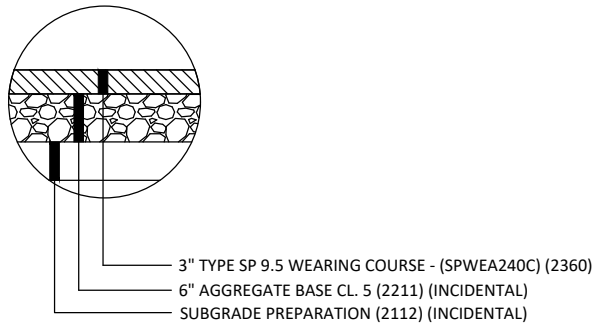
TYPICAL SECTIONS

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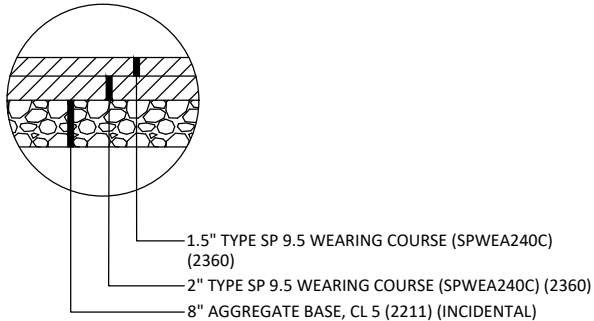
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CONCRETE DRIVEWAY/PEDESTRIAN RAMP  
NOT TO SCALE

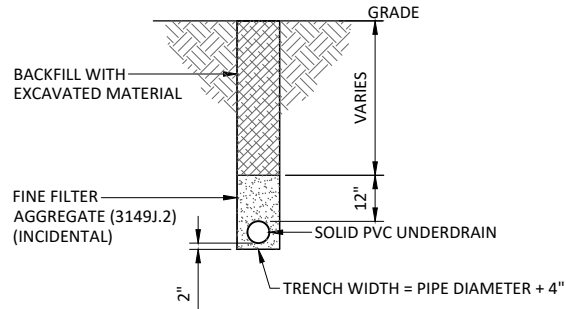


BITUMINOUS DRIVEWAY  
NOT TO SCALE

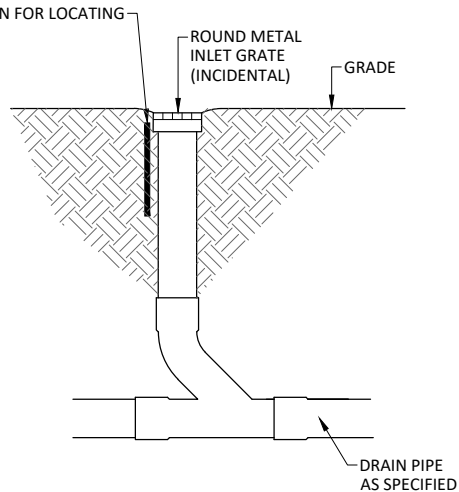


NOTE:  
SAW CUT ALL ADJACENT PAVEMENT EDGES AND APPLY TACK MATERIAL TO ALL EDGES. DEPTHS SHOWN ARE MINIMUM. MATCH EXISTING PAVEMENT AND AGGREGATE BASE DEPTHS. PREPARE SUBGRADE TO APPROVAL OF THE CITY. ALL MATERIALS/LABOR SHALL BE CONSIDERED INCIDENTAL TO THE FULL DEPTH BITUMINOUS PATCH BID ITEM.

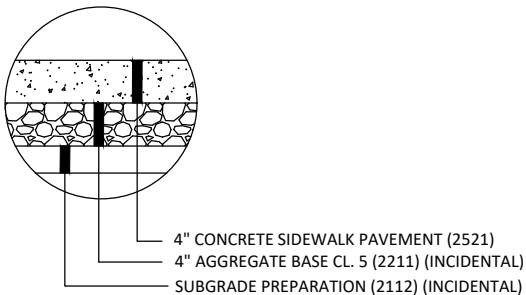
FULL DEPTH BITUMINOUS PATCH  
NOT TO SCALE



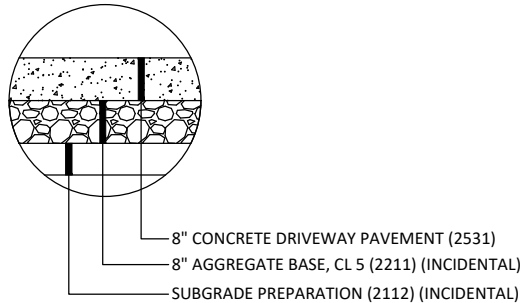
SUBSURFACE DRAIN CLEANOUT  
NOT TO SCALE



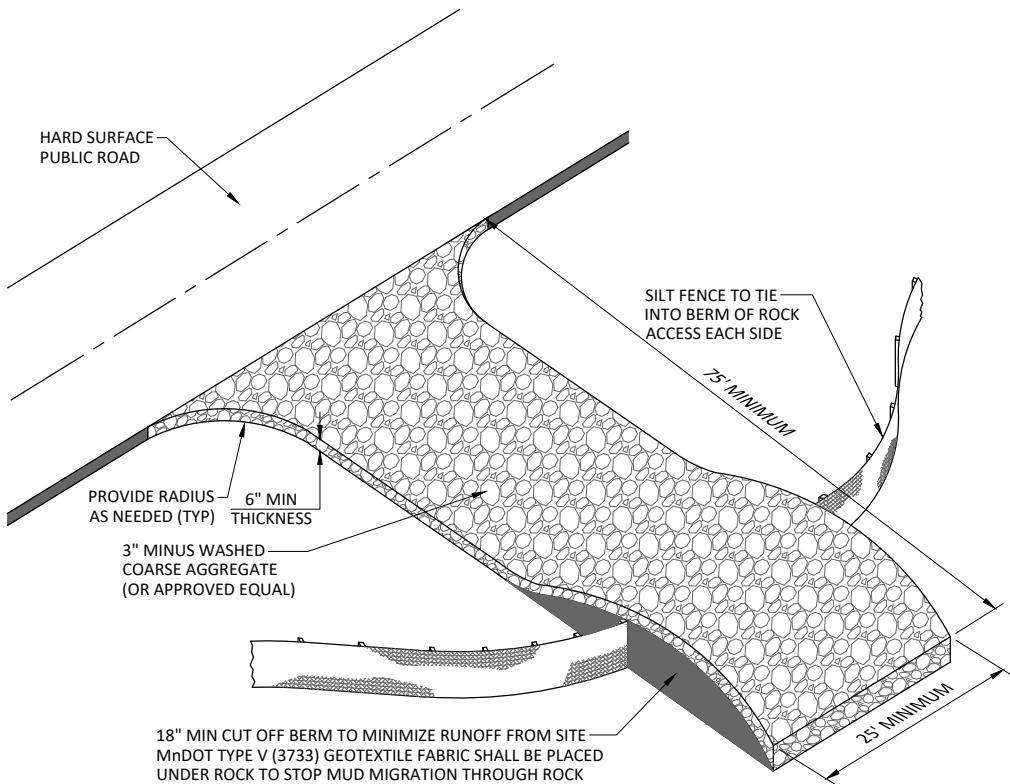
SUBSURFACE DRAIN CLEANOUT  
NOT TO SCALE



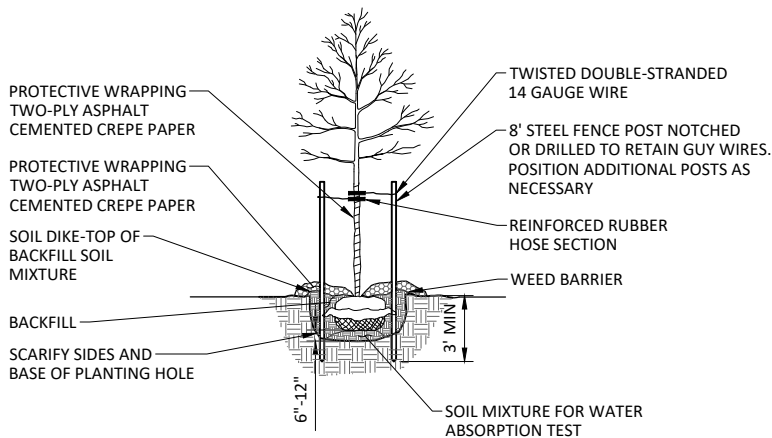
CONCRETE WALK  
NOT TO SCALE



ALLEY APRON CONCRETE PAVEMENT  
NOT TO SCALE



ROCK CONSTRUCTION ENTRANCE  
NOT TO SCALE



DECIDUOUS TREE PLANTING  
NOT TO SCALE

- BAG & BALL PLANTING NOTE:
1. REMOVE WRAPPING AND ALL TIES OR STRAPS. IF ROOT BALL IS WRAPPED IN BURLAP THE LOWER 1/2 PORTION OF THE FABRIC MAY BE LEFT AT THE BOTTOM OF THE HOLE. SYNTHETIC WRAP MUST BE REMOVED AND PROPERLY DISPOSED.
  2. LOOSEN ROOTS TO ENSURE THEY ARE NOT GIRDLING THE ROOT BALL.
  3. SALVAGE AND REUSE ALL SOIL THAT CAME WITH THE ROOT BALL.
  4. IF ROOT BALL IS EXTREMELY DRY WATER IT PRIOR TO PLACING IT IN THE HOLE.
  5. IF TREE IS CONTAINER GROWN, SALVAGE ALL SOIL AND MIX WITH SUPPLEMENTED SOIL FOR BACK FILL.

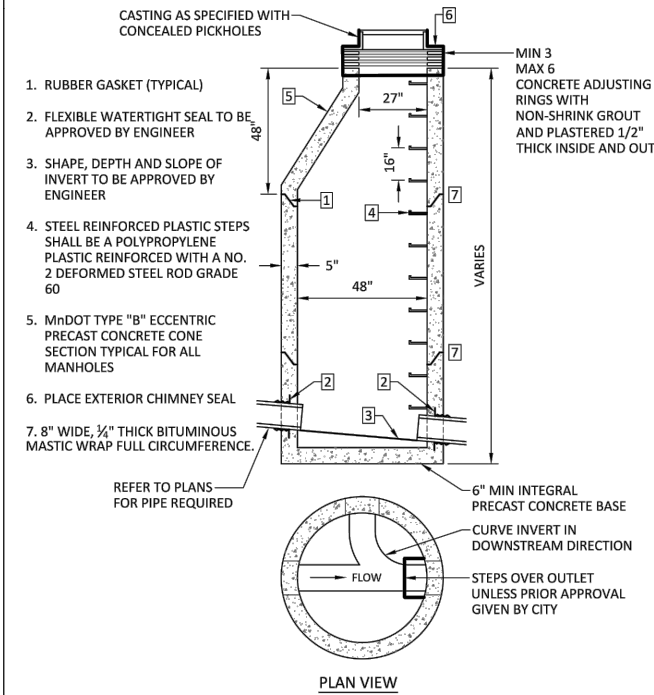
- BARE ROOT PLANTING NOTE:  
IF BARE ROOT MATERIAL IS SPECIFIED THESE ADDITIONAL REQUIREMENTS MUST BE MET:
1. ROOTS MUST BE SOAKED OVERNIGHT THE NIGHT BEFORE PLANTING.
  2. ROOTS MUST BE PROTECTED FROM DRYING OUT DURING THE INSTALLATION PROCESS.
  3. ALL DAMAGED, DISEASED OR DESIGNATED ROOTS AND ROOT ENDS MUST BE CLEANLY PRUNED. TREE SHALL NOT HAVE GIRDLING ROOTS.

1. PROVIDE AND INSTALL HEALTHY PLANT MATERIALS THAT MEET ALL SPECIFICATIONS AND ARE OF THE SIZE, TYPE AND SPECIES NAMED ON THE PLANT SCHEDULE AND SHOWN ON THE PLANS.
2. DIG PLANT HOLE 1'-0" MINIMUM LARGER ON ALL SIDES THAN ROOT BALL.
3. PRIOR TO PLACING TREE, SCARIFY BOTTOM AND SIDES OF THE PLANTING HOLE.
4. TEST SOIL ABSORPTION. FILL HOLE PARTIALLY WITH SUPPLEMENTED SOIL MIXTURE, ADD WATER AND ALLOW TO PUDDLE AND SETTLE PRIOR TO SETTING TREE.
5. AFTER PUDDLING HAS SETTLED, SET TREE AND BACK FILL WITH SUPPLEMENTED SOIL MIXTURE.
6. WATER THOROUGHLY AND ADD BACK FILL AS NEEDED AFTER MOISTURE IS ABSORBED.
7. BUILD SOIL DIKE AROUND PERIPHERY OF TREE TO HOLD WATER.
8. AFTER SETTLEMENT, MULCH WITH MINIMUM 4" LAYER SHREDDED BARK, WOOD CHIPS OR AS OTHERWISE SPECIFIED. DO NOT MULCH UP AGAINST THE TRUNK.
9. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF THE TREE.

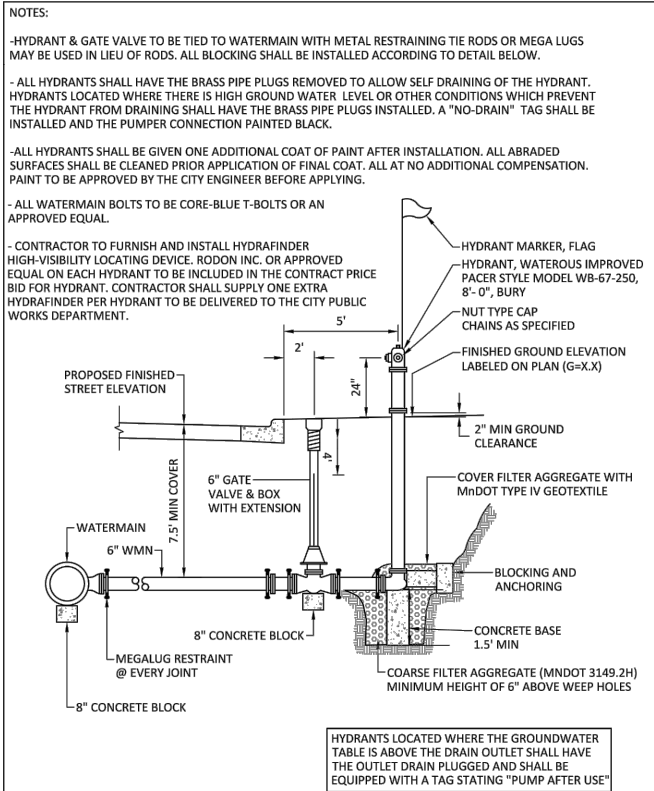
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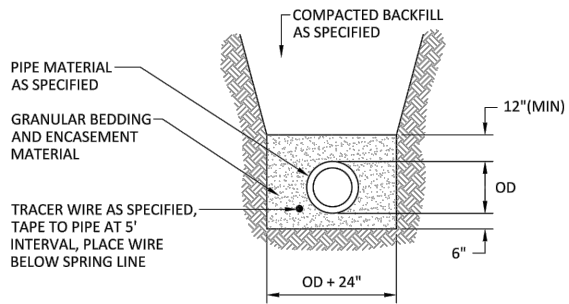




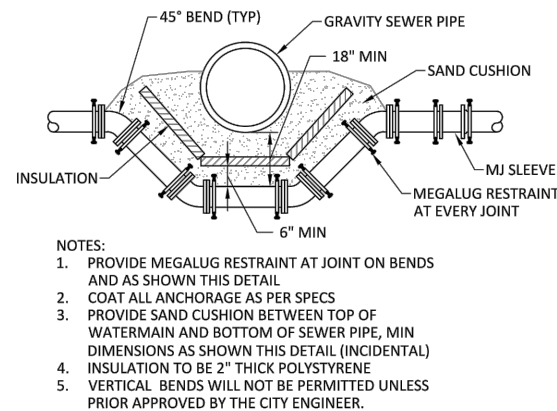
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	CITY OF JORDAN	DATE APRIL 2019



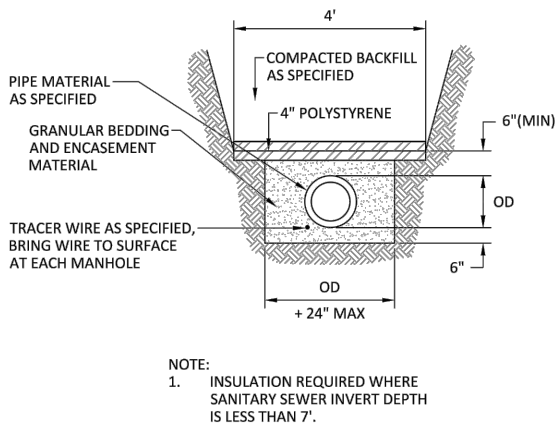
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	HYDRANT INSTALLATION	NO. 6001J
	CITY OF JORDAN	DATE APRIL 2019



	STANDARD DETAIL	STANDARD DETAIL
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	CITY OF JORDAN	DATE APRIL 2019

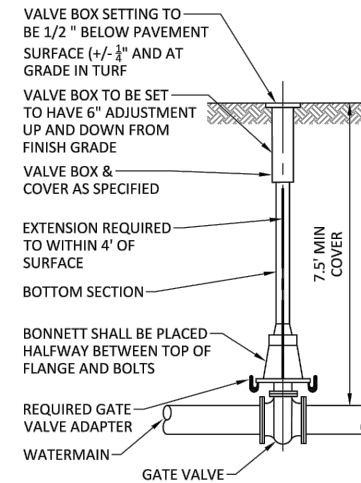


	STANDARD DETAIL	STANDARD DETAIL
	WATERMAIN OFFSET	NO. 6004J
	CITY OF JORDAN	DATE APRIL 2019

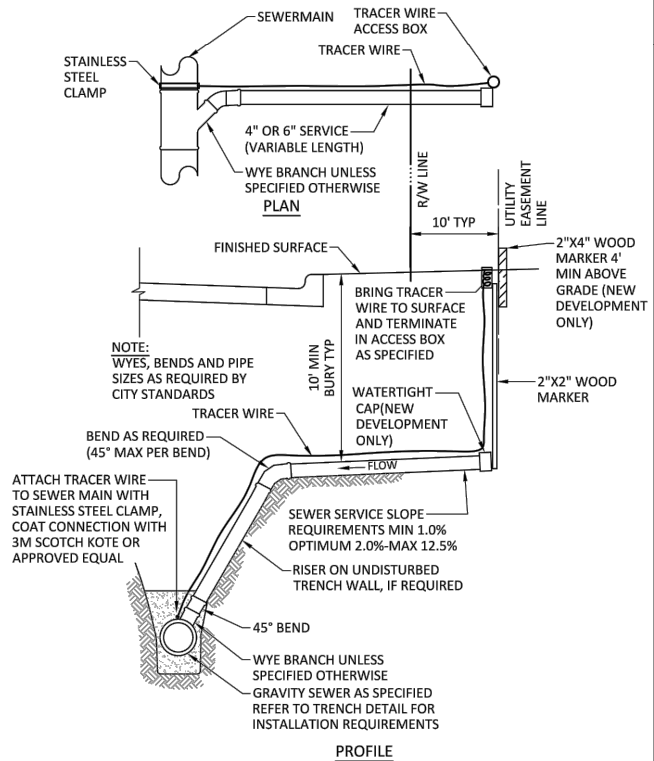


	STANDARD DETAIL	STANDARD DETAIL
	INSULATION FOR NON-RIGID SANITARY SEWER	NO. 5006J
	CITY OF JORDAN	DATE APRIL 2019

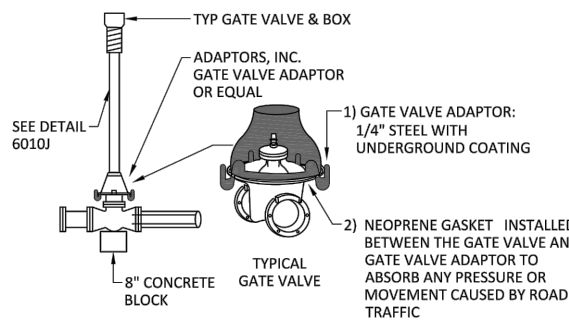
- NOTES:
1. VALVE BOX SHALL BE CENTERED ON OPERATING NUTS, STRAIGHT, FREE FROM DEBRIS, AND ALL SECTIONS UNBROKEN
  2. VALVES IN EASEMENTS SHALL HAVE CHANNEL POST WITNESS MARKERS WITH REFLECTIVE "GV" SIGN
  3. VALVE NUT EXTENSIONS ARE REQUIRED TO BE INSTALLED WITHIN 4' OF THE SURFACE ELEVATION; BOTTOM NUT MUST NOT BE BOLTED TO VALVE NUT.
  4. COMPACTION WITH MECHANICAL TAMPER AROUND VALVE BOX SHALL BE PLACED AND COMPACTED WITH 2' LIFTS TO ACHIEVE 95% COMPACTION
  5. GATE VALVES LOCATED WITHIN THE CONCRETE SIDEWALK SHALL INCLUDE A METAL SEPARATOR BETWEEN THE VALVE BOX AND THE CONCRETE



	STANDARD DETAIL	STANDARD DETAIL
	GATE VALVE AND BOX INSTALLATION	NO. 6010J
	CITY OF JORDAN	DATE APRIL 2019



	STANDARD DETAIL	STANDARD DETAIL
	SANITARY SEWER SERVICE	NO. 5017J
	CITY OF JORDAN	DATE APRIL 2019



	STANDARD DETAIL	STANDARD DETAIL
	GATE VALVE ADAPTOR	NO. 6012J
	CITY OF JORDAN	DATE APRIL 2019

NOT TO SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*Lukas W. Wheeler*

LUKAS W. WHEELER

57855

DATE 03/28/2022



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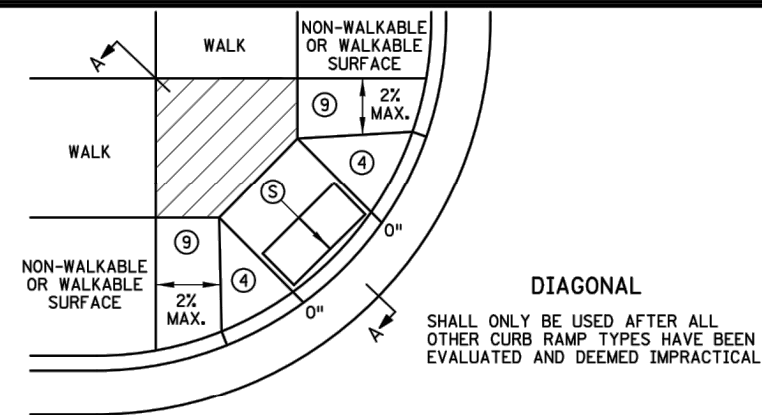
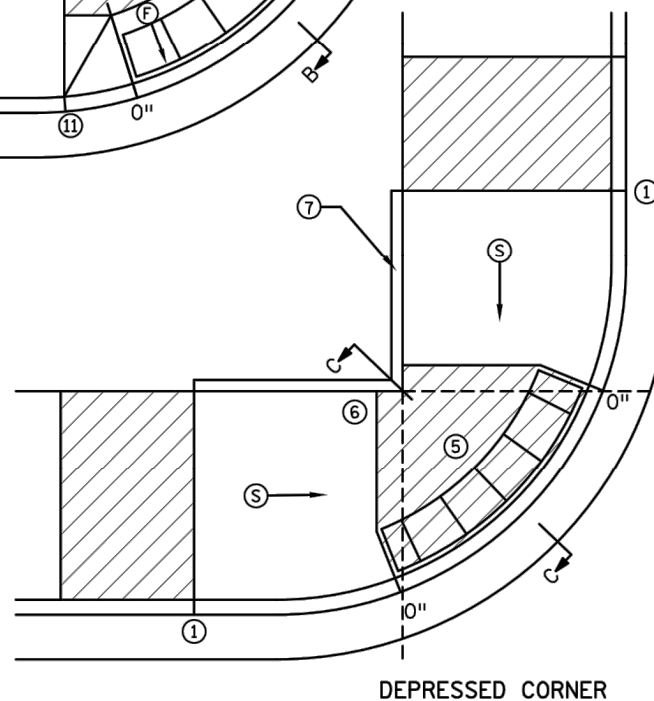
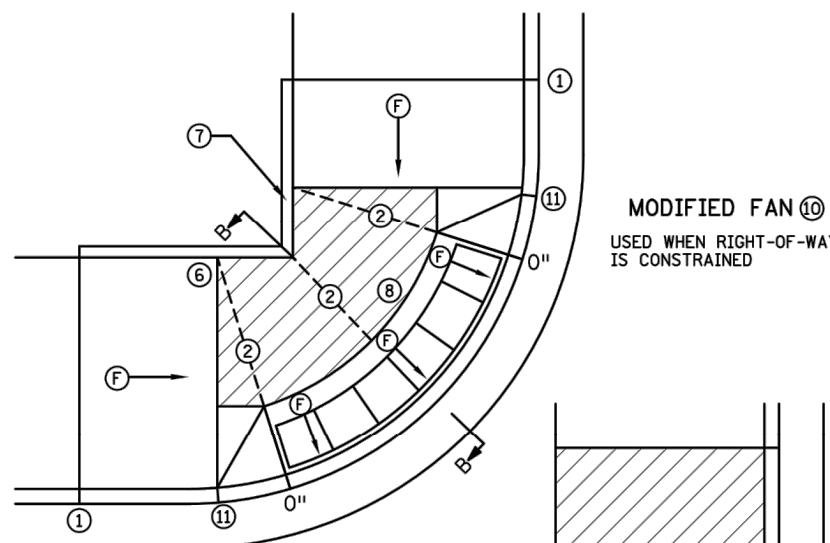
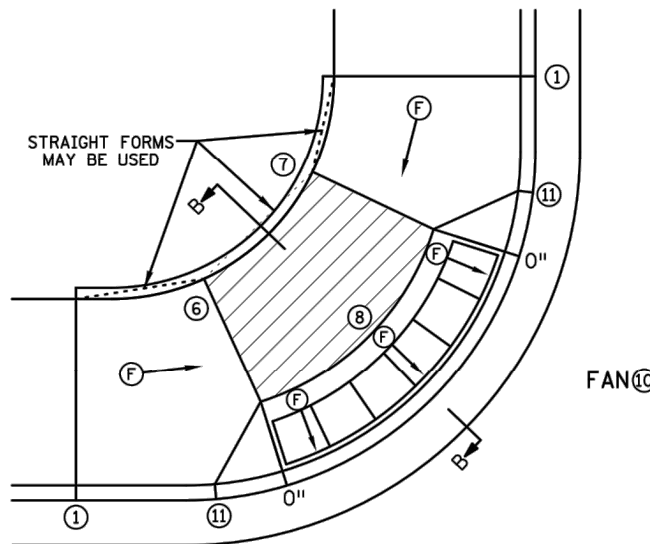
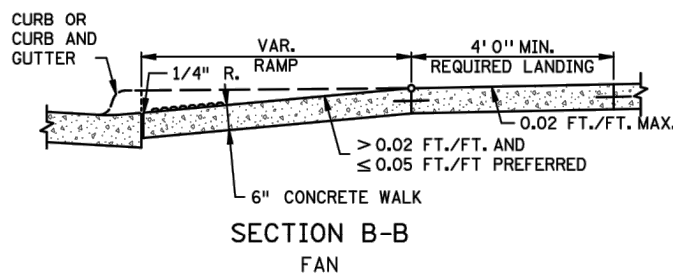
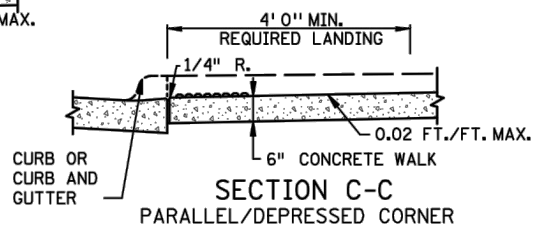
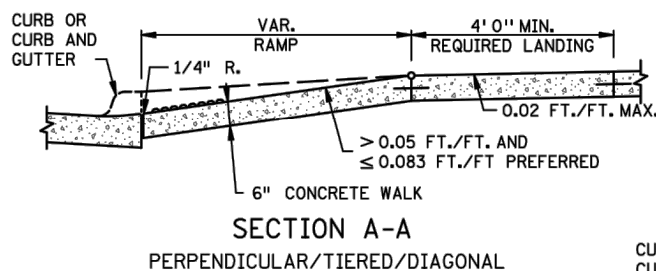
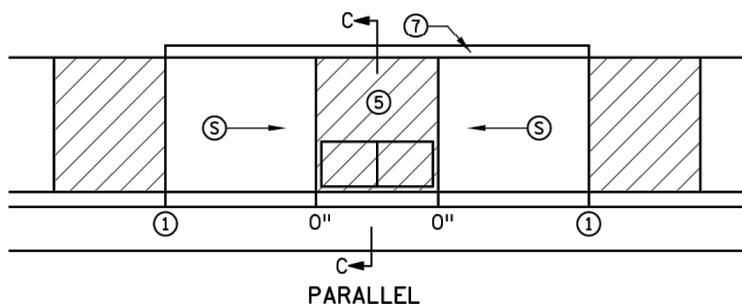
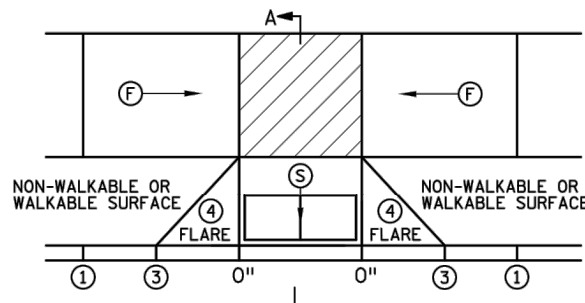
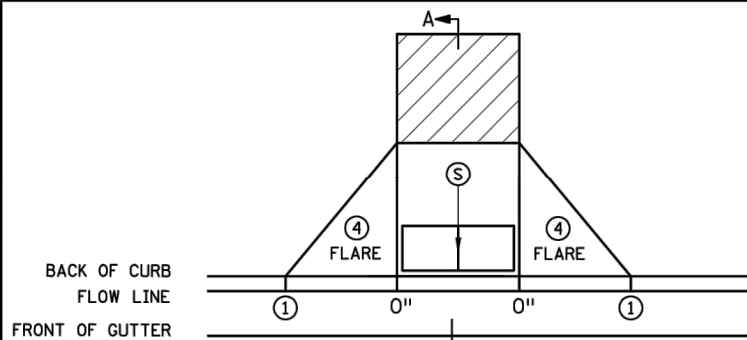
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CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS  
DETAILS

SHEET  
C1.04







# NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH, EXCEPT AS STATED IN (6) BELOW.
- TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.
- WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- MATCH FULL HEIGHT CURB.
- 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
- 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
- SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK, THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
- WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
- PAVE FULL WALK WIDTH.
- "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
- INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

## LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- X" CURB HEIGHT

REVISION:

APPROVED: 11-04-2021

Jeffrey Perkins  
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

1 OF 6

THOMAS TYRBYCKI  
STATE DESIGN ENGINEER

APPROVED: 11-04-2021  
REVISED:

STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(TH) SHEET NO. OF SHEETS

CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS

ADA STANDARD DETAILS

SHEET

C1.06

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Lukas W. Wheeler  
57855  
DATE 03/28/2022

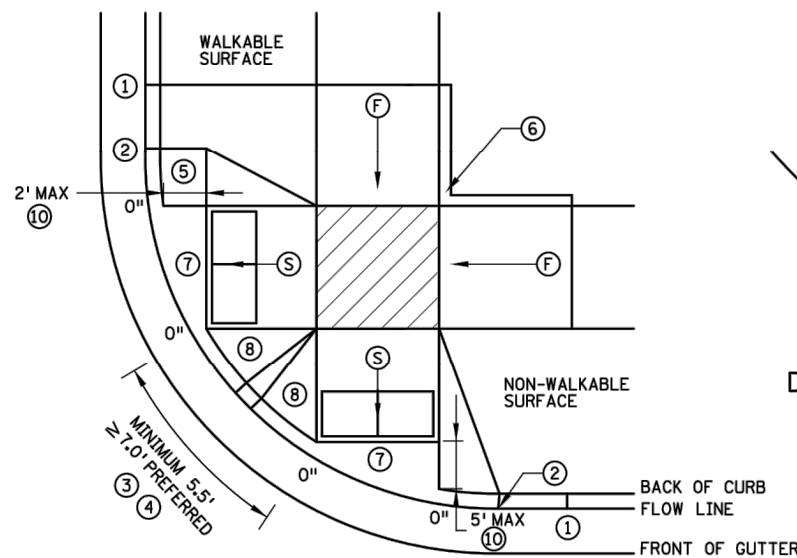


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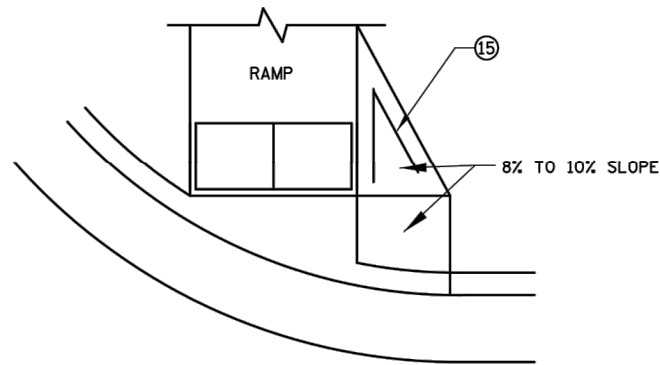


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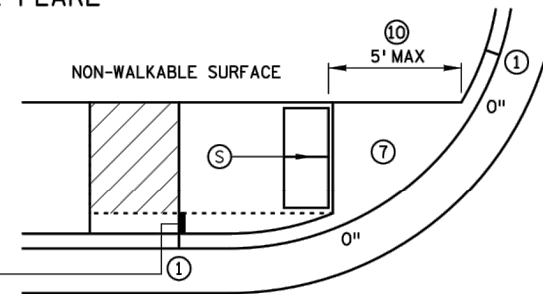


COMBINED DIRECTIONAL

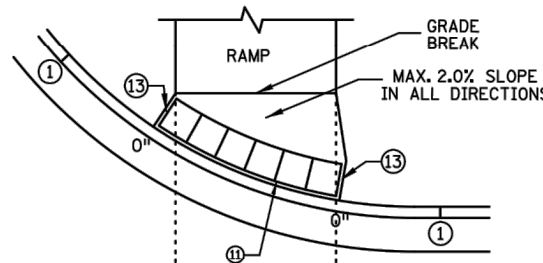


DIRECTIONAL RAMP WALKABLE FLARE

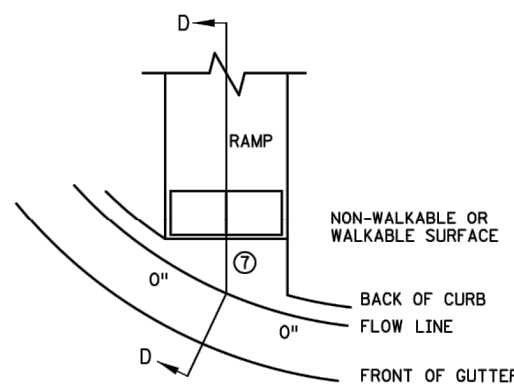
IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.



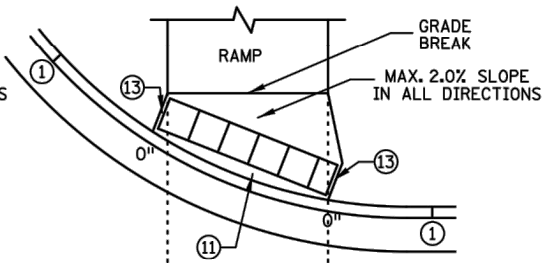
STANDARD ONE-WAY DIRECTIONAL ⑨



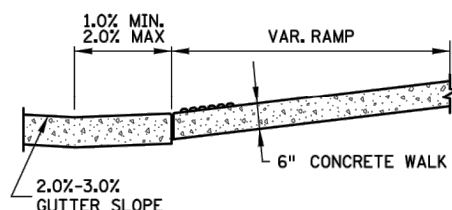
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



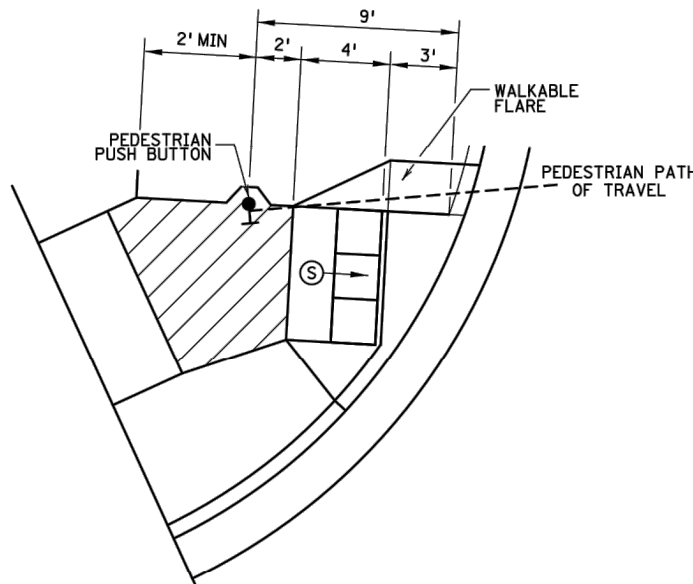
CURB FOR DIRECTIONAL RAMPS ⑭



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫



SECTION D-D



SEMI-DIRECTIONAL RAMP ③④⑨

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB  
PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)

# NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP  
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)  
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.
- ⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

## LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- ⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ⑥ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ⑦ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- X" CURB HEIGHT

## REVISION:

APPROVED: 11-04-2021

*Jeffrey Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

2 OF 6

*Tom Stah*  
THOMAS STAH  
STATE DESIGN ENGINEER

APPROVED: 11-04-2021

REVISED:

STATE PROJ. NO.

## PEDESTRIAN CURB RAMP DETAILS

(T.H. ) SHEET NO. OF SHEETS

CITY OF JORDAN, MINNESOTA

2022 INFRASTRUCTURE IMPROVEMENTS

ADA STANDARD DETAILS

SHEET

C1.07

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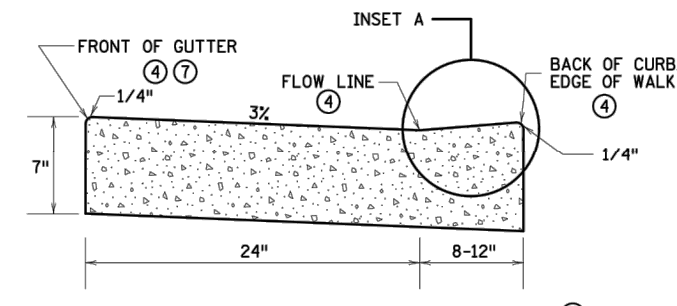
*Lukas W. Wheeler*  
LUKAS W. WHEELER  
57855 DATE 03/28/2022



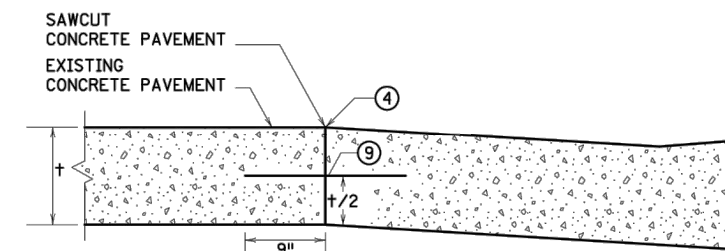
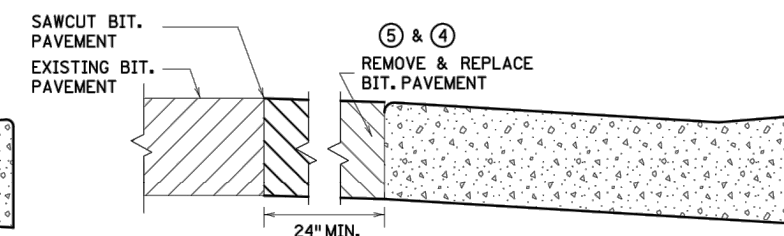
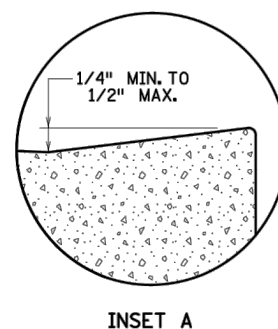
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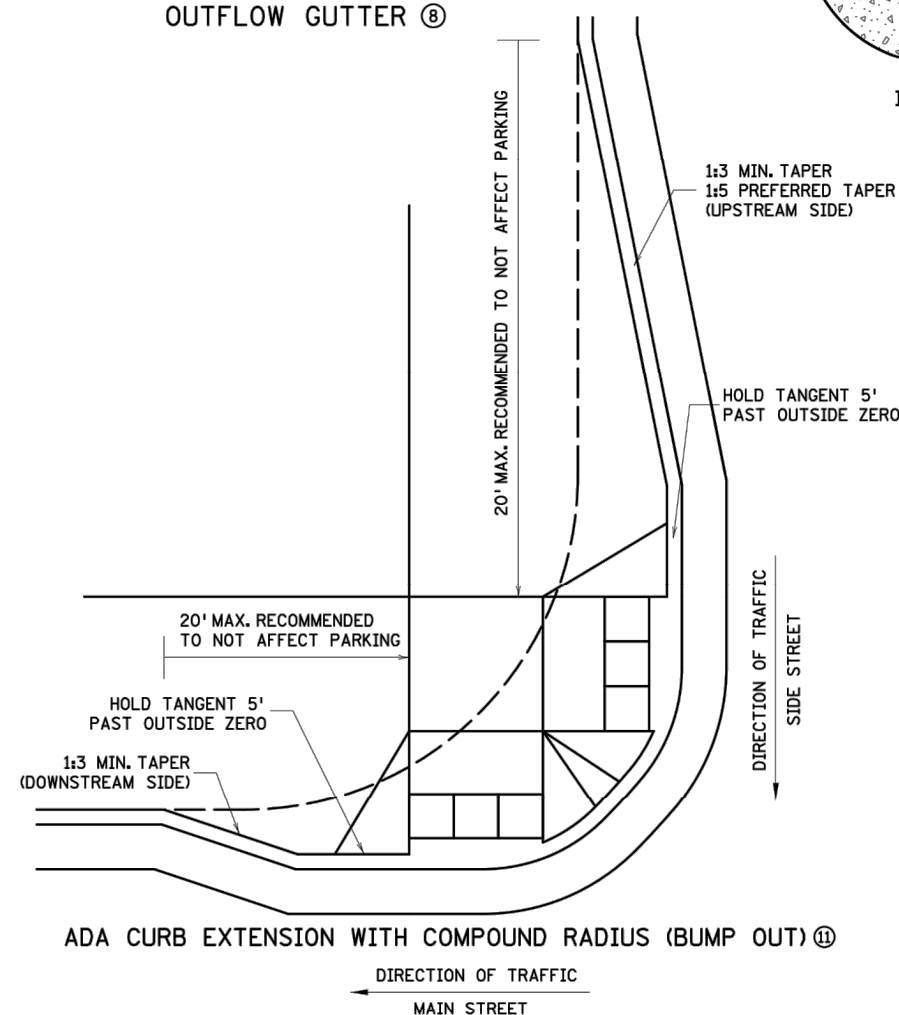


FOR CURB MACHINE PLACEMENT AROUND RADIUS ③  
(REGARDLESS OF RAMP TYPE)

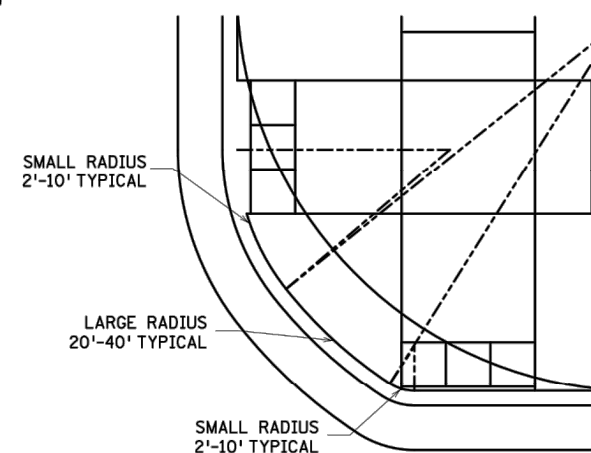


ONLY ALLOWED PER ENGINEER'S APPROVAL

## PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER FOR USE ON CURB RAMP RETROFITS



### ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪



COMBINED DIRECTIONAL (C)  
(COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.  
NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

- ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
- ② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
- ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
- ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
- ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
- ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
- ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
- ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
- ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.



REVISION:


APPROVED: 11-04-2021

*Jeff J. Perkins*

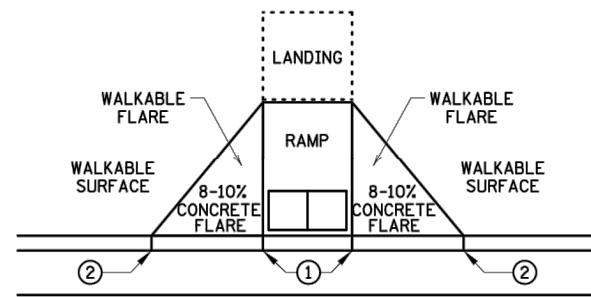
JEFFREY PERKINS

OPERATIONS DIVISION

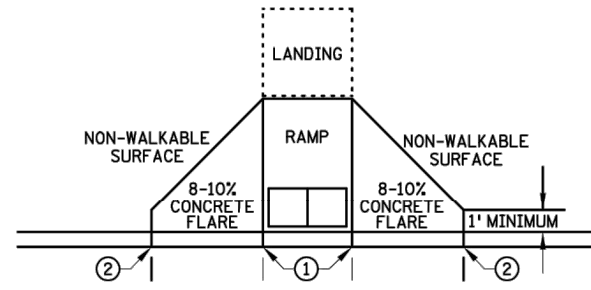
 MINNESOTA DEPARTMENT OF TRANSPORTATION	STANDARD PLAN 5-297.250	3 OF 6	PEDESTRIAN CURB RAMP DETAILS			
	 THOMAS TYRBIICKI STATE DESIGN ENGINEER	APPROVED: 11-04-2021 REVISED:				
	STATE PROJ. NO.	(TH )	SHEET NO.	OF	SHEETS	

TRANSPORTATION		STATE DESIGN ENGINEER							
<div>12224 NICOLLET AVENUE BURNSVILLE, MINNESOTA 55337 Phone: (952) 890-0509 Email: Burnsville@bolton-menk.com www.bolton-menk.com</div>			DESIGNED	NO.	ISSUED FOR	DATE	<div>CITY OF JORDAN, MINNESOTA 2022 INFRASTRUCTURE IMPROVEMENTS  ADA STANDARD DETAILS</div>		SHEET NO. <b>C1</b>
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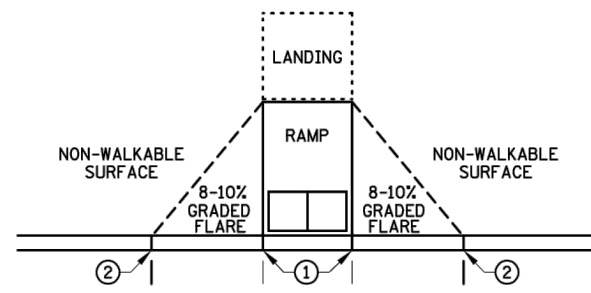




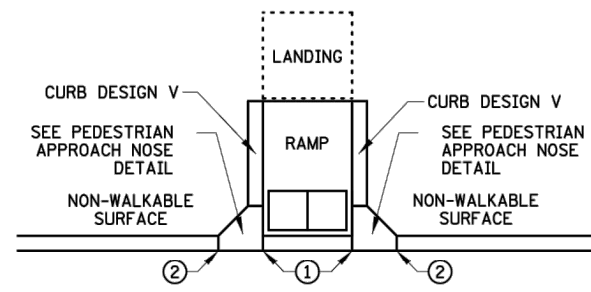
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

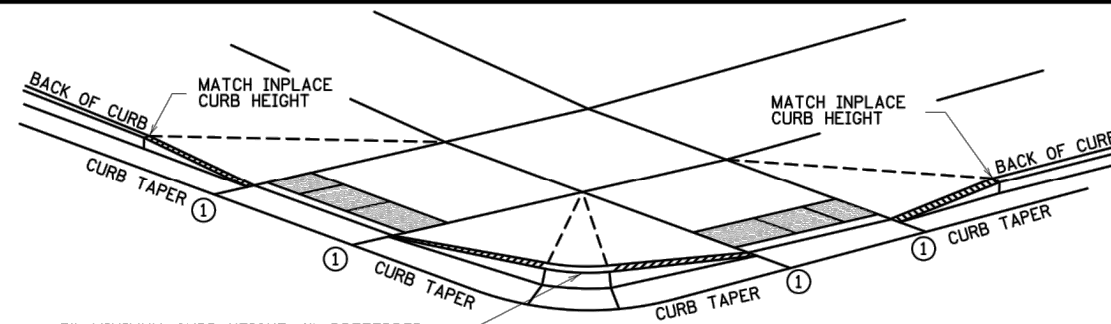


GRADED FLARES



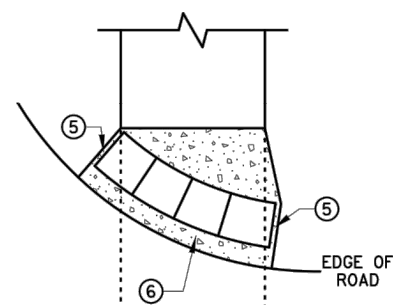
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

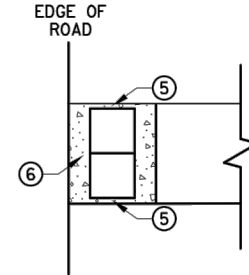


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

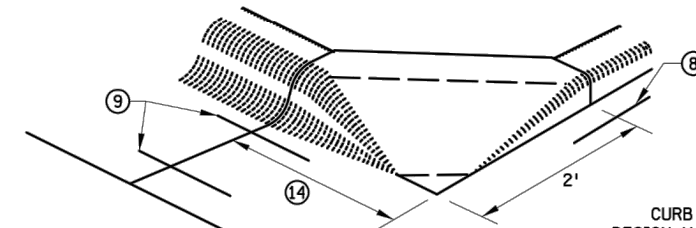


RADIAL DETECTABLE WARNING

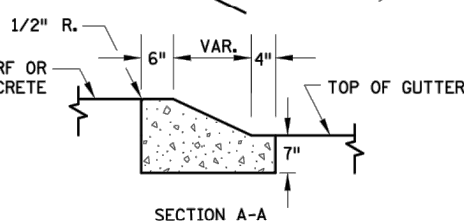


RECTANGULAR DETECTABLE WARNING

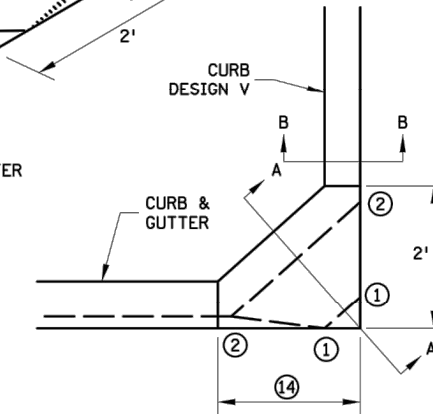
DETECTABLE EDGE WITHOUT CURB AND GUTTER



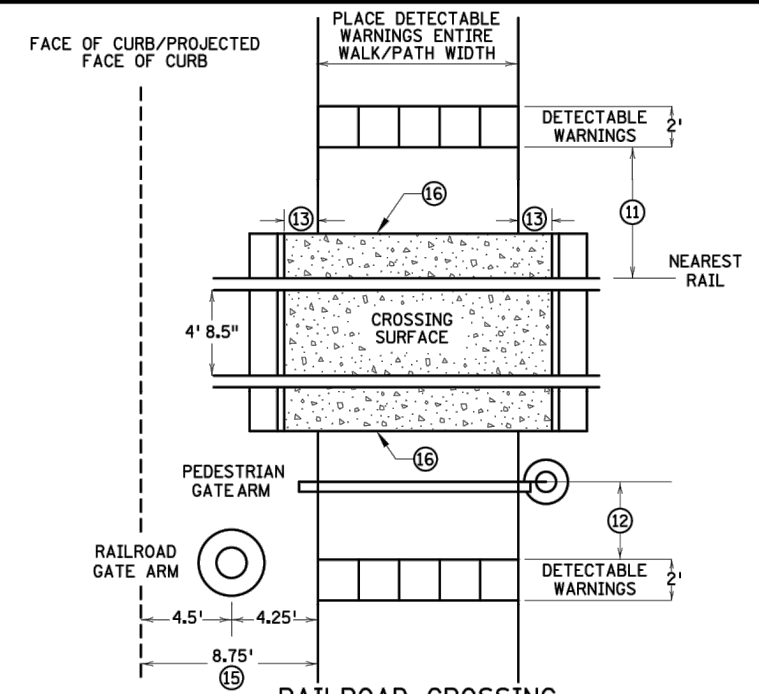
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH  
NOSE DETAIL  
(FOR RETURNED CURB  
SIDE TREATMENT)



RAILROAD CROSSING  
PLAN VIEW

# NOTES:

INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.

② FULL CURB HEIGHT.

③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

④ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑥ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

⑦ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS. AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6" LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPERS AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.

⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑪.

⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

REVISION:
APPROVED: 11-04-2021
<i>Jeffrey Perkins</i>
JEFFREY PERKINS
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

4 OF 6

APPROVED: 11-04-2021  
REVISOR:  
THOMAS TYRBYCKI  
STATE DESIGN ENGINEER

STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(TH ) SHEET NO. OF SHEETS

CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS

ADA STANDARD DETAILS

SHEET

C1.09

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

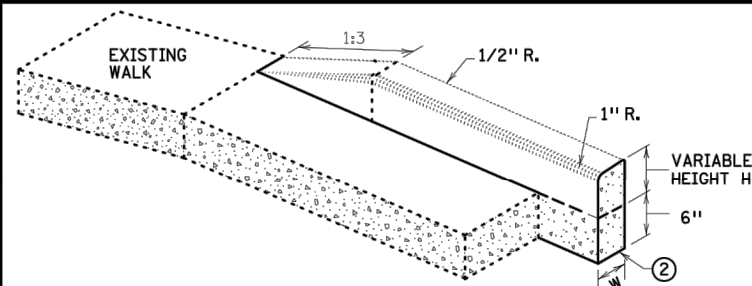
*Lukas W. Wheeler*  
LUKAS W. WHEELER  
57855  
DATE 03/28/2022



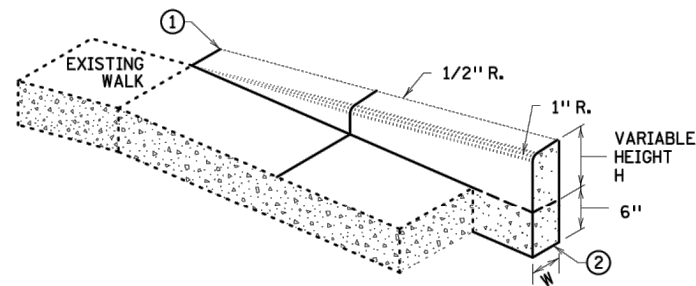
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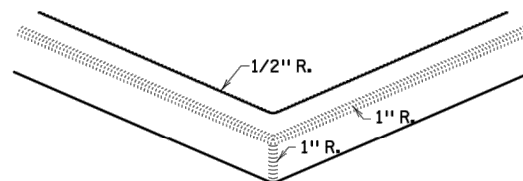
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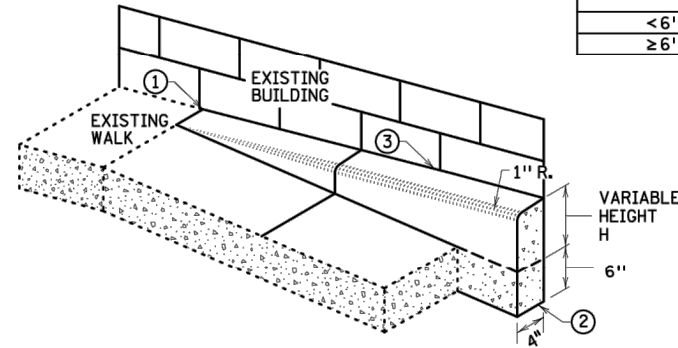
V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

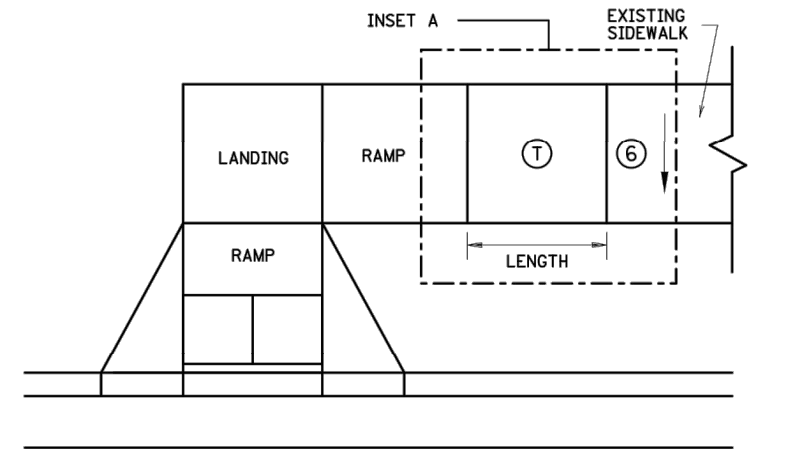


V CURB INTERSECTION

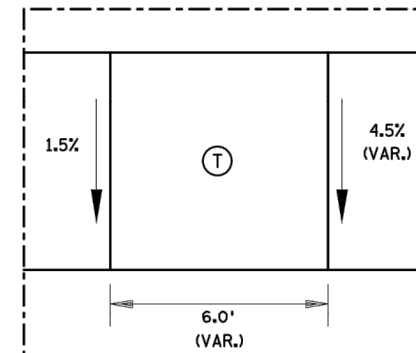


V CURB ADJACENT TO BUILDING  
OR BARRIER

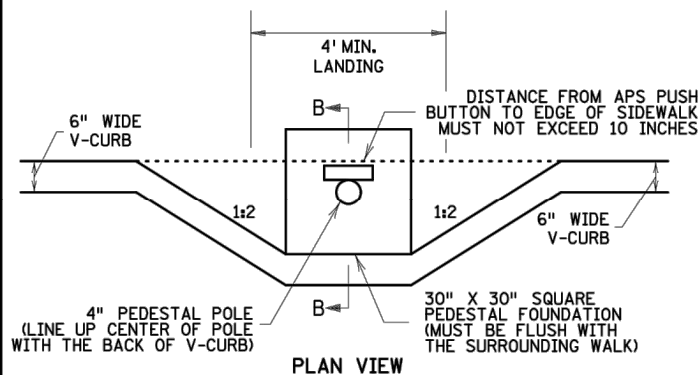
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



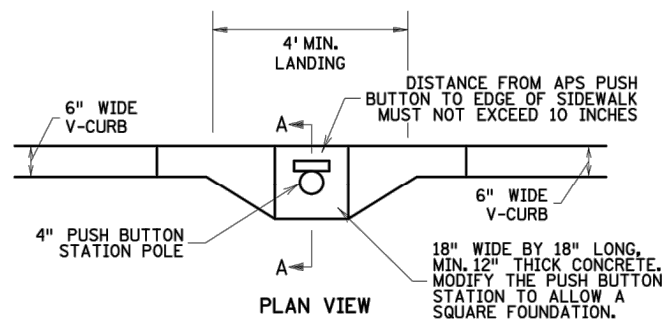
TRANSITION PANEL ④ ⑤



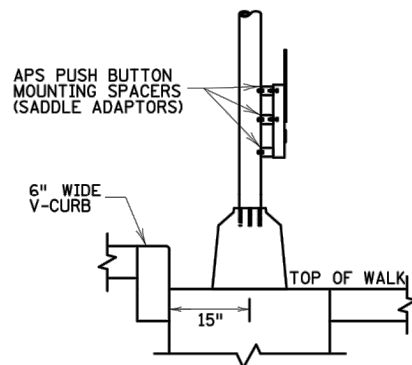
INSET A



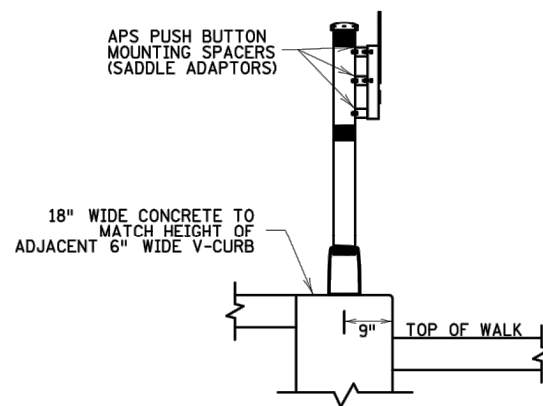
PLAN VIEW



PLAN VIEW



SECTION B-B  
SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A  
PUSH BUTTON STATION (V-CURB)

#### NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.

④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

⑤ TRANSITION PANEL(S) ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

#### LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

④ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

① TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:
APPROVED: 11-04-2021
<i>Jeffrey Perkins</i>
JEFFREY PERKINS
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

5 OF 6

APPROVED: 11-04-2021  
REVISOR:  
THOMAS STYBICKI  
STATE DESIGN ENGINEER

STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(TH ) SHEET NO. OF SHEETS

CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS

ADA STANDARD DETAILS

SHEET

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*Lukas W. Wheeler*  
LUKAS W. WHEELER  
UC NO. 57855 DATE 03/28/2022

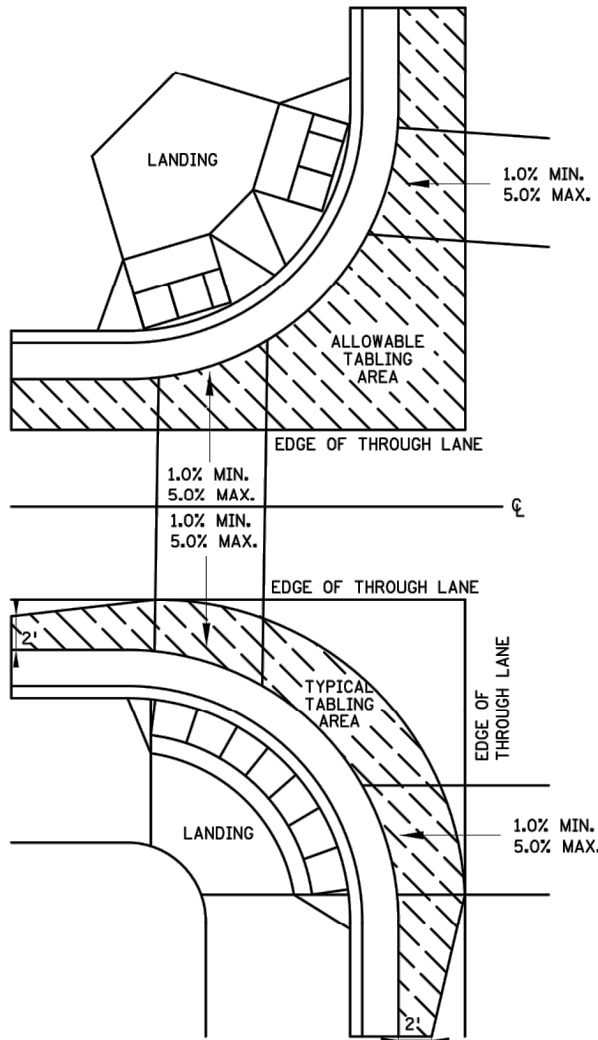


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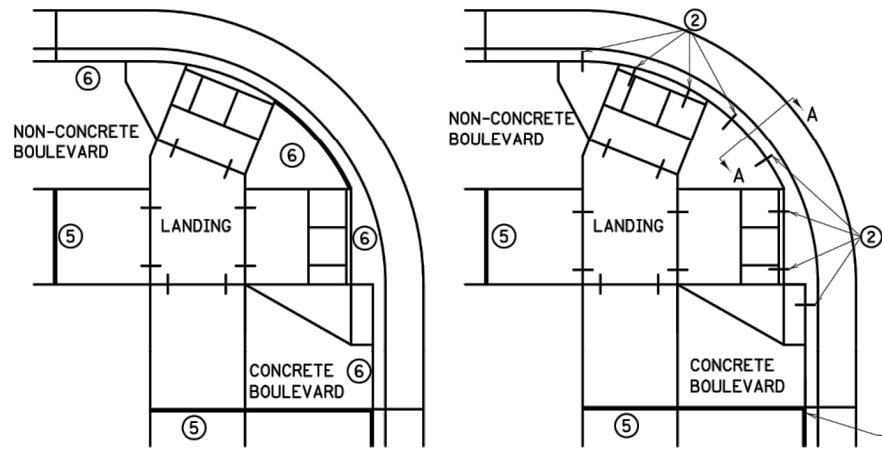


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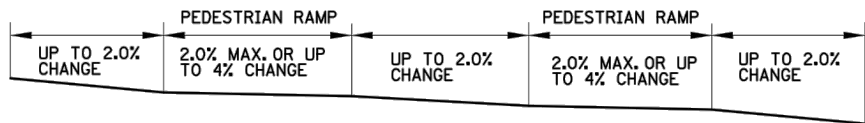


CURB LINE AND ROAD CROSSING ADJUSTMENTS

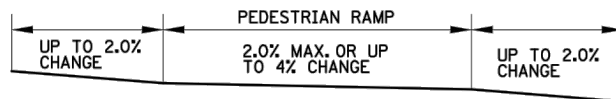


EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS

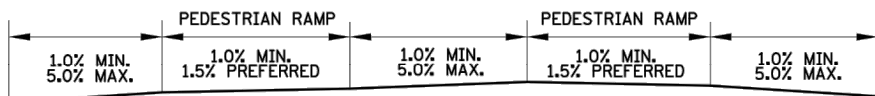
CURB LINE REINFORCEMENT ④ PLACEMENT ON BITUMINOUS ROADWAYS



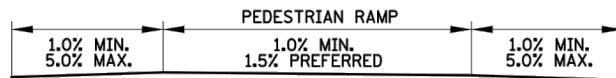
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



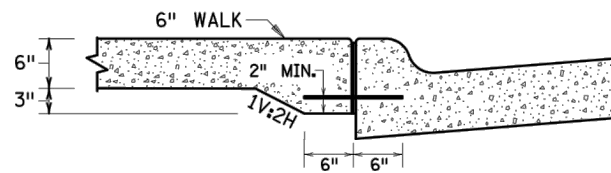
FLOW LINE PROFILE "TABLE" - FAN



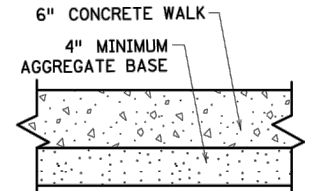
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



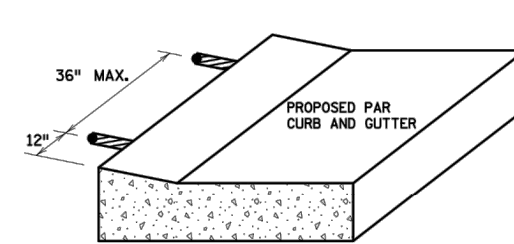
FLOW LINE PROFILE RAISE - FAN



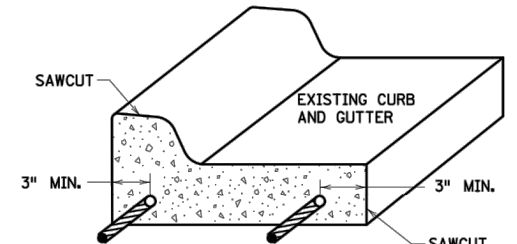
SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES



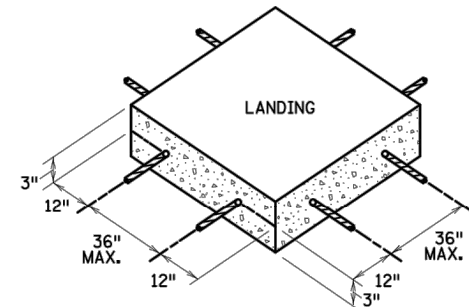
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER



CURB RAMP REINFORCEMENT DETAILS ② ④



CURB AND GUTTER REINFORCEMENT ③



SEPARATE LANDING POUR REINFORCEMENT ① ②

GENERAL NOTES:

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.
- ④ THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.
- ⑤ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
- ⑥ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:
APPROVED: 11-04-2021
<i>Jeffrey Perkins</i>
JEFFREY PERKINS
OPERATIONS DIVISION

<b>m</b>
MINNESOTA
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250

6 OF 6

<i>Tom Stroh</i>
THOMAS STROH
STATE DESIGN ENGINEER

APPROVED: 11-04-2021  
REVISED:

STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(TH ) SHEET NO. OF SHEETS

CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS

ADA STANDARD DETAILS

SHEET

C1.11

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

<i>Lukas W. Wheeler</i>
LUKAS W. WHEELER
57855
DATE 03/28/2022

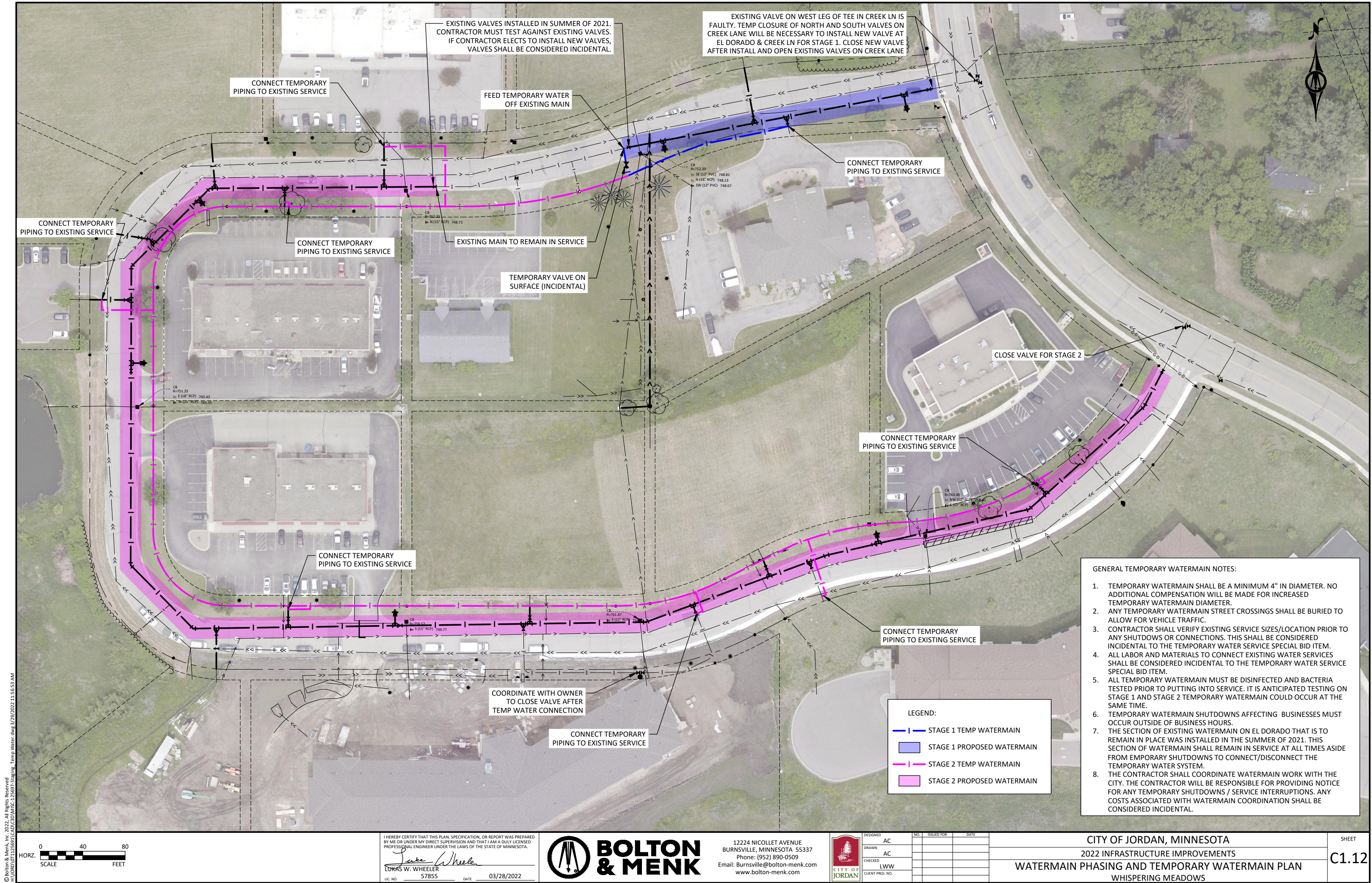


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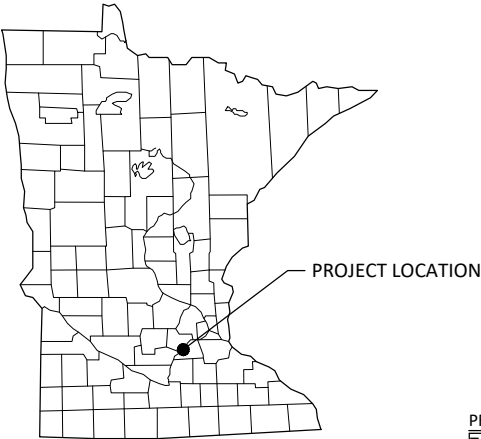
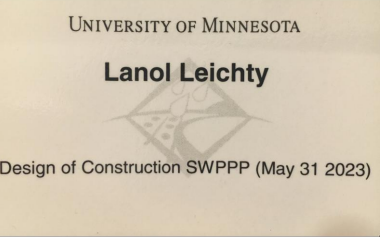




STORMWATER  
POLLUTION PREVENTION  
PLAN (SWPPP)

2022 INFRASTRUCTURE IMPROVEMENTS  
CITY OF JORDAN  
SCOTT COUNTY, MINNESOTA

SWPPP DESIGNER



PROJECT LOCATION

LEGEND

- 1-MILE BOUNDARY  
PROJECT BOUNDARY  
OR  
IMPAIRED, SPECIAL OR PROTECTED WATERS  
NATIONAL WETLANDS INVENTORY  
RECEIVING WATERS

PROJECT AREAS:

Total Project Size (disturbed area) =	3.4	ACRES
Existing area of impervious surface =	2.3	ACRES
Post construction area of impervious surface =	2.4	ACRES
Total new impervious surface area created =	0.1	ACRES

Planned Construction Start Date:	06/06/2022
Estimated Construction Completion Date:	10/31/2022

PERMANENT STORMWATER MANAGEMENT SYSTEM:  
Type of storm water management used if more than 1 acre of new impervious surface is created:

	Wet Sedimentation Basin
	Infiltration/Filtration
	Regional Pond
X	Permanent Stormwater Management Not Required

PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
SCOTT	T114N	R23W	19	44.666757°	-93.636644°

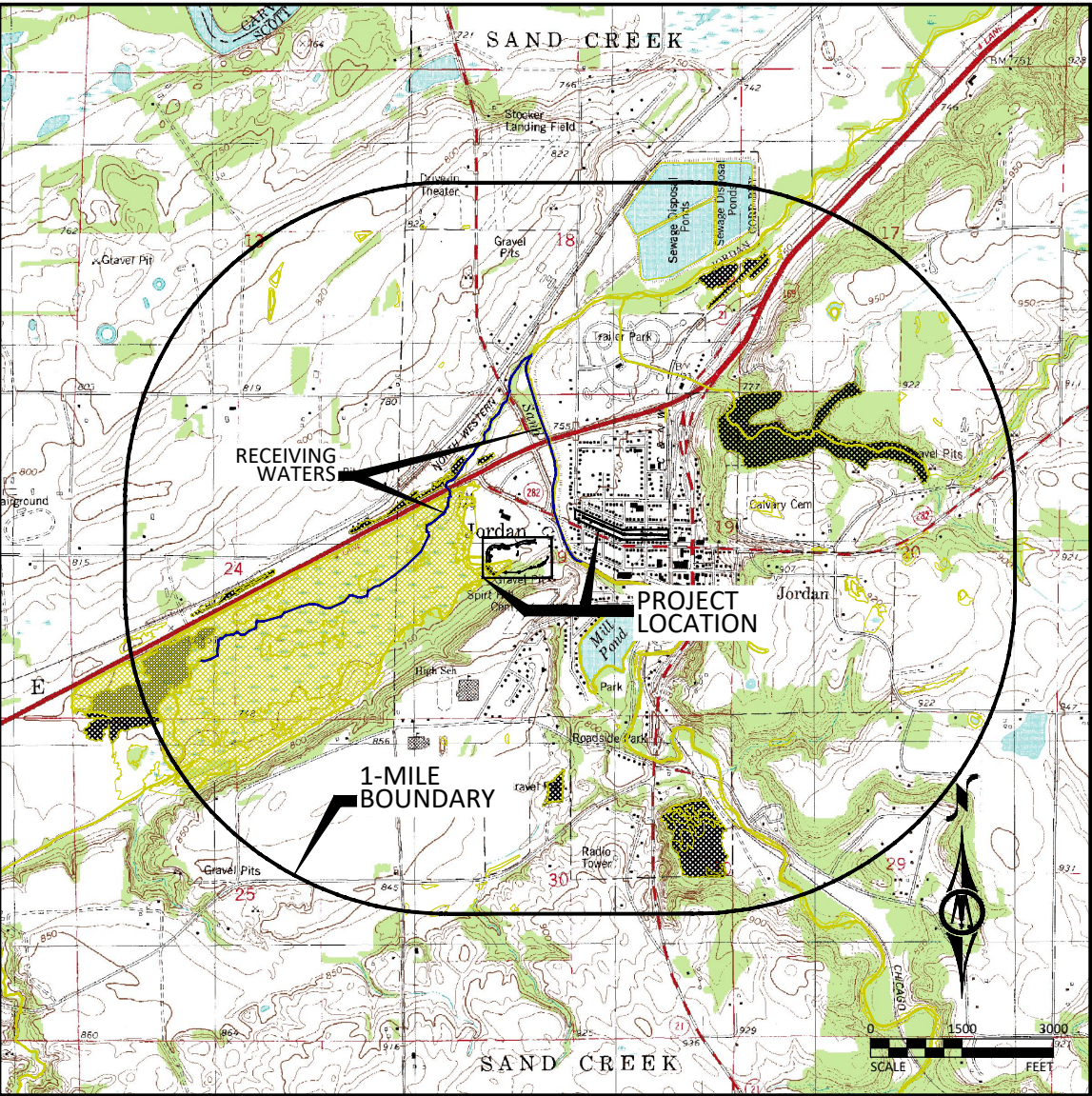
BMP SUMMARY	QUANTITY	UNIT
STABILIZED CONSTRUCTION EXIT	2	EACH
INLET PROTECTION	30	EACH
SILT FENCE, MACHINE SLICED	1000	LIN FT
HYDROSEED	5510	SQ YD

DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:  
Construction activities include: Pavement removals, site grading, sanitary sewer, watermain, and storm sewer installation, temporary erosion and sediment control, concrete curb and gutter, aggregate base, bituminous paving and permanent stabilization.

The purpose of this project is to improve the City's infrastructure including new sanitary sewer mains, watermains, storm sewers, roadway reconstruction, and alley reconstruction.

GENERAL STORMWATER DISCHARGE REQUIREMENTS:  
All requirements listed in Part III of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to:  
1. The expected amount, frequency, intensity, and duration of precipitation.  
2. The nature of stormwater runoff and run-on at the sites.  
3. Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion.  
4. The range of soil particle sizes expected to be present on the site.

DOCUMENT RETENTION:  
The following documentation will be retained for a period of not less than 3-years from the date of the submittal of the NOT in compliance with Part III.E of the Permit.  
1. The final SWPPP.  
2. Copies of all stormwater related permits required for the project.  
3. Records of all inspection and maintenance conducted during construction.  
4. Copies of all permanent operation and maintenance agreements, including all right-of-way contacts, covenants, and other binding requirements regarding perpetual maintenance.  
5. All required calculations for design of the temporary and permanent BMPs.



RECEIVING WATERS:  
Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, within 1-mile of the project boundary are identified on the USGS 7.5 min quad map above. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in the permit for special, prohibited, restricted, or impaired have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for construction related waste load allocations have also been incorporated.

NAME OF WATER BODY	TYPE (ditch, pond, wetland, lake, etc.)	Special, Prohibited, Restricted Water <sup>1</sup>	Flows to Impaired Water Within 1-Mile <sup>2</sup>	USEPA Approved Construction Related TMDL <sup>3</sup>
SAND CREEK	CREEK	NO	YES	
IMPAIRMENTS: E. COLI, FISHES BIOASSESSMENTS, INVERTEBRATE BIOASSESSMENTS, NUTRIENTS, TURBIDITY				

<sup>1</sup> Special, prohibited, and restricted waters are listed in Section 23 of the MN Construction Stormwater General Permit (MNR100001).  
<sup>2</sup> Identified as impaired under section 303 (d) of the federal Clean Water Act for phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.  
<sup>3</sup> Construction Related TMDLs include those related to: phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

IMPLEMENTATION SCHEDULE AND PHASING: The Contractor is required to provide an updated schedule and site management plan meeting the minimum requirements of Section 1717 of the Minnesota Standard Specifications for Construction.

- Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceptance of the SWPPP as designed with no changes.
- Install perimeter sediment control, inlet protection, and construction exit.
- Conduct pavement removals.
- Install public utilities (watermain, sanitary sewer, & storm sewer),
- Perform grading and base.
- Install concrete curb and gutter.
- Install bituminous pavement sections.
- Add additional temporary BMPs as necessary during construction based on inspection reports.
- Ensure final stabilization measures are complete.
- Provide digital copy of all Field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner.
- Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is considered complete.

1)	Was an environmental review required for this project or any part of a common plan of development or sale that includes all or any portion of this project?	NO
2)	Does any portion of the site have the potential to affect threatened or endangered species or their critical habitat?	NO
3)	Does any portion of this site discharge to a Calcareous fen.	NO
4)	Will any portion of the site potentially affect properties listed on the National Register of Historic Places or a known or discovered archeological site?	NO
5)	Have any Karst features have been identified in the project vicinity?	NO
6)	Is compliance with temporary or permanent stormwater management design requirements infeasible for this project?	NO
7)	Has the MN DNR promulgated "work in water restrictions" for any Public Water this site discharges to during fish spawning?	NO

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*Lukas W. Wheeler*  
LUKAS W. WHEELER  
LIC. NO. 57855 DATE 03/28/2022



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CHECKED	LWW			
CLIENT PROJ. NO.				

CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS  
STORMWATER POLLUTION PREVENTION PLAN  
PROJECT INFORMATION

SHEET

C2.01



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Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN RI0000I (Permit) as they apply to this project. All provisions of the Permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the Permit is available at: <https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf>

SWPPP AMENDMENTS AND SUBMITTALS

Contractor must prepare and submit to the Engineer a SWPPP amendment as necessary to include additional Best Management Practices (BMPs) to correct problems identified or address the following situations.

- Contact information and training documentation for Construction SWPPP Manager and BMP Installer,
- There is a change in construction method of phasing, operation, maintenance, weather or seasonal conditions not anticipated during the design of the SWPPP including but not limited to:
  - Types and/or Locations of BMPs
  - Material Storage and Spill Response
  - Fueling Plans
  - Locations for Stockpiles, Concrete Washout, and Sanitation Facilities and
  - Project Phasing
- It is determined that the SWPPP is not achieving objectives of minimizing pollutants in stormwater discharges associated with construction activity, or
- The SWPPP is not consistent with the terms and conditions of the permit.

The Contractor may implement SWPPP amendments immediately and is not required to wait for Engineer review of the submittal. The responsibility for completeness of SWPPP amendments and compliance with the Permit lies with the Contractor. Review, comment, or lack of comment by the Engineer on a SWPPP amendment shall not absolve the responsibilities of the Contractor in any way.

If a change order is issued for a design change the SWPPP amendment will be prepared by the Engineer and included in the change order.

In addition to SWPPP amendments, the Contractor shall submit to the Engineer Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.

The Contractor shall keep copies of all SWPPP amendments, Weekly Erosion and Sediment Control Schedules, inspection logs, and maintenance logs with the field copy of the SWPPP. A PDF copy of these documents will be provided along with a copy of the final Field Copy of the SWPPP to the Engineer along with the signed Notice of Termination when final stabilization is complete.

EROSION PREVENTION PRACTICES

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of the wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent.

Energy dissipation shall be installed at all temporary or permanent pipe outlets within 24 hours of connection to a surface water or permanent stormwater treatment system.

The Contractor shall phase construction and use construction methods to the extent practical to minimize exposed soils. The project phasing shall be documented in the Weekly Erosion and Sediment Control Schedule.

SEDIMENT CONTROL PRACTICES

Down gradient BMPs including perimeter BMPs must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All BMPs that have been adjusted or removed to accommodate short-term activities shall be re-installed or replaced the earlier of the end of the work day or before the next precipitation event even if the activity is not complete.

Inlet BMPs may be removed for specific safety concerns. The BMPs shall be replaced as soon as the safety concern is resolved. The removal shall be documented in the SWPPP as a SWPPP amendment.

Temporary stockpiles must have sediment control BMPs. The Contractor shall prepare and submit to the Engineer a SWPPP amendment showing the location of temporary stockpiles and the BMPs for each stockpile. The SWPPP amendment must meet the minimum requirements of Section 9 of the Permit.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

DEWATERING

A dewatering plan has not been included in this SWPPP as designed by the Engineer. If dewatering is required for this project, the Contractor shall prepare and submit to the Engineer a SWPPP amendment. All dewatering shall meet or exceed the minimum requirements of Section 10 of the Permit.

POLLUTION PREVENTION

Products and materials that have the potential to leach pollutants that are stored on the site must be stored in a manner designed to minimize contact with stormwater. Materials that are not a source of potential contamination to stormwater or that are designed for exposure to stormwater are not required to be covered.

Hazardous materials including but not limited to pesticides, fertilizer, petroleum products, curing compounds and toxic waste

must be properly stored and protected from stormwater exposure as recommended by the manufacturer in an access restricted area.

Solid waste must be stored, collected and disposed of in compliance with Minnesota Administrative Rules Chapter 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. No engine degreasing is allowed on site. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

The Contractor shall prepare and submit a SWPPP amendment detailing the location and BMPs proposed for storage of materials, solid waste, portable toilets, and exterior vehicle or equipment washing on the site. The SWPPP amendment shall include a spill prevention and response plan that is appropriate for the materials proposed to be on the site. The SWPPP amendment shall meet or exceed the minimum requirements of Section 12 of the Permit.

INSPECTION & MAINTENANCE

A trained person shall routinely inspect the entire construction site at the time interval indicated on this sheet of the SWPPP during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted at the time interval indicated in the Receiving Waters Table found on the SITE PLAN AND INFORMATION SHEET of the SWPPP.

All inspections and maintenance conducted during construction must be recorded on the day it is completed and must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

The Contractor may request a change in inspection schedule for the following conditions:

- Inspections of areas with permanent cover to be reduced to once per month,
- Inspections of areas that have permanent cover and have had no construction activity for 12 months to be suspended until construction resumes,
- Inspections of areas where construction is suspended due to frozen ground conditions, inspections to be suspended until the earlier of within 24 hours of runoff occurring, or upon resuming construction.

No change in inspection schedule shall occur until authorized by the Engineer.

Inspections must include:

- All erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness.
- Surface waters, including drainage ditches and conveyance systems for evidence of erosion and sediment deposition.
- Construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles.
- Infiltration areas to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

All non-functioning BMPs and those BMPs where sediment reaches one-half (1/2) of the depth of the BMP, or in the case of sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery, or as soon as field conditions allow.

Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.

Any sediment that escapes the site must be removed and the area stabilized within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access in which case the work shall be completed within 7 calendar days of authorization. Paved surfaces such as streets shall have any escaped or tracked sediment removed by the end of the day that it is discovered. Sediment release, other than paved surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery to the Engineer.

PUBLIC WATER RESTRICTIONS:

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period. MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by an Infested Waters Permit or written notification has been obtained from MN DNR stating that such permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

FINAL STABILIZATION

Final Stabilization is not complete until all the following requirements have been met:

- Substantial Completion has been reached and no ground disturbing activities are anticipated.
- Permanent cover has been installed with an established minimum uniform perennial vegetation density of 70 percent of its expected final growth. Vegetation is not required in areas where no vegetation is proposed by this project such as impervious surfaces or the base of a sand filter.
- Accumulated sediment has been removed from all permanent stormwater treatment systems as necessary to ensure the system is operating as designed.
- All sediment has been removed from conveyance systems
- All temporary synthetic erosion prevention and sediment control BMPs have been removed. BMPs designated on the SWPPP to remain to decompose on-site may remain.
- For residential construction only, permit coverage terminates on individual lots if the structures are finished and temporary erosion prevention and downgradient perimeter control is complete, the residence sells to the homeowner, and the permittee distributes the MPCA's "Homeowner Fact Sheet" to the homeowner.
- For agricultural land only (e.g., pipelines across cropland), the disturbed land must be returned to its preconstruction agricultural use prior to submitting the NOT.

SITE STABILIZATION COMPLETION:

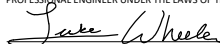
Stabilization of exposed soils shall begin immediately and shall be completed after the construction activity has temporarily or permanently ceased no later than:

14 calendar days

SITE INSPECTION INTERVAL:

A trained person shall routinely inspect the entire construction site during active construction at an interval of no more than:

7 calendar days

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LUKAS W. WHEELER  
LIC. NO. 57855 DATE 03/28/2022



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CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS  
STORMWATER POLLUTION PREVENTION PLAN  
NARRATIVE

SHEET

C2.02





LEGEND

- PROJECT BOUNDARY
- SOIL TYPE
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- NATIONAL WETLANDS INVENTORY
- DWSMA, LOW VULNERABILITY
- STEEP SLOPES (>33.3%)
- RECEIVING WATERS



SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
MUSYM	MUNAME	HYDGRP	MUHELCL
Fa	Faxon silty clay loam, 0-2% slopes	C/D	NHEL
PaB	Palms muck, 2-12% slopes	B/D	PHL
TcD	Terril loam, 12-18% slopes	B	HEL
DaA	Dakota loam, 0-2% slopes	B	NHEL
Cc	Comfrey silty clay loam	B/D	

NHEL - Not Highly Erodible Land  
PHL - Potentially Highly Erodible Land  
HEL - Highly Erodible Land

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	SHEET NO.
NARRATIVE & NOTES	C2.01 - C2.02
DIRECTION OF FLOW	C2.04 - C2.06
FINAL STABILIZATION	C2.04 - C2.06
SOILS	C2.03
DRAINAGE STRUCTURES	C5.01 - C5.03
STORM SEWER PLAN & PROFILE SHEETS	C5.01 - C5.03
EROSION & SEDIMENT CONTROL DETAILS	C1.03 - C1.04
EROSION CONTROL TABULATION	C2.01
TURF ESTABLISHMENT TABULATION	C2.01

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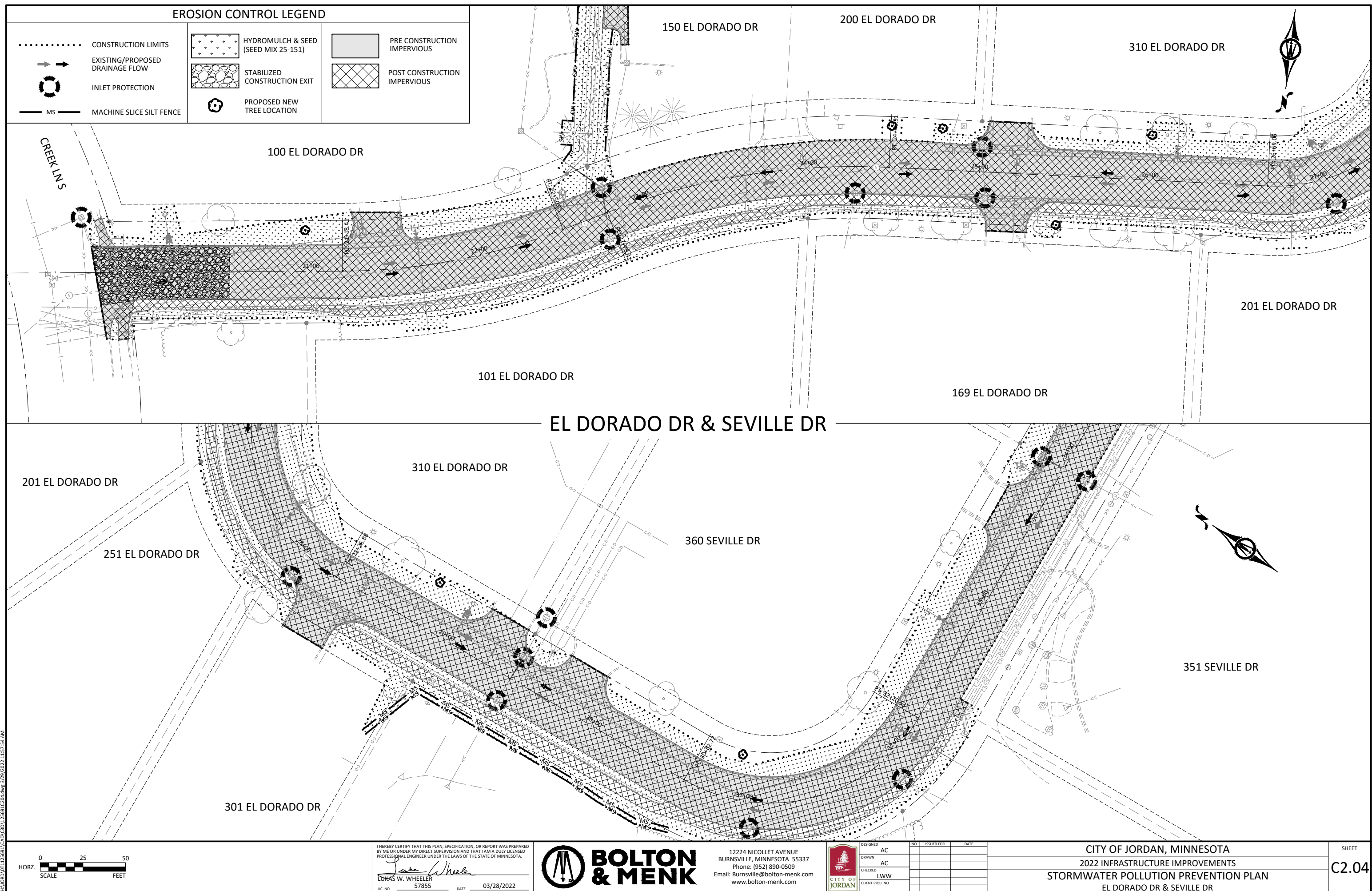


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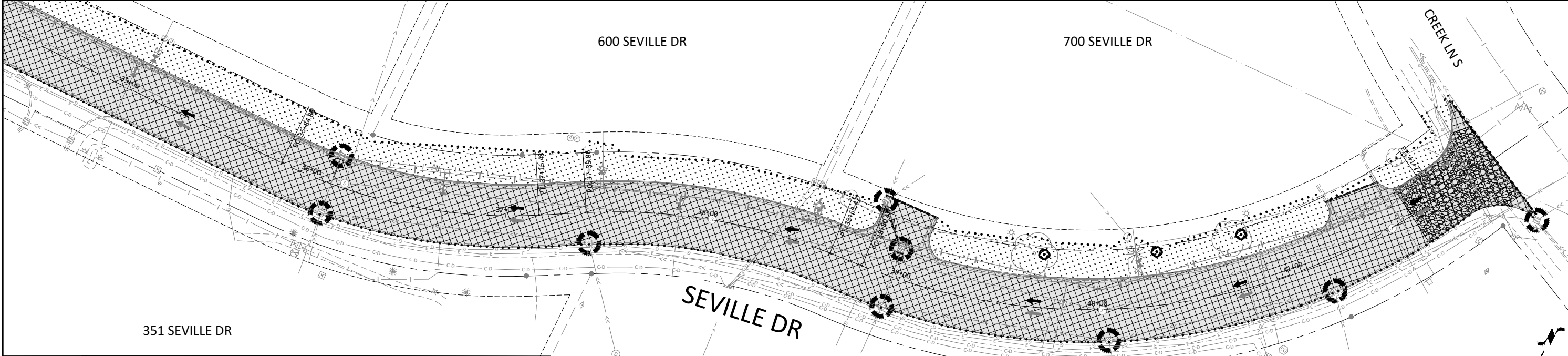
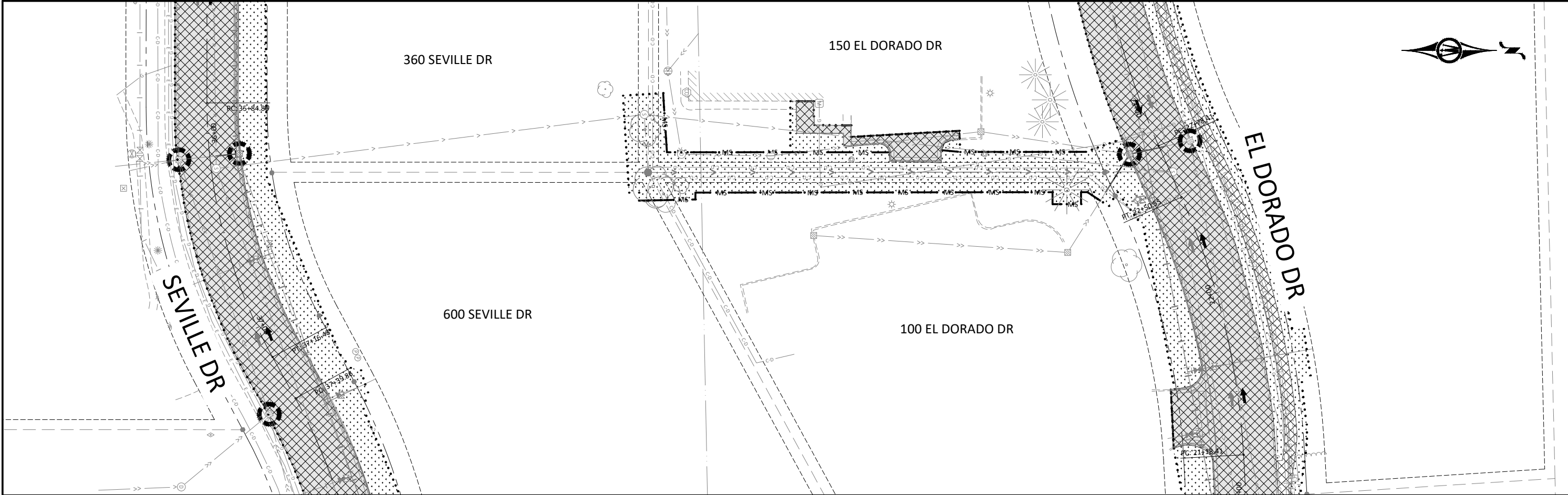
CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS  
STORMWATER POLLUTION PREVENTION PLAN  
SOILS

SHEET  
C2.03









EROSION CONTROL LEGEND

.....

CONSTRUCTION LIMITS

→

EXISTING/PROPOSED DRAINAGE FLOW

⊙

INLET PROTECTION

— MS —

MACHINE SLICE SILT FENCE

HYDROMULCH & SEED  
(SEED MIX 25-151)

STABILIZED  
CONSTRUCTION EXIT

PROPOSED NEW  
TREE LOCATION

PRE CONSTRUCTION  
IMPERVIOUS

POST CONSTRUCTION  
IMPERVIOUS

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HORZ. SCALE FEET

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2022 INFRASTRUCTURE IMPROVEMENTS

STORMWATER POLLUTION PREVENTION PLAN

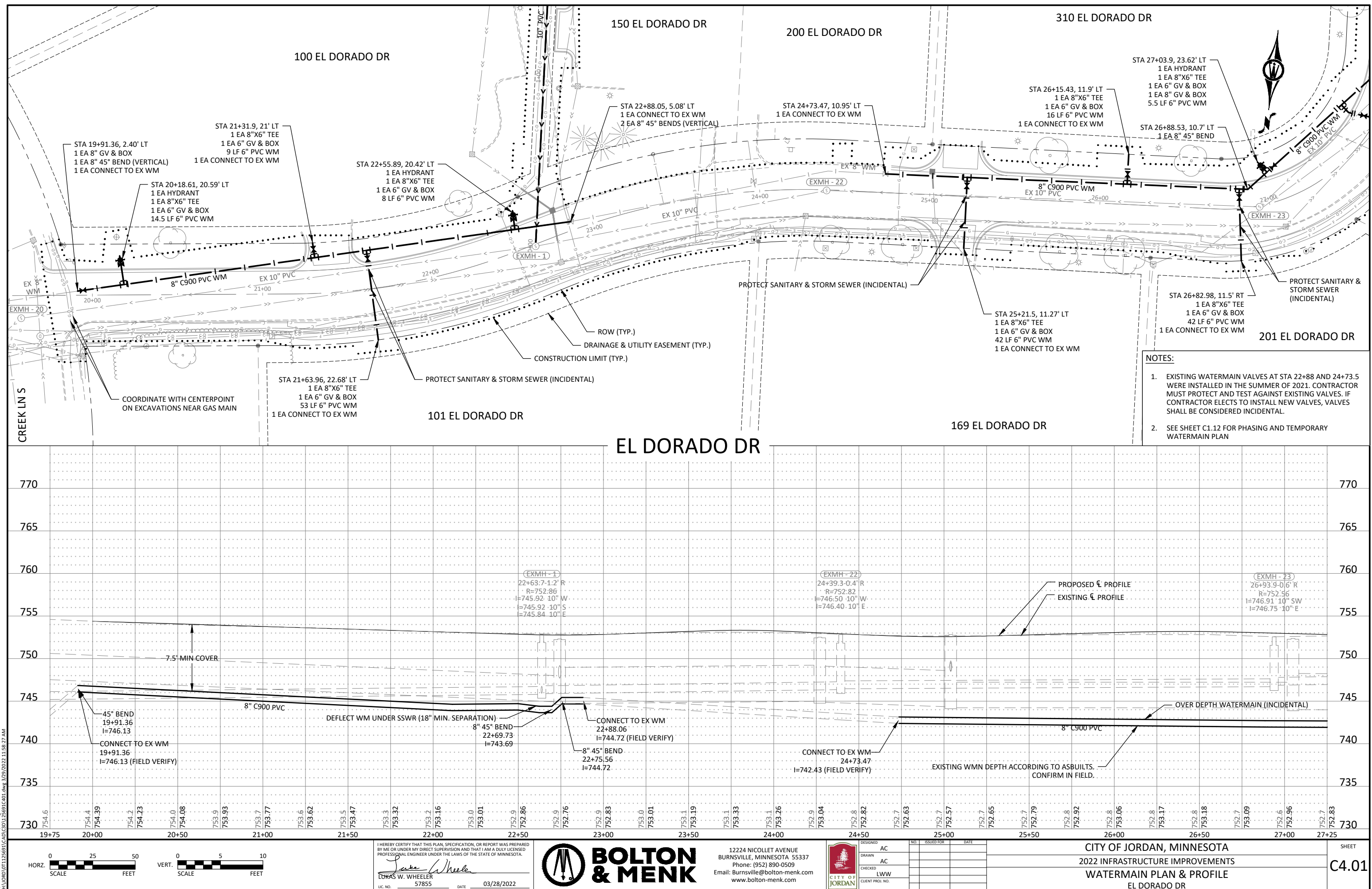
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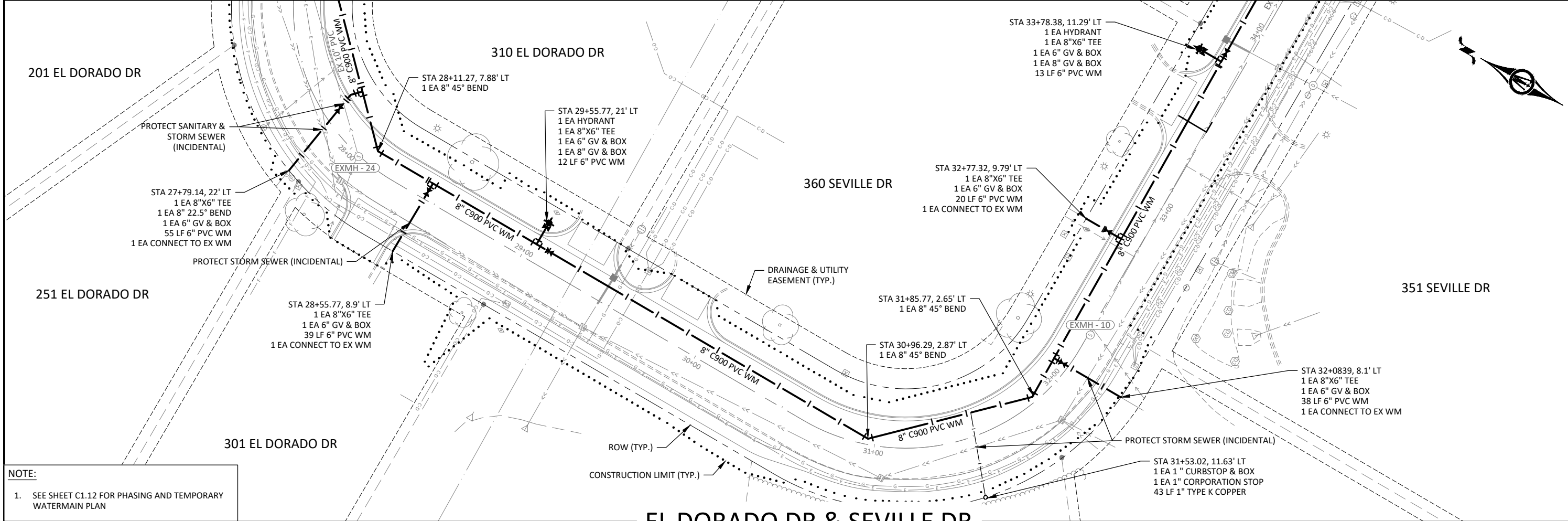
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C2.05

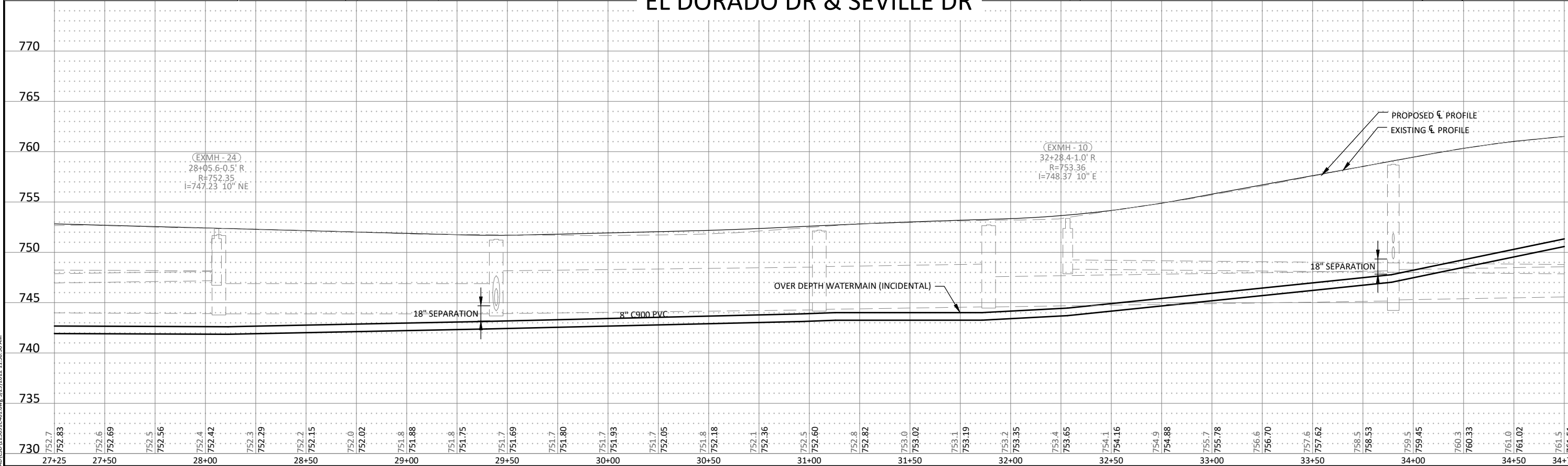


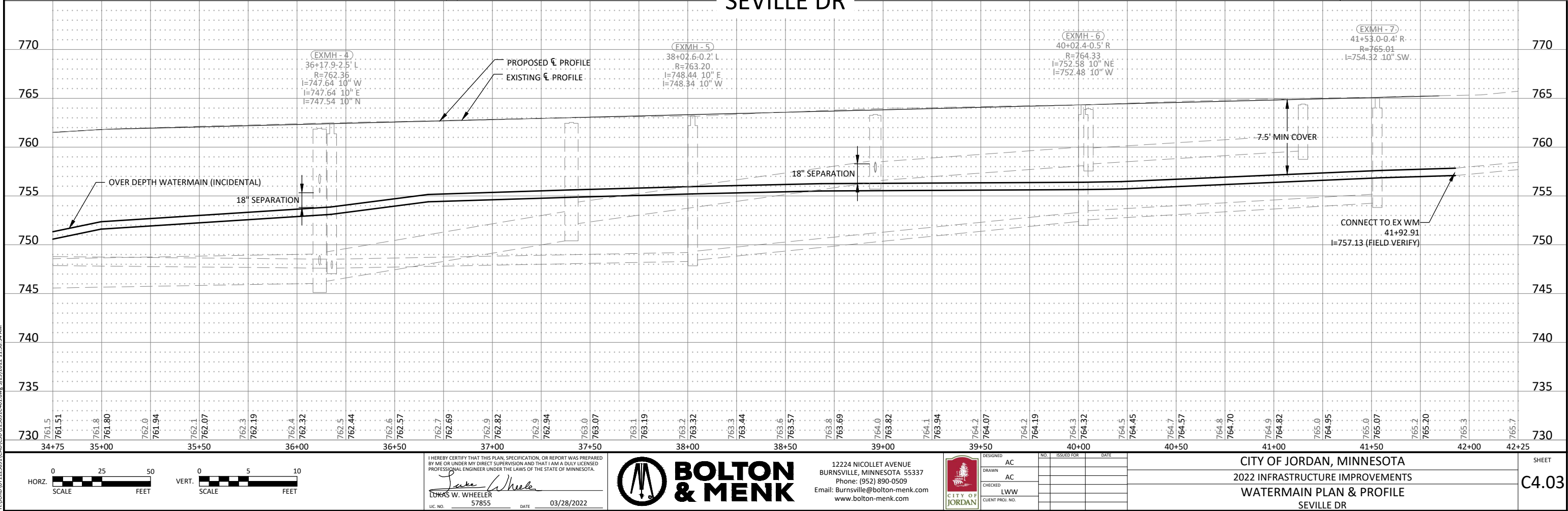
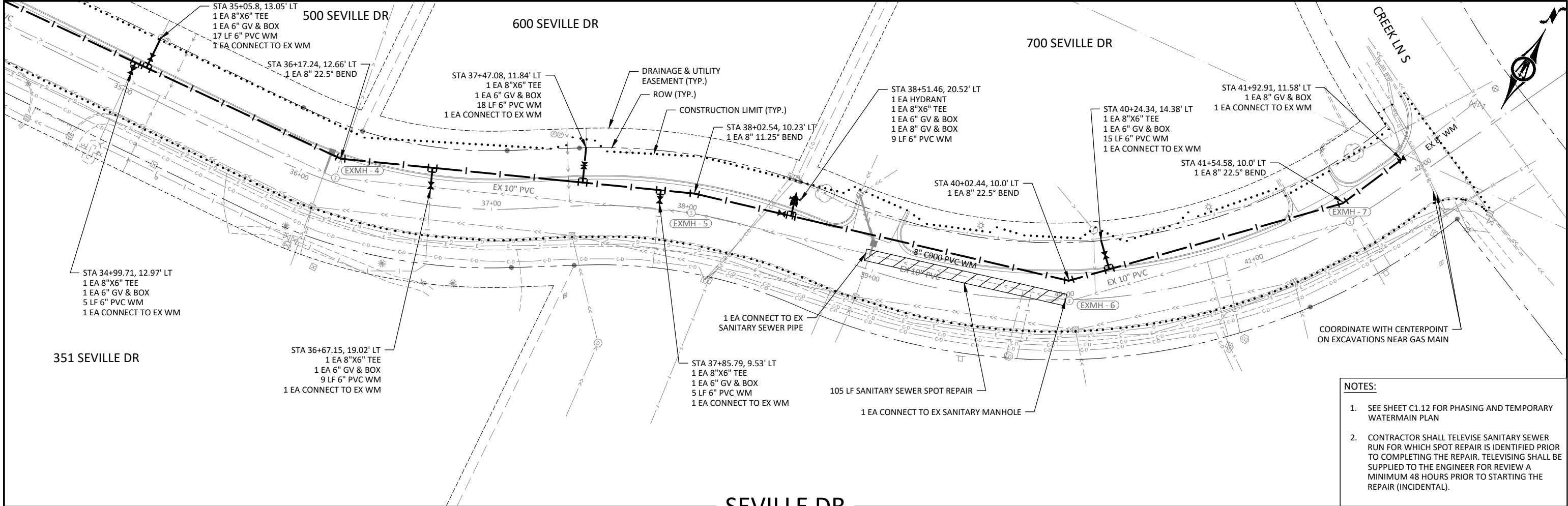




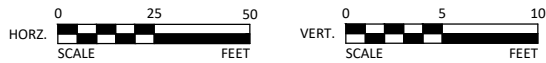


NOTE:  
1. SEE SHEET C1.12 FOR PHASING AND TEMPORARY WATERMAIN PLAN





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*Lukas W. Wheeler*  
LUKAS W. WHEELER  
57855  
DATE: 03/28/2022



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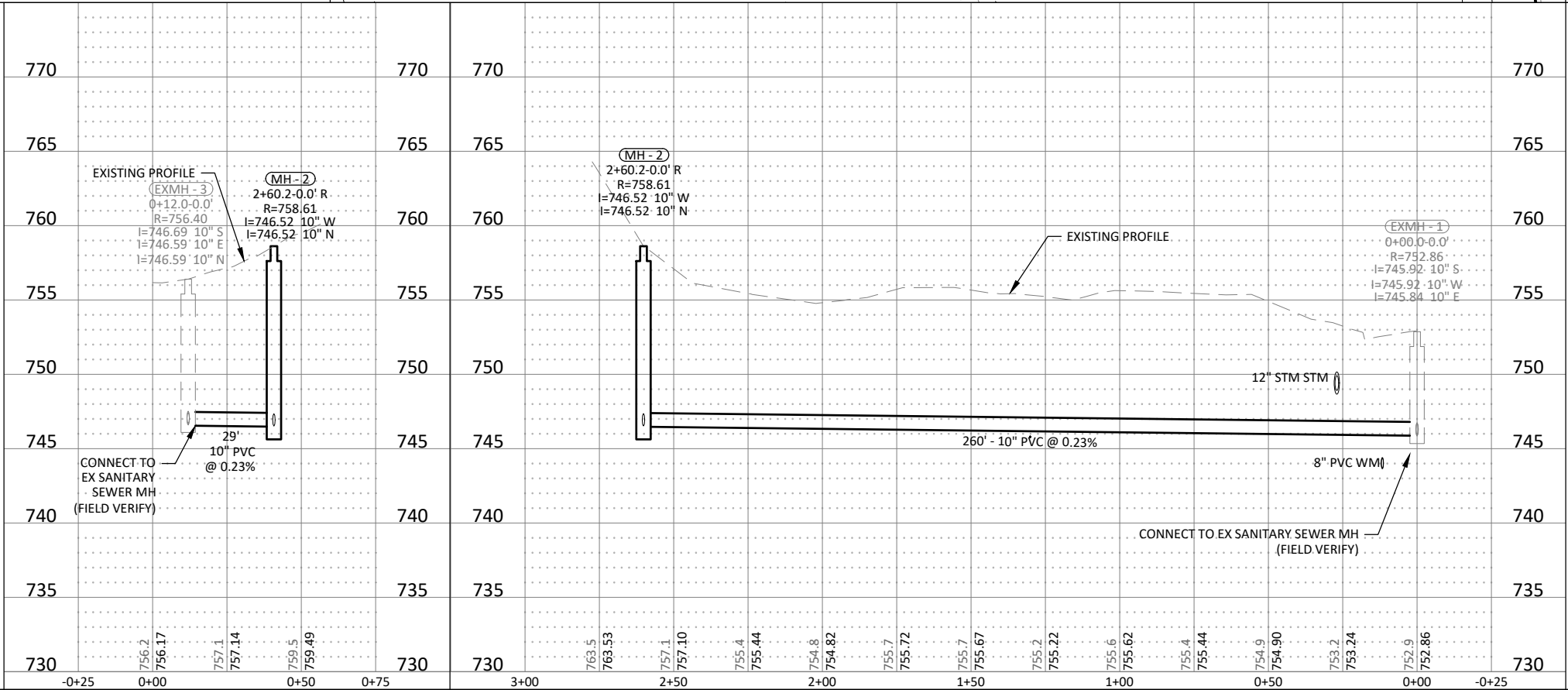
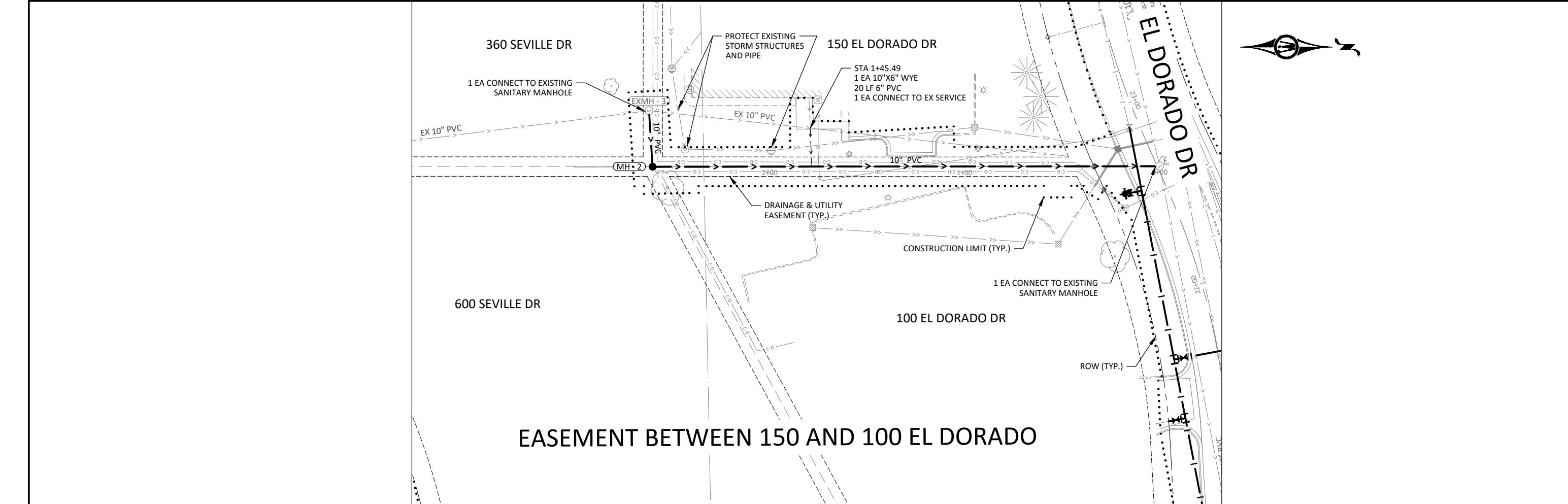


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CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS  
WATERMAIN PLAN & PROFILE  
SEVILLE DR

SHEET  
C4.03





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LUKAS W. WHEELER  
57855 03/28/2022



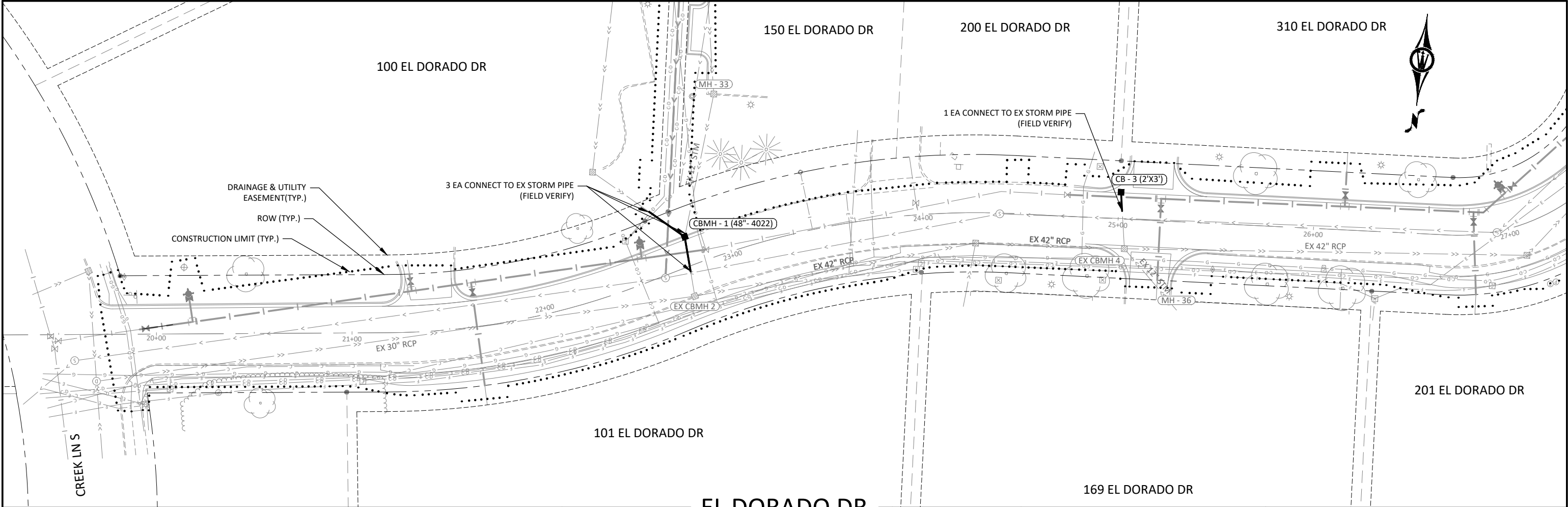
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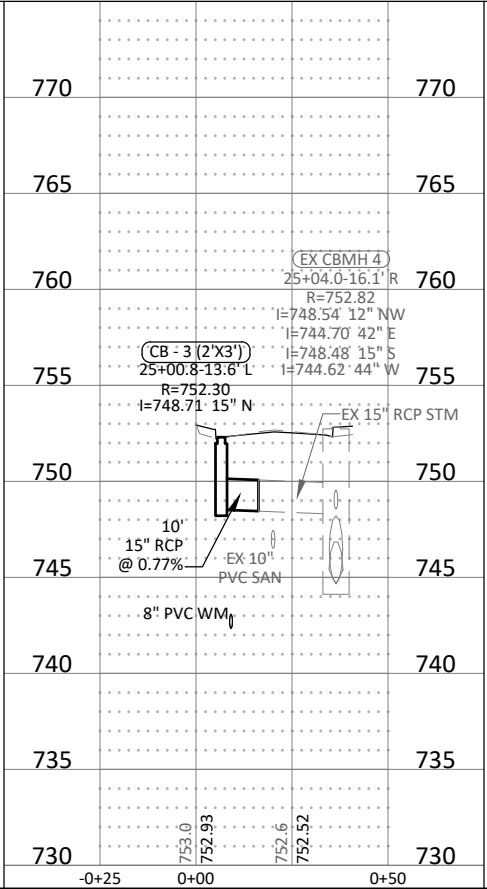
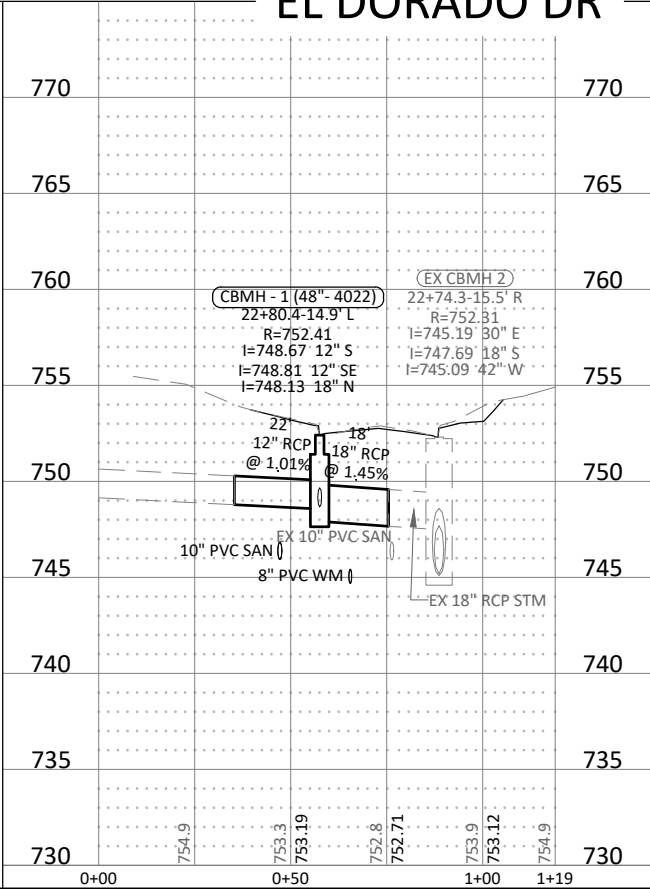
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2022 INFRASTRUCTURE IMPROVEMENTS  
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SEWER REALIGNMENT

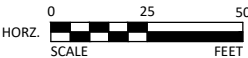
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EL DORADO DR



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UC. NO. 57855 DATE 03/28/2022



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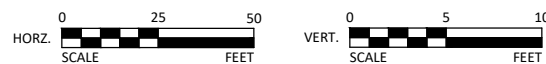
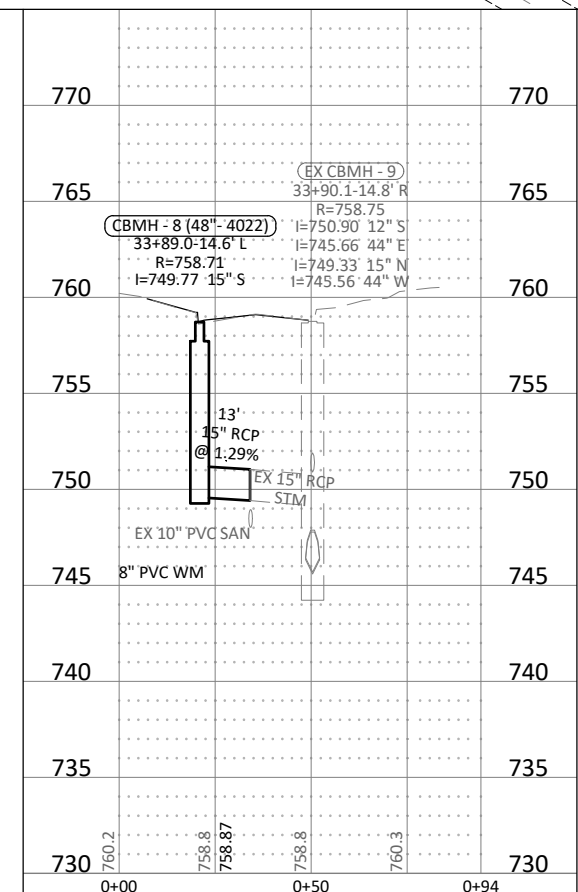
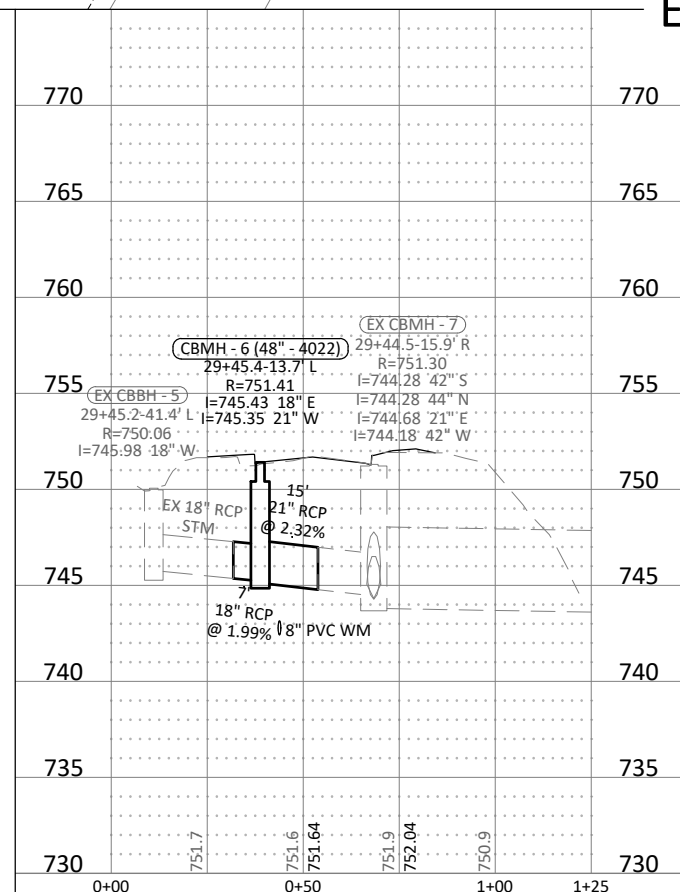
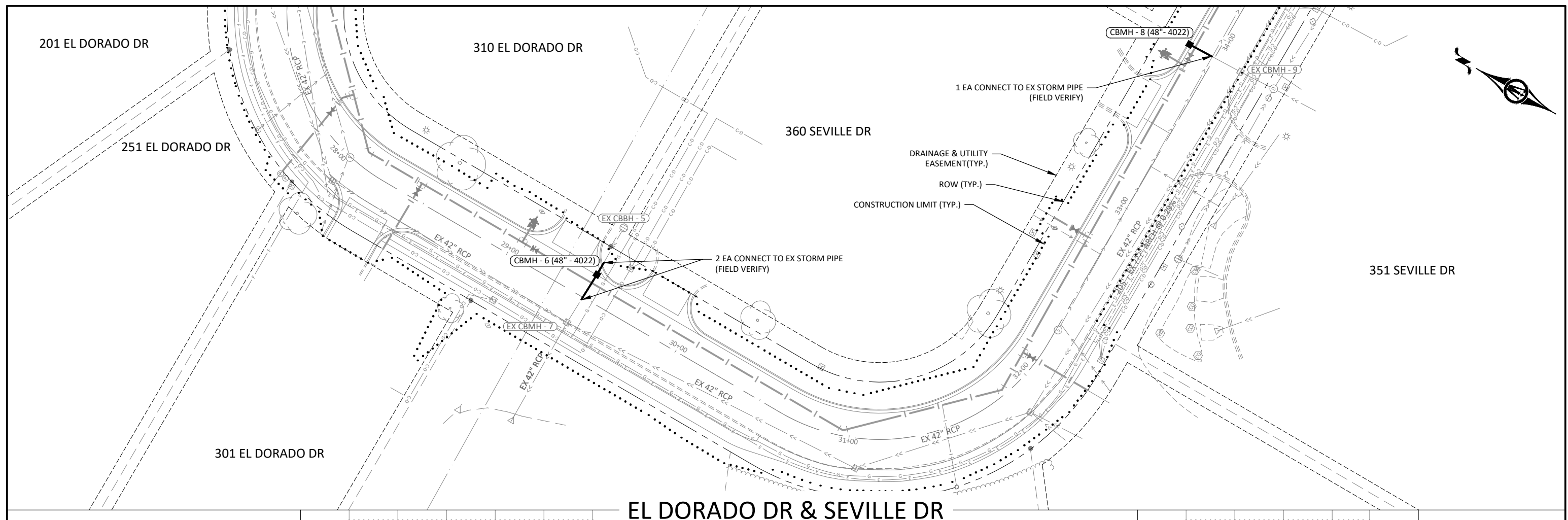


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CITY OF JORDAN, MINNESOTA  
2022 INFRASTRUCTURE IMPROVEMENTS  
STORM SEWER PLAN & PROFILE  
EL DORADO DR

SHEET

C5.01



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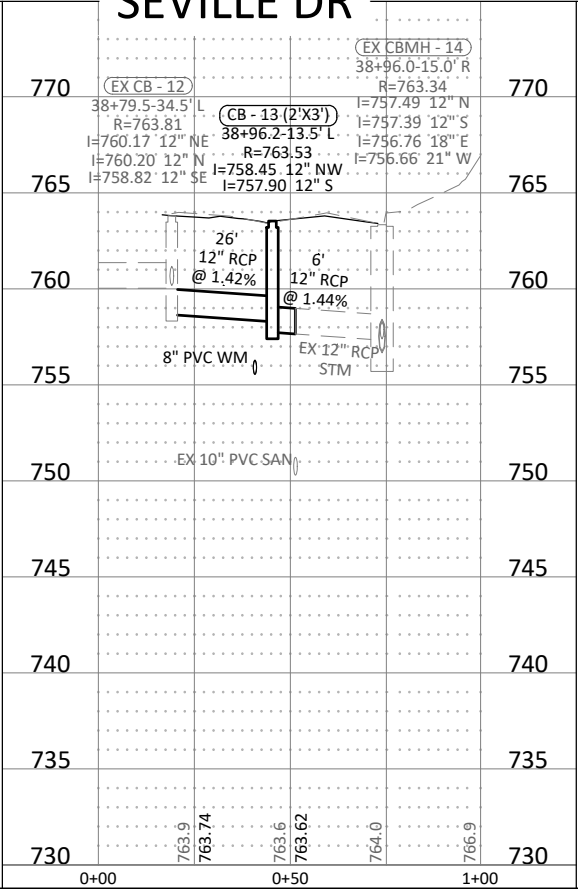
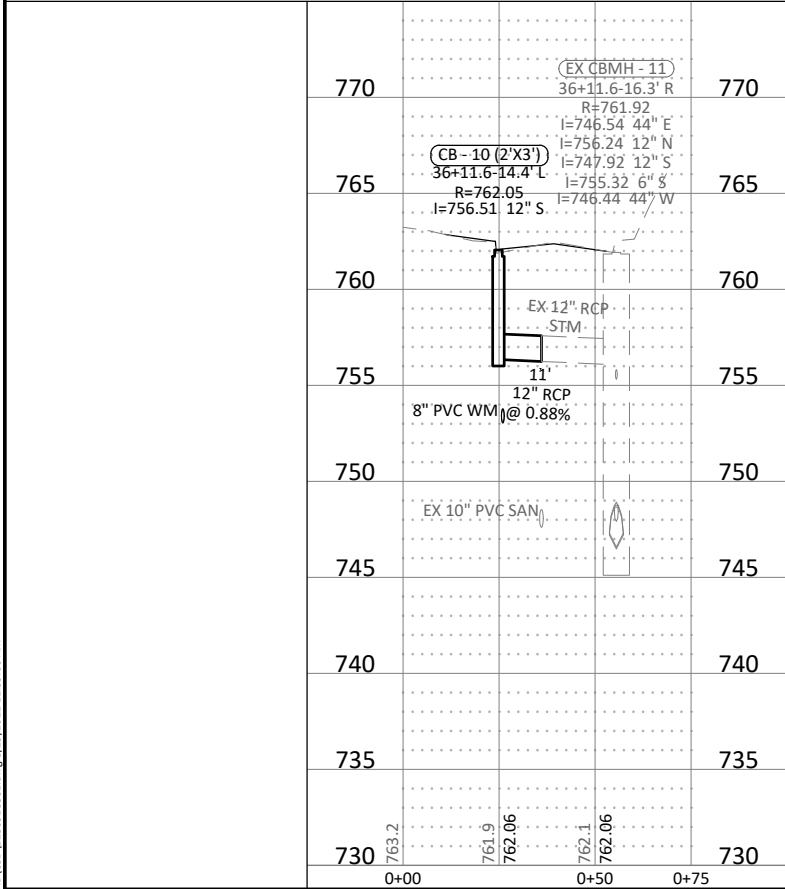
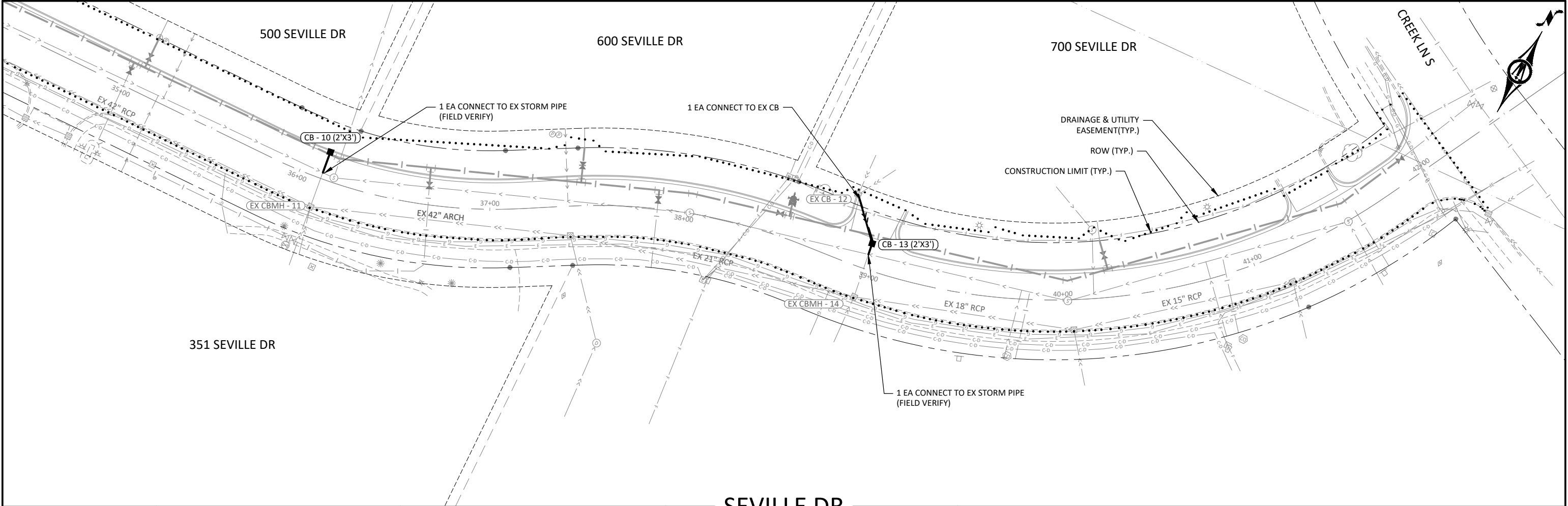
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2022 INFRASTRUCTURE IMPROVEMENTS  
STORM SEWER PLAN & PROFILE  
EL DORADO DR & SEVILLE DR

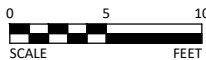
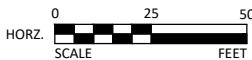
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57855  
DATE 03/28/2022



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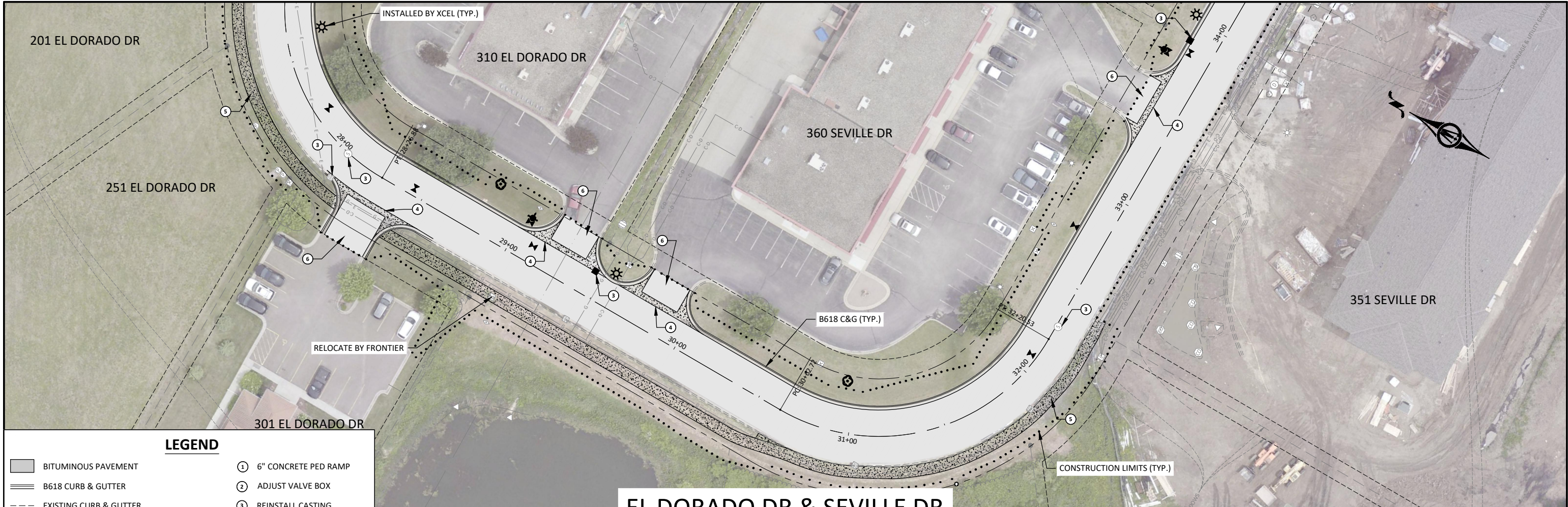
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2022 INFRASTRUCTURE IMPROVEMENTS  
STORM SEWER PLAN & PROFILE  
SEVILLE DR

SHEET  
C5.03









EL DORADO DR & SEVILLE DR

**LEGEND**

BITUMINOUS PAVEMENT

B618 CURB & GUTTER

EXISTING CURB & GUTTER  
(SPOT REPLACEMENT IDENTIFIED IN FIELD)

FULL DEPTH SAWCUT

CONSTRUCTION LIMITS

CONCRETE PAVEMENT

PEDESTRIAN RAMP LANDING

6" CONCRETE PED RAMP

ADJUST VALVE BOX

REINSTALL CASTING

7" CONCRETE VALLEY GUTTER

4" CONCRETE WALK

3" BITUMINOUS DRIVEWAY

STREET LIGHT (BY XCEL)

TREE - DECIDUOUS

HORIZ. SCALE: 0 25 50 FEET

VERT. SCALE: 0 5 10 FEET

LUKAS W. WHEELER

57855

DATE: 03/28/2022

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2022 INFRASTRUCTURE IMPROVEMENTS

STREET PLAN & PROFILE - WHISPERING MEADOWS

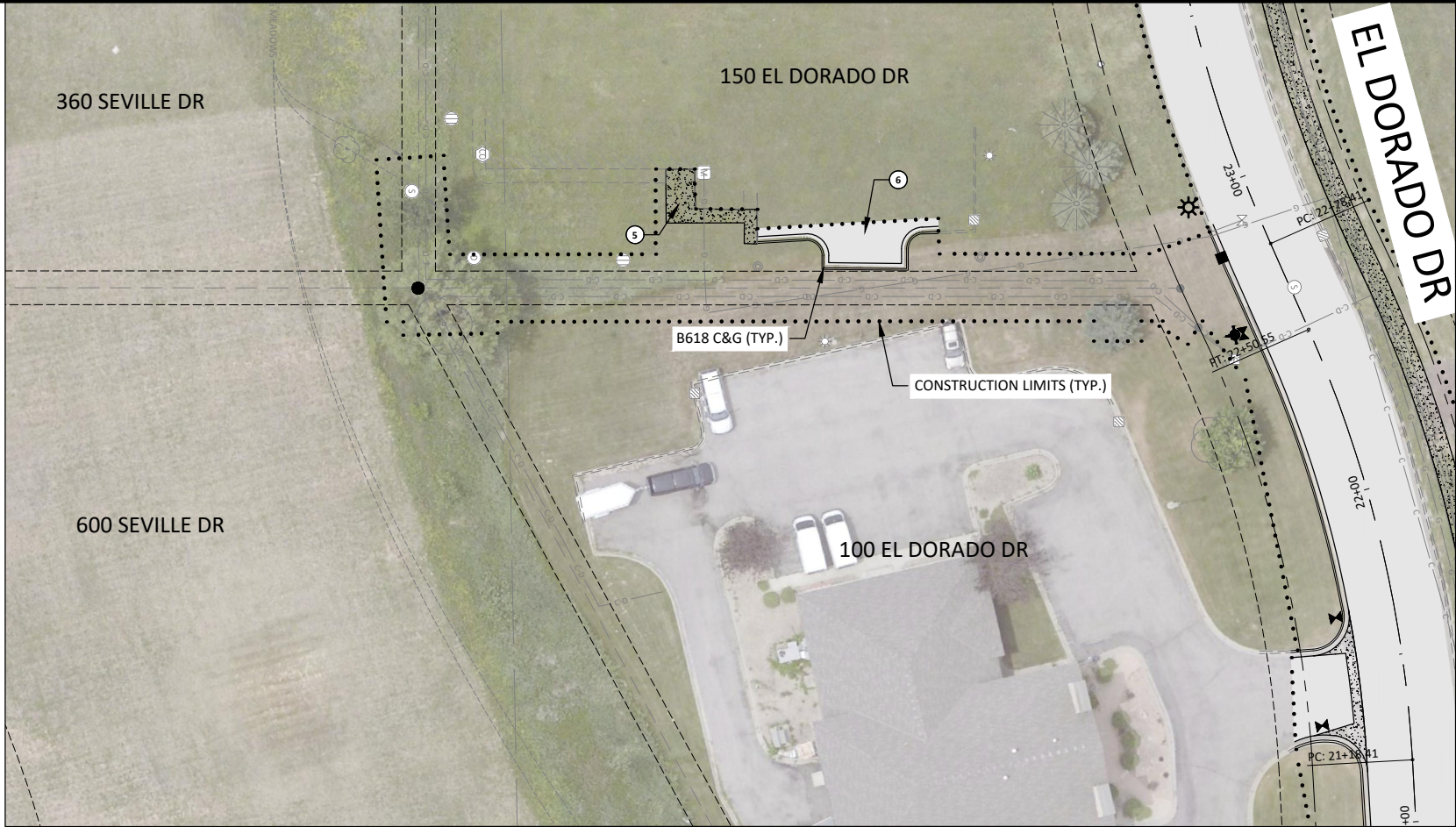
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SHEET

C6.02

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LEGEND

- |   |                             |
|---|-----------------------------|
| BITUMINOUS PAVEMENT   | ① 6" CONCRETE PED RAMP      |
| B618 CURB & GUTTER  | ② ADJUST VALVE BOX          |
| EXISTING CURB & GUTTER (SPOT REPLACEMENT IDENTIFIED IN FIELD) | ③ REINSTALL CASTING         |
| FULL DEPTH SAWCUT   | ④ 7" CONCRETE VALLEY GUTTER |
| CONSTRUCTION LIMITS   | ⑤ 4" CONCRETE WALK          |
| CONCRETE PAVEMENT   | ⑥ 3" BITUMINOUS DRIVEWAY    |
| PEDESTRIAN RAMP LANDING                                       | ☼ STREET LIGHT (BY XCEL)    |
|   | 🌳 TREE - DECIDUOUS          |

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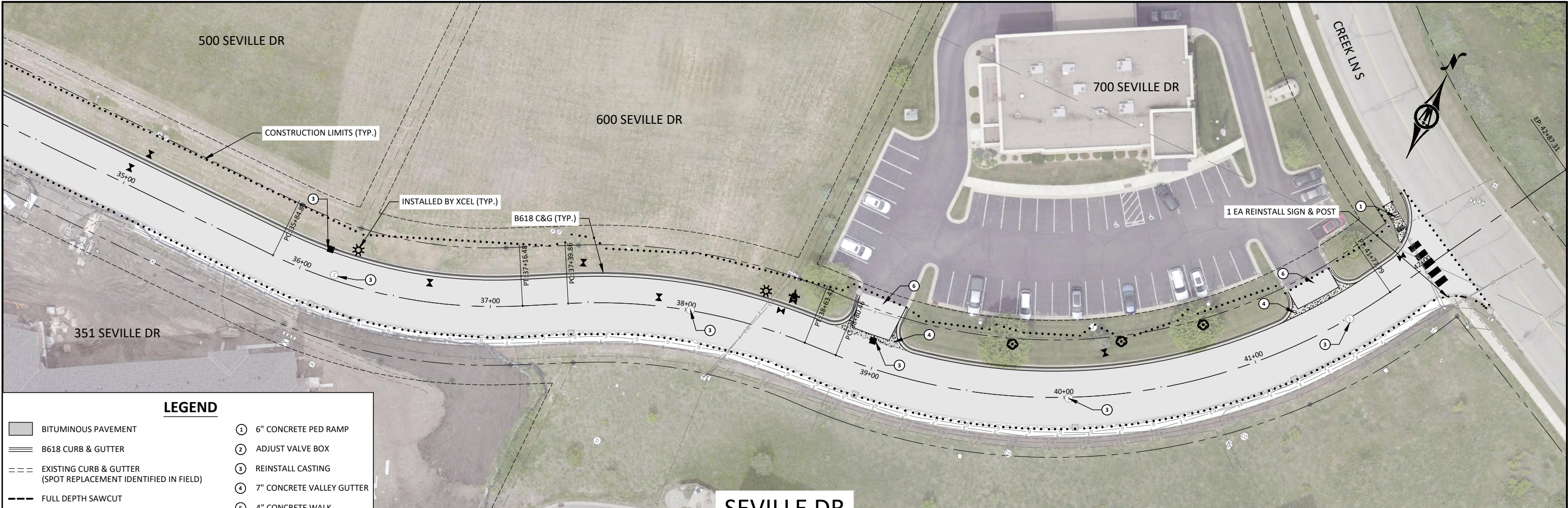
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2022 INFRASTRUCTURE IMPROVEMENTS  
STREET PLAN & PROFILE - WHISPERING MEADOWS  
150 EL DORADO DR

SHEET

C6.03





**LEGEND**

BITUMINOUS PAVEMENT

B618 CURB & GUTTER

EXISTING CURB & GUTTER  
(SPOT REPLACEMENT IDENTIFIED IN FIELD)

FULL DEPTH SAWCUT

CONSTRUCTION LIMITS

CONCRETE PAVEMENT

PEDESTRIAN RAMP LANDING

6" CONCRETE PED RAMP

ADJUST VALVE BOX

REINSTALL CASTING

7" CONCRETE VALLEY GUTTER

4" CONCRETE WALK

3" BITUMINOUS DRIVEWAY

STREET LIGHT (BY XCEL)

TREE - DECIDUOUS

HORIZ. SCALE 0 25 50 FEET

VERT. SCALE 0 5 10 FEET

LUKAS W. WHEELER

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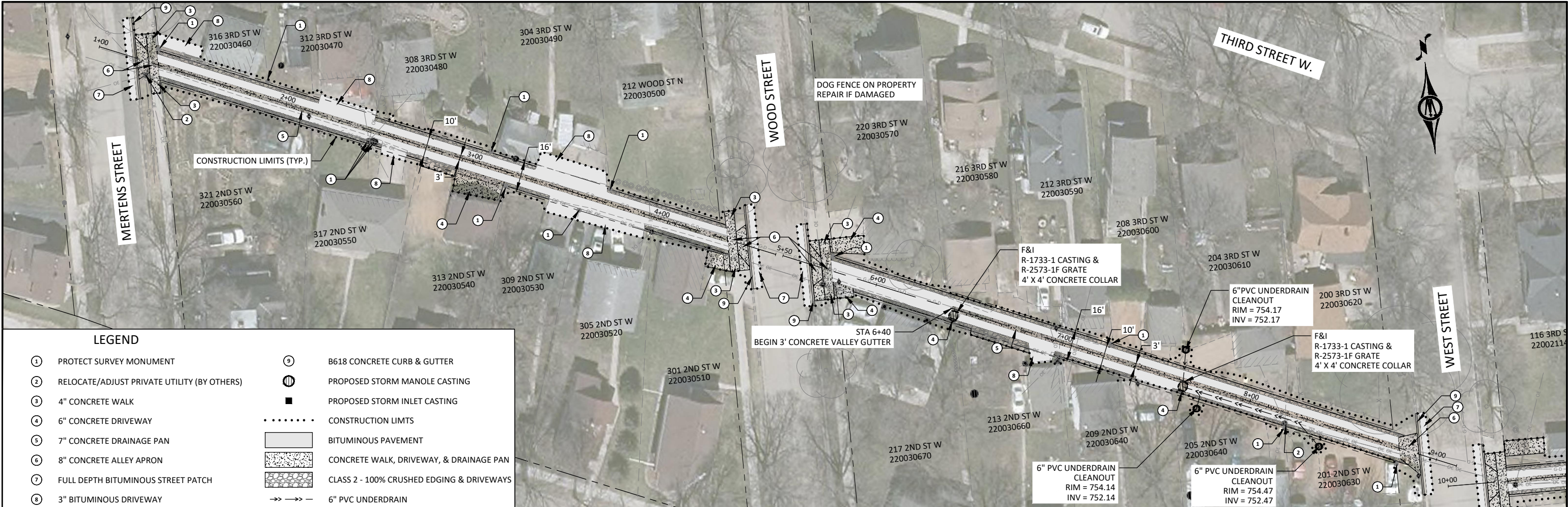
2022 INFRASTRUCTURE IMPROVEMENTS

STREET PLAN & PROFILE - WHISPERING MEADOWS

SEVILLE DR

SHEET C6.04





LEGEND

1

PROTECT SURVEY MONUMENT

2

RELOCATE/ADJUST PRIVATE UTILITY (BY OTHERS)

3

4" CONCRETE WALK

4

6" CONCRETE DRIVEWAY

5

7" CONCRETE DRAINAGE PAN

6

8" CONCRETE ALLEY APRON

7

FULL DEPTH BITUMINOUS STREET PATCH

8

3" BITUMINOUS DRIVEWAY

9

B618 CONCRETE CURB & GUTTER

PROPOSED STORM MANOLE CASTING

PROPOSED STORM INLET CASTING

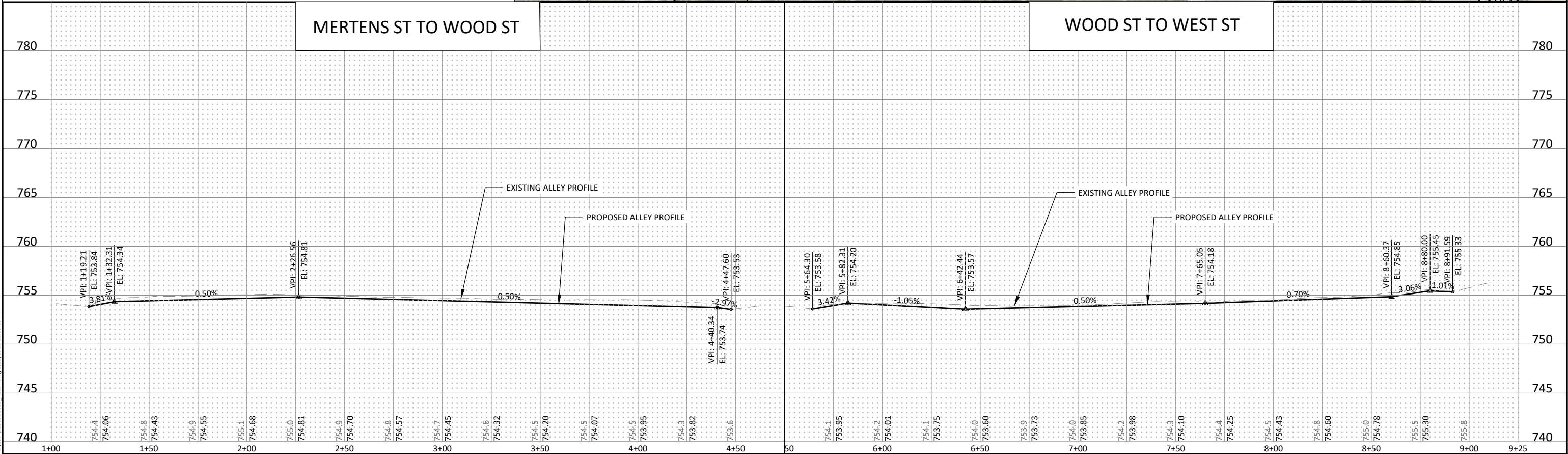
CONSTRUCTION LIMITS

BITUMINOUS PAVEMENT

CONCRETE WALK, DRIVEWAY, & DRAINAGE PAN

CLASS 2 - 100% CRUSHED EDGING & DRIVEWAYS

6" PVC UNDERDRAIN



0 25 50

HORZ. SCALE FEET

0 5 10

VERT. SCALE FEET

LUKAS W. WHEELER

57855

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2022 INFRASTRUCTURE IMPROVEMENTS

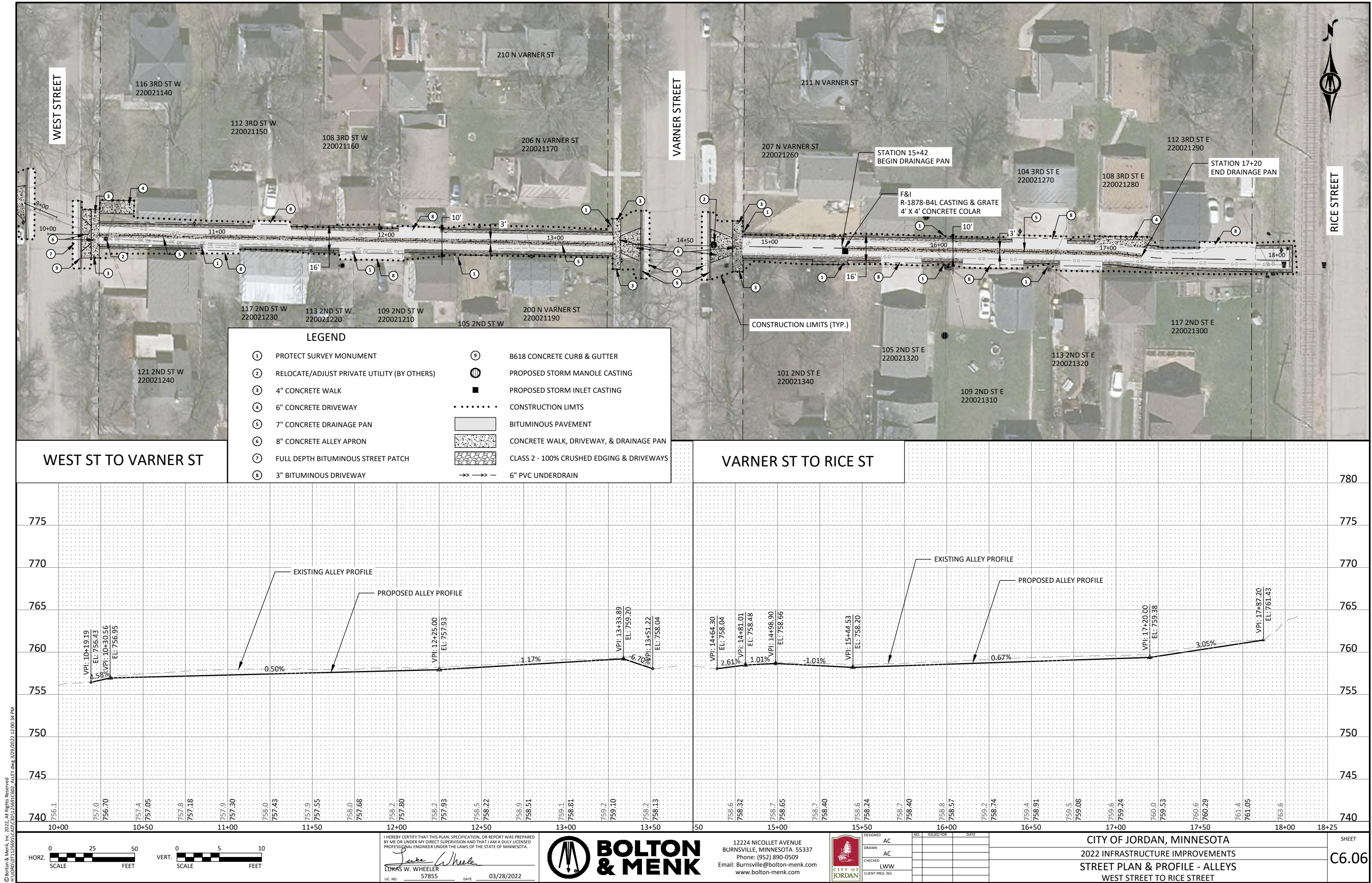
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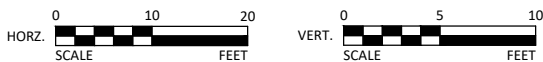
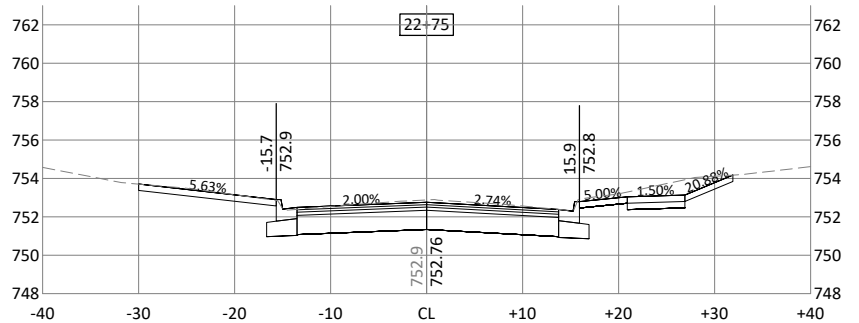
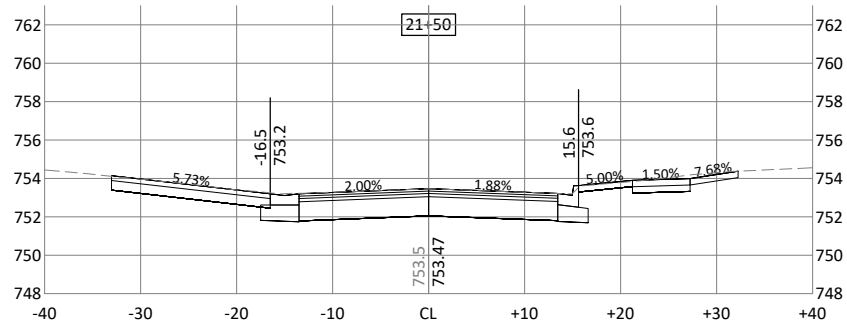
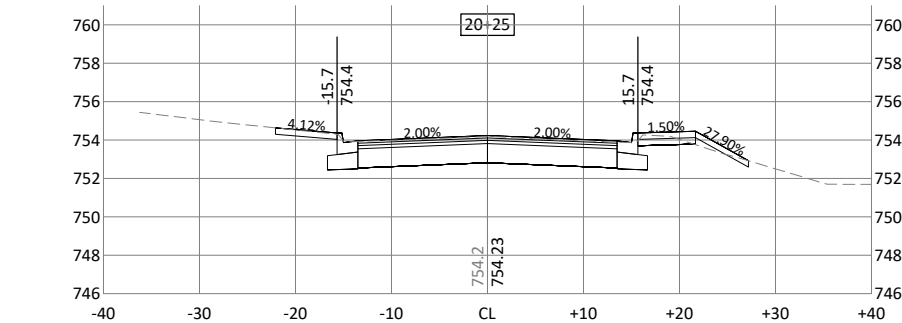
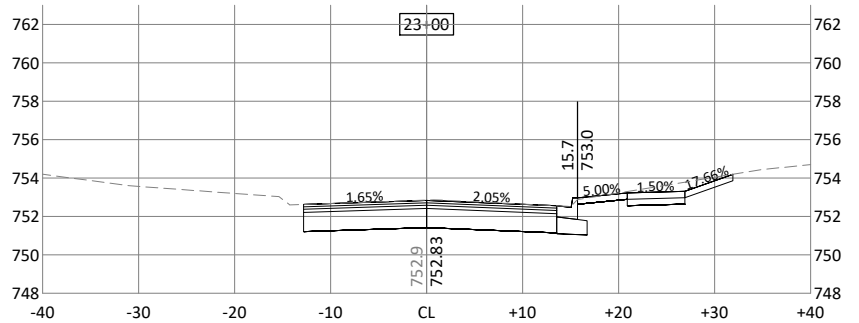
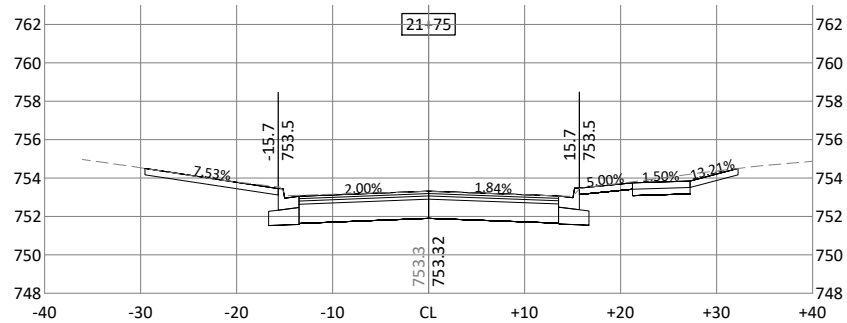
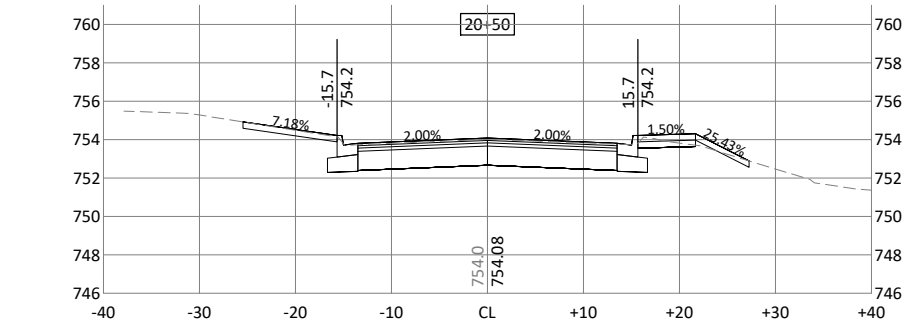
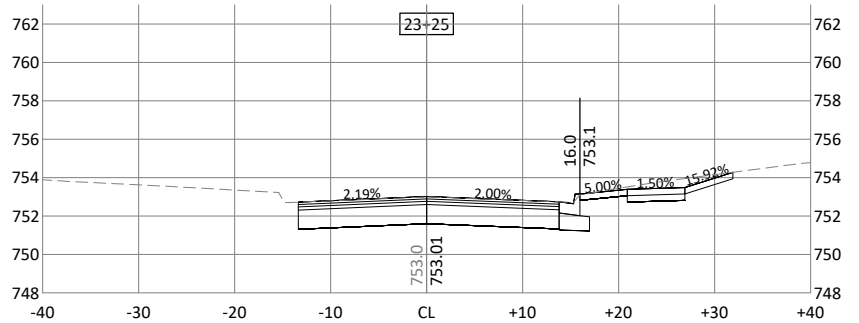
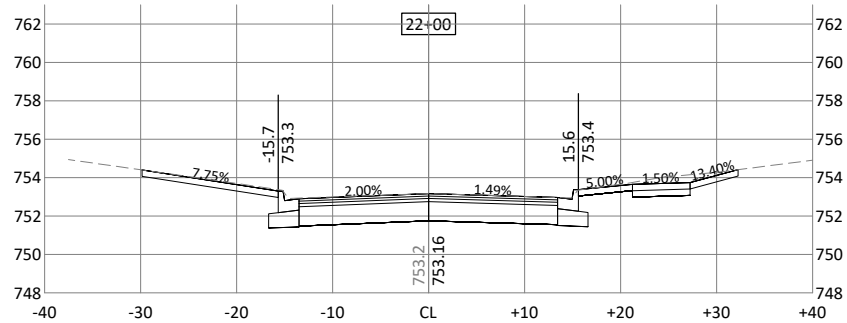
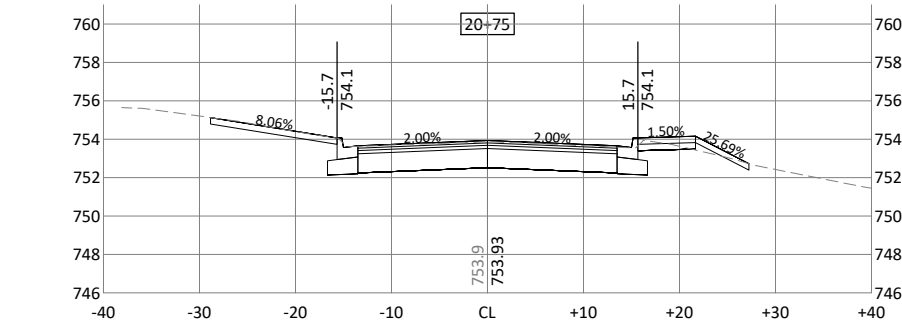
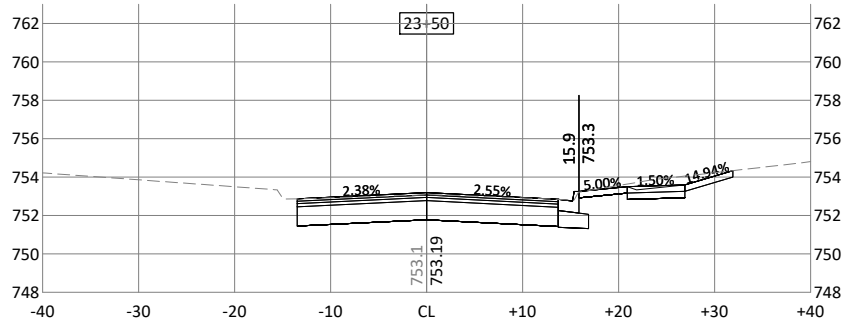
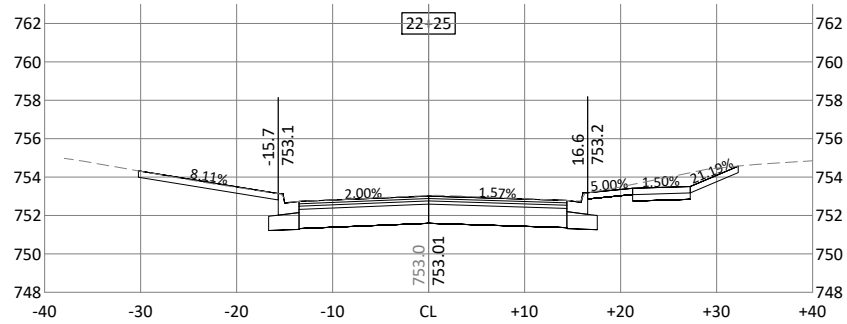
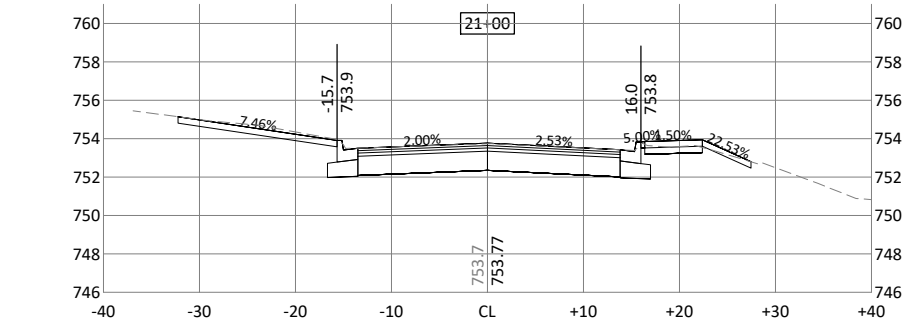
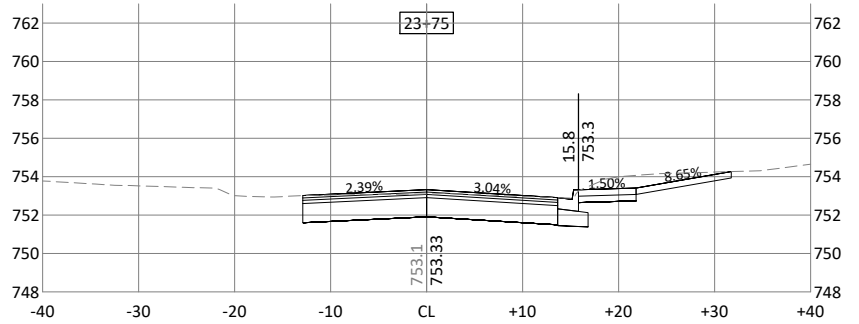
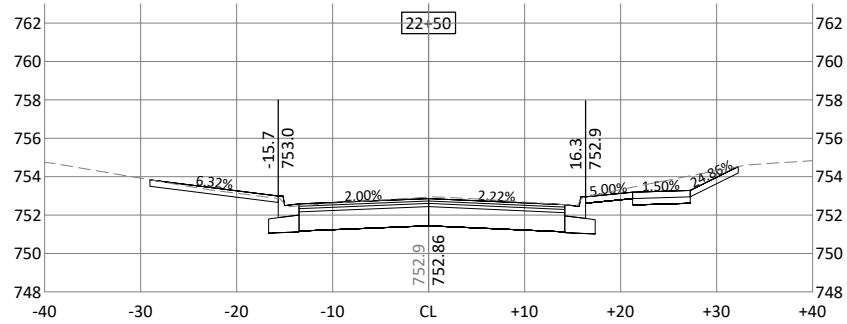
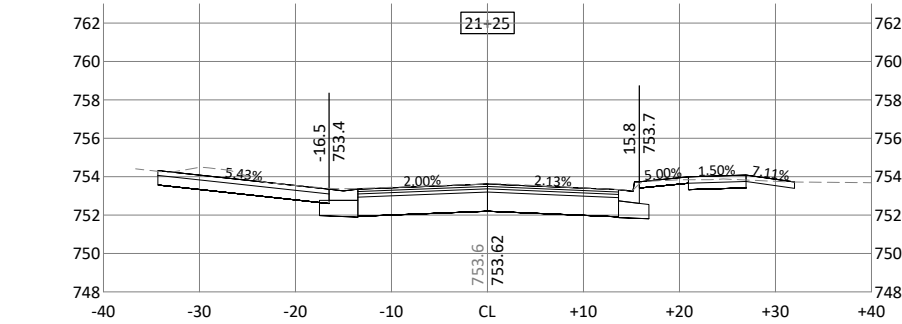
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LUKAS W. WHEELER  
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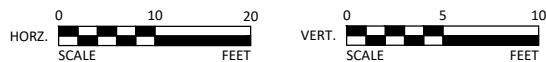
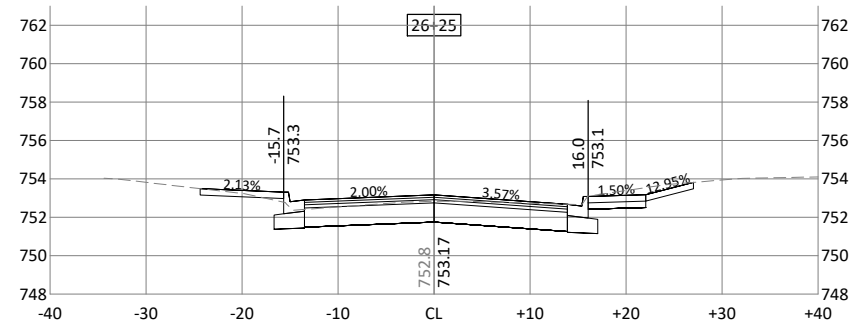
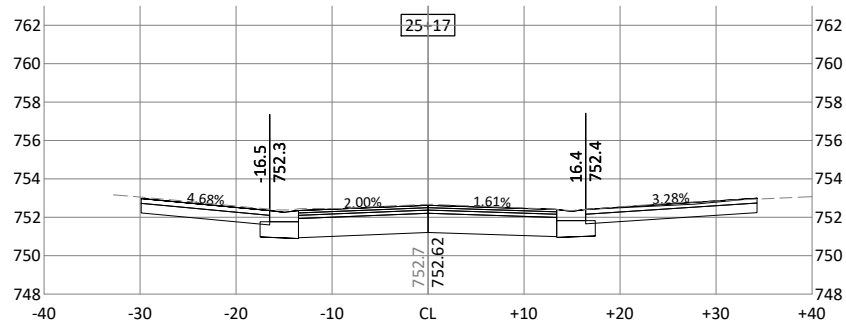
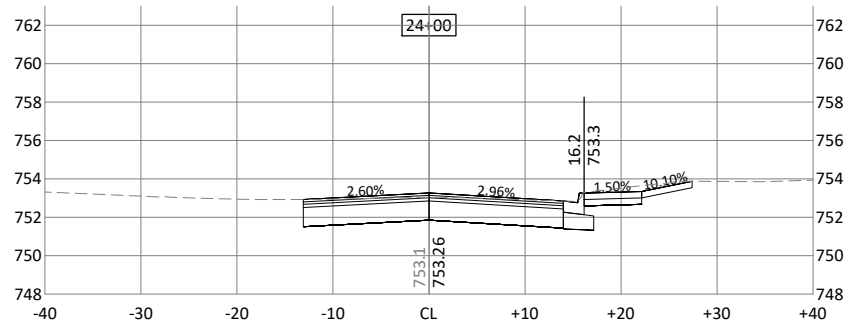
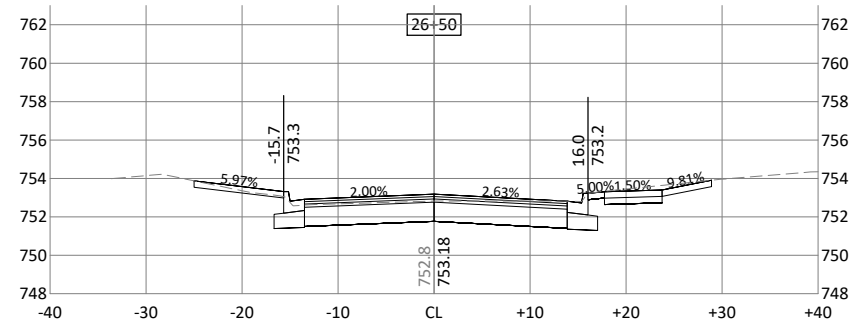
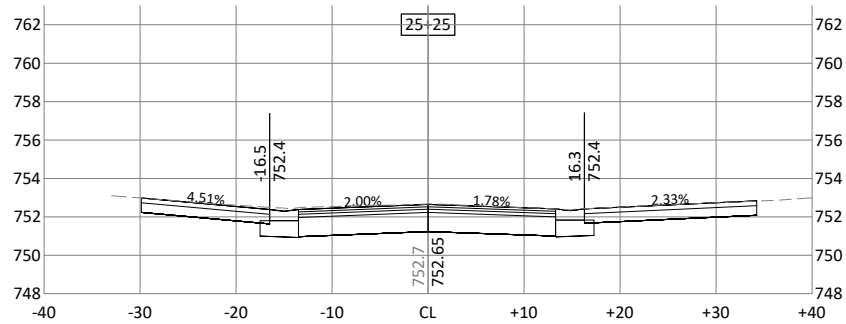
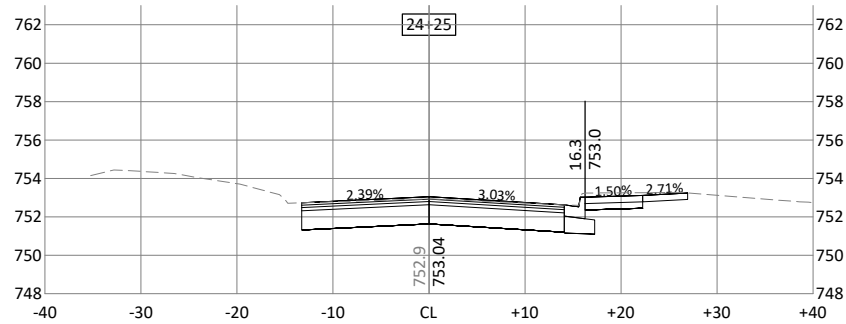
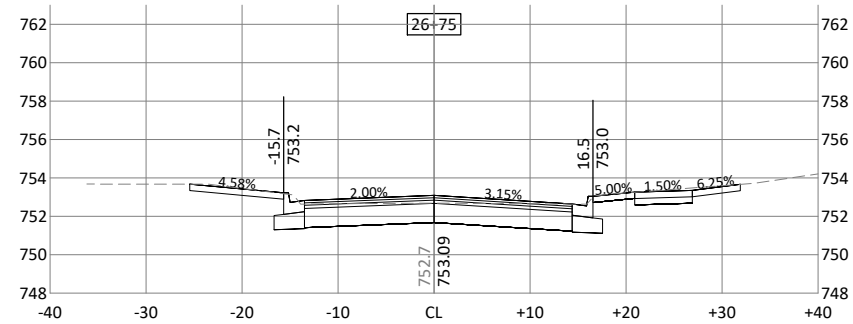
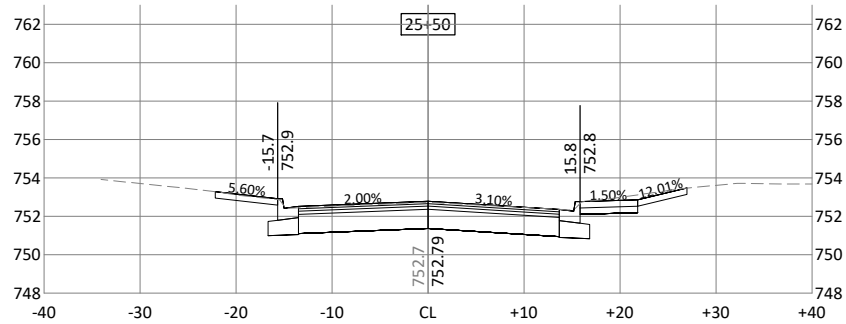
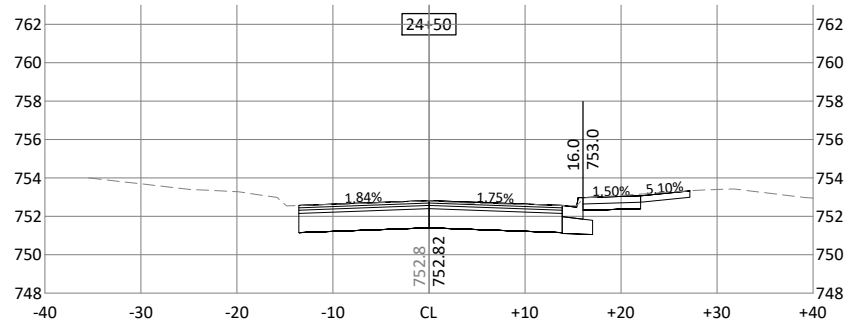
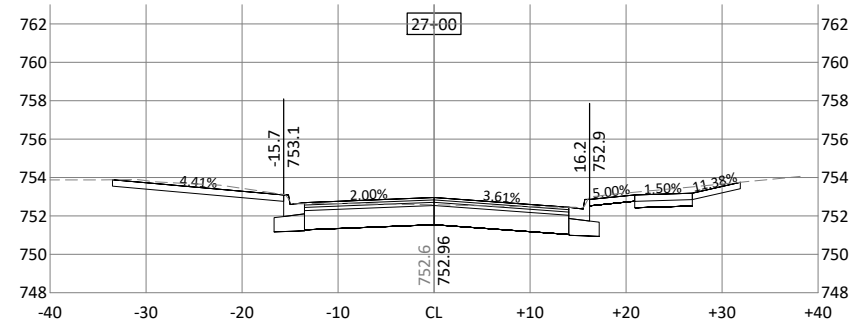
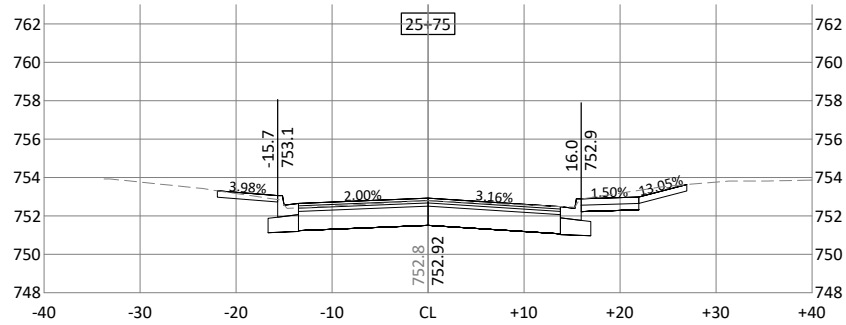
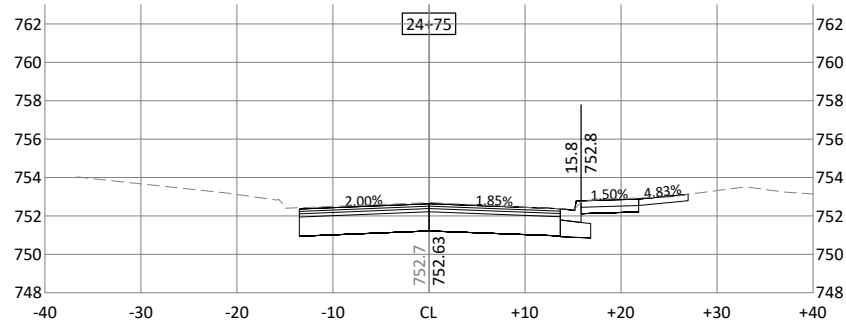
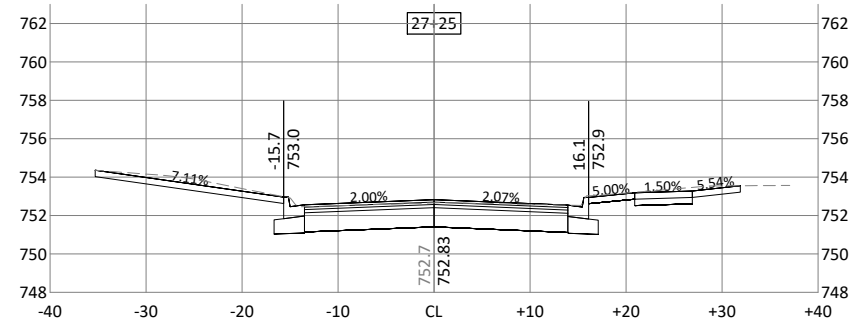
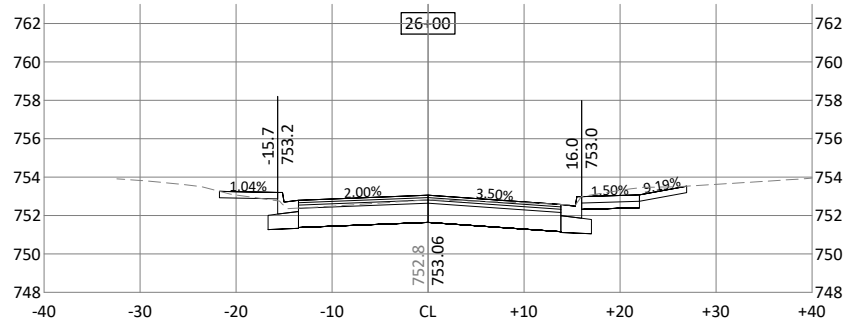
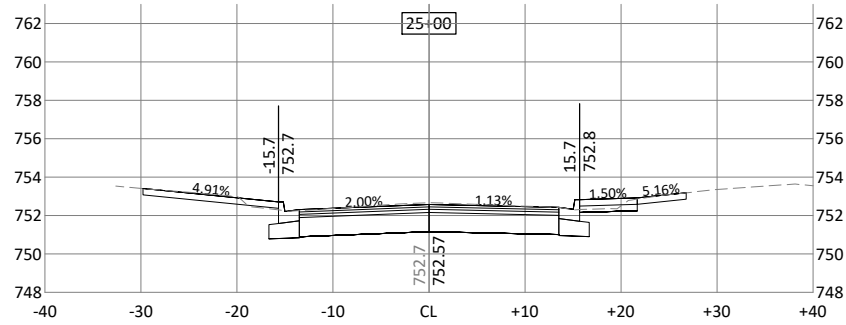
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57855  
DATE 03/28/2022



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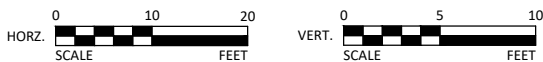
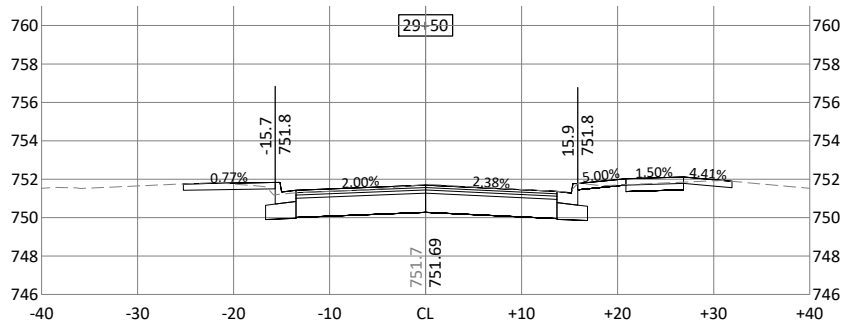
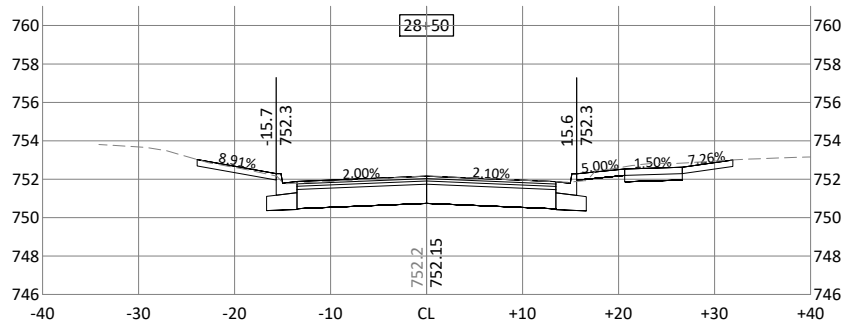
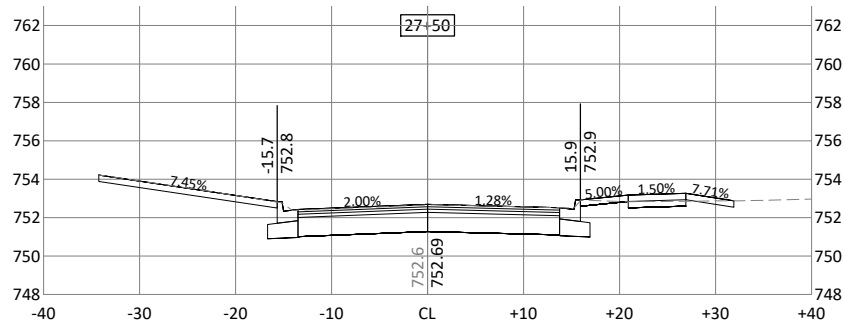
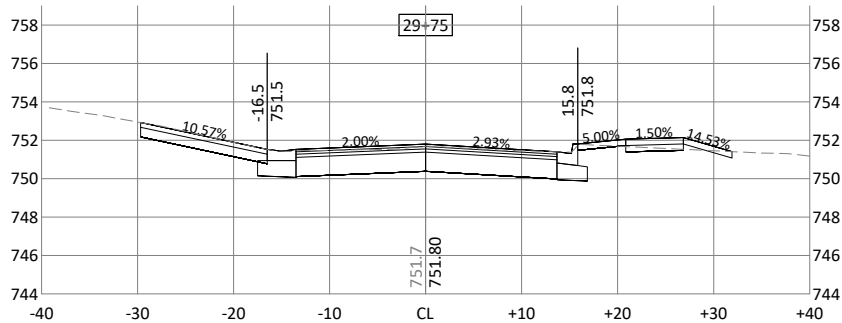
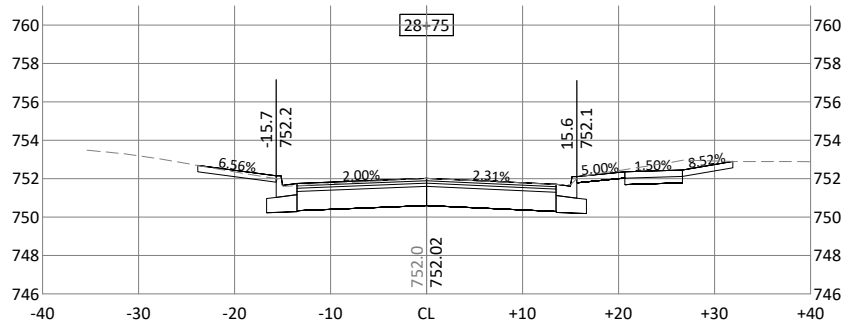
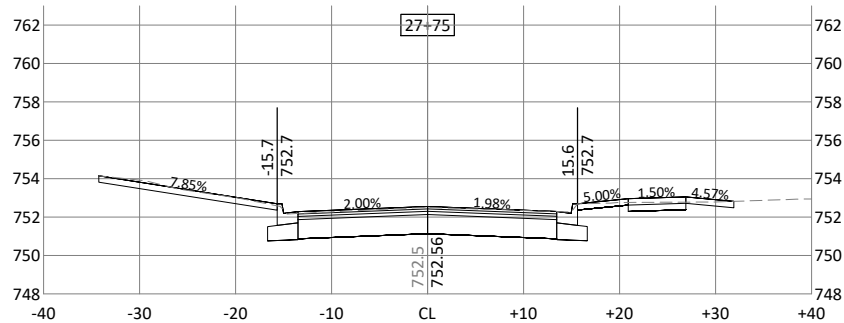
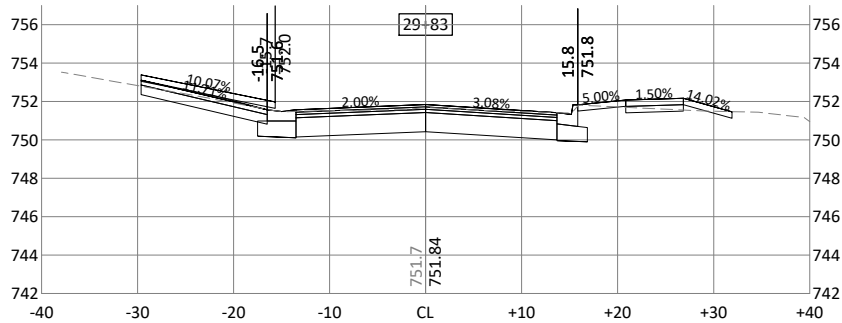
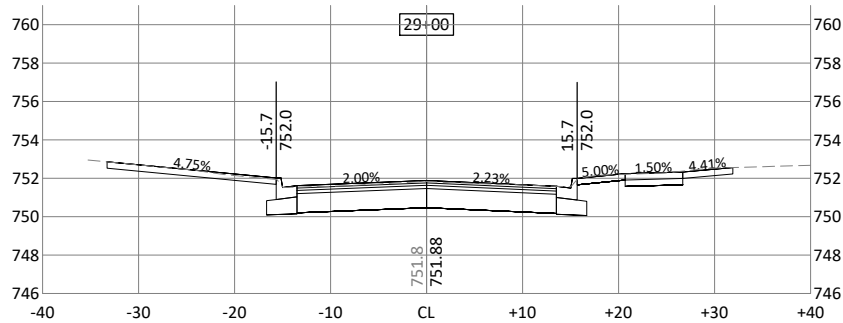
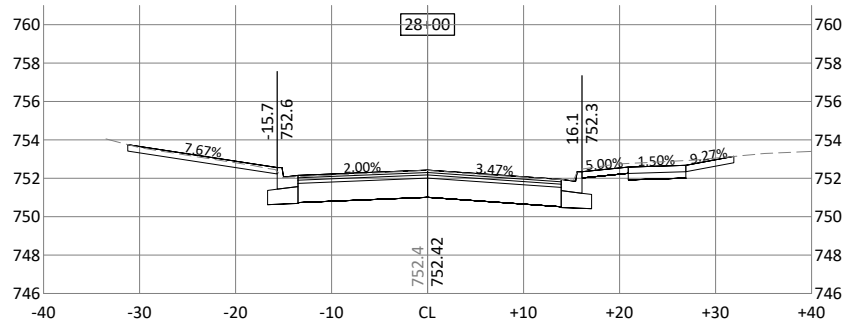
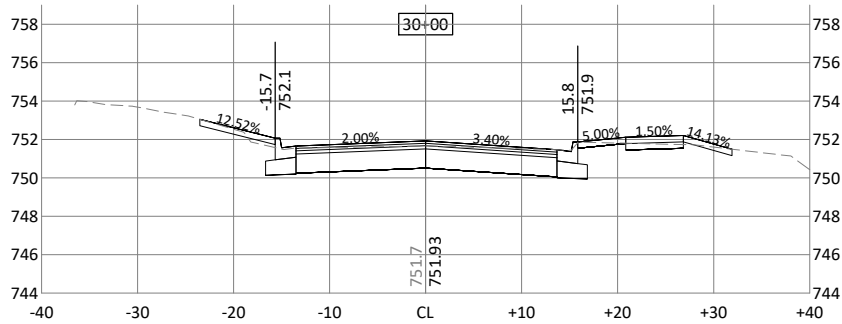
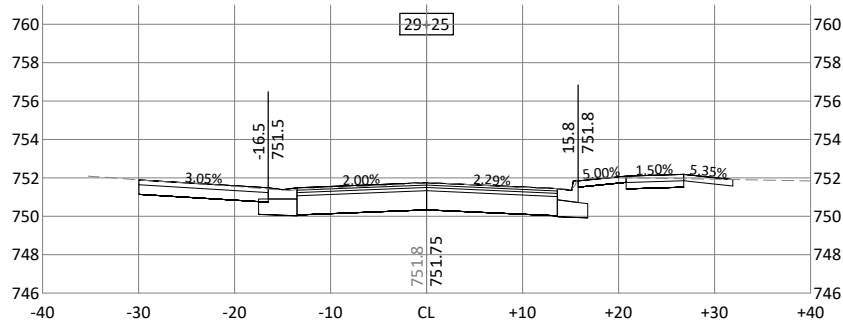
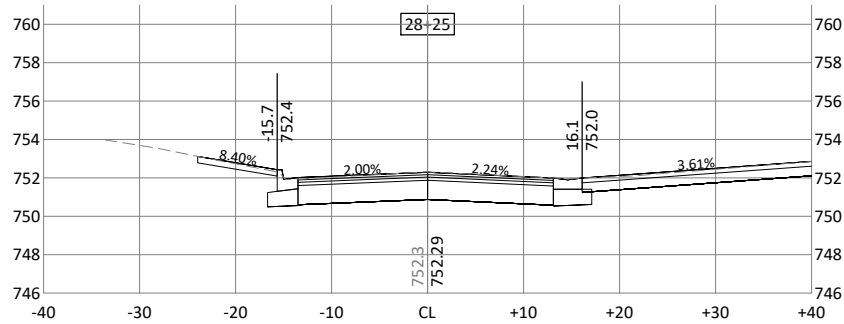
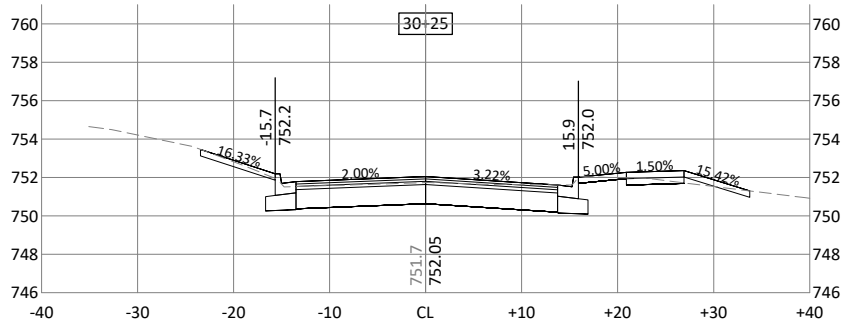
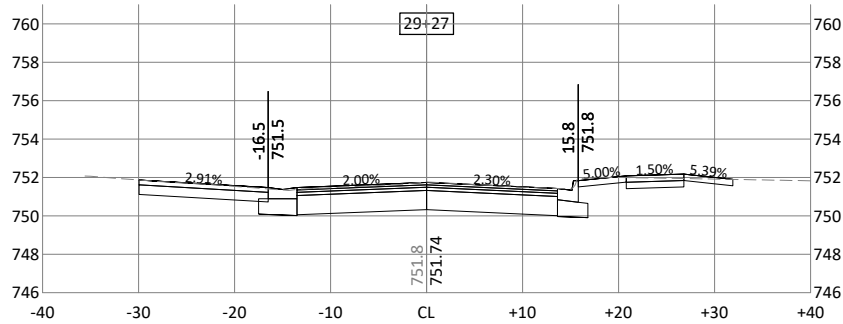
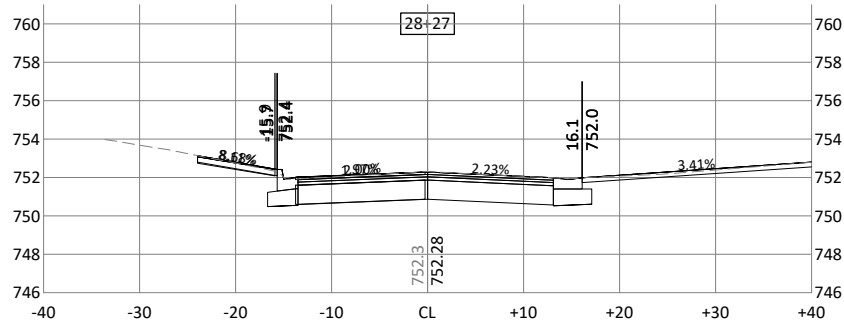


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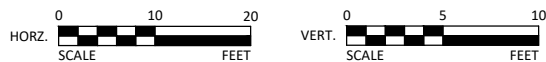
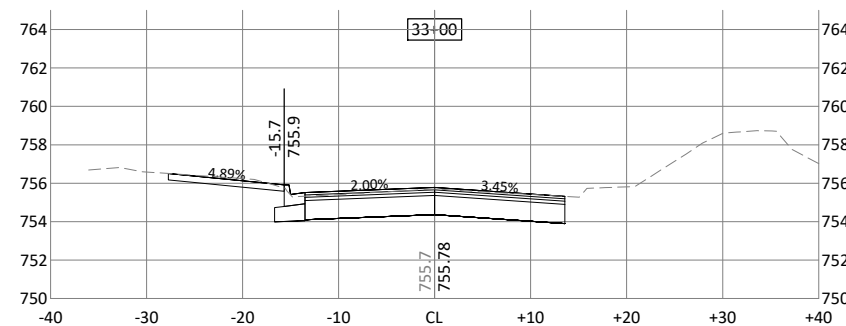
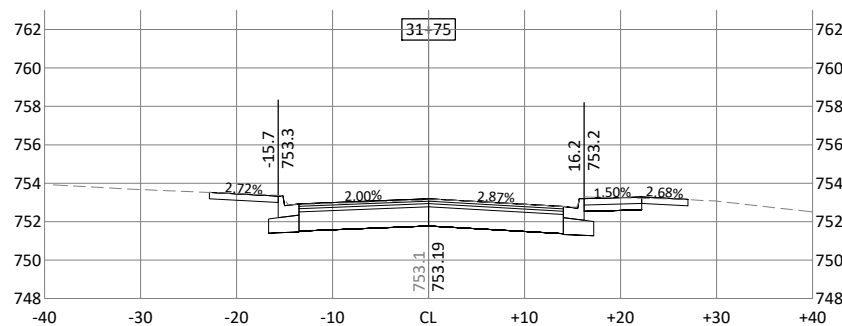
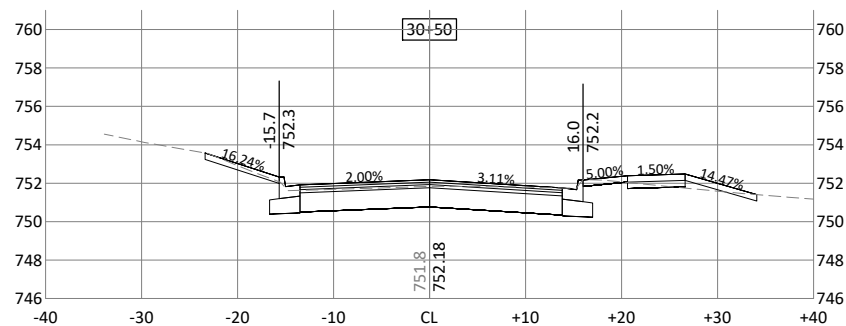
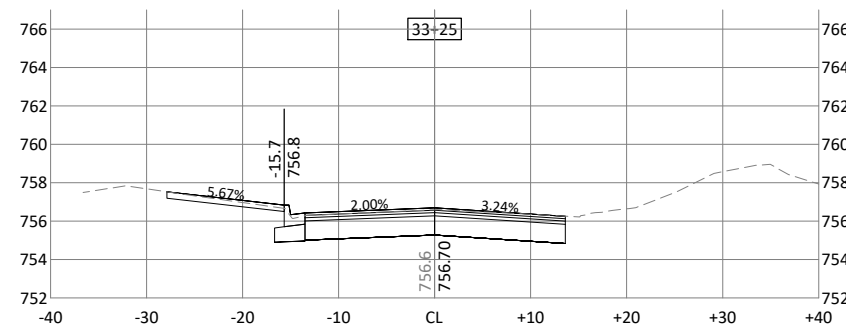
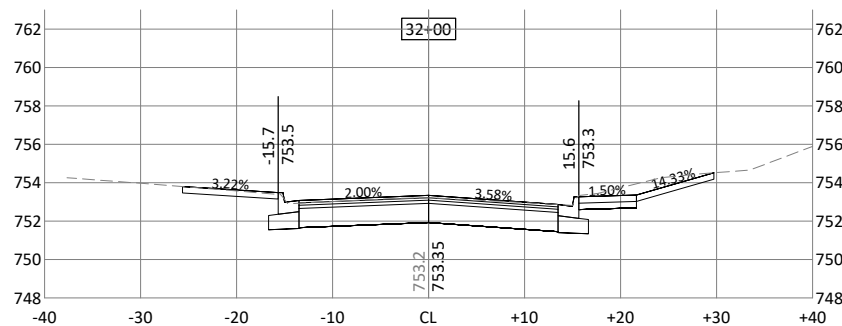
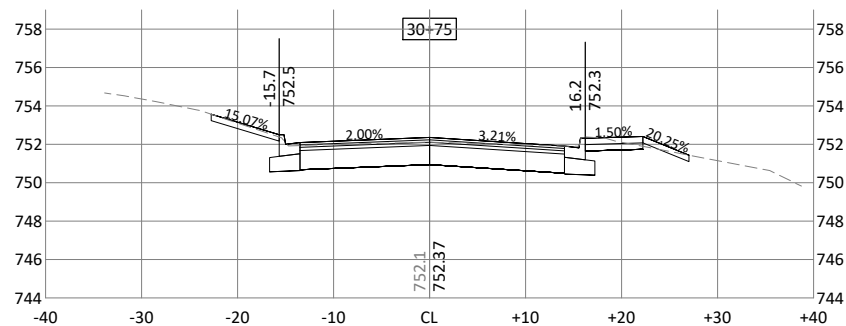
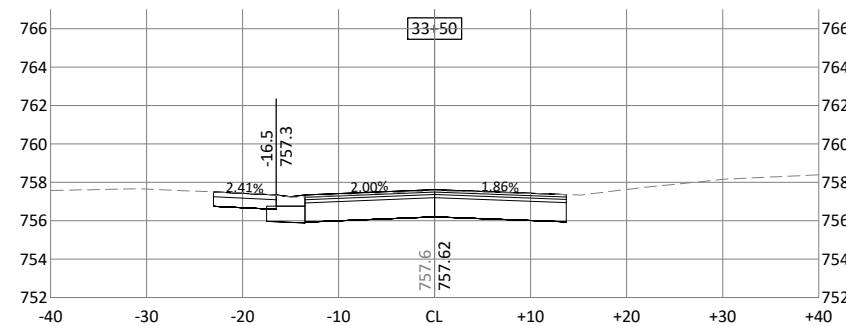
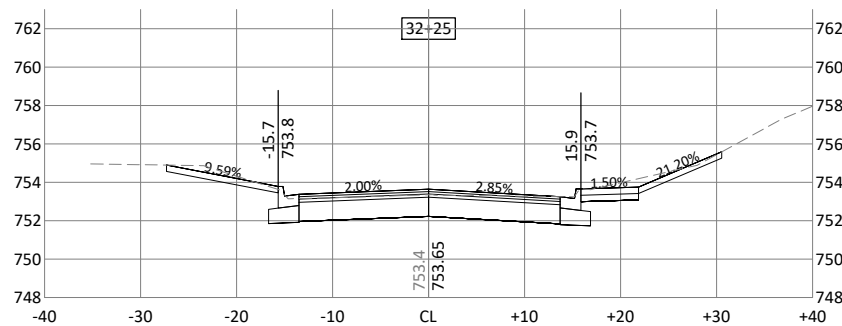
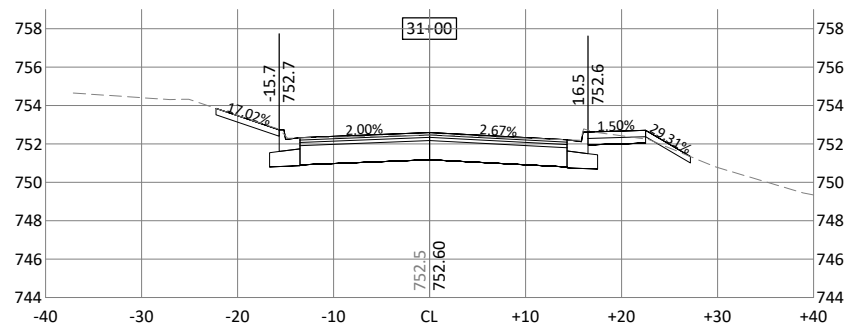
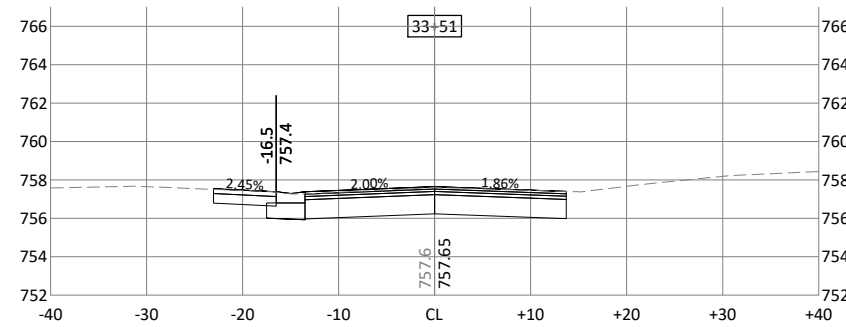
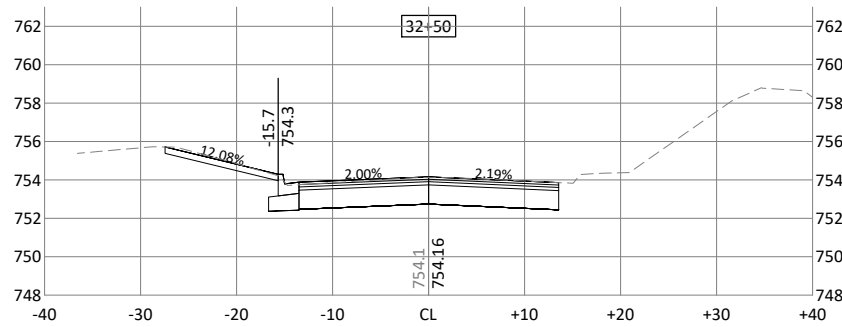
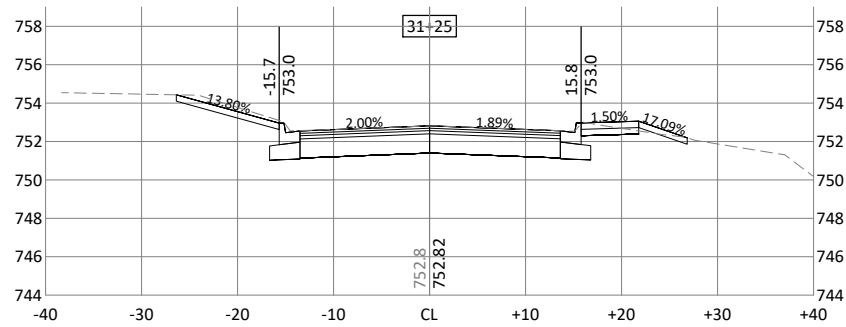
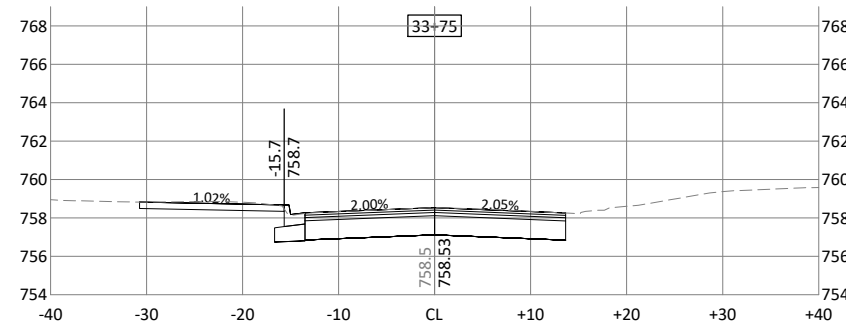
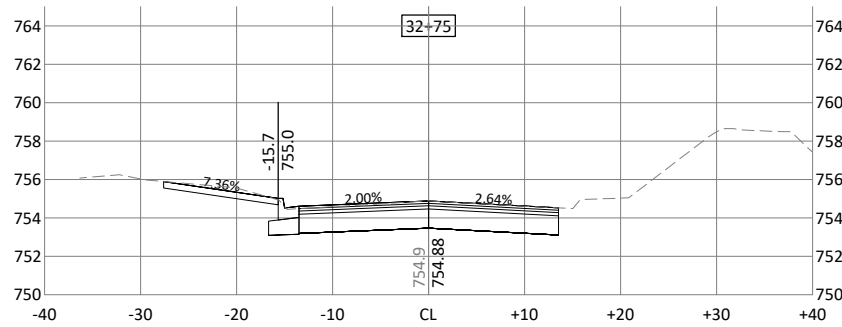
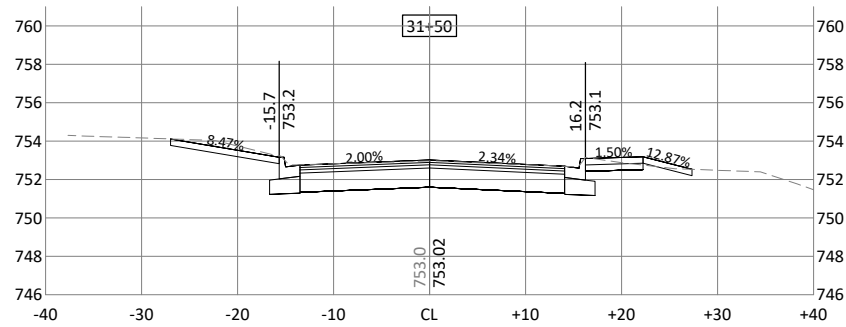


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LUKAS W. WHEELER  
LIC. NO. 57855 DATE 03/28/2022



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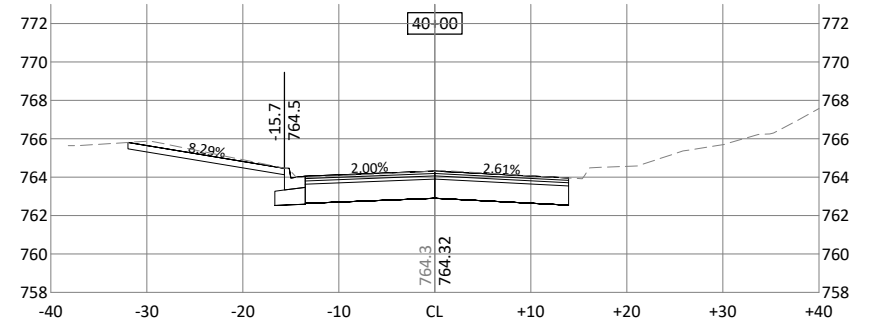
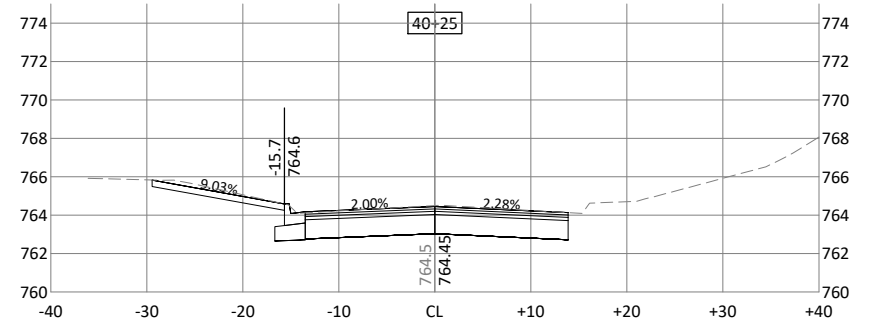
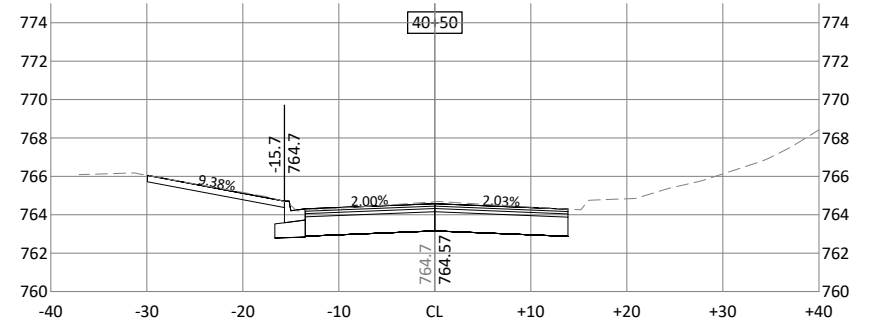
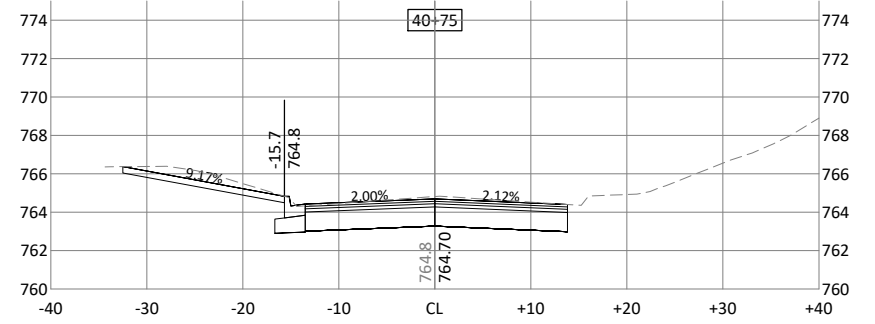
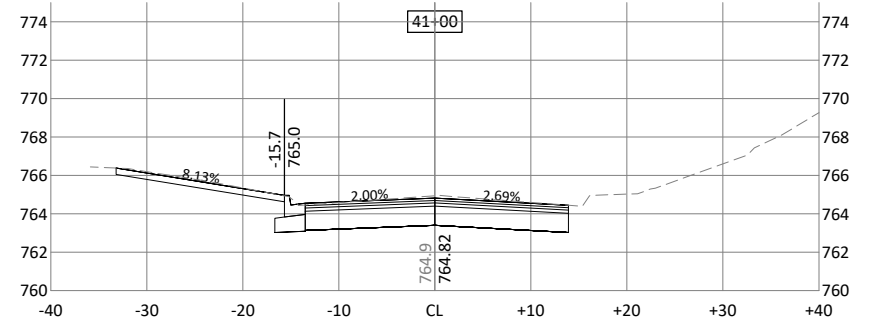
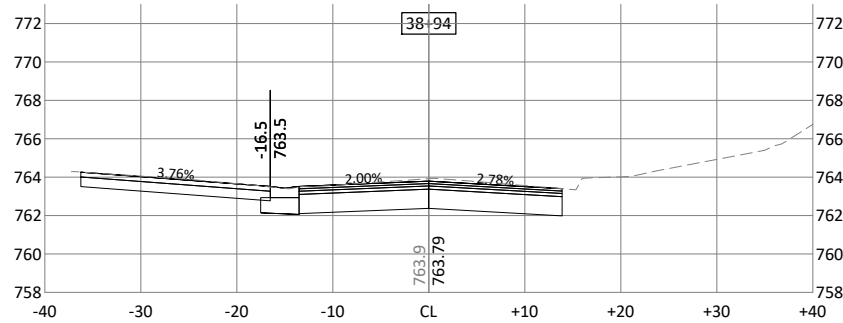
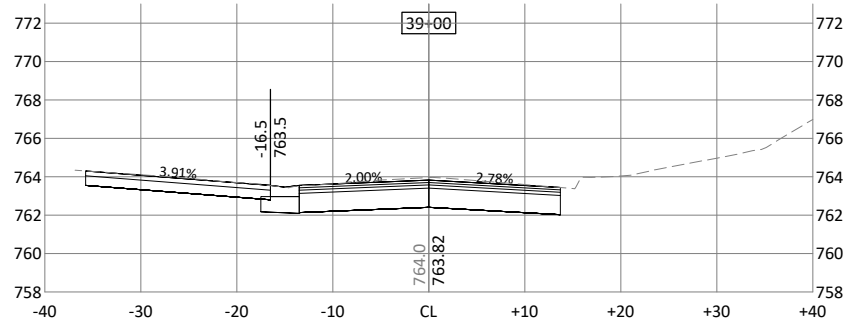
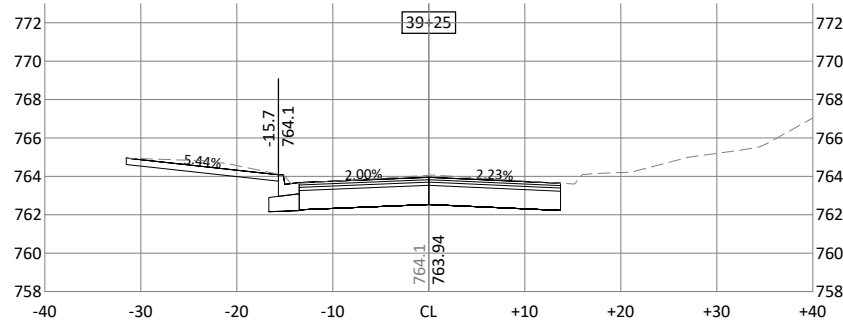
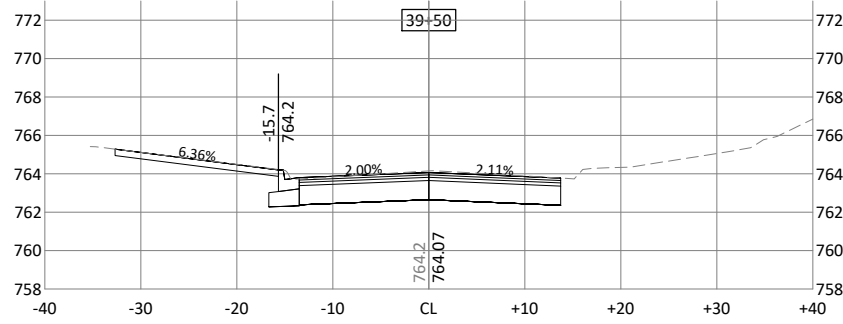
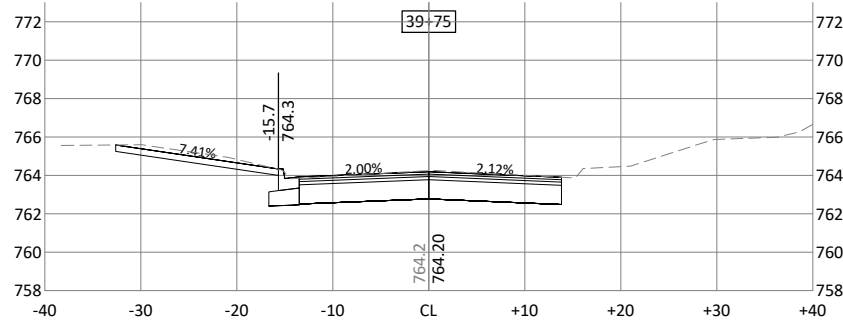
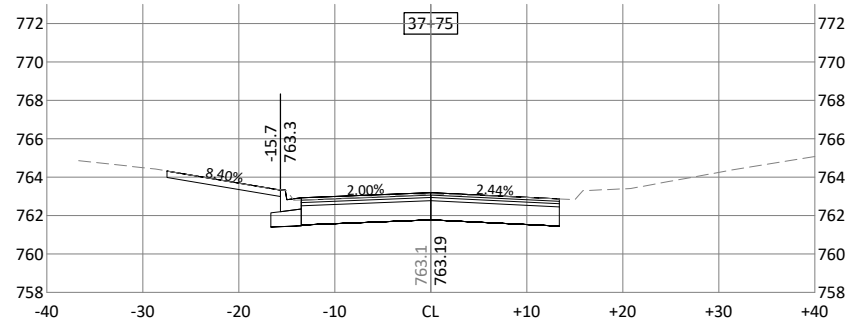
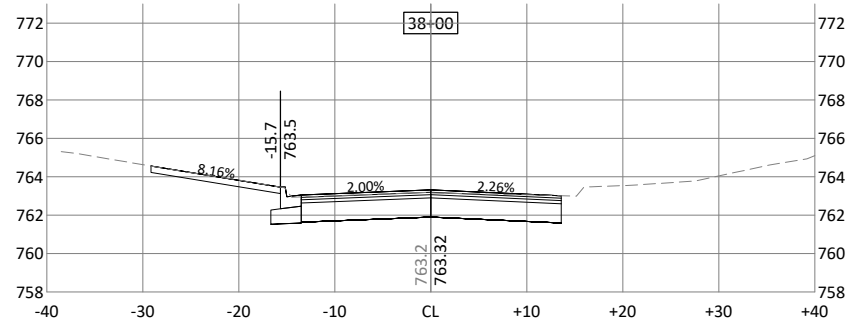
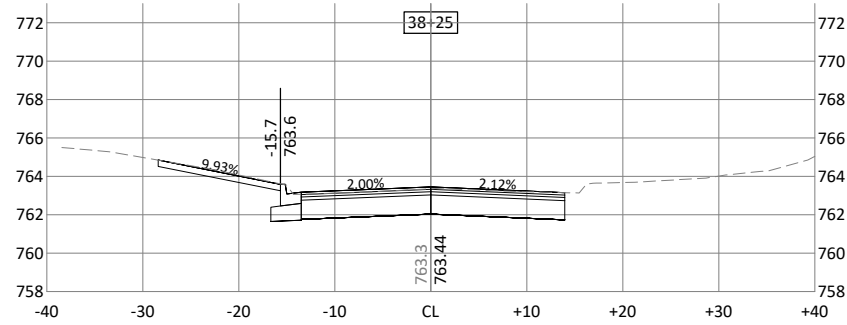
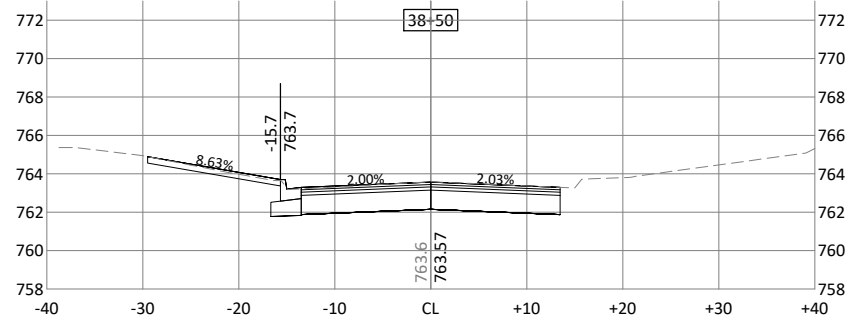
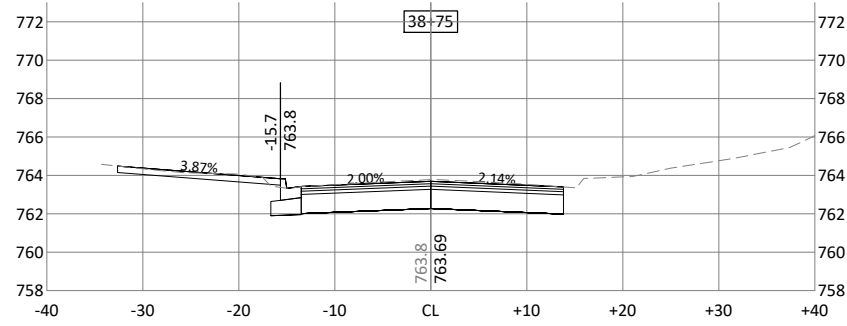


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*Lukas W. Wheeler*  
LUKAS W. WHEELER  
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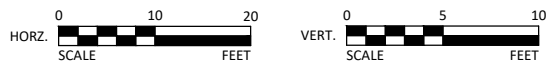
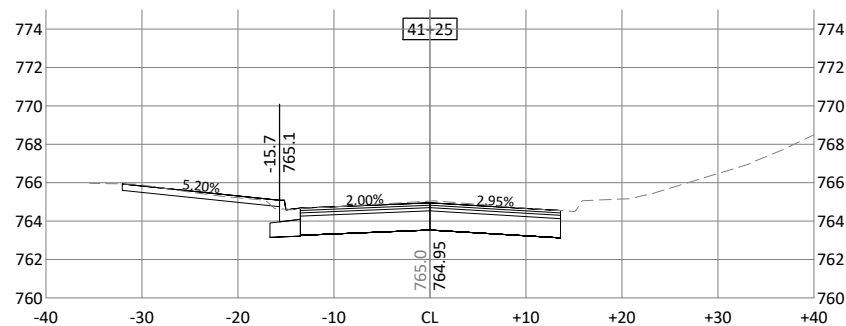
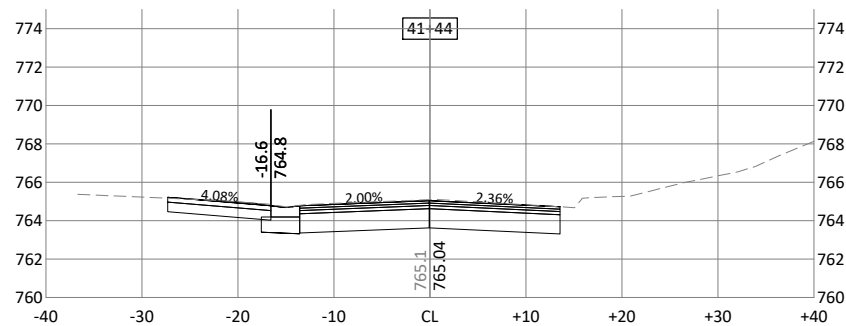
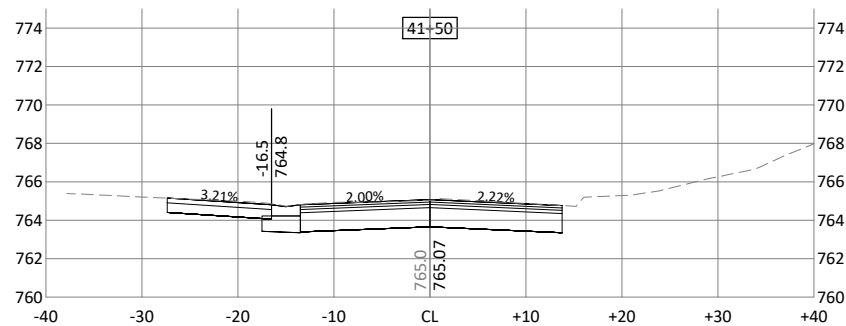
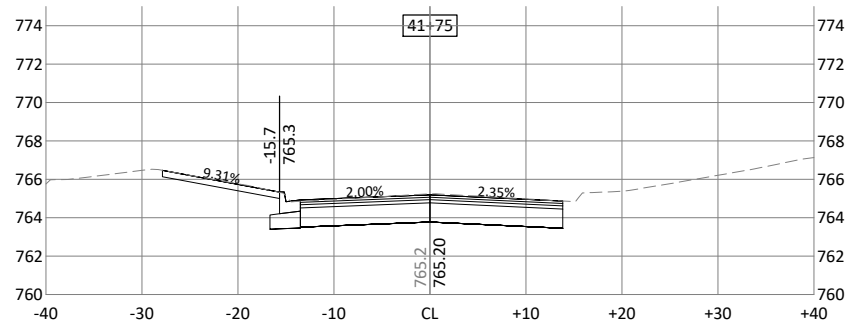
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LUKAS W. WHEELER 57855 DATE 03/28/2022



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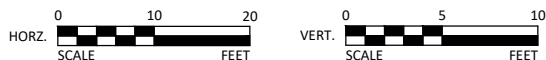
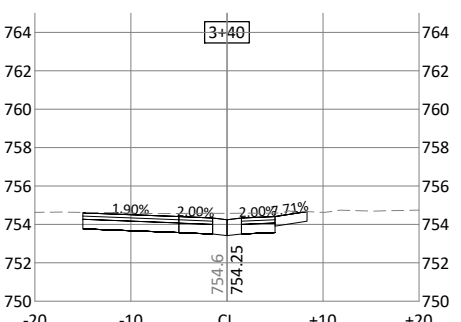
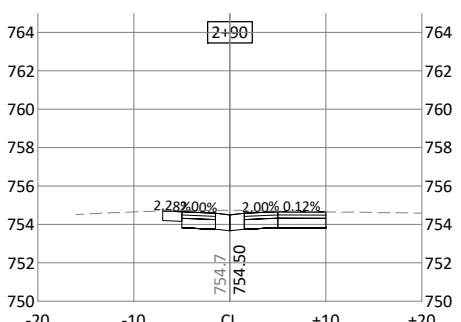
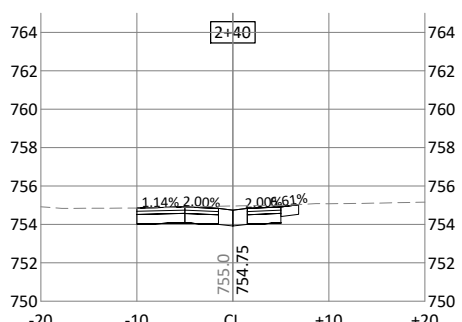
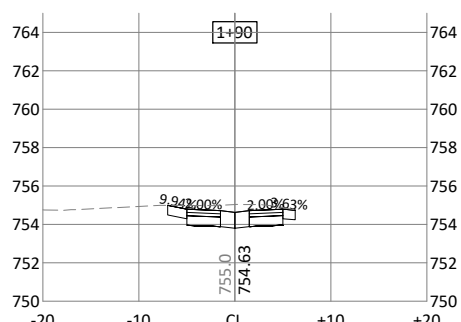
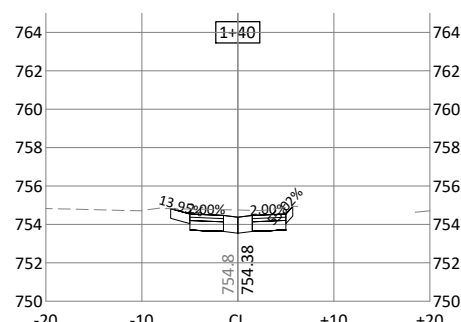
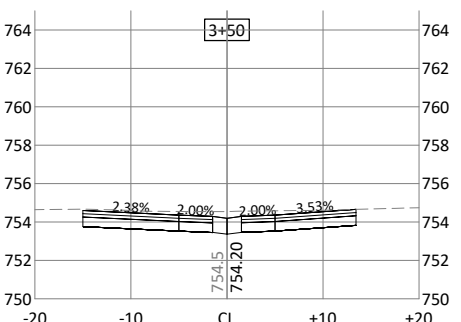
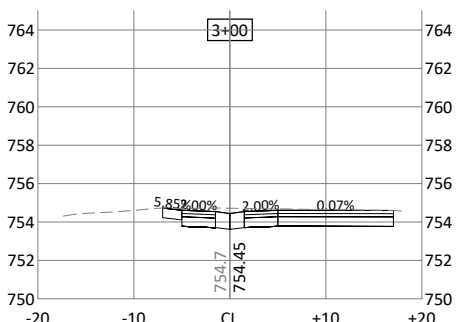
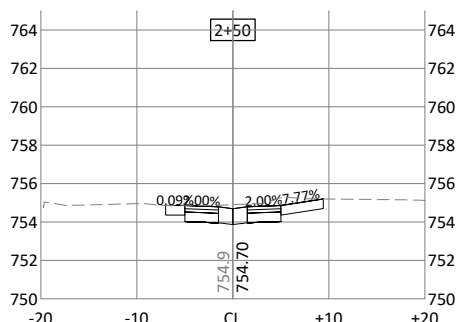
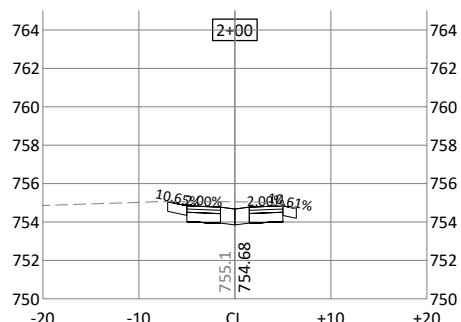
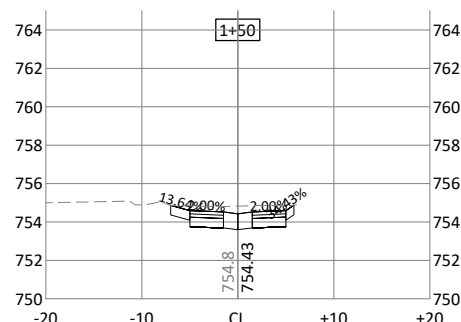
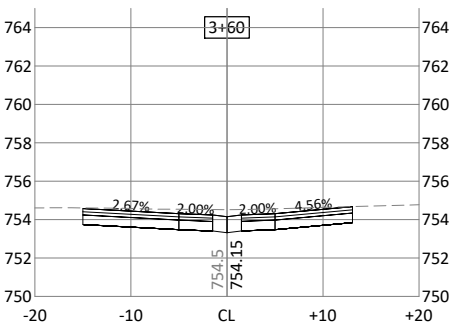
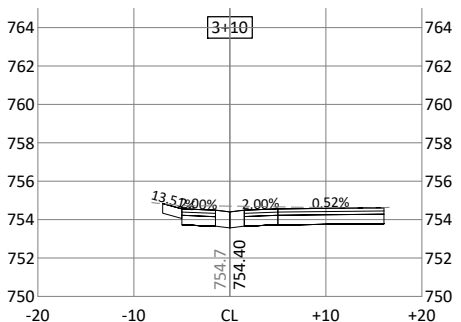
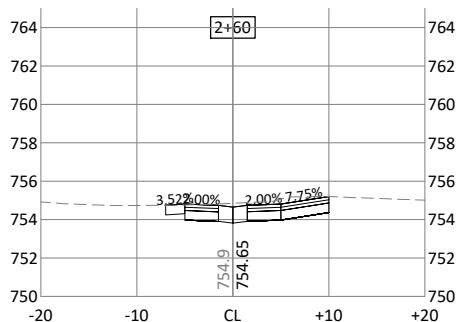
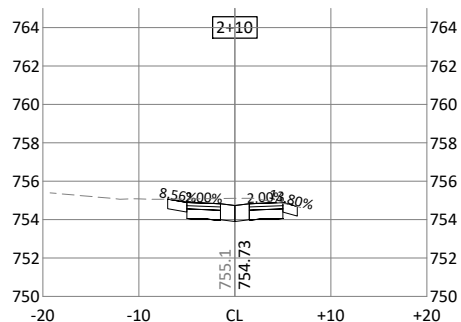
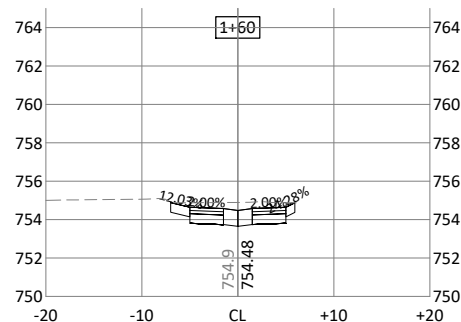
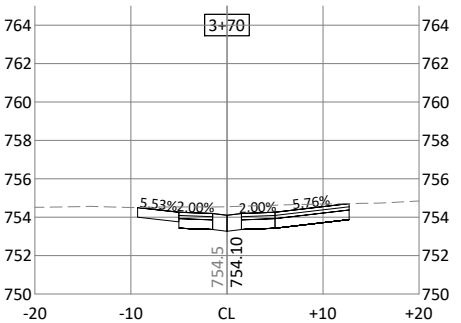
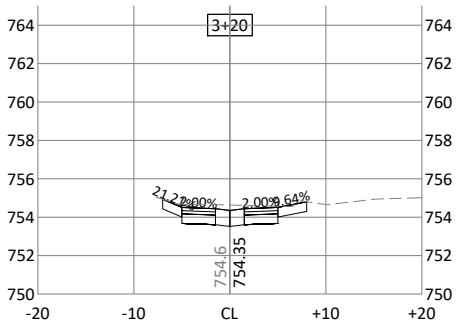
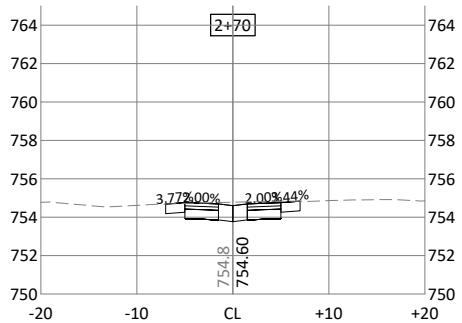
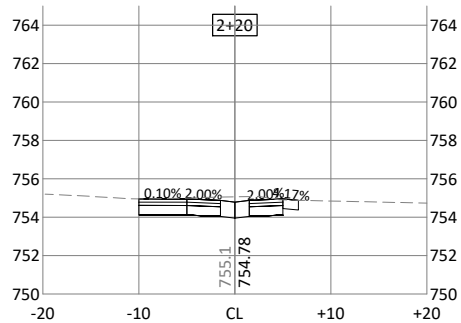
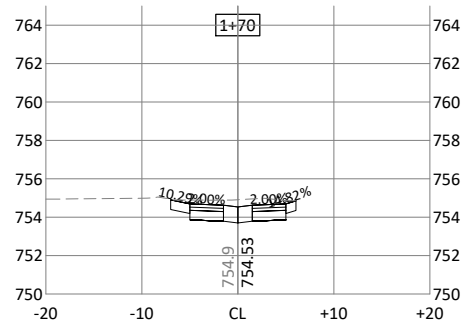
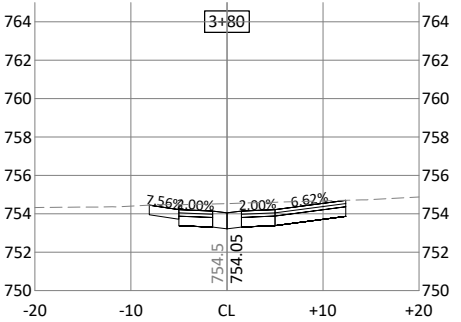
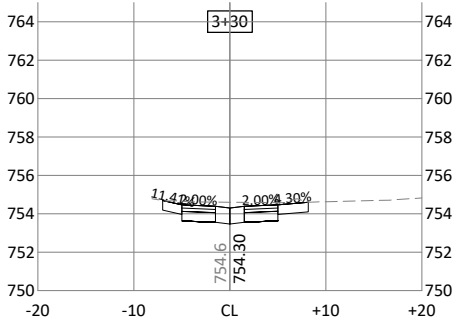
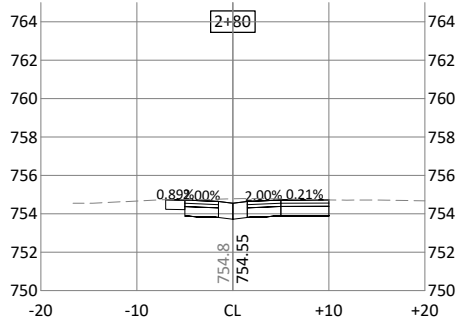
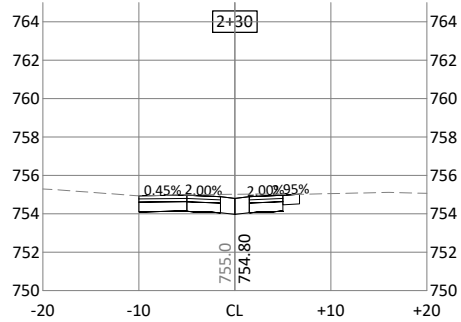
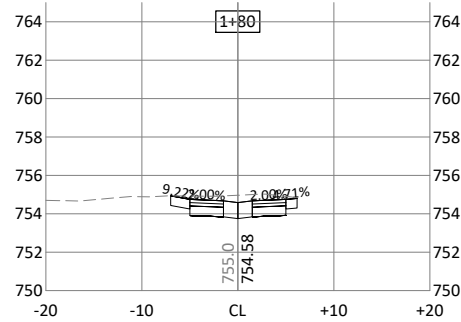


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CROSS SECTIONS - WHISPERING MEADOWS  
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*Lukas W. Wheeler*  
LUKAS W. WHEELER  
UC NO. 57855 DATE 03/28/2022



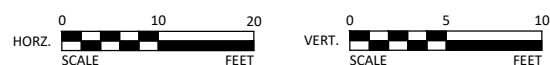
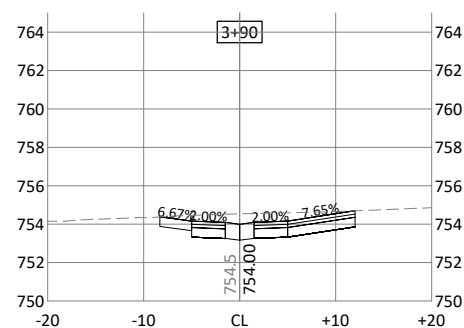
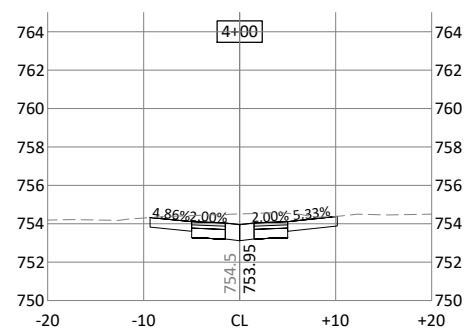
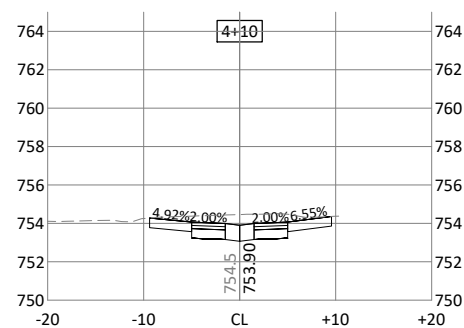
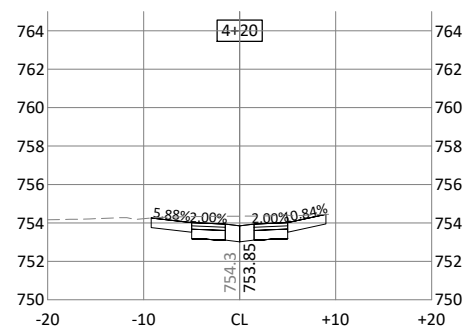
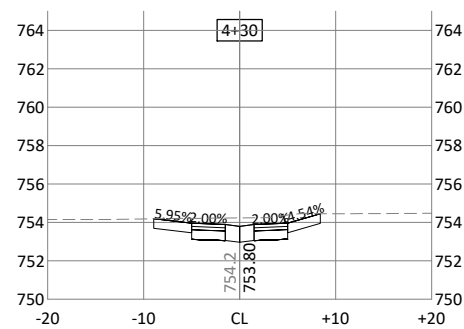
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Lukas W. Wheeler  
LUKAS W. WHEELER  
LIC NO. 57855 DATE 03/28/2022



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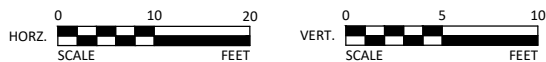
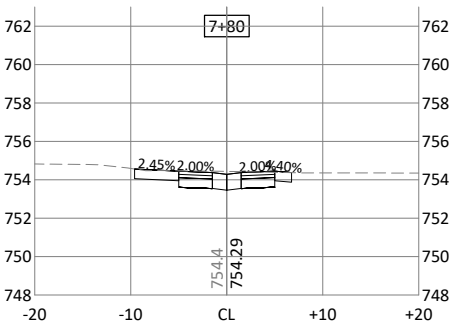
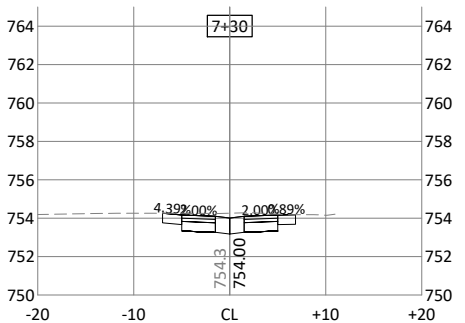
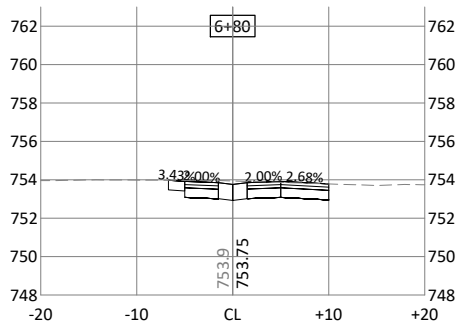
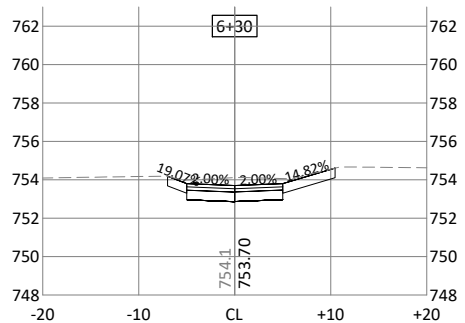
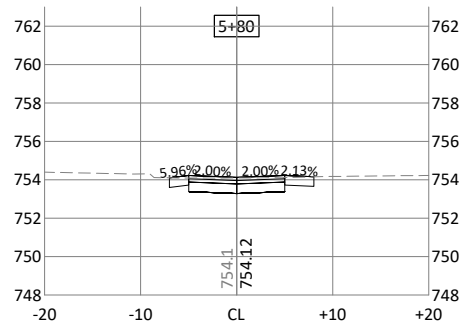
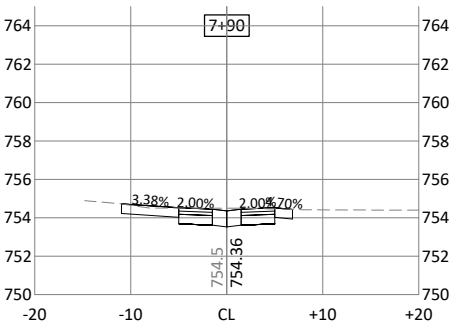
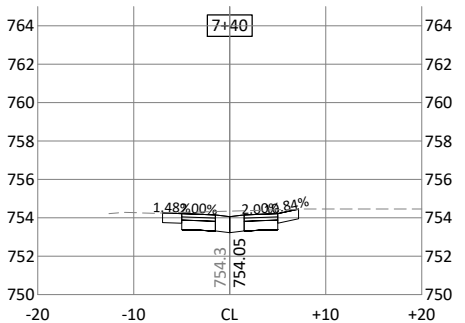
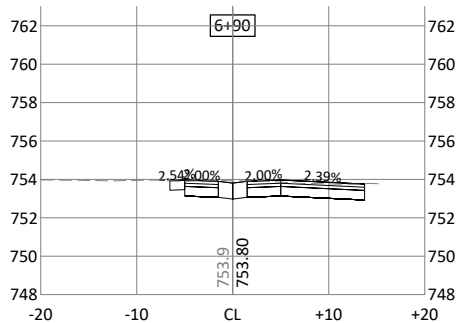
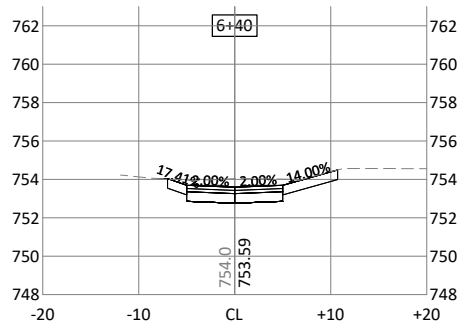
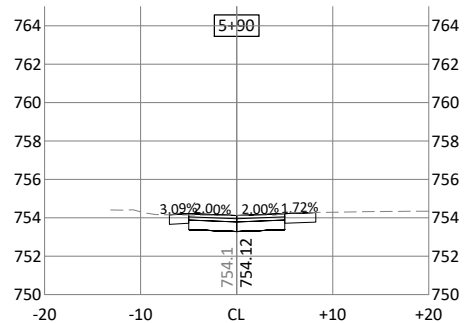
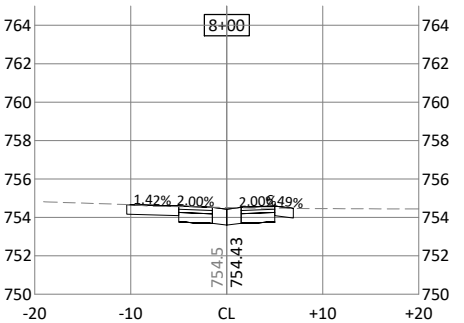
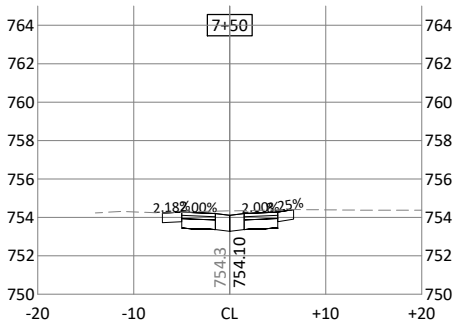
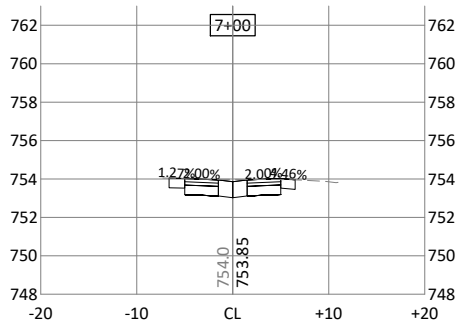
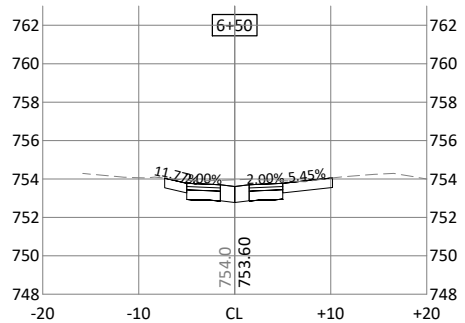
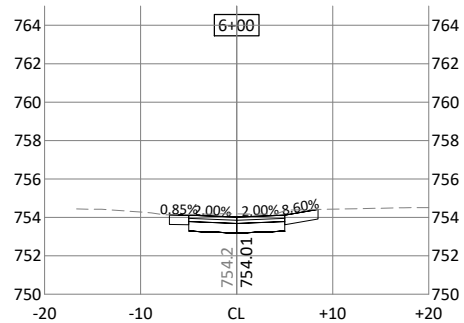
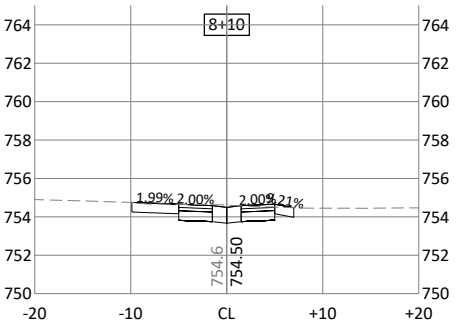
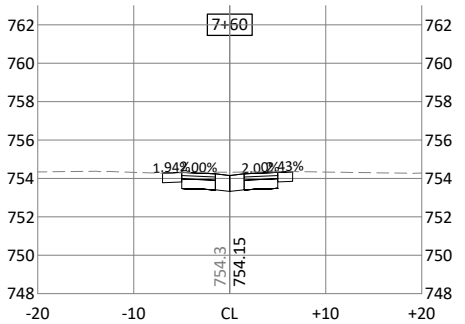
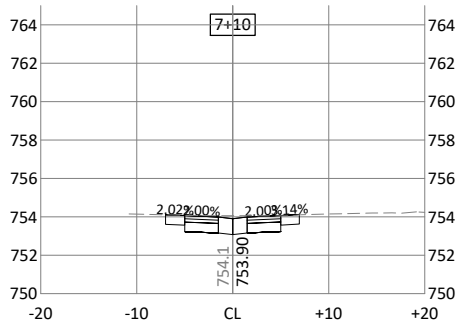
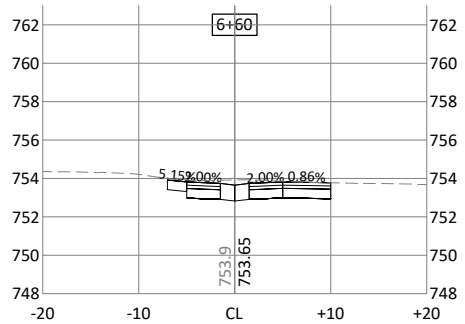
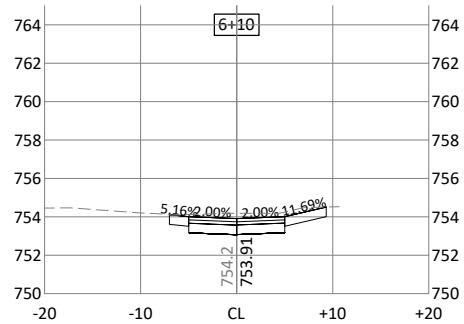
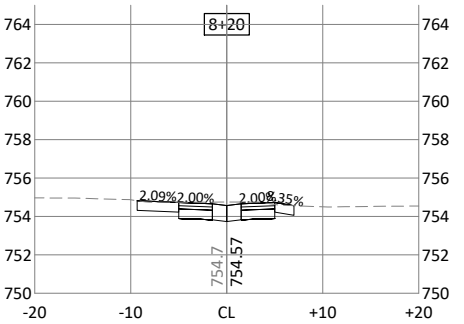
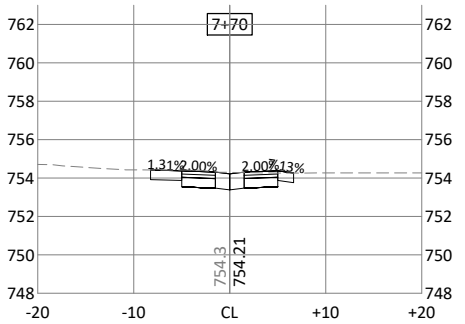
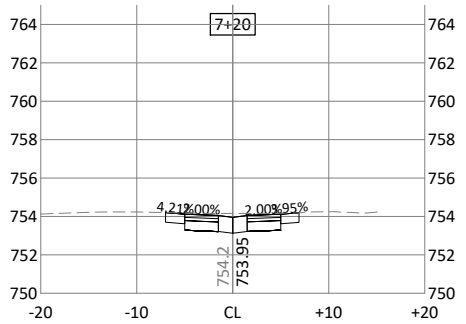
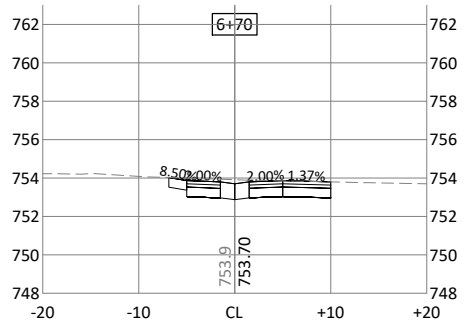
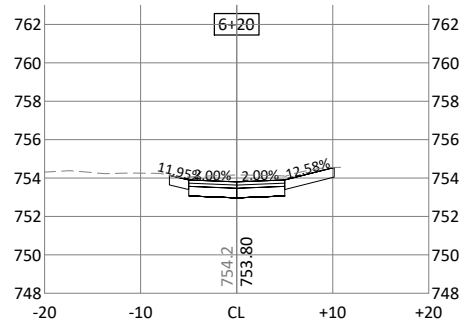
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CROSS SECTIONS - ALLEYS  
MERTENS ST TO WOOD ST

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*Lukas W. Wheeler*  
LUKAS W. WHEELER  
LIC. NO. 57855 DATE 03/28/2022



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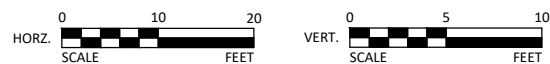
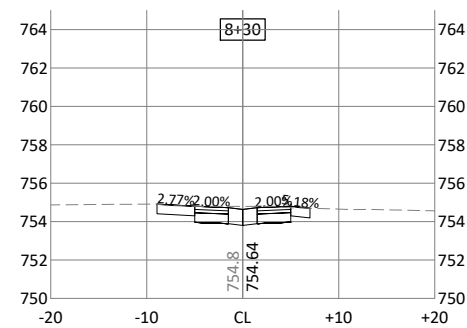
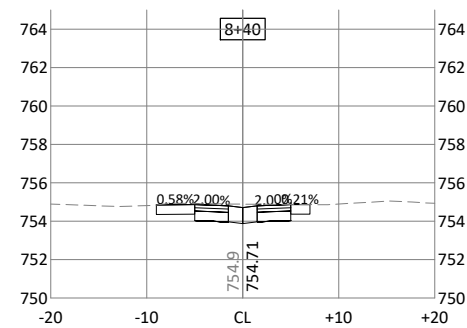
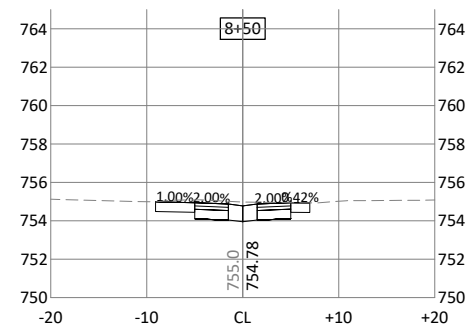
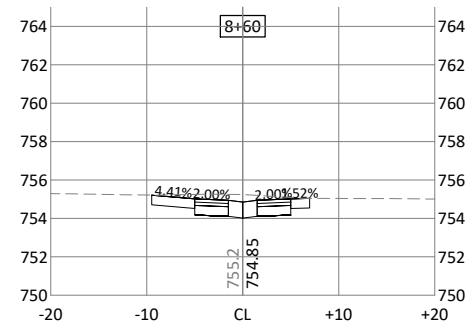
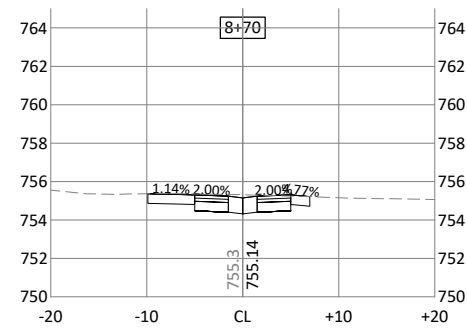
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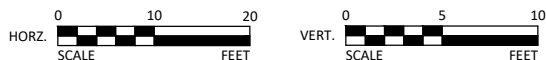
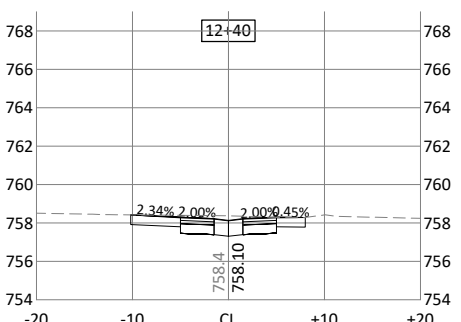
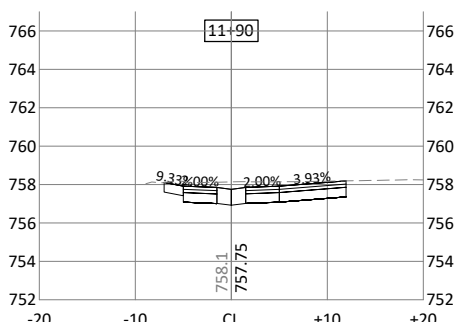
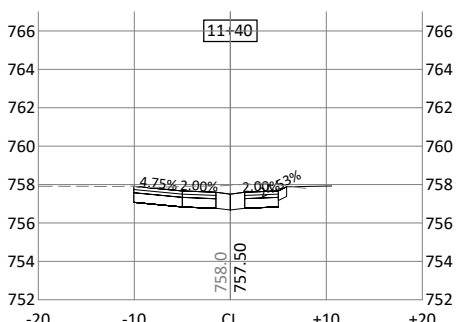
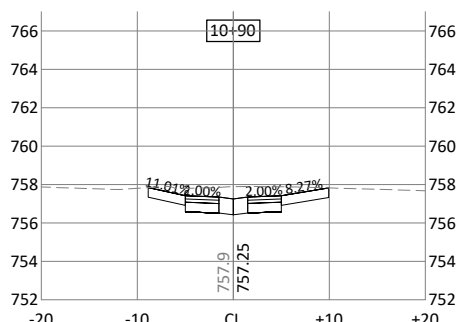
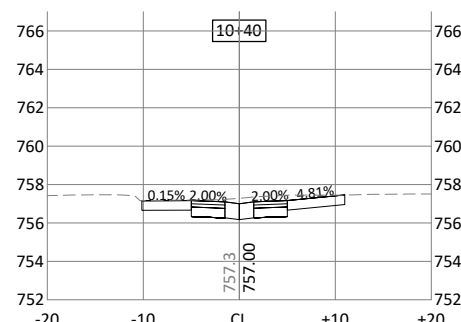
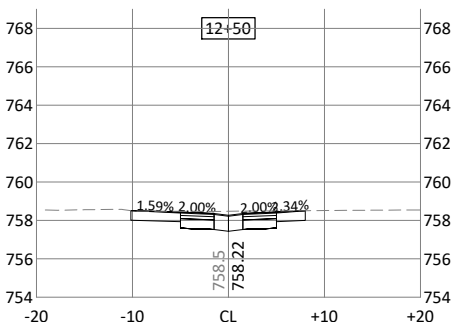
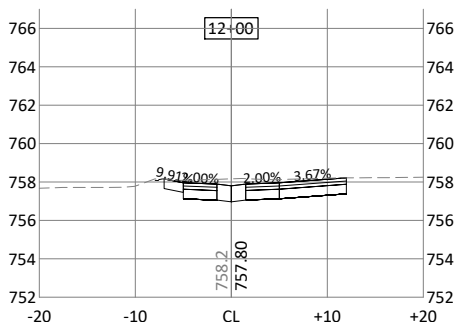
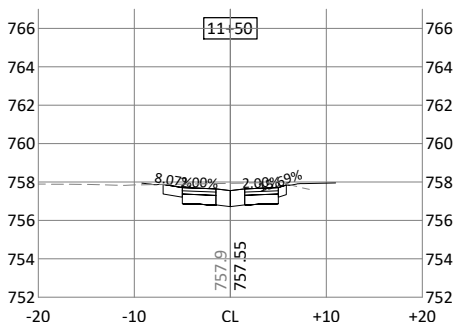
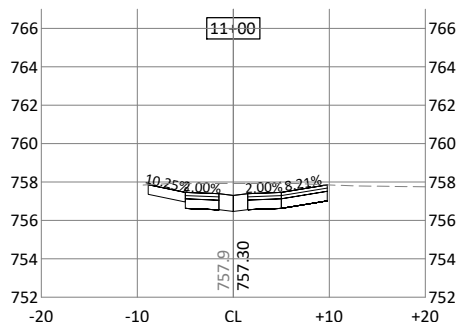
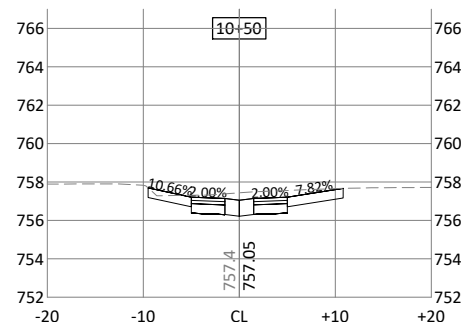
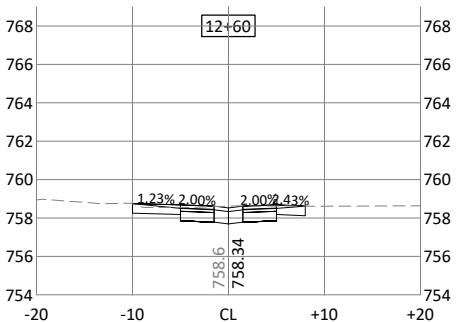
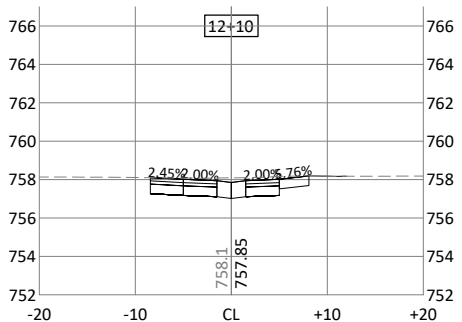
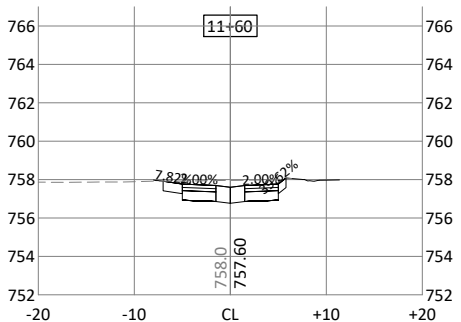
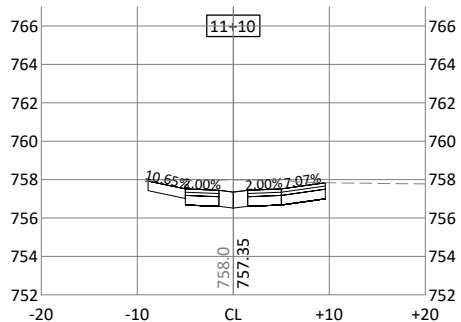
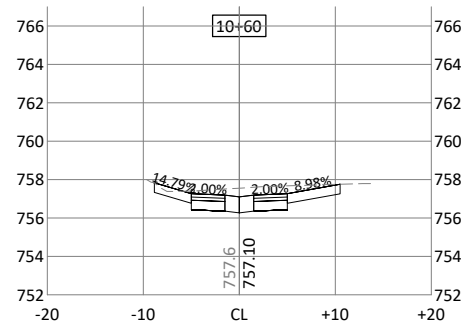
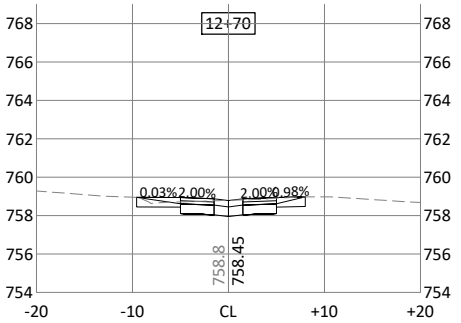
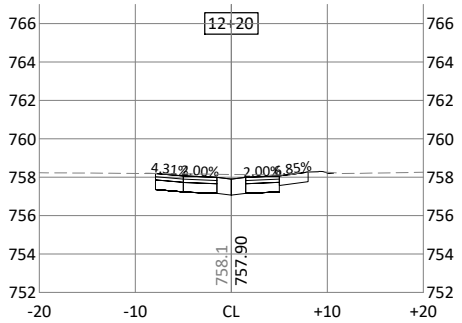
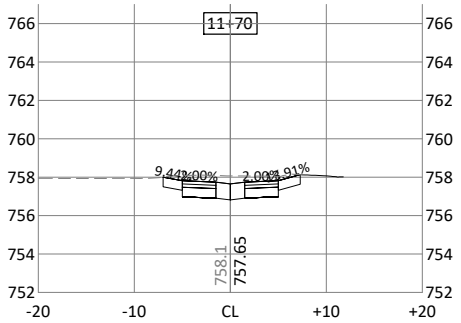
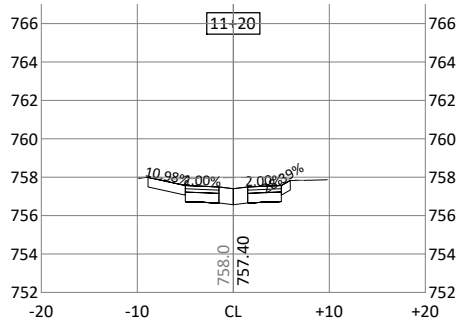
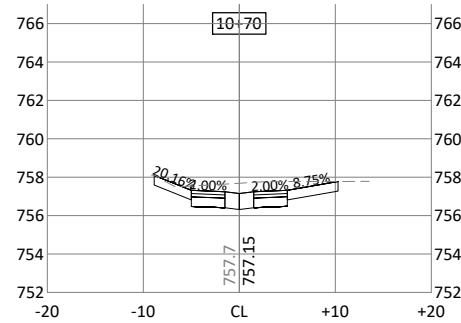
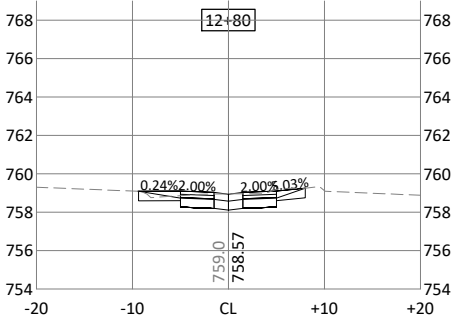
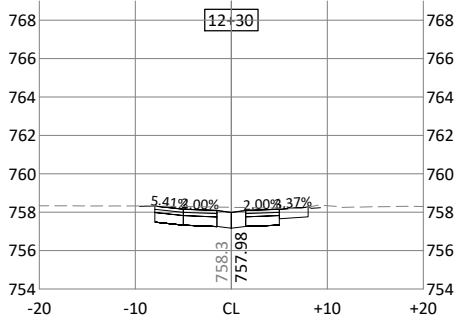
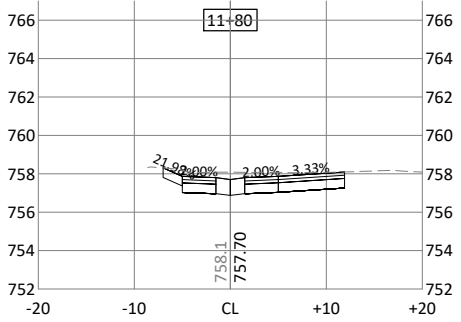
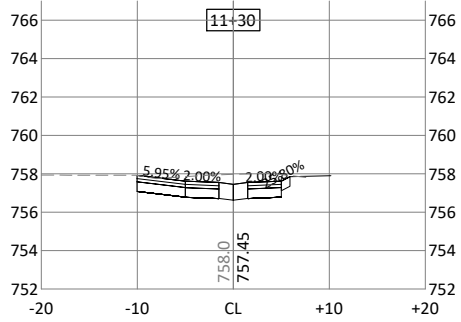
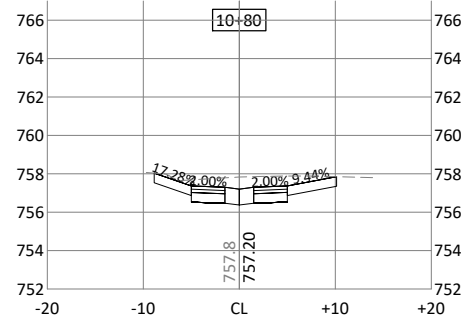
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**CROSS SECTIONS - ALLEYS**  
**WOOD ST TO WEST ST**

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LUKAS W. WHEELER  
LIC. NO. 57855 DATE 03/28/2022



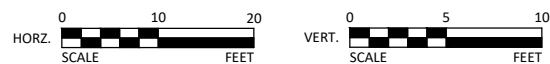
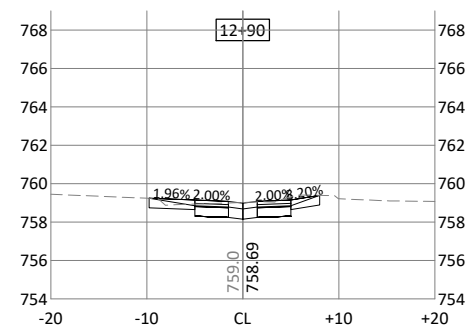
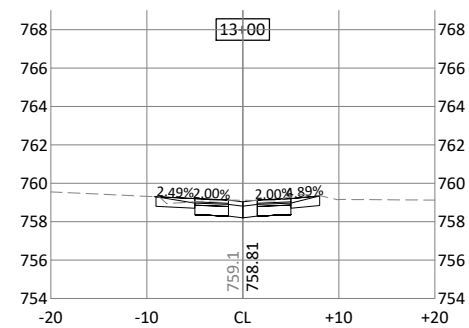
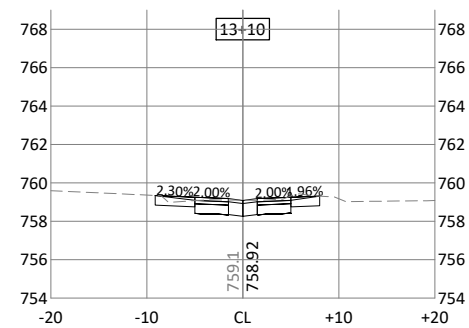
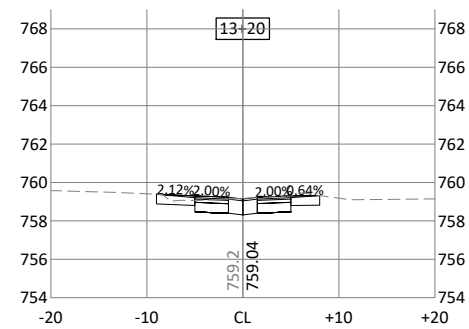
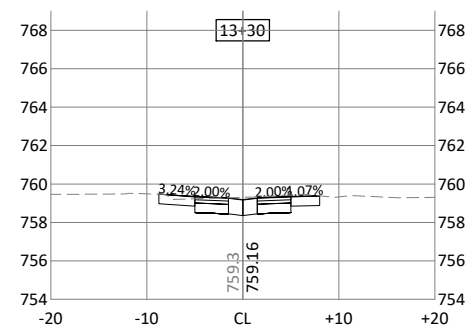
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LUKAS W. WHEELER

LIC NO. 57855 DATE 03/28/2022



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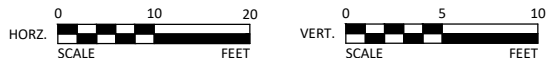
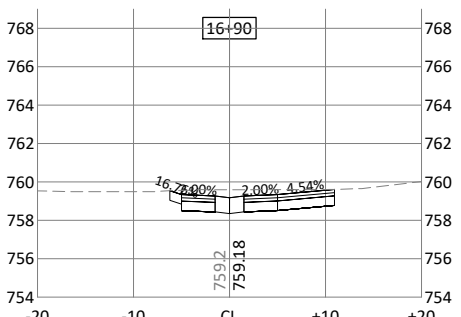
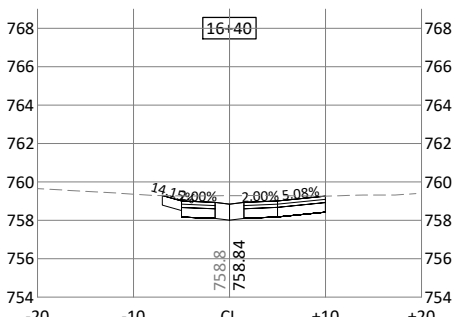
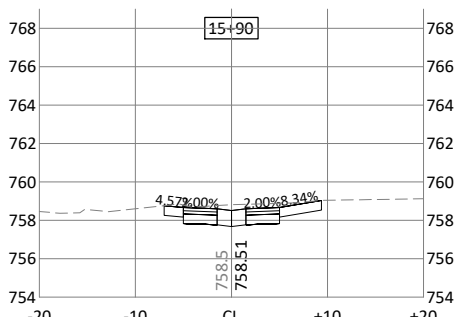
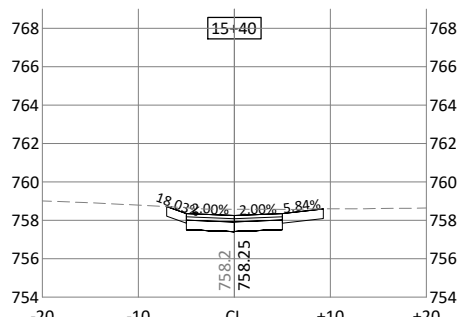
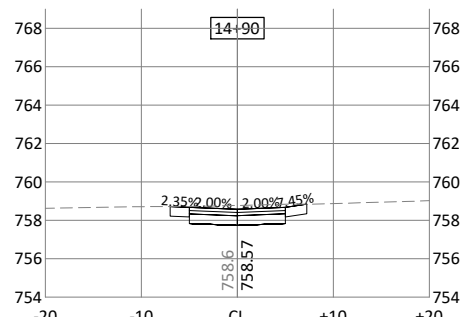
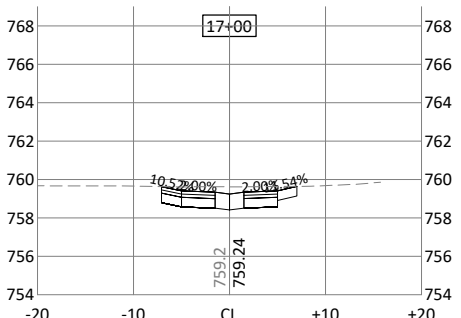
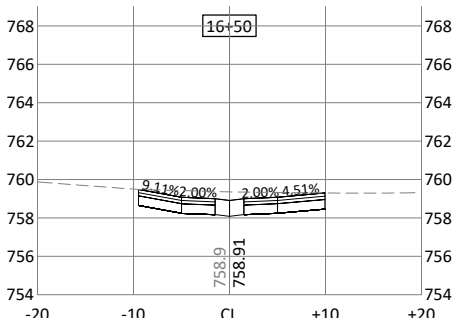
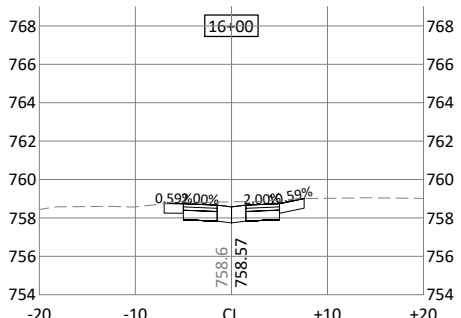
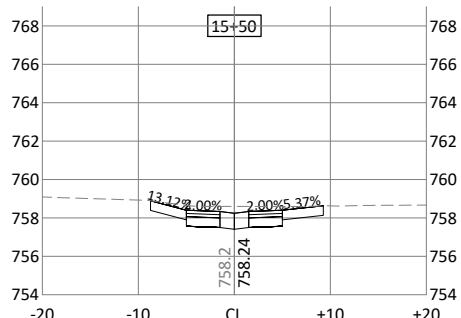
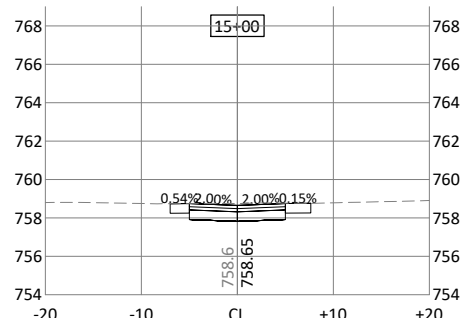
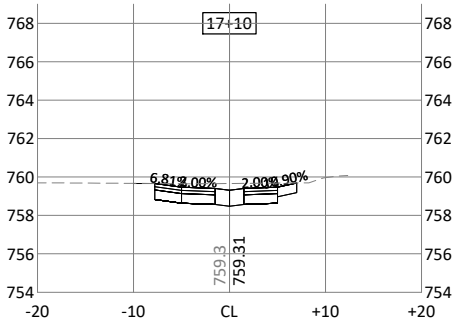
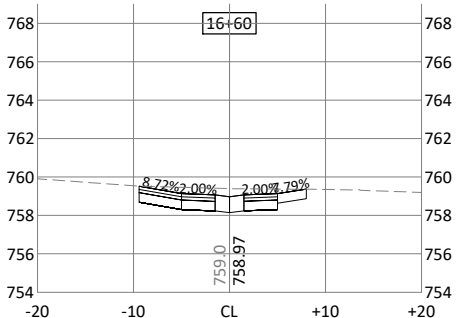
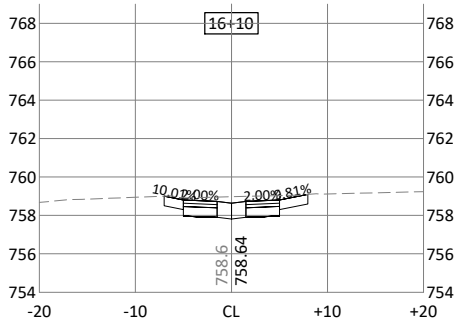
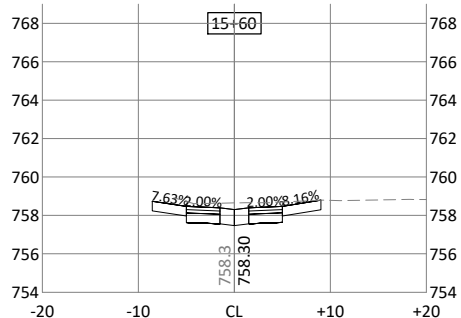
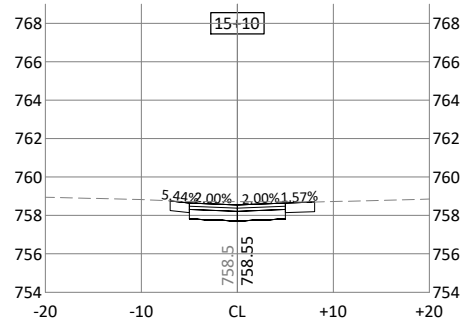
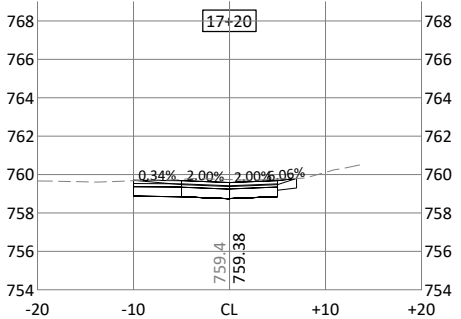
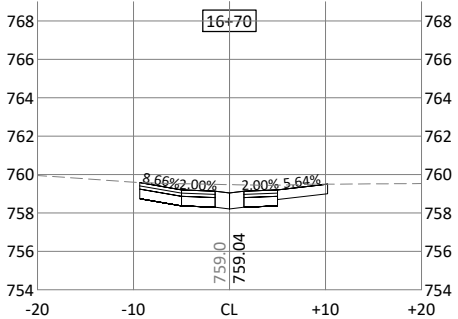
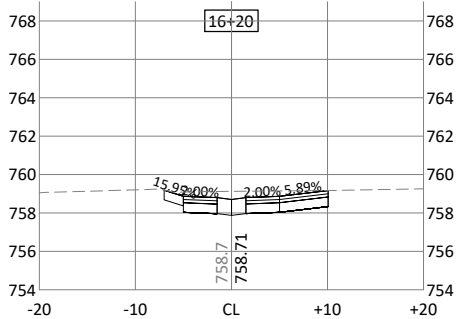
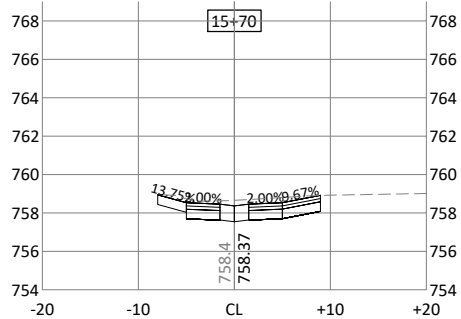
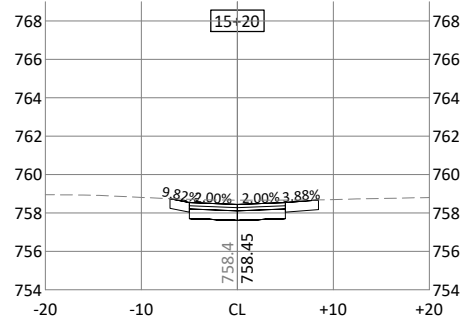
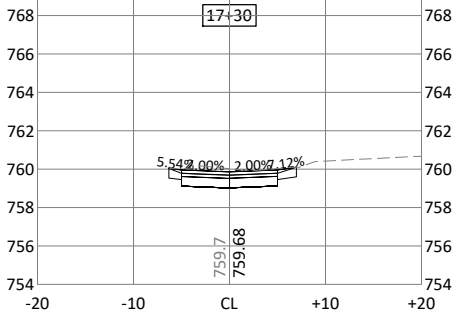
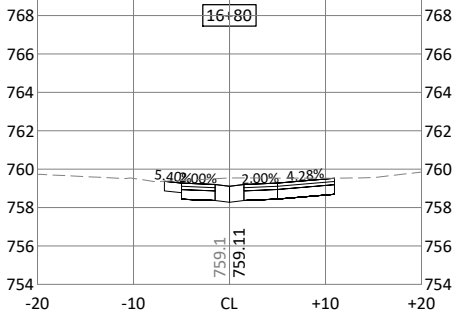
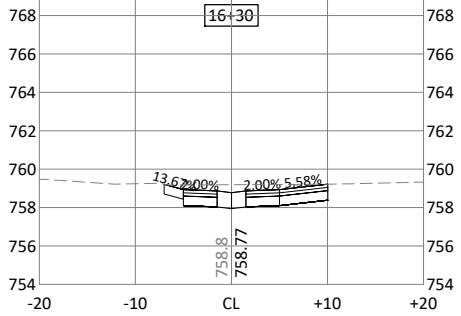
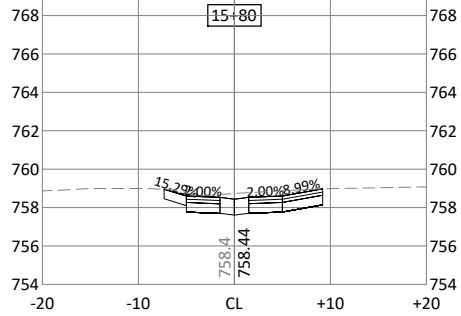
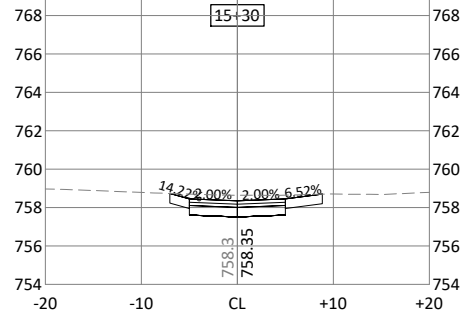
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*Lukas W. Wheeler*  
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DATE 03/28/2022



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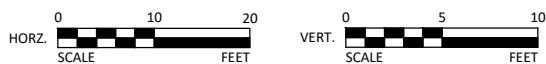
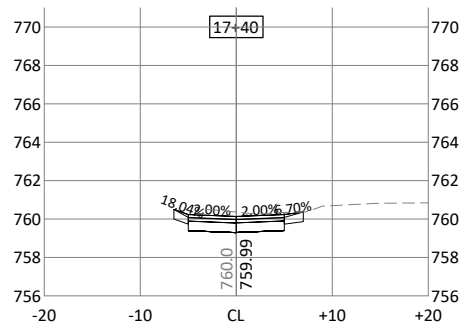
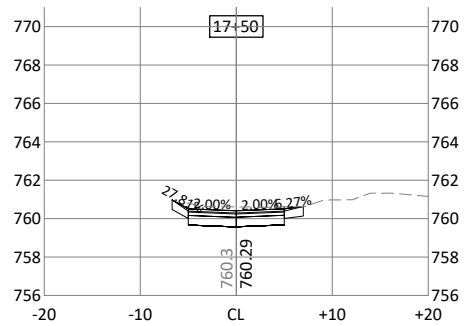
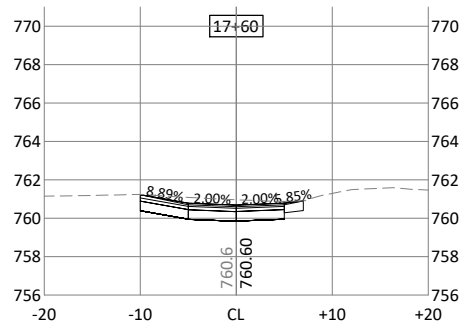
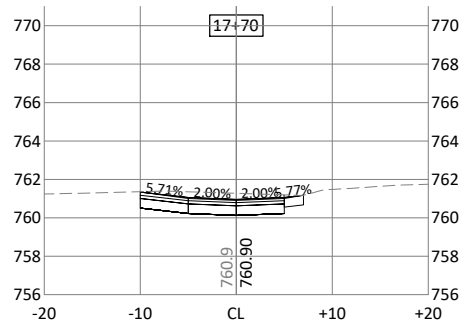
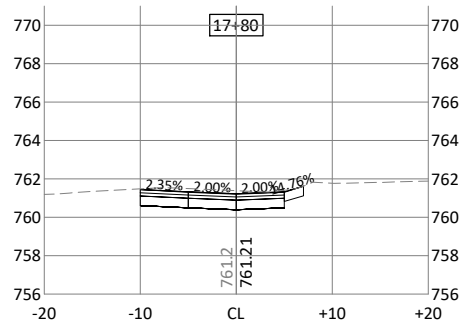


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